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National Gay Men's HIV/AIDS Awareness Day — September 27, 2017

National Gay Men's HIV/AIDS Awareness Day is observed each year on September 27 to direct attention to the ongoing and disproportionate impact of human immunodeficiency virus infection (HIV) and acquired immunodeficiency syndrome (AIDS) on gay, bisexual, and other men who have sex with men (MSM) (https://www.cdc.gov/hiv/risk/gender/msm) in the United States. MSM represent approximately 2% of the U.S. population (*1*); however, in 2015, MSM accounted for 69.8% of all new diagnoses including 3.0% who were also persons who inject drugs (*2*).

In 2014, among all persons living with HIV infection, an estimated 615,400 were MSM (*3*). Of these MSM, an estimated 17% had undiagnosed HIV infection. Among 358,151 MSM living with diagnosed HIV in 38 jurisdictions with complete reporting of CD4 and viral load data at year-end 2014, 58% were retained in continuous care, and 61% were virally suppressed (<200 copies of HIV RNA/mL detected at the most recent viral load test) (*3*).

CDC supports a range of measures to reduce HIV infection among MSM (https://www.cdc.gov/hiv/group/msm/index.html). Information about National Gay Men's HIV/AIDS Awareness Day is available at https://www.cdc.gov/features/ngmhaad.

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HIV Care Outcomes Among Men Who Have Sex With Men With Diagnosed HIV Infection — United States, 2015

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Gay, bisexual, and other men who have sex with men (collectively referred to as MSM) represent approximately 2% of the U.S. population (*1*), yet in 2015, MSM accounted for 70% of all diagnoses of human immunodeficiency virus (HIV) infection, including 3% who also were persons who inject drugs (*2*). During 2008–2014, incidence of HIV infection decreased for groups in all transmission categories except MSM (*3*).

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Testing, linkage to and retention in care, and viral suppression are important in reducing HIV transmission. National HIV Surveillance System (NHSS)* data are used to monitor progress toward reaching national goals.† To better guide prevention measures, CDC analyzed data from NHSS for MSM aged ≥13 years (excluding MSM who inject drugs) to determine stage at diagnosis of HIV infection and care outcomes. Among the 19,170 MSM with HIV infection diagnosed in 2015 in 38 jurisdictions with complete laboratory reporting, 3,666 (19.1%) had infection classified as stage 3 (acquired immunodeficiency syndrome [AIDS]) at diagnosis and 74.7% and 84.0% were linked to care within 1 month and 3 months, respectively. Among MSM living with diagnosed HIV infection at year-end 2014, 74.1% received any HIV care, 57.7% were retained in continuous care, and 61.2% had achieved viral suppression. Younger MSM and black or African American (black) MSM had the least favorable HIV care outcomes. Strengthening interventions that increase care and viral suppression among MSM, particularly those aged <25 years and black MSM with public and private partners is important.

All states, the District of Columbia, and U.S. territories report cases of HIV infection and associated demographic and clinical information to NHSS. CDC analyzed data for MSM aged ≥13 years (excluding MSM who inject drugs) reported through December 2016 from 38 jurisdictions (37 states and the District of Columbia)§ with complete laboratory reporting.¶ These jurisdictions accounted for 70.4% of MSM living with diagnosed HIV infection at year-end 2014 in the United States. Diagnoses of HIV infection are classified by severity of disease; stage 3 (AIDS) is the most severe. Stage 3 classification at the time of diagnosis and linkage to care were assessed among MSM living in any of the 38 jurisdictions at the time of diagnosis of HIV infection in 2015. Stage 3 classification at diagnosis of HIV infection was defined as having a CD4 lymphocyte count of <200/μL, CD4 percentage of total lymphocytes of <14, or documentation of an AIDS-defining condition ≤3 months after a diagnosis of HIV infection.

*The National HIV Surveillance System is the primary source for monitoring human immunodeficiency virus (HIV) trends in the United States. Through the system, information about cases of HIV infection is collected, analyzed, and disseminated.

†The national goals to be accomplished by 2020 are as follows: 1) 85% of all persons with newly diagnosed HIV infection to be linked to care within 1 month after HIV diagnosis, 2) 90% of persons living with diagnosed HIV infection to be retained in care, and 3) 80% of persons living with diagnosed HIV infection to have a suppressed viral load.

§The 38 jurisdictions were Alabama, Alaska, California, Colorado, Connecticut, Delaware, District of Columbia, Georgia, Hawaii, Illinois, Indiana, Iowa, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Hampshire, New Mexico, New York, North Dakota, Oregon, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, Washington, West Virginia, Wisconsin, and Wyoming.

¶The criteria for complete reporting were as follows: 1) The jurisdiction's laws or regulations required the reporting of all CD4 and viral load results to the state or local health department, 2) laboratories that perform HIV-related testing for the jurisdictions had reported a minimum of 95% of HIV-related test results to the state or local health department, and 3) by December 31, 2016, the jurisdiction had reported (to CDC) at least 95% of all CD4 and viral load test results received from January 2014 through September 2016.

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Linkage to care, defined as having documentation of ≥1 CD4 count or percentage or viral load (VL) tests, was assessed at ≤1 and ≤3 months after diagnosis of HIV infection. Receipt of care (any care and retention in care) and viral suppression were assessed among MSM with HIV infection diagnosed by December 31, 2013, and who were alive and resided (based on the most recent known address) in any of the 38 jurisdictions as of December 31, 2014 (i.e., persons living with diagnosed HIV infection). Any care (defined as having one or more CD4 or VL tests), retention in HIV care (defined as having two or more CD4 or VL tests ≥3 months apart), and viral suppression (defined as a VL of <200 copies/mL at most recent test) were assessed for 2014. HIV data routinely are statistically adjusted by using multiple imputation techniques to account for missing HIV transmission categories (*4*).

In 2015, in the 38 jurisdictions, 19,170 MSM received a diagnosis of HIV infection (Table 1). Blacks accounted for the largest number and percentage of HIV diagnoses (7,519; 39.2%) in this group. Overall, 3,666 (19.1%) of HIV infections diagnosed among MSM were classified as stage 3 at diagnosis. The percentage of HIV diagnoses classified as stage 3 increased with increasing age and was highest among whites (22.2%) and lowest among blacks (16.0%). The highest percentage of HIV infections diagnosed at an unknown stage was among blacks (25.9%) and lowest among whites (15.5%).

Among the 19,170 MSM with HIV infection diagnosed in 2015, 14,328 (74.7%) were linked to care within 1 month after diagnosis (Table 2). The percentage of MSM linked to care within 1 month after diagnosis was lowest among those aged 13–19 years (69.4%) and 20–24 years (70.1%) and highest among those aged ≥55 years (80.8%). The percentage of MSM linked to care within 1 month after diagnosis was lowest for blacks (69.3%) and highest for whites (81.1%). Overall, 16,112 (84.0%) MSM with HIV infection diagnosed in 2015 were linked to care within 3 months after HIV diagnosis. Percentages of MSM linked to care within 3 months after HIV diagnosis increased with increasing age, ranging from 81.0% among MSM aged 13–19 years to 87.6% among MSM aged ≥55 years. As was the case among MSM linked to care within 1 month of HIV diagnosis, the percentage of MSM linked to care within 3 months after HIV diagnosis was lowest for blacks (79.7%) and highest for whites (89.4%). Within each racial/ethnic group, linkage within 3 months varied little by age.

Among 358,151 MSM living with diagnosed HIV infection at year-end 2014, a total of 265,280 (74.1%) received any care, 206,523 (57.7%) were retained in care, and 219,043 (61.2%) were virally suppressed (Table 3). The lowest percentages of

TABLE 1. Stage of disease at diagnosis of human immunodeficiency virus (HIV) infection, among men who have sex with men* aged ≥13 years, by age and race/ethnicity — National HIV Surveillance System, 38 jurisdictions,† United States, 2015

Characteristic	No. (%)				
	Total HIV diagnoses in 2015	Stage 1 (CD4 ≥500 cells/μL or ≥26%)	Stage 2 (CD4 200–499 cells/μL or 14%–25%)	Stage 3 (AIDS) (OI or CD4 <200 cells/μL or <14%)§	Stage unknown (No CD4 information)¶
Age group at diagnosis (yrs)					
13–19	**978 (5.1)**	273 (27.9)	404 (41.3)	60 (6.1)	242 (24.7)
20–24	**4,242 (22.1)**	1,234 (29.1)	1,680 (39.6)	360 (8.5)	968 (22.8)
25–34	**7,016 (36.6)**	1,897 (27.0)	2,487 (35.4)	1,115 (15.9)	1,518 (21.6)
35–44	**3,288 (17.2)**	817 (24.9)	978 (29.7)	906 (27.5)	587 (17.9)
45–54	**2,525 (13.2)**	554 (21.9)	713 (28.2)	818 (32.4)	440 (17.4)
≥55	**1,120 (5.8)**	223 (19.9)	307 (27.4)	407 (36.3)	184 (16.4)
Race/Ethnicity**					
Black/African American	**7,519 (39.2)**	1,757 (23.4)	2,613 (34.8)	1,203 (16.0)	1,946 (25.9)
Hispanic/Latino	**5,124 (26.7)**	1,289 (25.2)	1,831 (35.7)	1,033 (20.2)	971 (18.9)
White	**5,314 (27.7)**	1,666 (31.4)	1,644 (30.9)	1,178 (22.2)	826 (15.5)
Other††	**1,213 (6.3)**	286 (23.5)	480 (39.6)	252 (20.7)	196 (16.1)
Total§§	**19,170**	**4,998 (26.1)**	**6,568 (34.3)**	**3,666 (19.1)**	**3,938 (20.5)**

Abbreviation: AIDS = acquired immunodeficiency syndrome.

* Data statistically adjusted to account for missing transmission category.

† The 38 jurisdictions were Alabama, Alaska, California, Colorado, Connecticut, Delaware, District of Columbia, Georgia, Hawaii, Illinois, Indiana, Iowa, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Hampshire, New Mexico, New York, North Dakota, Oregon, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, Washington, West Virginia, Wisconsin, and Wyoming.

§ Stage of disease at diagnosis of HIV infection based on first CD4 test performed or documentation of an AIDS-defining condition ≤3 months after a diagnosis of HIV infection.

¶ Includes persons with HIV disease classified as stage 0 (early infection, recognized by a negative HIV test within 6 months of HIV diagnosis: https://www.cdc.gov/mmwr/pdf/rr/rr6303.pdf).

** Black/African American, white, and other persons are non-Hispanic; Hispanic/Latino persons can be of any race.

†† Other race/ethnicity includes American Indians/Alaska Natives, Asians, Native Hawaiians/other Pacific Islanders and persons of multiple races.

§§ Because column totals for estimated numbers were calculated independently of the values for the subpopulations, the values in each column might not sum to the column total.

TABLE 2. Linkage to human immunodeficiency virus (HIV) medical care within 1 and 3 months of diagnosis of HIV infection, among men who have sex with men* aged ≥13 years, by race/ethnicity† and age — National HIV Surveillance System, 38 jurisdictions,§ United States, 2015

Time to linkage to HIV medical care and age group at diagnosis (yrs)	Black/African American		Hispanic/Latino		White		Other¶		Total	
	No. HIV diagnoses	Linkage to care, No. (%)	No. HIV diagnoses	Linkage to care, No. (%)	No. HIV diagnoses	Linkage to care, No. (%)	No. HIV diagnoses	Linkage to care, No. (%)	No. HIV diagnoses	Linkage to care, No. (%)
Within 1 month of HIV diagnosis**										
13–19	618	410 (66.3)	205	155 (75.6)	104	80 (76.9)	51	34 (66.7)	**978**	**679 (69.4)**
20–24	2,222	1,470 (66.2)	1,073	775 (72.2)	687	528 (76.9)	260	200 (76.9)	**4,242**	**2,973 (70.1)**
25–34	2,845	1,982 (69.7)	1,971	1,465 (74.3)	1,734	1,382 (79.7)	467	370 (79.2)	**7,016**	**5,200 (74.1)**
35–44	915	665 (72.7)	1,068	826 (77.3)	1,083	883 (81.5)	222	183 (82.4)	**3,288**	**2,558 (77.8)**
45–54	632	470 (74.4)	614	476 (77.5)	1,117	936 (83.8)	161	133 (82.6)	**2,525**	**2,014 (79.8)**
≥55	287	213 (74.2)	192	148 (77.1)	590	501 (84.9)	52	42 (80.8)	**1,120**	**905 (80.8)**
Total††	**7,519**	**5,211 (69.3)**	**5,124**	**3,845 (75.0)**	**5,315**	**4,310 (81.1)**	**1,213**	**961 (79.2)**	**19,170**	**14,328 (74.7)**
Within 3 months of HIV diagnosis§§										
13–19	618	485 (78.5)	205	176 (85.9)	104	92 (88.5)	51	40 (78.4)	**978**	**792 (81.0)**
20–24	2,222	1,751 (78.8)	1,073	907 (84.5)	687	608 (88.5)	260	223 (85.8)	**4,242**	**3,489 (82.2)**
25–34	2,845	2,256 (79.3)	1,971	1,648 (83.6)	1,734	1,519 (87.6)	467	406 (86.9)	**7,016**	**5,829 (83.1)**
35–44	915	744 (81.3)	1,068	909 (85.1)	1,083	986 (91.0)	222	196 (88.3)	**3,288**	**2,835 (86.2)**
45–54	632	517 (81.8)	615	517 (84.1)	1,117	1,010 (90.4)	161	142 (88.2)	**2,525**	**2,186 (86.6)**
≥55	287	236 (82.2)	192	163 (84.9)	590	535 (90.7)	52	47 (90.4)	**1,120**	**981 (87.6)**
Total††	**7,519**	**5,989 (79.7)**	**5,124**	**4,319 (84.3)**	**5,315**	**4,751 (89.4)**	**1,213**	**1,053 (86.8)**	**19,170**	**16,112 (84.0)**

* Data statistically adjusted to account for missing transmission category.
† Black/African American, white, and other persons are non-Hispanic; Hispanic/Latino persons can be of any race.
§ The 38 jurisdictions were Alabama, Alaska, California, Colorado, Connecticut, Delaware, District of Columbia, Georgia, Hawaii, Illinois, Indiana, Iowa, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Hampshire, New Mexico, New York, North Dakota, Oregon, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, Washington, West Virginia, Wisconsin, and Wyoming.
¶ Other race/ethnicity includes American Indians/Alaska Natives, Asians, Native Hawaiians/other Pacific Islanders and persons of multiple races.
** One or more CD4 or viral load test performed within 1 month after diagnosis of HIV infection during 2015.
†† Because column totals for estimated numbers were calculated independently of the values for the subpopulations, the values in each column might not sum to the column total.
§§ One or more CD4 or viral load test performed within 3 months after diagnosis of HIV infection during 2015.

retention in care (53.6%) and viral suppression (52.2%) were among black MSM. The highest percentages of receipt of any care (77.3%), retention in care (59.4%), and viral suppression (67.3%) occurred among whites. The percentage of MSM virally suppressed increased with increasing age for all racial/ethnic groups.

Discussion

Among MSM aged ≥13 years with HIV infection diagnosed in 2015, 19.1% of infections were classified as stage 3 at the time of diagnosis. This suggests that one in five MSM have advanced immunosuppression at the time of diagnosis, highlighting the urgent need for screening. The percentages of MSM linked to care within 1 month and 3 months after diagnosis of HIV infection, were 74.7% and 84.0%, respectively. Among MSM living with HIV diagnoses at year-end 2014, 57.7% were retained in care and 61.2% had achieved viral suppression; these percentages fall short of the national goals for persons living with HIV infection of 85% linkage to care within 1 month after HIV diagnosis, 90% retention in care, and 80% viral suppression (*5*). HIV testing, linkage to and engagement in care, and achieving viral suppression are important to prevent disease progression and reduce further transmission of HIV infections.

The percentage of HIV diagnoses classified as stage 3 at the time of diagnosis among MSM increased with increasing age. Because the natural course of untreated HIV infection results in severe immunosuppression several years after the time of infection, younger patients are less likely than are older patients to have developed severe immunosuppression by the time of diagnosis. The low percentage (16.0%) of HIV diagnoses classified as stage 3 among black MSM suggests that, compared with other racial/ethnic groups, blacks might receive testing sooner after infection, leading to a lower percentage of infections classified as stage 3 at the time of HIV diagnosis.

Percentages of linkage to care and viral suppression were lowest among younger MSM, and all care and treatment outcomes were least favorable for black MSM. Compared with 2010 findings based on data from 19 jurisdictions (*6*), HIV care outcomes in 2015 have improved for MSM, including linkage to care (77.5% in 2010 compared with 84.0% in 2015), which was assessed at 3 months after HIV diagnosis, as well as retention in care (50.9% compared with 57.7%), and viral suppression (42.0% compared with 61.2%). Although these

TABLE 3. Receipt of human immunodeficiency virus (HIV) care and viral suppression among men who have sex with men* aged ≥13 years, with diagnosis of HIV infection by December 31, 2013, who were alive on December 31, 2014, by race/ethnicity and age — National HIV Surveillance System, 38 jurisdictions,† United States, 2014

Race/Ethnicity§ and age group (yrs) at year-end 2014	Total No.	Receipt of care, No. (%)		Viral suppression†† No. (%)
		Any care¶	Retention in care**	
All				
13–19	**1,292**	1,000 (77.4)	755 (58.4)	663 (51.3)
20–24	**15,777**	11,761 (74.5)	8,569 (54.3)	8,020 (50.8)
25–34	**62,569**	45,723 (73.1)	34,027 (54.4)	34,507 (55.2)
35–44	**79,169**	57,919 (73.2)	44,384 (56.1)	47,327 (59.8)
45–54	**121,470**	91,096 (75.0)	71,705 (59.0)	77,554 (63.8)
≥55	**77,875**	57,781 (74.2)	47,082 (60.5)	50,972 (65.5)
Total§§	**358,151**	**265,280 (74.1)**	**206,523 (57.7)**	**219,043 (61.2)**
Black/African American				
13–19	**773**	579 (74.9)	424 (54.9)	360 (46.6)
20–24	**9,381**	6,781 (72.3)	4,813 (51.3)	4,246 (45.3)
25–34	**27,792**	19,614 (70.6)	14,171 (51.0)	13,379 (48.1)
35–44	**24,205**	17,047 (70.4)	12,877 (53.2)	12,712 (52.5)
45–54	**31,274**	22,215 (71.0)	17,472 (55.9)	17,378 (55.6)
≥55	**16,437**	11,354 (69.1)	9,098 (55.4)	9,315 (56.7)
Total§§	**109,863**	**77,590 (70.6)**	**58,854 (53.6)**	**57,389 (52.2)**
Hispanic/Latino				
13–19	**316**	263 (83.2)	200 (63.3)	191 (60.4)
20–24	**3,242**	2,504 (77.2)	1,916 (59.1)	1,891 (58.3)
25–34	**16,715**	12,054 (72.1)	9,416 (56.3)	9,637 (57.7)
35–44	**22,581**	15,780 (69.9)	12,846 (56.9)	13,419 (59.4)
45–54	**24,927**	17,898 (71.8)	15,008 (60.2)	15,703 (63.0)
≥55	**11,364**	7,908 (69.6)	6,870 (60.5)	7,186 (63.2)
Total§§	**79,146**	**56,407 (71.3)**	**46,256 (58.4)**	**48,027 (60.7)**
White				
13–19	**115**	84 (73.0)	67 (58.3)	61 (53.0)
20–24	**2,107**	1,645 (78.1)	1,210 (57.4)	1,279 (60.7)
25–34	**13,797**	10,684 (77.4)	7,907 (57.3)	8,850 (64.1)
35–44	**26,550**	20,508 (77.2)	15,097 (56.9)	17,404 (65.6)
45–54	**58,134**	45,149 (77.7)	34,533 (59.4)	39,492 (67.9)
≥55	**46,177**	35,401 (76.7)	28,489 (61.7)	31,731 (68.7)
Total§§	**146,881**	**113,471 (77.3)**	**87,303 (59.4)**	**98,815 (67.3)**
Other¶¶				
13–19	**88**	74 (84.1)	65 (73.9)	52 (59.1)
20–24	**1,046**	831 (79.4)	630 (60.2)	605 (57.8)
25–34	**4,264**	3,371 (79.1)	2,533 (59.4)	2,642 (62.0)
35–44	**5,832**	4,583 (78.6)	3,565 (61.1)	3,793 (65.0)
45–54	**7,134**	5,834 (81.8)	4,691 (65.8)	4,981 (69.8)
≥55	**3,896**	3,117 (80.0)	2,626 (67.4)	2,740 (70.3)
Total§§	**22,261**	**17,811 (80.0)**	**14,110 (63.4)**	**14,812 (66.5)**

* Data statistically adjusted to account for missing transmission category.
† The 38 jurisdictions were Alabama, Alaska, California, Colorado, Connecticut, Delaware, District of Columbia, Georgia, Hawaii, Illinois, Indiana, Iowa, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Hampshire, New Mexico, New York, North Dakota, Oregon, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, Washington, West Virginia, Wisconsin, and Wyoming.
§ Black/African American, white, and other persons are non-Hispanic; Hispanic/Latino persons can be of any race.
¶ One or more CD4 or viral load tests performed during 2014.
** Two or more CD4 or viral load tests performed at least 3 months apart during 2014.
†† Viral load results of <200 copies/mL at the most recent viral load test during 2014. The cutoff value of <200 copies/mL was based on the U.S. Department of Health and Human Services recommended definition of virologic failure.
§§ Because column totals for estimated numbers were calculated independently of the values for the subpopulations, the values in each column might not sum to the column total.
¶¶ Other race/ethnicity includes American Indians/Alaska Natives, Asians, Native Hawaiians/other Pacific Islanders and persons of multiple races.

advances in HIV care outcomes are promising, 52.0% of young MSM with HIV infection do not know that they are infected (*3*). Persons who become aware of their HIV infection are more likely to reduce risk behaviors and can begin HIV medical care and treatment (*7*). CDC recommends routine voluntary HIV screening for all persons aged 13–64 years and annual testing for persons at high risk for HIV infection; sexually active MSM might benefit from more frequent screening (i.e., every 3–6 months) (*8*). Testing is the gateway to the continuum of care for persons who test positive and, along with risk assessment, the gateway to preexposure prophylaxis for those who test negative. To prevent HIV infection among MSM, care outcomes can improve by increasing access and adherence to antiretroviral therapy by persons already infected and to preexposure prophylaxis by those not known to be infected (*9*).

The findings in this report are subject to at least five limitations. First, analyses were limited to 38 jurisdictions with complete reporting of all levels of CD4 and VL test results; these jurisdictions might not be representative of all MSM living with diagnosed HIV infection in the United States. The included jurisdictions accounted for 70.4% of MSM living with diagnosed HIV infection at year-end 2014. Second, overall national data might not be applicable to all states. Third, some cases of HIV infection are reported to CDC without an identified risk factor. Statistical adjustments were applied for missing risk factor information; however, misclassification might have occurred (*4*). Fourth, the most recent VL might not be indicative of consistent viral suppression. Finally, some diagnoses of HIV infection are reported without CD4 data, and in these cases, stage of disease at HIV diagnosis cannot be determined; therefore, comparisons of stage of disease by age and race/ethnicity should be interpreted with caution.

MSM accounted for the majority of diagnoses of HIV infection made in 2015 and the majority of persons living with HIV at year-end 2014. Addressing HIV infection among MSM and the ongoing racial/ethnic disparities in HIV care outcomes among MSM is important to reduce HIV infections in the United States. CDC is pursuing a high-impact prevention

Summary

What is already known about this topic?

Gay, bisexual, and other men who have sex with men (collectively referred to as MSM) represent approximately 2% of the U.S. population, yet in 2015 MSM accounted for 70% of all diagnoses of human immunodeficiency virus (HIV) infection, including 3% who also were persons who inject drugs. National goals for persons living with HIV infection include linkage to care for 85% within 1 month of diagnosis, retention in care for 90%, and viral load suppression for 80% by 2020.

What is added by this report?

In 2015, 19% of HIV infections diagnosed among MSM were classified as stage 3 (acquired immunodeficiency syndrome), and 75% of MSM with diagnoses of HIV infection were linked to care within 1 month. MSM who were black or African American and MSM aged <25 years were less likely to be linked to care within 1 month of diagnosis of HIV infection compared with other racial/ethnic and age groups. Among MSM living with diagnosed HIV infection at year-end 2014, 74% received any care, 58% were retained in care, and 61% had achieved viral suppression. Retention in care and viral suppression were low in all MSM, particularly black or African American MSM.

What are the implications for public health practice?

Tailored strategies for MSM that increase care and achieve viral suppression, particularly among young MSM and black or African American MSM, are needed to reduce HIV infections, improve health outcomes for persons living with HIV infection, and reduce HIV-related health disparities.

approach (*10*) to reduce the number of HIV infections and to increase the effectiveness of HIV prevention and care activities through partnerships with federal, state, and local health agencies and their public and private sector partners. CDC currently funds prevention, surveillance, research, and evaluation programs for MSM, including racial/ethnic minority MSM.** To further reduce HIV transmission among MSM, targeted HIV testing and strengthened measures to increase linkage to care, retention in care and achievement of viral suppression are important, particularly for MSM aged <25 years and black MSM.

Conflict of Interest

No conflicts of interest were reported.

** https://www.cdc.gov/msmhealth/msm-programs.htm.

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Opioid Overdose Outbreak — West Virginia, August 2016

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On August 15, 2016, the Mayor's Office of Drug Control Policy in Huntington, West Virginia, notified the Cabell-Huntington Health Department (CHHD) of multiple calls regarding opioid overdose received by the emergency medical system (EMS) during 3 p.m.–8 p.m. that day. A public health investigation and response conducted by the West Virginia Bureau for Public Health (BPH) and CHHD identified 20 opioid overdose cases within a 53-hour period in Cabell County; all cases included emergency department (ED) encounters. EMS personnel, other first responders, and ED providers administered the opioid antidote naloxone to 16 (80%) patients, six of whom were administered multiple doses, suggesting exposure to a highly potent opioid. No patients received referral for recovery support services. In addition to the public health investigation, a public safety investigation was conducted; comprehensive opioid toxicology testing of clinical specimens identified the synthetic opioid fentanyl* and novel fentanyl analogs, including carfentanil,† which had been used by patients who overdosed in Huntington. Results of these two investigations highlight the importance of collaboration between public health and public safety agencies to provide in-depth surveillance data from opioid overdose outbreaks that involve high-potency fentanyl analogs. These data facilitated a public health response through increased awareness of powerful opioid substances requiring multiple naloxone doses for reversal, and improved patient linkage to recovery support services and a harm reduction program from the ED after opioid overdose.

Public Health Investigation

On August 18, 2016, CHHD requested assistance from BPH to investigate the opioid overdose outbreak in Cabell County and conducted a retrospective public health investigation to characterize the outbreak and improve public health response. Investigators collected data from multiple stakeholders, including public safety (law enforcement and fire department personnel) and health care facilities and created case-finding methods and case definitions. To identify cases, investigators collected Cabell County EMS records and records from the two Cabell County EDs covering a 53-hour period from 3 p.m. on August 14, 2016, to 8 p.m. on August 16, 2016, (24 hours before and 24 hours after the 5-hour period of increased drug overdose EMS calls on August 15). Investigators also collected West Virginia Poison Center records of prehospital naloxone administration by Cabell County public safety personnel. Investigators screened, identified, and selected records related to an opioid overdose using key terms and applied the case definition to records from the study period, using a case identification algorithm (Figure 1). Demographic information, rescue and resuscitation measures, medical history, clinical findings, and ED disposition were abstracted from all record sources and analyzed.

A probable case of opioid overdose was defined as 1) clinical suspicion of opioid exposure (documented by patient mention of drug use, observed drug paraphernalia, naloxone administration, or ED diagnosis of drug poisoning or drug use) and 2) one or more clinical signs of central nervous system depression (e.g., bradypnea, apnea, altered consciousness, or miosis) in a person identified through EMS or ED records, from 3 p.m. August 14 through 8 p.m. August 16. Confirmed opioid overdose cases met the probable case definition and had a positive toxicology screening§ result for any drug of abuse. A positive toxicology result for any drug of abuse was used to confirm cases because persons who abuse opioids might use multiple drugs, including nonopioids (*1*), and available clinical toxicology screening tests do not detect fentanyl or fentanyl analogs. Public health investigators did not have access to in-state confirmatory testing for fentanyl and fentanyl analogs.¶

Twenty patients met the opioid overdose case definition; 12 patients had probable cases and eight had confirmed cases.

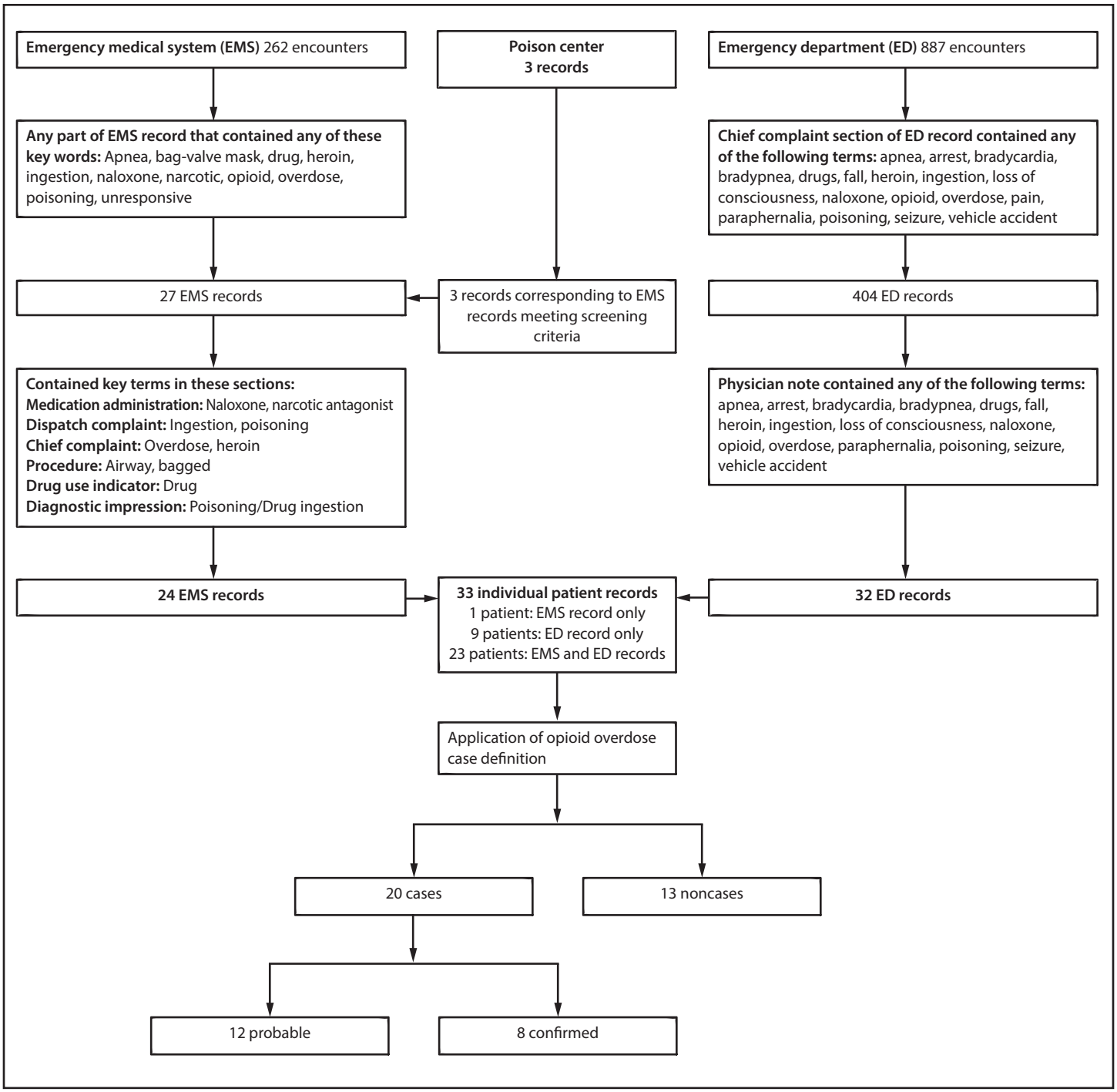
* Fentanyl is a high-potency synthetic opioid that is up to 100 times more potent than morphine.

† Carfentanil is a fentanyl analog that is up to 100 times more potent than fentanyl; it is used to sedate large animals, such as elephants.

§ Clinical toxicology screening in emergency departments was limited to a qualitative urine immunoassay evaluation for amphetamines, barbiturates, benzodiazepines, cannabinoids, cocaine, methadone, opiates (e.g., codeine, morphine, and heroin), and phencyclidine. It did not confirm the presence of high-potency synthetic opioids, including fentanyl or fentanyl analogs. The case definition (which included substances from and symptoms attributable to nonopioid sedative drug classes) was employed to increase case-finding sensitivity in an outbreak setting lacking a surveillance system; specificity might have been improved by using a narrower case definition.

¶ A concurrent public safety investigation of this overdose outbreak was conducted by public safety agencies (law enforcement and fire department personnel) separate from the public health investigation; public safety investigators released their findings to public health investigators in March 2017, after legal proceedings concluded. Public safety investigation findings included comprehensive confirmatory opioid toxicology testing results of urine and blood specimens from patients who were subjects in the public health investigation.

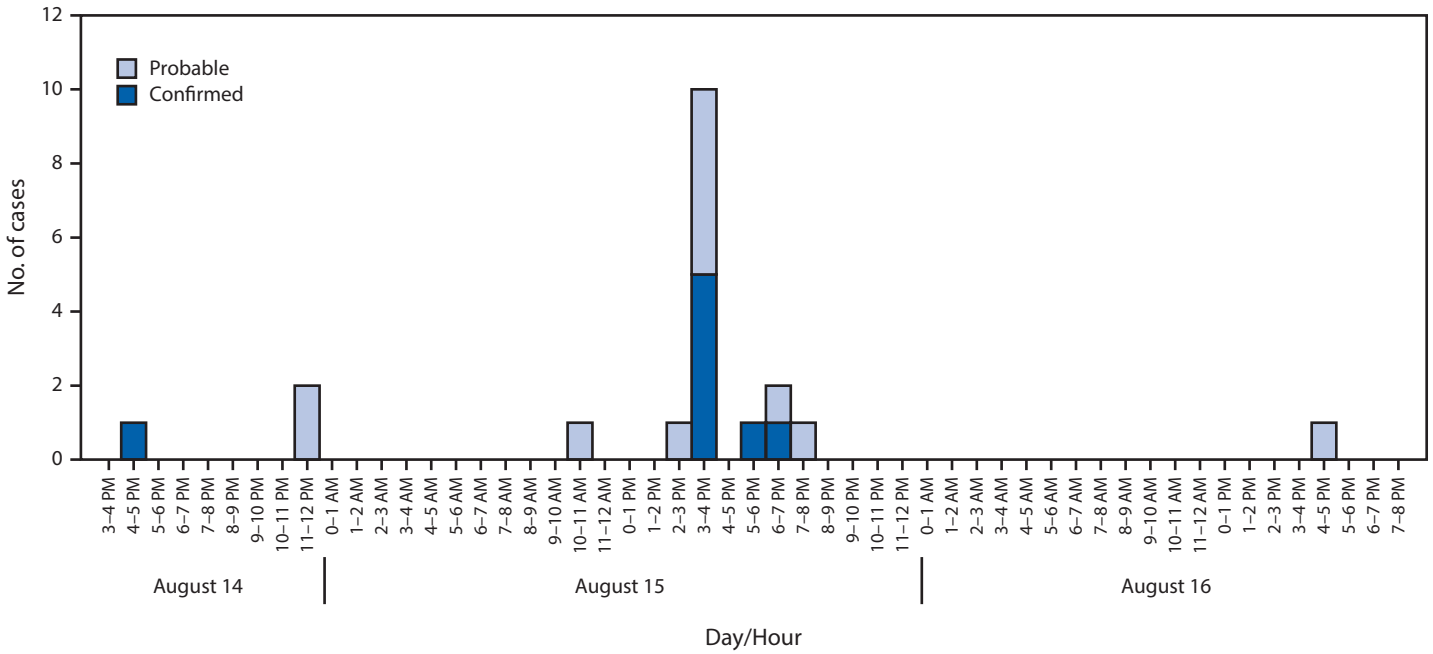
FIGURE 1. Case identification algorithm used for an opioid overdose outbreak investigation*,† — Cabell County, West Virginia, August 14–16, 2016



* To identify cases, investigators collected Cabell County EMS records and records from the two Cabell County EDs for the 53-hour period from 3 p.m. on August 14, 2016, to 8 p.m. on August 16, 2016, (24 hours before and 24 hours after the 5-hour period of increased drug overdose EMS calls on August 15).

† A probable case of opioid overdose was defined as 1) clinical suspicion of opioid exposure (documented by patient mention of drug use, observed drug paraphernalia, naloxone administration, or ED diagnosis of drug poisoning or drug use) and 2) one or more clinical signs of central nervous system depression (bradypnea, apnea, altered consciousness, or miosis) in a person identified through EMS or ED records. Confirmed opioid overdose cases met the probable case definition and had a positive toxicology screening result for any drug of abuse.

FIGURE 2. Number of probable (n = 12) and confirmed (n = 8) opioid overdose cases per hour of day — Cabell County, West Virginia, August 14–16, 2016*



* As a result of the public safety investigation, carfentanil and furanylfentanyl were identified in March 2017 among patients who had been evaluated on August 15, 2016, during 3 p.m.–4 p.m. and 5 p.m.–6 p.m.

Patients aged 26–35 years accounted for 50% of cases. Location of first responder contact with 17 (85%) patients was within the city of Huntington; 14 (82%) of these contacts occurred during 3 p.m.–8 p.m. on August 15 (Figure 2). All patients had ED encounters during the study period; 18 (90%) arrived by EMS. The most commonly reported clinical signs were altered consciousness (13; 65%) and respiratory failure (11; 55%). Fourteen patients (70%) reported using heroin immediately before being evaluated in the ED. Sixteen (80%) patients received naloxone; among these patients, 12 received naloxone only in the prehospital setting, two received naloxone during both prehospital and ED encounters, and two received naloxone only in the ED. Six patients received multiple naloxone doses. Among eight (40%) patients who had toxicology screenings, opioids were detected in six, and more than one substance was identified in five (Table). Twelve (60%) patients left the ED against medical advice before discharge. All 20 patients survived, although no referrals for recovery support services, including treatment of substance use disorder, opioid addiction, opioid withdrawal, or harm reduction services (e.g., naloxone prescribing or safe injection education) were documented.

Public Safety Investigation

Public safety officials conducted a separate investigation of this opioid overdose outbreak in conjunction with legal proceedings; this investigation included comprehensive opioid toxicology testing of clinical specimens obtained from the treating EDs. In October 2016, the BPH Office of the Chief Medical Examiner (OCME) and the Drug Enforcement Administration confirmed the first carfentanil-related death in Cabell County, which occurred within days of the August 15, 2016 outbreak (*2*). Results of the comprehensive opioid testing were released to CHHD on March 23, 2017, and four patients' specimens from the public safety investigation were matched to specimens from the public health investigation cases, three of which were positive for carfentanil and furanylfentanyl. The fourth specimen was positive for fentanyl only, with insufficient specimen volume for fentanyl analog testing (Table). On April 17, 2017, the U.S. Attorney's Office released a statement that an Akron, Ohio, resident had been convicted of heroin, fentanyl, and carfentanil distribution in Huntington, West Virginia, on the afternoon of August 15, 2016 (*3*). OCME reported that fentanyl was involved in a number of opioid overdose deaths in Cabell County during several weeks preceding the mid-August opioid overdose outbreak.**

** Mortality and drug testing data from Cabell County during the study period was not immediately available to public health investigators because of legal constraints. These data were reported to public health investigators separately in March 2017. Exact numbers were suppressed to preserve confidentiality in a small community.

TABLE. Demographic information, naloxone administration, toxicology results, and reported drug used for 20 persons with confirmed (n = 8) or probable (n = 12) opioid overdose — Cabell County, West Virginia, August 14–16, 2016

Patient	Age group (yrs)	Sex	Naloxone dose (administration route)	No. of naloxone doses	Total naloxone dose	Reported drug used	ED toxicology (public health investigation)	Opioid confirmation (public safety investigation)
A*	18–25	F	2 mg (IN)	1	2 mg	Heroin, crack	Cocaine	NP
B	18–25	F	0.4 mg (IV)	2	0.8 mg	NR	NP	NP
C*	18–25	F	NA	0	NA	NR	Opioid, benzodiazepine	NP
D	26–35	M	2 mg (IN)	1	2 mg	Heroin, marijuana	NP	NP
E*	26–35	F	0.4 mg (IM)	1	0.4 mg	Heroin	Opioid, cannabinoid	Carfentanil, furanylfentanyl
F*	26–35	F	2 mg (IN), 2 mg (IV)	2	4 mg	Heroin	Opioid, cocaine, cannabinoid	Fentanyl†
G	26–35	F	NA	0	NA	Heroin	NP	NP
H	26–35	M	2 mg (IV)	1	2 mg	NR	NP	NP
I*	26–35	F	NA	0	NA	Heroin	Opioid, cocaine, benzodiazepine	NP
J*	26–35	F	NA	0	NA	Heroin	Opioid, cocaine, cannabinoid	Carfentanil, fentanyl, furanylfentanyl
K	26–35	M	0.4 mg (IV)	1	0.4 mg	Heroin	NP	NP
L	26–35	M	0.4 mg (IV), 2 mg (IV)	2	2.4 mg	Heroin	NP	NP
M	26–35	M	0.4 mg (IV)	3	1.2 mg	NR	NP	NP
N	36–45	M	0.4 mg (IM)	1	0.4 mg	Heroin	NP	NP
O	36–45	F	2 mg (IN)	1	2 mg	Heroin	NP	NP
P	36–45	M	NR	NR	NR	NR	NP	NP
Q	46–60	M	2 mg (IV)	1	2 mg	NR	NP	NP
R*	46–60	M	0.4 mg (IV)	5	2 mg	Heroin	Cocaine	NP
S*	46–60	M	0.4 mg (IV)	5	2 mg	Heroin	Opioid	Carfentanil, fentanyl, furanylfentanyl
T	46–60	M	2 mg (IN)	1	2 mg	Heroin	NP	NP

Abbreviations: ED = emergency department; F = female; IM = intramuscular; IN = intranasal; IV = intravenous; M = male; NA = not applicable; NP = not performed; NR = not recorded.
* Confirmed case.
† Inadequate specimen volume for fentanyl analog testing.

Public Health Response

In October 2016, BPH released a health advisory to medical providers, first responders, and public safety personnel, notifying them of carfentanil emergence in the illicit opioid supply in West Virginia, the danger of carfentanil exposure, and the role of multiple-dose naloxone administration after exposure (*2*). Fentanyl testing of decedent specimens became available in-state through OCME in October 2016. Public health stakeholders increased naloxone distribution among first responders to meet the potential need for multiple-dose resuscitation. After receiving public health investigation findings that no opioid overdose patients who met the case definition had been referred for substance use disorder treatment, CHHD and local ED staff members improved referral protocols for overdose care and recovery support services. Local EDs coordinated with substance use–disorder treatment facilities to pilot multidisciplinary response teams that follow up with patients who experience opioid overdose and ensure linkage to care availability after ED encounters (e.g., direct connection to CHHD harm reduction program staff members).

Discussion

This report describes a nonfatal outbreak of opioid overdoses in Cabell County, West Virginia, that heralded the emergence of two powerful fentanyl analogs, carfentanil and furanylfentanyl, in the local illicit drug supply. Public health investigation revealed a narrow clustering of the majority of cases in place and time, along with requirement for multiple-dose naloxone for resuscitation, suggesting that a point-source opioid overdose outbreak involving a high-potency opioid had occurred. However, fentanyl analog screening was unavailable in EDs at the time, and therefore, comprehensive toxicology was not accessible to public health investigators. Comprehensive opioid testing is often a component of public safety investigations, and a concurrent public safety investigation subsequently identified fentanyl analogs used by three patients. Medical examiner data

obtained during the outbreak period demonstrated the emergence of carfentanil among opioid overdose decedents in Cabell County during this period, providing further evidence of the debut of carfentanil among heroin users in Cabell County and its role as a cause of this outbreak. Epidemiologic evidence and public safety investigation findings were consistent with the U.S. Attorney's Office report (*3*).

Opioid overdose outbreak preparedness requires the cooperation of public health and public safety officials to effectively investigate and characterize the scope and nature of an outbreak. Although polysubstance use was identified by ED toxicology screening in five of the eight confirmed cases, most patients who experienced overdose reported using heroin only, and none reported using a synthetic opioid. Therefore, comprehensive toxicology testing for fentanyl, fentanyl analogs, and other newly emerging psychoactive substances might be important when conducting overdose outbreak investigations. Development and implementation of opioid overdose surveillance standards, comprehensive testing capabilities, and overdose outbreak investigation tools are needed to improve rapid identification of local illicit opioid supply changes and facilitate targeted and coordinated public health and public safety response and prevention measures. In New Haven, Connecticut, a fentanyl-related overdose investigation demonstrated that collaboration between public health, health care facilities, and public safety departments improves resuscitation preparedness efforts after an opioid overdose outbreak (*4*). However, continuum of care for patients involved in an opioid overdose outbreak should not stop at the point of resuscitation. Initiating treatment for opioid use disorder in the ED has been shown to significantly increase patient engagement[††] in addiction treatment (*5*). ED encounters during this outbreak represent missed opportunities to link persons with a nonfatal overdose to substance use–disorder treatment initiation and ongoing care.

Surveillance for clusters of opioid overdose at the local level is increasingly important because of the rapidly changing nature of the opioid epidemic in recent years as communities witness emergence of synthetic opioids among fatal and nonfatal cases of opioid overdose (*4*,*6*). Comprehensive testing for synthetic opioids is not routinely included in ED toxicology screenings, although it is often available to public safety investigators (*6*,*7*). Cooperation between public health and public safety officials during overdose outbreak investigations could facilitate timely messaging to inform medical providers and public health and public safety personnel regarding emerging drug threats.

[††] Patient engagement was defined as program enrollment and receipt of formal addiction treatment.

Summary

What is already known about this topic?

Opioid overdose is a growing health threat in the United States; CDC issued a health advisory to health departments, health care providers, first responders, and medical examiners about the introduction of high-potency synthetic opioids into the illicit opioid supply, causing outbreaks of opioid overdose and overdose-related deaths. Patient administration of the opioid antidote naloxone during an opioid overdose outbreak can save lives; however, little is known about follow-up care after resuscitation of patients who experience overdose during an outbreak.

What is added by this report?

An investigation of a nonfatal opioid overdose outbreak that occurred in Huntington, West Virginia, on August 15, 2016, identified 20 cases during a 53-hour period (14 overdoses occurred within 5 hours) and provided evidence that a novel, high-potency synthetic opioid was introduced into a community of persons who use illicit opioids. None of the opioid overdose patients who met case criteria received referral for substance use disorder treatment or harm reduction services.

What are the implications for public health practice?

Local surveillance of opioid overdose that includes investigation of overdose outbreaks produces data that can direct public health response to the opioid overdose epidemic. Development of public health and public safety partnerships for substance identification, and of strategies to link overdose patients to recovery support services at the point of resuscitation, might reduce missed opportunities to engage persons who use illicit opioids.

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Conflict of Interest

No conflicts of interest were reported.

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Trends in Cervical Cancer Screening in Title X-Funded Health Centers — United States, 2005–2015

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Cervical cancer screening is critical to early detection and treatment of precancerous cells and cervical cancer. In 2015, 83% of U.S. women reported being screened per current recommendations, which is below the *Healthy People 2020* target of 93% (*1*,*2*). Disparities in screening persist for women who are younger (aged 21–30 years), have lower income, are less educated, are uninsured, lack a source of health care, or who self-identify as Asian or American Indian/Alaska Native (*2*). Women who are never screened or rarely screened are more likely to develop cancer and receive a cancer diagnosis at later stages than women who are screened regularly (*3*). In 2013, cervical cancer was diagnosed in 11,955 women in the United States, and 4,217 died from the disease (*4*). Aggregated administrative data from the Title X Family Planning Program were used to calculate the percentage of female clients served in Title X-funded health centers who received a Papanicolaou (Pap) test during 2005–2015. Trends in the percentage of Title X clients screened for cervical cancer were examined in relation to changes in cervical cancer screening guidelines, particularly the 2009 American College of Obstetricians and Gynecologists (ACOG) update that raised the age for starting cervical cancer screening to 21 years (*5*) and the 2012 alignment of screening guidelines from ACOG, the U.S. Preventive Services Task Force (USPSTF) and the American Cancer Society (ACS) on the starting age (21 years), screening interval (3 or 5 years), and type of screening test (*6*–*8*). During 2005–2015, the percentage of female clients screened for cervical cancer dropped continually, with the largest declines occurring in 2010 and 2013, notably a year after major updates to the recommendations. Although aggregated data contribute to understanding of cervical cancer screening trends in Title X centers, studies using client-level and encounter-level data are needed to assess the appropriateness of cervical cancer screening in individual cases.

The Title X Family Planning Program supports the delivery of contraceptive and related preventive care to a population that is predominantly female, low income, uninsured, young, and racially and ethnically diverse. For many clients, Title X centers are their only ongoing source of care. As a condition of their funding, Title X-funded health care providers are required to adhere to nationally recognized standards of care and adapt protocols as guidelines are updated. Among the 3.6 million female clients who received care in one of 3,900 Title X-funded health centers in 2015, more than 743,000 were screened for cervical cancer (*9*).

This analysis used data from the Family Planning Annual Report (FPAR), which is an annual reporting requirement for all Title X service grantees (*9*). The study examined FPAR data for 64 grantees in the 50 states and the District of Columbia that received continuous Title X funding during 2005–2015, a period during which the service networks for these grantees served 3.2 million to 4.3 million women annually (Table). For each grantee, an FPAR consists of aggregated data (e.g., client characteristics, services provided, and revenue) for all subrecipients and clinics that receive Title X funds.

The outcome of interest was the percentage of female clients who received a Pap test. Because FPAR does not have Pap testing data by age or test type, age group–specific measures for receipt of other recommended preventive health services that are available in FPAR were included. These other preventive health service measures included the percentage of females aged ≤19 years and 20–24 years who were tested for chlamydia and the percentage of females aged ≤19, 20–29, and 30–44 years at risk for unintended pregnancy who adopted or continued using an effective contraceptive method. The inclusion of additional preventive care measures, particularly measures for females aged ≤19 years for whom cervical cancer screening was not recommended, permitted assessment of trends in other services that were expected to either increase or remain level. Females at risk for unintended pregnancy excluded those who were pregnant, seeking pregnancy, or not using a method for "other" reasons.* Effective contraceptive methods include female sterilization, vasectomy, intrauterine devices/systems; hormonal methods (implant, injectable, pill, ring, and patch); and diaphragm. Also included in the analysis was a measure for receipt of clinical breast exams; data on mammograms received were not available.

Trends in cervical cancer screening were compared with trends in the receipt of other recommended services to examine indirectly how changes in cervical cancer screening might

* "Other" reasons that female clients might not adopt or continue using contraception include 1) the user or her sexual partner either being sterile without having been sterilized surgically or having had a noncontraceptive surgical procedure that has rendered the user or her sexual partner unable to conceive or impregnate, or 2) the user having a sexual partner of the same sex.

TABLE. Characteristics of Title X grantees and demographic characteristics of female clients served — 2005–2015 Family Planning Annual Report,* 50 states and the District of Columbia

Characteristic	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Network											
Grantees (no.)	64	64	64	64	64	64	64	64	64	64	64
Subrecipients (no.)	1,045	1,062	1,054	1,046	1,036	1,012	1,036	1,040	1,067	1,030	1,098
Service sites (no.)	3,726	3,829	3,879	3,873	3,858	3,741	3,756	3,651	3,599	3,542	3,570
Females (millions)	4.14	4.16	4.15	4.18	4.27	4.25	4.08	3.93	3.76	3.43	3.22
Age group (yrs)											
≤19 (%)	26.5	26.2	25.5	25.0	23.9	22.4	21.1	19.8	18.5	18.4	18.1
20–24 (%)	32.5	32.3	31.8	31.3	31.1	31.3	30.6	29.9	29.4	28.8	27.8
25–29 (%)	18.3	18.8	19.4	19.7	20.1	20.6	21.1	21.6	22.0	22.1	22.2
≥30 (%)	22.7	22.7	23.3	23.9	25.0	25.7	27.2	28.7	30.1	30.6	31.9
Race/Ethnicity; English proficiency											
Black (%)	18.4	17.9	18.2	18.8	18.9	18.9	18.7	19.2	19.5	19.4	19.8
White (%)	64.9	66.1	63.4	59.7	59.4	58.1	57.1	56.4	55.9	55.2	54.4
Other (%)	6.5	6.5	6.8	7.3	8.0	9.4	9.9	10.4	9.0	8.6	8.3
Hispanic ethnicity (%)	21.2	22.3	24.0	25.2	25.5	26.3	26.7	27.3	28.4	29.3	31.0
LEP† (%)	10.5	11.3	11.8	12.9	12.9	12.3	11.9	11.8	11.8	11.5	11.8
Income (% PG)†,§											
≤100% (%)	65.7	66.6	68.9	69.7	69.3	68.4	68.1	70.9	70.2	68.6	67.3
101%–250% (%)	27.2	26.2	25.3	23.7	23.2	23.4	22.7	21.5	22.2	22.6	23.2
Insurance†											
Uninsured (%)	61.1	62.6	66.0	65.8	65.6	66.2	63.9	65.0	63.1	54.2	47.7
Public (%)	20.8	20.9	21.2	21.6	19.9	23.0	25.2	23.3	24.7	29.4	35.5
Private (%)	7.7	8.5	9.0	9.4	8.4	8.7	8.7	9.4	10.0	13.7	15.2

Abbreviations: LEP = limited English proficiency; PG = poverty guideline.

* The Family Planning Annual Report (FPAR) is the annual reporting requirement of all Title X services grantees. FPAR data for Title X-funded centers are aggregated and reported at the grantee level. The study sample includes data for 64 grantees that received Title X funding during the entire study period; data for grantees in the U.S. Territories and Freely Associated States were excluded. https://www.hhs.gov/opa/title-x-family-planning/fp-annual-report/index.html.

† Includes male clients.

§ Clients' income is reported as a percentage of the U.S. Department of Health and Human Services poverty guideline for each year. https://aspe.hhs.gov/prior-hhs-poverty-guidelines-and-federal-register-references.

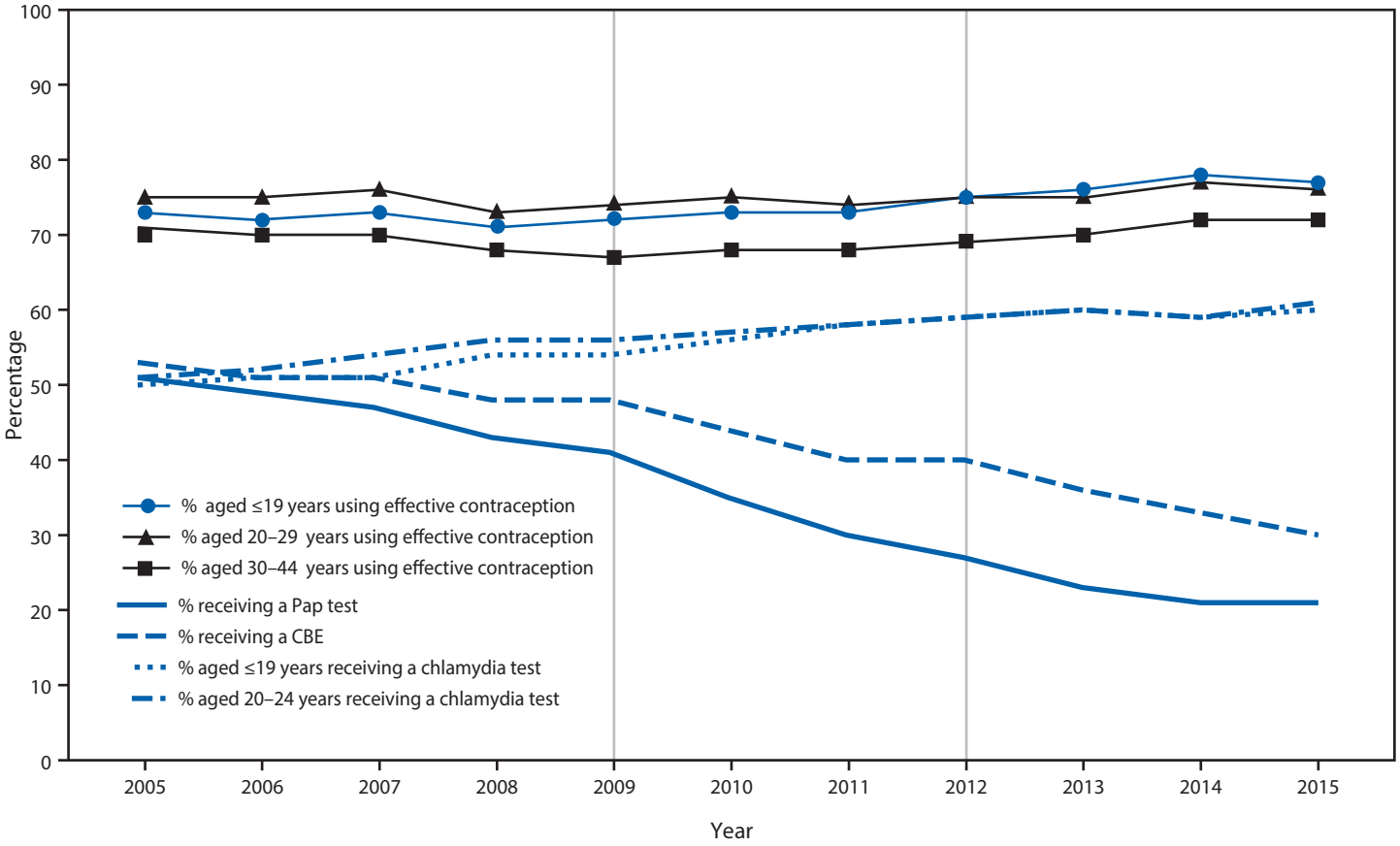
reflect screening recommendations in effect during the analysis period. The expectations for the analysis were 1) a decline in cervical cancer screenings because of recommendations raising the starting age for screening and moving away from annual screenings; 2) no change or an increase in recommended chlamydia testing and contraceptive use; and 3) a gradual decline in clinical breast exams because of the differences in major recommendations about whether a clinical breast exam should be performed and the clarification in the *U.S. Selected Practice Recommendations for Contraceptive Use*† that neither a Pap test nor a clinical breast exam contributes substantially to safe and effective contraceptive use.

During 2005–2015, the percentage of female clients screened for cervical cancer decreased gradually; the percentage of female Title X clients screened for cervical cancer declined from 51% in 2005 to 21% in 2015 (Figure). The largest 1-year decline (from 41% to 35%) occurred in 2010, after release of ACOG's 2009 screening guideline that increased the recommended age for the first Pap test to 21 years. The second largest 1-year decline (from 27% to 23%) occurred in 2013, after the 2012 alignment of USPSTF, ACOG, and ACS recommendations on the age at first Pap test and age group–specific screening intervals.

The percentage of clients receiving other recommended preventive health care, specifically chlamydia testing and contraception, increased or remained level, even in the 2 years (2010 and 2013) following major updates to cervical cancer screening recommendations (Figure). Among females aged ≤19 years for whom cervical cancer screening was not recommended by ACOG in 2009 or by USPSTF and ACS in 2012, the percentage tested for chlamydia increased from 54% (2009) to 60% (2015) and the percentage using an effective contraceptive method increased from 72% (2009) to 77% (2015). Among females aged 20–24 years, chlamydia testing rates increased from 56% in 2009 to 61% in 2015, and effective contraceptive use among females aged 20–29 years increased from 74% (2009) to 76% (2015). During 2005–2015, the percentage of females of all ages who received a clinical breast exam declined from 53% to 30%.

† https://www.cdc.gov/reproductivehealth/contraception/mmwr/spr/summary.html.

FIGURE. Cervical cancer screening recommendations in effect, including major changes in 2009 and 2012,* and percentages of female Title X clients in receipt of cervical cancer screening,† chlamydia testing,§ and clinical breast exams,¶ and continued use or adoption of effective contraception among, by year — Family Planning Annual Report,†† 50 states and the District of Columbia, 2005–2015**



Abbreviations: ACS = American Cancer Society; ACOG = American College of Obstetricians and Gynecologists; CBE = clinical breast exam; USPSTF = U.S. Preventive Services Task Force.

* During 2005–2012, cervical cancer screening recommendations from ACS, ACOG, and USPSTF for women at average risk with a cervix varied in terms of starting age (within 3 years of first sex or age 21 years), stopping age (65–70 years), and interval (annually, every 2 years, or every 3 years), based on age, prior negative test results, or type of screening test (conventional or liquid cytology or co-testing using a combination of cytology plus human papillomavirus DNA testing [HPV co-test]). During this period, there were two major changes in screening recommendations that are notable. In 2009, ACOG updated its cervical cancer screening recommendation by raising the starting age for screening to 21 years. In 2012, cervical cancer screening recommendations from ACS (March 2012), USPSTF (March 2012), and ACOG (November 2012) were congruent. The recommendations were that screening start at age 21 years, that it occur at the following intervals using specific methods; 21–29 years: every 3 years using cytology alone; 30–65 years: every 3 years (cytology) or every 5 years (HPV co-test); >65 years: stop screening if there is an adequate negative prior screening history, defined as two (co-test) or three (cytology) consecutive negative results within the past 10 years and the most recent test was performed within 5 years. https://www.cdc.gov/cancer/cervical/pdf/guidelines.pdf.

† Percentage of females who received a Pap test in the calendar year.

§ Percentage of females aged ≤19 years or 20–24 years who received a chlamydia test in the calendar year. During 2005–2014, CDC recommended routine annual chlamydia screening for sexually active women aged ≤25 years and for sexually active older women at increased risk for infection (e.g., new or multiple partner[s]). In June 2015, CDC lowered the age range for routine annual screening to ≤24 years. During 2007–2015, the USPSTF recommended screening for sexually active women aged ≤24 years and for sexually active older women at increased risk for infection; evidence was insufficient to recommend an optimal screening interval.

¶ Percentage of females who received a CBE in the calendar year. During 2005–2015, ACOG recommended annual CBE for women aged ≥19 years and ACS recommended CBE with a periodic health exam every 3 years (aged 20–39 years) or annually (aged ≥40 years). In 2002, USPSTF concluded that evidence was insufficient to recommend for or against routine CBE alone to screen for breast cancer. In 2009, USPSTF concluded that current evidence was insufficient to assess the additional benefits and harms of CBE beyond screening mammography in women aged ≥40 years.

** Percentage of females aged ≤19, 20–29, and 30–44 years, at risk for unintended pregnancy (not pregnant or seeking pregnant, or not using method for "other" reason), who adopted or continued using effective contraception (female sterilization; vasectomy; intrauterine device; hormonal implant, injectable, pills, ring, or patch; and diaphragm) at their last encounter.

†† The Family Planning Annual Report is a reporting requirement of Title X service grantees. This study uses data for 64 grantees that received continuous funding during the study period. https://www.hhs.gov/opa/title-x-family-planning/fp-annual-report/index.html.

Discussion

The Title X Program contributes to achieving *Healthy People 2020* objectives for reducing cervical cancer by providing cervical cancer screening to women with low income, many of whom lack health insurance or a regular source of health care. The decline in the percentage of Title X female clients screened for cervical cancer during 2005–2015 is consistent with newer screening guidelines; level or increasing trends in the provision of other recommended preventive services support this observation. The decline in Title X cervical cancer screening, which is based on administrative data, is consistent with downward trends in self-reported screening found in national survey data (*2*,*10*). These data also indicate that self-reported screening rates have declined among females for whom screening was not recommended (<21 years) compared with females for whom the screening interval was lengthened (21–29 years) (*10*).

The findings in this report are subject to at least four limitations. First, FPAR lacks data on cervical cancer screening by age group and type of screening test. This limitation prevents the calculation and analysis of screening rates for younger age groups (<21 and 21–29 years) and for females aged ≥30 years by test type. Second, the aggregate nature of FPAR data prevents a comparison of cervical cancer screening across important client characteristics (e.g., race, ethnicity, income level, or insurance status) or an assessment of whether cervical cancer screening for individual clients is conducted per recommendations or is received elsewhere. Third, the downward trend in cervical cancer screening coincided with a decline in the total number of female Title X clients served by the 64 grantees in this study (4.14 million in 2005 and 3.22 million in 2015) and an increase in the percentage of female Title X clients in the older (≥25 years) age groups. From 2005 to 2015, the percentage of females aged ≤19 years declined from 27% (2005) to 18% (2015) while the percentage of females aged ≥20 years increased from 73% (2005) to 82% (2015). Because of the increased percentage of female Title X clients in age groups for which regular but less frequent (every 3 or 5 years) cervical cancer screening was recommended, the decline in screening might be even more pronounced. According to grantee comments accompanying cervical cancer screening data reported in FPAR (*9*), increased provider adherence to recommendations was a primary reason given for the decline in screening. Finally, during 2005–2015 the number of female Title X clients served by grantees in this study both rose (2005–2009) and fell (2009–2015); in 2015, the number of female Title X clients served was 1.1 million (25%) lower than in 2009. From 2010 to 2015, a 16% decline (by $253.3 million in 2016 constant dollars) in total program revenue (i.e., from Title X and all other sources) reported by all grantees (89 grantees in 2010 and 91 grantees in 2015) was likely an important contributing cause to the decline in number of clients (*9*). Other plausible reasons for the decline in clients include increased use of long-acting contraceptive methods that require fewer visits and health system changes, which might have resulted in some newly insured clients seeking care elsewhere. Aggregate FPAR data are suitable for exploring some but not all of the possible reasons for this decline in clients.

Aggregate FPAR data allow monitoring of program-level trends in cervical cancer screening. As the Title X Family Planning Program moves forward to replace the current FPAR system with one that will collect client-level and encounter-level data, grantees and subrecipients can use the disaggregated data currently available to examine whether cervical cancer screening performed in their service networks is consistent with recommendations.

Summary

What is already known about this topic?

Cervical cancer screening is critical to early detection and treatment of precancerous cells and cervical cancer. During 2005–2012, screening guidelines were updated to recommend less frequent screening. In 2015, 83% of women reported being screened according to recommendations. Since 1970, Title X-funded health centers have been a source of cervical cancer screening for primarily socioeconomically disadvantaged women seeking contraceptive and related preventive health care.

What is added by this report?

The percentage of female Title X clients screened annually for cervical cancer declined from 51% in 2005 to 21% in 2015 with the largest single-year declines occurring in the years after major recommendation updates (2010 and 2013). Provision of other recommended preventive health services (chlamydia testing and contraception), especially to young females under the recommended starting age (21 years) for cervical cancer screening, increased.

What are the implications for public health practice?

The downward trend in Title X cervical cancer screening each year is consistent with current evidence-based recommendations. Aggregate administrative data are useful to describe overall trends in the percentage of Title X clients that received a Pap test. Analyses of client-level and encounter-level records are needed, however, to assess providers' adherence to screening recommendations and variations in screening practices.

Conflict of Interest

No conflicts were reported.

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Respiratory and Ocular Symptoms Among Employees of an Indoor Waterpark Resort — Ohio, 2016

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In July 2015, a municipal health department in Ohio received complaints of respiratory and ocular symptoms from patrons of an indoor waterpark resort. In response, the health department conducted an online survey in August 2015 through which 19 (68%) patron and employee respondents reported eye burning, nose irritation, difficulty breathing, and vomiting. On August 11, 2015, the health department requested a health hazard evaluation by CDC's National Institute for Occupational Safety and Health to characterize the prevalence of symptoms among employees and determine the etiology of work-related symptoms. In January 2016, CDC investigators performed a cross-sectional epidemiologic study, environmental sampling, and ventilation system assessment (*1*). Findings suggested that chlorine disinfection byproducts and environmental conditions contributed to a higher prevalence of work-related respiratory and ocular symptoms among employees in the waterpark compared with employees in other resort areas. Recommendations included servicing the ventilation system, changing work practices to decrease the amount of disinfection byproduct precursors, and responding promptly to employee reports of symptoms.

Indoor waterparks are enclosed recreational environments that can be associated with illness caused by endotoxins and disinfection byproducts. Chlorine disinfection byproducts such as chloroform and chloramines are formed when chlorine, the most commonly used disinfectant in aquatic venues (e.g., pools), reacts with other chemicals in the water. For example, chloramines form when chlorine combines with nitrogen-containing substances, such as urine, sweat, skin cells, and personal-care products from swimmers' bodies (*2*). Levels of disinfection byproducts in aquatic venues and surrounding air depend on factors such as water chemistry, bather load and hygiene, amount of splashing and spraying (i.e., disturbance of water surface), and ventilation (*3*). Disinfection byproducts can lead to water and air quality issues, particularly in indoor aquatic facilities, and can cause ocular and respiratory irritation.

Epidemiologic Investigation

As part of a 3-day site visit in January 2016, CDC investigators administered a questionnaire to resort employees concerning demographics, work and medical history, and specific work-related symptoms occurring during the preceding 4 weeks. Symptoms were considered work-related if they started at work and improved when away from work. Participants were asked to exclude symptoms associated with a cold or respiratory infection. Employees aged ≥18 years provided oral informed consent. Written informed consent for participation was obtained from parents or legal guardians of employees aged <18 years.

Resort employees in the aquatics department and the waterpark concession stand were classified as waterpark employees (exposed); employees working in other areas of the resort were classified as nonwaterpark employees (unexposed). The frequency of work-related symptoms was assessed. A case was defined as three or more work-related symptoms (eye irritation, nose irritation, cough, wheezing, shortness of breath, chest tightness, or sore throat) of any duration occurring in a resort employee during the preceding 4 weeks. An adjusted prevalence ratio and 95% confidence interval was calculated using log-binomial regression to assess variables associated with meeting the case definition.

Among 112 employees working at the resort during the site visit, 91 (81%) participated. Median age was 19 years (range = 15–65 years), and 47 (52%) were male. Forty-eight (53%) employees reported any work-related symptom, among whom 12 (25%) had taken a median of 2 days off work (range = 1–5), and seven (15%) sought medical care for work-related symptoms in the preceding 4 weeks. The most frequently reported work-related symptoms among waterpark employees were eye irritation (62%), cough (56%), and nose irritation (51%) (Table).

Twenty-nine (32%) employees met the case definition, 24 (83%) of whom were waterpark employees and five (17%) were nonwaterpark employees. Being a waterpark employee and having current asthma were associated with meeting the case definition, but age <18 years, male sex, and being a current smoker were not. After adjusting for age as a continuous variable and current asthma, waterpark employees were more likely to meet the case definition than were nonwaterpark employees (adjusted prevalence ratio = 3.8; 95% confidence interval =1.4–16.2).

Environmental and Ventilation Investigation

In this facility, water features included a children's play area, activity pool, rain fortress with a splash area and bucket

periodically dumping 1,000 gallons of water, four waterslides, and a hot tub and spa. The resort also included a hotel, conference center, bar, gift shop, arcade, concession stand, and office area. The same company had been operating the resort since 2013. Area air samples for endotoxins, chlorine, and chloroform collected on 3 consecutive sampling days at six waterpark locations detected levels that were well below occupational exposure limits (*1*). Air temperature and relative humidity in the waterpark were logged each minute while the waterpark was open over 3 sampling days. Daily average air temperature was below and relative humidity was above the range recommended for aquatic environments (*4*).

Water chemistry tests were performed using a standard color-matching test kit at four waterpark locations. Concentrations of combined chlorine, of which chloramines are a subset, in the water were at or above the waterpark's internal standard of 0.2 ppm on all 3 days of the evaluation, indicating the presence of chloramines. No *Legionella* or mycobacteria were cultured from water samples from the hot tub and spa.

Assessment of the heating, ventilation, and air-conditioning (HVAC) system identified multiple areas of concern. According to blueprints, the HVAC system design should be able to meet current standards and guidelines in CDC's Model Aquatic Health Code (*5*). However, on visual inspection, the fans of five of the waterpark's six HVAC units were not operational, substantially reducing airflow in the waterpark. The waterpark air distribution system did not provide an airflow pattern with sufficient air movement just above the water surface and deck (where volatilized disinfection byproducts, which are heavier than air, accumulate) to direct contaminated air toward air return intakes. The return air was partially recirculated and the rest was exhausted out of the waterpark through stacks on the roof.

Recommendations

Recommendations based on the hierarchy of controls approach were provided to the resort.* Engineering controls such as maintenance and repair of the waterpark's HVAC systems and possible reconfiguration of the air distribution system to improve removal of air contaminants just above the water surface and deck were advised, as was encouraging patrons and aquatics department employees to shower before entering the water to reduce the amount of disinfection byproduct precursors (e.g., urine, sweat, skin cells, and personal-care products) that swimmers introduce into the water. CDC also recommends that swimmers take regular bathroom breaks. Other recommendations included encouraging prompt reporting of symptoms by employees to their supervisors and implementation of a system to track and follow up on reports by resort management to identify possible causes and take appropriate corrective actions.

* The hierarchy of controls is a framework that groups actions by their likely effectiveness in reducing or removing hazards from the workplace. Levels in the hierarchy include elimination, substitution, engineering controls, administrative or work-practice controls, and personal protective equipment. Additional information on the hierarchy of controls is available at https://www.cdc.gov/niosh/topics/hierarchy/.

TABLE. Work-related symptoms* reported by waterpark and nonwaterpark employees in the preceding 4 weeks — indoor waterpark resort, Ohio, January 2016

Symptom	No. (%)	
	Waterpark employees† (n = 45)	Nonwaterpark employees§ (n = 46)
Any symptom	37 (82)	11 (24)
Met case definition¶	24 (53)	5 (11)
Eye irritation	28 (62)	6 (13)
Cough	25 (56)	3 (7)
Nose irritation	23 (51)	3 (7)
Wheezing	19 (42)	2 (4)
Shortness of breath	14 (31)	3 (7)
Chest tightness	14 (31)	3 (7)
Sore throat	4 (9)	3 (7)

* Began while at work and improved away from work, not associated with a cold or respiratory infection.
† Employees in the aquatics department and the concession stand contained within the waterpark.
§ Employees in the other resort areas (hotel front desk, office, arcade, gift shop, and bar) or departments (housekeeping, security, and maintenance).
¶ Reported three or more work-related symptoms.

Discussion

Although airborne concentrations of chlorine and chloroform in the aquatic resort were low, a constellation of work-related symptoms consistent with disinfection byproduct exposure was approximately four times more common among waterpark employees than among nonwaterpark employees. Similar respiratory and ocular symptoms have been described in outbreaks at indoor aquatic venues implicating disinfection byproducts (*6*–*8*). Water chemistry tests indicated the presence of combined chlorine, including chloramines. HVAC systems, which play an important role in removing air contaminants, were poorly maintained and not operating properly. This was reflected by air temperatures below and relative humidity above recommended ranges. Endotoxin levels were low, and neither *Legionella* nor mycobacteria was detected during sampling, suggesting that these known causes of respiratory and ocular symptoms associated with aquatic facilities were less likely to have contributed to symptoms at this indoor waterpark than disinfection byproducts. Together, investigation findings suggest that disinfection byproducts and environmental conditions likely contributed to the higher prevalence of symptoms among waterpark employees.

The findings in this report are subject to at least three limitations. First, the evaluation occurred in the winter, a period of potentially lower exposure because the waterpark was open for fewer hours. However, this would likely result in underestimation of an effect. Second, personal air samplers for disinfection byproducts or endotoxins could not be placed on waterpark employees because they could interfere with job duties or get wet and malfunction. This limited the ability to evaluate associations between exposures and symptoms at the individual employee level. Finally, disinfection byproducts are a large class of compounds, but air levels of only one representative member, chloroform, were assessed. Chloramines have been previously associated with irritation symptoms like those reported in this facility (*9*); however, no reliable analytic method to measure them in air or water currently exists (*10*).

Indoor waterparks constitute an expanding industry. The first indoor waterpark resort in the United States opened in 1994. By 2015 there were an estimated 192 facilities nationwide, attracting millions of visitors each year. This investigation highlights the need for vigilant monitoring and maintenance of ventilation and water systems to prevent illness in these large, complex indoor aquatic facilities and for public health officials, clinicians, and operators of indoor waterparks to understand the risk for respiratory and ocular symptoms in patrons and employees.

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Conflict of Interest

No conflicts of interest were reported.

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Summary

What is already known about this topic?

Indoor waterparks are complex environments where problems with air and water quality can result in illness. Chloramines, formed when disinfectant chlorine reacts with nitrogen-containing substances (e.g., urine, sweat) from swimmers' bodies, are known causes of ocular and upper respiratory symptoms in aquatic facilities.

What is added by this report?

Investigation of reported illness in an indoor waterpark resort in Ohio found that waterpark employees were approximately four times more likely to have work-related ocular and respiratory symptoms than were employees in other resort areas. Environmental assessment found that levels of combined chlorine, of which chloramines are a subset, in water exceeded recommended guidelines, but levels of chlorine and chloroform (a representative disinfection byproduct) in air were low. Improperly functioning ventilation systems, resulting in accumulation of disinfection byproducts and temperature below and relative humidity above recommended ranges, likely contributed to the higher prevalence of symptoms among waterpark employees compared with nonwaterpark employees.

What are the implications for public health practice?

To prevent recreational water–associated illness caused by endotoxins and disinfection byproducts in indoor waterparks, vigilant monitoring and maintenance of ventilation and water systems are needed. Employees and patrons of indoor waterparks should promptly report symptoms, which might indicate that further attention to water and air quality and ventilation system functioning is needed. Showering before entering the water and taking regular bathroom breaks can reduce levels of disinfection byproduct precursors introduced into the water.

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Update to CDC's *U.S. Medical Eligibility Criteria for Contraceptive Use, 2016*: Revised Recommendations for the Use of Hormonal Contraception Among Women at High Risk for HIV Infection

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CDC's *U.S. Medical Eligibility Criteria for Contraceptive Use* (U.S. MEC) (first published in 2010 and updated in 2016) provides evidence-based guidance for the safe use of contraceptive methods among U.S. women with certain characteristics or medical conditions (*1*), and is adapted from global guidance from the World Health Organization (WHO) and kept up to date based on continual review of published literature (*2*).* CDC recently evaluated the evidence and the updated WHO guidance on the risk for human immunodeficiency virus (HIV) acquisition among women using hormonal contraception.† After careful review, CDC adopted the updated WHO guidance for inclusion in the U.S. MEC guidance; this guidance states that the advantages of progestin-only injectable contraceptive use (including depot medroxyprogesterone acetate [DMPA]) by women at high risk for HIV infection outweigh the theoretical or proven risks (U.S. MEC category 2). The guidance also includes an accompanying updated clarification, which states that "there continues to be evidence of a possible increased risk of acquiring HIV among progestin-only injectable users. Uncertainty exists about whether this is due to methodological issues with the evidence or a real biological effect. In many settings, unintended pregnancies and/or pregnancy-related morbidity and mortality are common, and progestin-only injectables are among the few types of methods widely available. Women should not be denied the use of progestin-only injectables because of concerns about the possible increased risk. Women considering progestin-only injectables should be advised about these concerns, about the uncertainty over whether there is a causal relationship, and about how to minimize their risk of acquiring HIV." Recommendations for other hormonal contraceptive methods (including combined hormonal methods, implants, and progestin-only pills) remain the same; there is no restriction for their use among women at high risk for HIV infection (U.S. MEC category 1).

Background

Approximately half of pregnancies in the United States are unintended (*3*). Increasing access to and promoting correct and consistent use of contraception is a priority strategy to reduce unintended pregnancies. HIV infection continues to be a major public health issue in the United States.§ The vast majority of new infections among women are attributed to heterosexual contact.¶ HIV infection is associated with adverse pregnancy outcomes for both the mother and child, including increased morbidity during pregnancy and perinatal HIV transmission (*4*). Therefore, prevention of both unintended pregnancy and HIV acquisition is critical among women at high risk for HIV infection.

To date, recommendations for use of hormonal contraceptives among women at high risk for HIV infection have been U.S. MEC category 1 (safe for use without restriction) (Box). For women at high risk for HIV infection who use DMPA, a clarification was added in 2012 (*5*) and reaffirmed in 2016 (*1*), which described the inconsistent findings of studies examining a possible association between DMPA use and HIV acquisition and highlighted the importance of HIV preventive measures. CDC continually monitors published evidence as part of the process of keeping the U.S. MEC up to date. An update to U.S. MEC recommendations can be triggered by either identification of new evidence or an update to WHO global guidance. In March 2017, based on newly published studies (*6*), and after considering factors such as the balance of benefits and harms and ethical principles of ensuring informed contraceptive choice, WHO updated its recommendations on the safety of progestin-only injectable use among women at high risk for HIV infection from MEC category 1 to MEC category 2 (advantages of using the method generally outweigh the theoretical or proven risks).** WHO included a clarification that focuses on the possible increased risk of acquiring HIV with progestin-only injectable use, the limitations of the evidence,

* http://www.who.int/reproductivehealth/publications/family_planning/MEC-5/en.
† http://www.who.int/reproductivehealth/publications/family_planning/HC-and-HIV-2017/en/.

§ https://www.cdc.gov/hiv/library/reports/hiv-surveillance.html.
¶ Approximately 6,400 out of 7,400 HIV diagnoses in 2015 (https://www.cdc.gov/hiv/pdf/library/reports/surveillance/cdc-hiv-surveillance-report-2015-vol-27.pdf).
** http://apps.who.int/iris/bitstream/10665/254662/1/WHO-RHR-17.04-eng.pdf?ua=1.

and the uncertainty about whether this represents a real biological effect. The clarification emphasizes that women should not be denied access to progestin-only injectables, but should be informed about these concerns and how to minimize risk for HIV acquisition. Because of newly published studies and the WHO update, CDC initiated a process to assess whether its guidance should be updated similarly for the U.S. context.

Methods

CDC considered several factors, including evidence on hormonal contraception use and risk for HIV acquisition, potential biologic mechanisms, and the context of contraception, unintended pregnancy, and HIV infection (e.g., incidence, demographics, and risk factors) in the United States. CDC invited seven participants from outside the agency and one participant from within the agency to serve as ad hoc reviewers of the evidence and the updated WHO recommendations (see "Participants"). The participants were selected based on their expertise in HIV infection or family planning. The participants joined one of two teleconferences with CDC staff members in May 2017 during which they reviewed the evidence, the updated WHO recommendations, and information on unintended pregnancy, contraceptive use, HIV infection, and maternal morbidity and mortality in the United States. The participants provided their individual input about 1) whether there has been a significant evolution in the evidence regarding hormonal contraception use and HIV acquisition, 2) how the updated evidence might influence clinical practice in the United States, and 3) how the updated WHO recommendations translate to clinical practice in the United States. After the teleconferences, CDC developed the recommendations in this report, taking into consideration the individual perspectives provided by the participants.

Rationale and Evidence

A systematic review of published evidence regarding the use of hormonal contraception and the risk for HIV acquisition was published in 2016 (*6*). The systematic review included primary research studies (randomized trials or observational studies) identified in PubMed or Embase databases through January 2016. Included studies reported on incident HIV infection among women using hormonal contraception (injectables, oral contraceptives, implants, patches, rings, or hormonal intrauterine devices) compared with incidence among women using nonhormonal or no contraception. Studies were excluded if they did not report a risk estimate for hormonal contraception and HIV acquisition, were cross-sectional studies, only assessed emergency contraception, or were conference abstracts. Study quality was evaluated using a framework developed for previous reviews on this topic, and assessment focused on 31 studies considered to be "informative but with important limitations" (*6*). These higher quality studies included adjustment for condom use and had clear measurement of exposure to hormonal contraceptives. Among 11 studies evaluating the association between oral contraceptive use and HIV acquisition, 10 found no statistically significant association between oral contraceptive use and risk for HIV acquisition, while one reported a marginally significantly increased association. Evidence from 13 studies evaluating the association between progestin-only injectable contraceptives and risk for HIV acquisition suggested a possible increased risk (adjusted hazard ratio = 1.4 [95% confidence interval = 1.2–1.6] among 10 studies specifically examining DMPA), but findings were inconsistent across studies and limited by methodologic concerns. Two studies of levonorgestrel implants and one study of progestin-only pills did not suggest increased risk for HIV acquisition.

In an additional study published after the systematic review and identified using the same search strategy, women in South Africa were randomized to receive either copper intrauterine devices or progestin-only injectable contraceptives (*7*). The study found no increased risk for HIV acquisition with progestin-only injectable contraceptive use. This is the only randomized trial examining this issue; however, the study was subject to many limitations including a small sample size (approximately 20 women in each group acquired HIV), high loss to follow-up (25%), self-report of final HIV status for one third of participants, and no information on contraceptive switching or discontinuation (*7*).

Animal and laboratory data suggest a range of possible biologic mechanisms for an association between hormonal contraceptive use and HIV acquisition, potentially related to the progestin component, including hormonally mediated changes in the vaginal epithelium and alterations in local and systemic immune responses (*8*,*9*). However, the relevance of these observations to clinical outcomes in women is unclear (*8*,*9*).

BOX. Categories for classifying hormonal contraceptives

1 = A condition for which there is no restriction for the use of the contraceptive method.

2 = A condition for which the advantages of using the method generally outweigh the theoretical or proven risks.

3 = A condition for which the theoretical or proven risks usually outweigh the advantages of using the method.

4 = A condition that represents an unacceptable health risk if the contraceptive method is used.

Whereas overall use of DMPA in the United States was low (4.5%) among current contraceptive users during 2011–2013, use was higher among black women (10%), those aged 15–24 years (8.5%), those who had income <150% of the federal poverty level (7.3%), and women who had less than a high school education (10.1%).[††] Although the rate of unintended pregnancy is declining, 45% of pregnancies in the United States were unintended in 2011, with higher percentages among women aged 15–19 years (75%) and black women (64%) (*3*). Pregnancy-related mortality in the United States also differs significantly by race, with approximately a threefold higher risk among black compared with white women (*10*). In 2015, an estimated 7,400 new HIV infections occurred among U.S. women, with higher rates among minorities.[§§,¶¶] Although use of DMPA and risk for HIV are lower in the United States than in many areas globally, the prevalence of DMPA use in the United States is higher among subgroups of women who have characteristics associated with increased risk for HIV infection, unintended pregnancy, and pregnancy-related complications.

Recommendations for the Use of Hormonal Contraceptives in Women at High Risk for HIV

For implants, progestin-only pills, and combined hormonal contraceptives, U.S. MEC recommendations remain the same as those in the U.S. MEC 2016: these methods can be used without restriction among women at high risk for HIV infection (U.S. MEC category 1) (Table). For DMPA, CDC adopted the updated WHO recommendation that the advantages of DMPA use outweigh the theoretical or proven risks among women at high risk for HIV infection (U.S. MEC category 2). In accordance with WHO, CDC updated the clarification for DMPA, which highlights that there continues to be evidence of a possible increased risk for HIV acquisition among women using progestin-only injectable contraceptives, but it is not clear whether this is a real biological effect or due to methodological issues with the studies; that U.S. women should not be denied DMPA because of concerns about this possible increased risk; and that women considering DMPA should be advised about these concerns, as well as about HIV prevention measures. The complete U.S. MEC guidance, including recommendations about use of copper and levonorgestrel-releasing intrauterine devices by women at high risk for HIV (which were not reviewed for this update), are available at https://www.cdc.gov/reproductivehealth/contraception/usmec.htm.

[††] https://www.cdc.gov/nchs/data/nhsr/nhsr086.pdf.
[§§] https://www.cdc.gov/nchhstp/atlas/index.htm.
[¶¶] https://www.cdc.gov/hiv/basics/statistics.html.

Discussion

CDC adopted the updated WHO guidance for inclusion in the U.S. MEC guidance. Although the U.S. context differs from the global context in a number of ways (e.g., generally lower DMPA use, lower HIV incidence, greater access to a range of contraceptive methods, and lower risks for maternal morbidity and mortality), issues related to possible risks and the need for counseling are relevant across settings. Current data continue to suggest a potential increased risk for HIV acquisition with DMPA use, although significant limitations in data quality remain. Despite the previous U.S. MEC clarification stating that women at high risk for HIV should be counseled about risks and benefits of DMPA, some of the experts consulted by CDC expressed concern that this is not occurring in clinical practice in the United States or globally, and an updated recommendation might encourage providers to counsel women on risks, benefits, and alternatives to DMPA. CDC does not intend for a change from an MEC category 1 to MEC category 2 to result in decreased access to DMPA. CDC's guidance is intended for health care professionals, and CDC is committed to working with professional organizations and other stakeholders to assist in interpretation and implementation of these recommendations in all clinical settings. Evaluating changes in practice associated with updated recommendations might be useful for assessing implementation by providers, administrators, and organizations caring for women at high risk for HIV infection. CDC anticipates that these recommendations will lead to improvements in provider training and patient education materials reflecting the risks and benefits of DMPA use. DMPA continues to be a safe, effective, and practical contraceptive method for many women.

Access to the full range of safe and effective Food and Drug Administration–approved contraceptive methods is essential for women at high risk for HIV infection to avoid unintended pregnancy. For women at high risk for HIV infection who wish to use DMPA, the advantages outweigh the theoretical or proven risks, and women should not be denied access to this method. Evidence of a possible increased risk for HIV acquisition among users of progestin-only injectable contraceptives (including DMPA) remains inconclusive. HIV infection prevention measures should be strongly encouraged among all women at risk for HIV acquisition, including limiting numbers of sexual partners, correct and consistent use of condoms, and consideration of preexposure and postexposure prophylaxis.[***]

[***] https://www.cdc.gov/hiv/basics/prevention.html.

TABLE. Recommendations for contraceptive use by women who are at high risk for human immunodeficiency virus (HIV) infection

Condition	Category				Clarifications/Evidence
	Implants	DMPA	POP	CHCs	
High risk for HIV	1	2	1	1	**Clarification (DMPA):** There continues to be evidence of a possible increased risk of acquiring HIV among progestin-only injectable users. Uncertainty exists about whether this is due to methodological issues with the evidence or a real biological effect. In many settings, unintended pregnancies and/or pregnancy-related morbidity and mortality are common, and progestin-only injectables are among the few types of methods widely available. Women should not be denied the use of progestin-only injectables because of concerns about the possible increased risk. Women considering progestin-only injectables should be advised about these concerns, about the uncertainty over whether there is a causal relationship, and about how to minimize their risk of acquiring HIV. **Evidence (Implants, DMPA, POP):** Evidence from 13 observational studies of DMPA, NET-EN or nonspecified progestin-only injectables, which were considered to be "informative but with important limitations," continues to show some association between use of progestin-only injectables and risk of HIV acquisition, but it remains unclear whether this results from a causal relationship or methodological limitations.* One additional randomized pilot feasibility trial, published subsequently to the systematic review, found no statistically significant difference in risk of HIV acquisition between progestin-only injectable users (DMPA or NET-EN) and copper IUD users; this study had several limitations including lack of power to assess differences in HIV acquisition rates, and problems with ascertainment of hormonal contraception exposure and HIV acquisition outcomes.† Two small studies assessing levonorgestrel implants, which were considered to be "informative but with important limitations," did not suggest an elevated risk, although the risk estimates were imprecise. One study reported no association between use of progestin-only pills and HIV acquisition.* **Evidence (CHCs)**: Eleven studies, deemed "informative but with important limitations," assessed the use of OCs. Ten of these studies found no statistically significant association between use of OCs and HIV acquisition, while one study reported a marginally significant increased risk. No studies of patch, ring or combined injectable contraception were identified.*

Abbreviations: CHC = combined hormonal contraceptive; DMPA = depot medroxyprogesterone acetate; HIV = human immunodeficiency virus; IUD = intrauterine device; NET-EN = norethisterone enanthate; OC = oral contraceptive; POP = progestin-only pills.

* Polis CB, Curtis KM, Hannaford PC, Phillips SJ, Chipato T, Kiarie JN, et al. An updated systematic review of epidemiological evidence on hormonal contraceptive methods and HIV acquisition in women. AIDS 2016;30:2665–83. http://journals.lww.com/aidsonline/fulltext/2016/11130/An_updated_systematic_review_of_epidemiological.13.aspx.

† Hofmeyr GJ, Singata-Madliki M, Lawrie TA, Bergel E, Temmerman M. Effects of injectable progestogen contraception versus the copper intrauterine device on HIV acquisition: sub-study of a pragmatic randomised controlled trial. J Fam Plann Reprod Health Care 2017;43:175–80. http://jfprhc.bmj.com/content/familyplanning/early/2017/04/05/jfprhc-2016-101607.full.pdf.

Acknowledgments

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Conflicts of Interest for Invited Teleconference Participants

Sharon Achilles, consultant for Merck 1-day meeting, research funds from Mithra Pharmaceuticals, National Institutes of Health, and the Bill & Melinda Gates Foundation; Jean Anderson, owns stock in Gilead Pharmaceuticals; Alison Edelman, royalties from Up to Date, Inc., consultant for Genzyme, Agile, HRA Pharma, and Oregon State University, honorarium from Merck, American Congress of Obstetricians and Gynecologists, Projects in Knowledge, FHI 360, and Gynuity, grant support from National Institutes of Health, Merck (principal investigator–initiated grant), and the Bill & Melinda Gates Foundation, grant support and honorarium from the Society for Family Planning, travel reimbursement from CDC and World Health Organization, honorarium and travel reimbursement from Contemporary Forums.

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Hurricane Season Public Health Preparedness, Response, and Recovery Guidance for Health Care Providers, Response and Recovery Workers, and Affected Communities — CDC, 2017

CDC 2017 Hurricane Incident Management System Team[1]

On September 13, 2017, this report was posted as an MMWR *Early Release on the* MMWR *website (https://www.cdc.gov/mmwr).*

CDC and the Agency for Toxic Substances and Disease Registry (ATSDR) have guidance and technical materials available in both English and Spanish to help communities prepare for hurricanes and floods (Table 1). To help protect the health and safety of the public, responders, and clean-up workers during response and recovery operations from hurricanes and floods, CDC and ATSDR have developed public health guidance and other resources; many are available in both English and Spanish (Table 2).

Hurricane Harvey made landfall on the Texas coast on August 25, 2017, as a Category 4 storm. In southeast Texas, record rainfall caused extensive flooding and damage to public infrastructure and communities, and displaced thousands of persons. As of September 12, 2017, the media have reported >80 storm-related deaths attributed to Hurricane Harvey (medical examiner confirmation is pending for some deaths). Most of these deaths likely were caused by drowning in flood waters within the first few days after impact (e.g., drowning at home or in vehicles).

On September 7, 2017, a Category 5 hurricane, Irma, reached the Lesser Antilles, including the U.S. territories of Puerto Rico and the Virgin Islands. Hurricane Irma then continued its path across the Greater Antilles and made landfall in south Florida on September 10, 2017. Irma's hurricane-force winds and related storm surges caused substantial damage in the Caribbean and Florida.

Many areas in Texas, Louisiana, Florida, Georgia, and the U.S. territories affected by these storms are still experiencing disruptions in essential services, including electricity, potable water, food, and communications. Numerous health care and public health systems sustained damage. Environmental health impacts from the hurricanes included effects on industries, chemical plants, and hazardous waste sites. Many displaced persons remain in shelters or other temporary housing.

As part of the overall U.S. Department of Health and Human Services response and recovery operations, CDC and ATSDR are supporting public health and medical care functions for affected communities and persons displaced by the hurricanes. As of September 12, 2017, CDC and ATSDR had sent pharmacy and federal medical station supplies to Texas, Louisiana, and Florida. CDC and ATSDR have also activated and deployed members of the U.S. Public Health Service Commissioned Corps and other personnel to provide technical support for critical public health functions. Field operations and the CDC and ATSDR Emergency Operations Center are supporting mortality and morbidity surveillance; public health messaging and risk communication; water, sanitation, safety, and facility assessments; community rapid needs assessments; mold abatement; industrial and residential contaminant exposure prevention; and vector control.

There are potential public health and safety concerns after hurricane impact. Many injuries and illnesses from hurricanes and floods occur during the response and recovery phases. Common hazards include vehicle- and nonvehicle-related drowning, carbon monoxide poisoning (e.g., from any gasoline-powered engine, including generators and clean-up equipment), electrocution, falls, lacerations, and exposure to mold and industrial and household chemicals (*1*–*8*). In addition, exacerbation of existing chronic conditions and development of acute mental health symptoms are frequent reasons for seeking health care services following a disaster (*9*–*11*). Guidance and other resources to assist in addressing many of these hazards and risk are available (Table 2).

CDC and ATSDR also offer a disaster response clinical consultation service to assist health care providers, public health professionals, and emergency response partners. This service can be accessed by emailing CDC IMS Clinical Inquiries at eocevent168@cdc.gov.

For additional assistance, health care providers, public health professionals, and members of the public can also use CDC and ATSDR's information service, CDC-INFO. Live agents provide up-to-date science-based health information. CDC-INFO can be reached Monday through Friday from 8:00 a.m. to 8:00 p.m. Eastern Time at 1–800-CDC-INFO (1–800–232–4636) or by submitting a web-based form (https://wwwn.cdc.gov/dcs/ContactUs/Form). Services are available in English and Spanish.

Conflict of Interest

No conflicts of interest were reported.

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TABLE 1. English and Spanish community guidance for preparing for hurricanes and floods — CDC, 2017

English	En Español
Information about hurricanes and other tropical storms https://www.cdc.gov/disasters/hurricanes/index.html	Huracanes y otras tormentas tropicales https://www.cdc.gov/es/disasters/hurricanes/index.html
Preparations before a hurricane https://www.cdc.gov/disasters/hurricanes/before.html	Antes de un huracán https://www.cdc.gov/es/disasters/hurricanes/before.html
Family, health, and safety preparation https://www.cdc.gov/disasters/hurricanes/supplies.html	Obtenga suministros https://www.cdc.gov/es/disasters/hurricanes/supplies.html
Key facts about flood readiness https://www.cdc.gov/disasters/floods/readiness.html	Datos importantes sobre los preparativos para una inundación https://www.cdc.gov/es/disasters/floods/readiness.html

TABLE 2. English and Spanish guidance for response and recovery from hurricanes and floods, by primary target audience — CDC, 2017

English	En Español
General audience	
Be safe after a hurricane* https://www.cdc.gov/disasters/hurricanes/be-safe-after.html	Manténgase a salvo después de un huracán https://www.cdc.gov/es/disasters/hurricanes/be-safe-after.html
After a hurricane https://www.cdc.gov/disasters/hurricanes/after.html	Después de un huracán https://www.cdc.gov/es/disasters/hurricanes/after.html
Floods (general information) https://www.cdc.gov/disasters/floods/index.html	Información sobre inundaciones https://www.cdc.gov/es/disasters/floods/index.html
After a Flood https://www.cdc.gov/disasters/floods/after.html	Después de una inundación https://www.cdc.gov/es/disasters/floods/after.html
Flood waters or standing waters health risks https://www.cdc.gov/healthywater/emergency/extreme-weather/floods-standingwater.html	Agua de la inundación después de un desastre o una emergencia: https://www.cdc.gov/es/disasters/floods/cleanupwater.html
Building and facilities damage: health risks https://www.cdc.gov/healthywater/emergency/extreme-weather/building-damage.html	—†
Cleaning up your home after a disaster or emergency https://www.cdc.gov/disasters/hurricanes/cleanup-home.html	Limpiar tu casa después de un desastre o emergencia Limpie su casa https://www.cdc.gov/es/disasters/hurricanes/cleanup-home.html
Generator and furnace safety https://www.cdc.gov/co/pdfs/Generators.pdf https://www.cdc.gov/co/pdfs/Furnace.pdf	Seguridad con los Generadores y Calentadores https://www.cdc.gov/co/pdfs/flyers_Spanish.pdf
Pressure washer safety https://www.cdc.gov/disasters/pressurewashersafety.html	—
Carbon monoxide poisoning§ https://www.cdc.gov/co/pdfs/Flyer_Danger.pdf	Intoxicación por monóxido de carbono https://www.cdc.gov/co/pdfs/campaign_flyer_ES.pdf
Carbon monoxide poisoning FAQs https://www.cdc.gov/co/faqs.htm	Intoxicación con Monóxido de Carbono Preguntas Frecuente https://www.cdc.gov/co/es/faqs.htm
Chemical hazards: asbestos in your environment: what you can do to limit exposure https://www.atsdr.cdc.gov/docs/limitingenvironmentalexposures_factsheet-508.pdf	—
ToxFAQs for asbestos https://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=29&tid=4	ToxFAQs Asbesto (Amianto) https://www.atsdr.cdc.gov/es/toxfaqs/es_tfacts61.html
Chemical hazards: mercury https://www.atsdr.cdc.gov/dontmesswithmercury/index.html	No te metas con mercurio https://www.atsdr.cdc.gov/dontmesswithmercury/es/index.html
Chemical hazards: lead https://www.cdc.gov/nceh/lead/tips.htm	Lo que debe saber sobre el envenenamiento del plomo https://www.cdc.gov/nceh/lead/tools/know_the_factsspanish.pdf
Coping with a disaster or traumatic event https://emergency.cdc.gov/coping/index.asp	Cómo enfrentar un desastre o evento traumático https://emergency.cdc.gov/es/coping/index.asp
Food safety for infants after a disaster https://www.cdc.gov/breastfeeding/recommendations/food-safety-for-infants-after-a-disaster.html	Asegúrese de que los alimentos y el agua se puedan consumir sin correr riesgo (Cómo alimentar a su bebé) https://www.cdc.gov/es/disasters/hurricanes/foodwater.html

See table footnotes on page 4.

TABLE 2. (*Continued*) English and Spanish guidance for response and recovery from hurricanes and floods, by primary target audience — CDC, 2017

English	En Español
Keep food and water safe after a disaster https://www.cdc.gov/disasters/foodwater/facts.html	Asegúrese de que los alimentos y el agua se puedan consumir sin correr riesgo https://www.cdc.gov/es/disasters/hurricanes/foodwater.html
Personal hygiene and handwashing after a disaster or emergency https://www.cdc.gov/disasters/floods/sanitation.html	Higiene personal y lavado de manos después de un desastre o emergencia https://www.cdc.gov/es/disasters/floods/sanitation.html
Extreme heat https://www.cdc.gov/disasters/extremeheat/index.html	Calor Extremo y Su Salud https://www.cdc.gov/extremeheat/espanol/index_esp.html
Homeowner's and renter's guide to mold cleanup after disasters https://www.cdc.gov/mold/pdfs/homeowners_and_renters_guide.pdf	Guía del propietario y arrendatario para la limpieza de moho después de desastres https://www.cdc.gov/mold/pdfs/IEPWG_Mold_Homeowners_and_Renters_Spanish_508.pdf
Get rid of mold https://www.cdc.gov/disasters/hurricanes/pdf/flyer-get-rid-of-mold.pdf	Elimine el moho https://www.cdc.gov/es/disasters/hurricanes/pdf/flyer-get-rid-of-mold.pdf
Mold FAQs https://www.cdc.gov/mold/faqs.htm	Preguntas más frecuentes sobre molde https://www.cdc.gov/mold/es/faqs.htm
Ready Wrigley Prepares for Storm and Flood Recovery (a resource for children) https://www.cdc.gov/phpr/readywrigley/documents/17_279940_Ready_Wrigley_mold_508.pdf	—
More resources for families https://www.cdc.gov/disasters/hurricanes/more-resources.html	Más recursos para las familias https://www.cdc.gov/es/disasters/hurricanes/more-resources.html
Public service announcements (PSAs) https://www.cdc.gov/disasters/hurricanes/psa.html	Anuncios de servicio público (PSA) https://www.cdc.gov/es/disasters/hurricanes/psa.html
Health care professionals	
Medical care of ill disaster evacuees: additional diagnoses to consider https://www.cdc.gov/disasters/medcare.html	—
Medical management and patient advisement after a disaster https://www.cdc.gov/disasters/management.html	—
Clinical guidance for carbon monoxide (CO) poisoning after a disaster https://www.cdc.gov/disasters/co_guidance.html	Directrices clínicas para la intoxicación por monóxido de carbono (CO) después de un desastre https://www.cdc.gov/es/disasters/co_guidance.html
Safety information for health care professionals https://www.cdc.gov/disasters/hurricanes/hcp.html	Información de seguridad para los profesionales de la salud https://www.cdc.gov/es/disasters/hurricanes/hcp.html
Public health professionals and response workers	
Emergency: response resources for storm, flood, and hurricane response https://www.cdc.gov/niosh/topics/emres/flood.html	NIOSH advierte sobre los peligros de limpieza después de una inundación https://www.cdc.gov/spanish/NIOSH/docs/94-123_sp/
Death scene investigation after natural disaster or other weather-related events: a toolkit https://www.cdc.gov/nceh/hsb/disaster/docs/DeathSceneInvestigation508.pdf	—
Public health assessment and surveillance after a disaster https://www.cdc.gov/disasters/surveillance/	—
Community Assessment for Public Health Emergency Response (CASPER) https://www.cdc.gov/nceh/hsb/disaster/casper/	—
Emergency Responder Health Monitoring and Surveillance (ERHMS) https://www.cdc.gov/niosh/erhms/default.html	—
Assessment of Chemical Exposures (ACE) toolkit https://www.atsdr.cdc.gov/ntsip/ace_toolkit.html	—
Chemical hazards: lead information for workers https://www.cdc.gov/niosh/topics/lead/safe.html	Instituto Nacional para la Seguridad y Salud Ocupacional (NIOSH) Plomo https://www.cdc.gov/spanish/niosh/topics/plomo.html
Chemical hazards: resources for emergency responders for chemical or radioactive materials https://www.cdc.gov/niosh/topics/emres/chemagent.html https://www.atsdr.cdc.gov/substances/ToxEmergency.asp	Seguridad de productos químicos https://www.cdc.gov/spanish/niosh/topics/quimicos.html
Preventing carbon monoxide poisoning from small gasoline-powered engines and tools https://www.cdc.gov/niosh/docs/96-118/	Prevención de envenenamiento con monóxido de carbono producido por herramientas y equipos con motores pequeños de gasoline https://www.cdc.gov/spanish/niosh/docs/96-118_sp/

See table footnotes on page 4.

TABLE 2. (*Continued*) English and Spanish guidance for response and recovery from hurricanes and floods, by primary target audience — CDC, 2017

English	En Español
Heat and outdoor workers https://www.cdc.gov/disasters/extremeheat/workers.html	Los trabajadores al aire libre y el calor https://www.cdc.gov/extremeheat/espanol/workers_esp.html
Indoor environmental quality https://www.cdc.gov/niosh/topics/indoorenv/	—
Indoor environmental quality: preventing occupational respiratory disease from exposures caused by dampness in office buildings, schools, and other nonindustrial buildings https://www.cdc.gov/niosh/docs/2013-102/	Prevención de enfermedades respiratorias ocupacionales por exposición causadas por la humedad en edificios de oficinas, escuelas y otros edificios no industriales https://www.cdc.gov/spanish/niosh/docs/2013-102_sp/
Indoor environmental quality: recommendations for the cleaning and remediation of flood-contaminated HVAC systems: a guide for building owners and managers https://www.cdc.gov/niosh/topics/emres/Cleaning-Flood-HVAC.html	—
Safety: guidance on personal protective equipment and clothing for flood cleanup workers https://www.cdc.gov/niosh/topics/emres/ppe-flood.html	Equipo de protección personal y la ropa para las personas que trabajan en la limpieza después de las inundaciones https://www.cdc.gov/spanish/niosh/topics/flood_sp/ppe-flood_sp.html
Safety: information for response and cleanup workers https://www.cdc.gov/disasters/hurricanes/workers.html	Información de seguridad para trabajadores de respuesta a emergencias y de limpieza https://www.cdc.gov/es/disasters/hurricanes/workers.html
Worker safety after a flood https://www.cdc.gov/disasters/floods/workersafety.html	Seguridad de los trabajadores después de una inundación https://www.cdc.gov/es/disasters/floods/workersafety.html
Traumatic incident stress: symptoms and recommendations for responders https://www.cdc.gov/niosh/topics/traumaticincident/	Estrés por sucesos traumáticos Información para el personal de emergencia https://www.cdc.gov/spanish/niosh/docs/2002-107_sp/
Tree removal: preventing chain saw injuries during tree removal after a disaster https://www.cdc.gov/disasters/chainsaws.html	Cómo prevenir lesiones causadas por motosierras después de un desastre https://www.cdc.gov/es/disasters/psa/chainsaw.html
Tree removal: preventing falls and electrocutions during tree trimming https://www.cdc.gov/niosh/docs/92-106/	Retiro de árbol: prevención de caídas y electrocuciones durante la poda de árboles https://www.cdc.gov/spanish/niosh/docs/92-106_sp/

* Information on this webpage is available in 11 different languages.
† Currently not available in Spanish.
§ This fact sheet is available in six additional languages, available at https://www.cdc.gov/co/factsheets.htm.

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Notes from the Field

Increase in Reported Hepatitis A Infections Among Men Who Have Sex with Men — New York City, January–August 2017

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Since 2011, the New York City (NYC) Department of Health and Mental Hygiene (DOHMH) has typically been notified of three or fewer cases of hepatitis A virus (HAV) infection each year among men who have sex with men (MSM) who reported no travel to countries where HAV is endemic. This year, DOHMH noted an increase in HAV infections among MSM with onsets in January–March 2017, and notified other public health jurisdictions via Epi-X, CDC's communication exchange network. As a result, 51 patients with HAV infection involving MSM were linked to the increase in NYC.

Confirmed cases were defined as symptomatic HAV infections with onset after December 31, 2016, in NYC residents who reported being MSM or having sexual contact with MSM, and reported no travel to areas of high or intermediate HAV endemicity. Probable cases were defined as onset of symptomatic HAV infection after December 31, 2016, in NYC residents who, irrespective of travel, reported being MSM or having sexual contact with MSM. For the period January 1–August 31, 2017, DOHMH identified 46 cases in MSM or persons with sexual contact with MSM; 36 confirmed and nine probable cases occurred in 45 MSM patients and one was in a female (confirmed case) who reported sexual contact with a bisexual male resident of a New York county outside New York City. Fifteen (33%) of the 46 patients were hospitalized, and three (7%) reported previous receipt of hepatitis A vaccine. Nineteen (41%) patients had traveled domestically during their incubation period, and eight (17%) had traveled to Western European countries where outbreaks of HAV infection among MSM are ongoing (*1*).

NYC routine surveillance identified another case of HAV infection (in addition to the 46 NYC patients), in a man who was hospitalized in New York City but resided in the New York county that had been visited by the female patient. Several Colorado jurisdictions also contacted DOHMH to report increases in HAV infections among MSM. In total, 51 patients were linked to the increase in NYC, either through epidemiologic or laboratory evidence, including five non-NYC patients (three from Colorado, one from New York outside of NYC, and one from Oregon).

Three of the 46 NYC patients and the one patient from Oregon reported sexual contact with four NYC outbreak patients (Figure). The Oregon patient (illness onset March 2017) worked as a food handler at a restaurant in Oregon, and a second food handler in the establishment subsequently contracted HAV infection, prompting a public notification recommending postexposure prophylaxis for an estimated 1,000 patrons who ate or drank at the establishment during a 7-day period in March 2017.

Serum specimens from 25 NYC MSM patients, the NYC female patient, and the New York (non-NYC) MSM patient were sent to CDC's Division of Viral Hepatitis Laboratory for molecular sequencing. Sequences of HAV isolated from the serum of 24 patients, including four of the eight who had traveled to Europe, matched the strains of genotype IA HAV circulating among European MSM: HAV16–090 (14 patients), VRD_521_2016 (eight), V16–25801 (two); two patients had sequences matching three Colorado MSM patients, and one had a unique sequence (Figure).

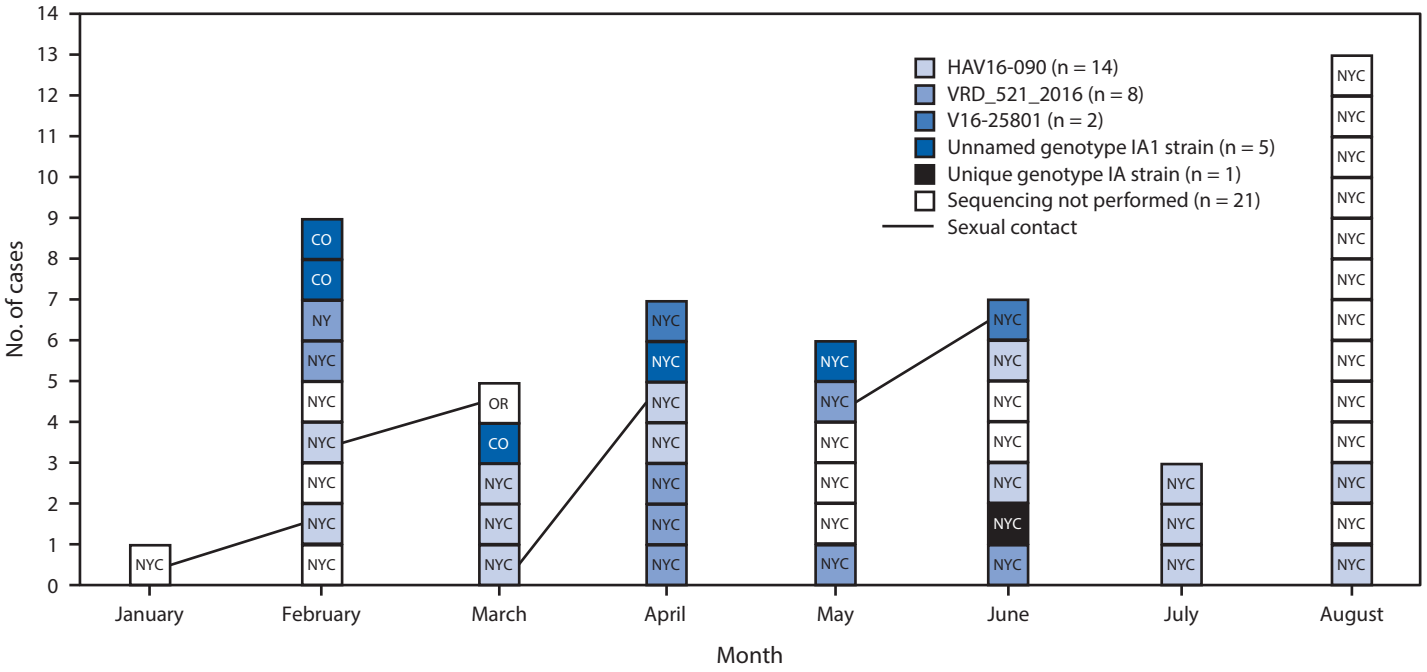
Only three patients with HAV infection reported previous receipt of HAV vaccine; this ongoing investigation highlights the importance of HAV vaccination among MSM, and of determining MSM status during HAV investigations. One patient received 1 dose (as postexposure prophylaxis), but the doses for the other two patients were unknown; both reported previous receipt of HAV vaccine but did not know the number of doses. Since 1996, the Advisory Committee on Immunization Practices has recommended that all MSM receive 2 doses of HAV vaccine administered at least 6 months apart (*2*). In NYC, the incidence of HAV infection for 2013–2015 was 6.8 times higher among MSM adults who had not traveled to countries where HAV is endemic than among non-MSM adults.* HAV vaccine was added to the routine childhood immunization schedule in 2006, but many susceptible adults might still be unvaccinated. Efforts to promote HAV vaccine in MSM, including targeted messaging campaigns,† will help prevent transmission among MSM (*2*).§

* Incidence rates were calculated using a numerator of combined 2013–2015 case reports of symptomatic HAV infections among NYC adults aged ≥18 years who reported no travel to countries of intermediate or high HAV endemicity, and a denominator of combined-year 2013–2015 estimates of MSM and non-MSM NYC adults aged ≥18 years from NYC's Community Health Survey (CHS), an annual cross-sectional telephone survey conducted by DOHMH. Rates were age-adjusted using direct standardization to the U.S. 2000 standard population. MSM status was determined based on patient or provider report for HAV case investigations, and by respondent report in the CHS.

† http://www1.nyc.gov/site/doh/health/health-topics/hepatitis-a.page?utm_source=Twitter&utm_campaign=HepA.

§ https://www.cdc.gov/hepatitis/populations/stds.htm.

FIGURE. Number of reported cases of hepatitis A virus (HAV) infection involving men who have sex with men (N = 51), by state or city of residence, month of symptom onset, HAV genotype, and reported sexual contact — New York City, January–August, 2017



Abbreviations: CO = Colorado; NY = New York (non-NYC); NYC = New York City; OR = Oregon.

Acknowledgments

Monique Foster, Division of Viral Hepatitis, CDC; Alexis Burakoff, Epidemic Intelligence Service, CDC, Communicable Disease Program, Colorado Department of Public Health and Environment; Kerri Brown, Alicia Cronquist, Communicable Disease Program, Colorado Department of Public Health and Environment; Payal Desai, Katelynn Devinney, Sharon Greene, Kevin Guerra, Bruce Gutelius, Marcelle Layton, Lan Li, Kenya Murray, Beth Nivin, Hilary Parton, Bureau of Communicable Disease, New York City Department of Health and Mental Hygiene; Fangtao He, Jillian Jessup, Bureau of Epidemiology Services, New York City Department of Health and Mental Hygiene; Adriana Andaluz, Demetre Daskalakis, Division of Disease Control, New York City Department of Health and Mental Hygiene; Minakshi Amin, Eliza Wilson, David Yang, Public Health Laboratory, New York City Department of Health and Mental Hygiene.

Conflict of Interest

No conflicts of interest were reported.

[1]Bureau of Communicable Disease, New York City Department of Health and Mental Hygiene; [2]Council of State and Territorial Epidemiologists/CDC Applied Epidemiology Fellowship; [3]Orange County Department of Health, New York; [4]Metropolitan Area Regional Office, New York State Department of Health; [5]Bureau of Communicable Disease Control, New York State Department of Health; [6]El Paso County Public Health, Colorado; [7]Acute & Communicable Disease Prevention Section, Oregon Health Authority; [8]Division of Viral Hepatitis Laboratory, CDC.

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Notes from the Field

Travel-Associated Melioidosis and Resulting Laboratory Exposures — United States, 2016

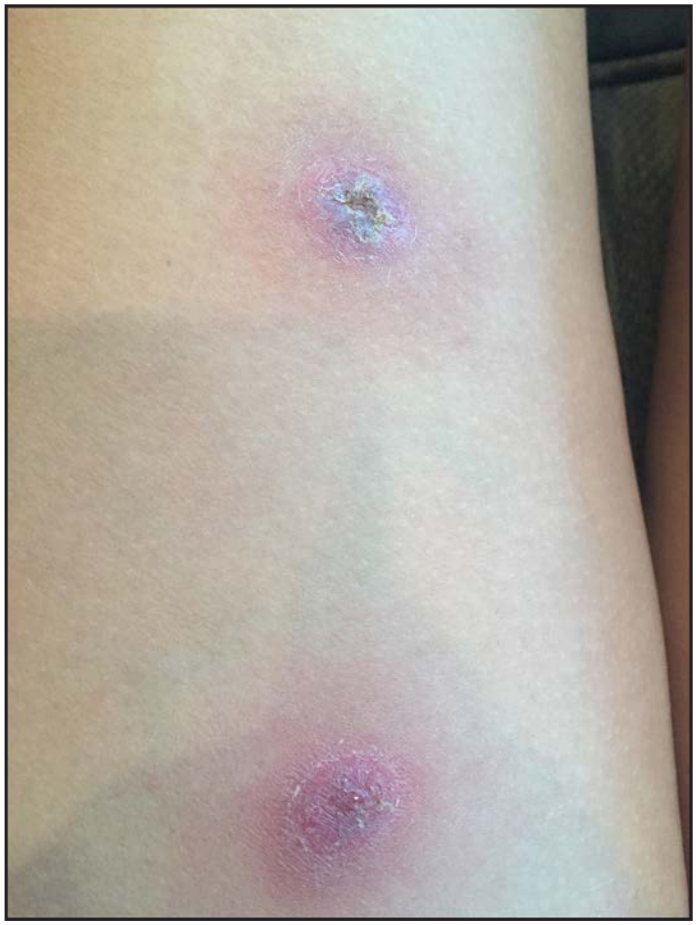
Patrick K. Mitchell, ScD[1,2]; Colin Campbell, DVM[3]; Martha P. Montgomery, MD[1,4]; Julie Paoline, MA[5]; Christopher Wilbur, MD[6]; Leah Posivak-Khouly, MPH[5]; Kristin Garafalo, MPH[3]; Mindy Elrod[7]; Lindy Liu, MPH[7]; Andre Weltman, MD[2]

In mid-July 2016, a Pennsylvania resident aged 15 years who had recently returned from Thailand was treated by a pediatrician for sore throat, fever, and bilateral thigh abscesses at the sites of mosquito bites (Figure). She had traveled to northeast Thailand with nine other teens as part of an 18-day service-oriented trip run by an Ohio-based youth tour company that arranges travel to Thailand for approximately 500 persons annually. This trip included construction and agricultural activities and recreational mud exposures. The patient subsequently developed right inguinal lymphadenopathy and worsening abscesses, which prompted specimen collection for culture on August 25. This specimen was sent to a commercial laboratory in New Jersey, which identified *Burkholderia pseudomallei*, the causative organism of melioidosis, on August 30. The patient did not experience pneumonia or bacteremia, and recovered fully after 2 weeks of intensive therapy with parenteral ceftazidime and a 6-month outpatient course of eradication therapy with doxycycline.

Melioidosis has variable, nonspecific presentation, which can include cutaneous infection, pneumonia, bacteremia, septicemia, and other manifestations, after an incubation period of 1–21 days, although longer incubations of months or years have been reported (*1*,*2*). It is typically acquired from direct contact with soil or water contaminated with *B. pseudomallei*, which is highly endemic in northeast Thailand (*2*). Interviews with a tour company official revealed communication gaps regarding destination-specific health risks. With input from the Ohio and Pennsylvania Departments of Health, the tour company distributed a letter to participants and staff members who were on the patient's trip, alerting them to melioidosis symptoms and exposure possibilities. No other trip participants responded to the letter to report symptoms. The tour company was advised to include CDC Yellow Book (*3*) resources in its predeparture materials for clients.

B. pseudomallei is not reportable in Pennsylvania, but is listed as a Tier 1 select agent, indicating its potential to pose a serious health threat (*4*). Although rare, laboratory acquisition of melioidosis through unknowing exposure to *B. pseudomallei* has been documented (*4*,*5*). Exposures for employees of the New Jersey commercial laboratory were categorized and managed according to published guidelines (*4*). Among 41 laboratory technologists assessed, serologic testing and symptom self-monitoring was recommended for two technologists who were exposed to aerosols while manipulating the culture outside of a biologic safety cabinet, and two who had predisposing medical conditions (diabetes [one] and long-term steroid use [one]) and were present in the laboratory during the aerosol-generating procedures. The two technologists handling the culture were also prescribed trimethoprim-sulfamethoxazole for antibiotic prophylaxis. One technologist developed fever, cough, and rash and was temporarily excluded from work. This was diagnosed as an adverse reaction to trimethoprim-sulfamethoxazole and resolved after switching to doxycycline. No melioidosis cases were identified among exposed laboratory technologists.

FIGURE. Thigh abscesses at the sites of mosquito bites in a Pennsylvania resident aged 15 years who had recently returned from Thailand, July 2016*



Photo/patient (used with permission, name withheld for confidentiality)
* Photo taken 7 weeks after onset.

Because only zero to five cases of melioidosis are identified annually in the United States and the disease has nonspecific and possibly delayed symptoms, it might not initially be suspected as a diagnosis (*1*,*4*,*6*). When patient travel history is compatible with *B. pseudomallei* exposure, clinicians should have a higher index of suspicion and share this suspicion with laboratory personnel to reduce exposure risk. Persons on service-oriented trips might be at higher risk for acquiring melioidosis than a typical traveler because of the potential for quasi-occupational exposures such as construction and farm work. Travelers should be advised to seek information about the particular health risks associated with their destinations and planned activities, and should share this information with health care providers if symptoms develop. Travel organizers should also be informed of the health risks related to the destinations they serve and types of trips they offer.

Conflict of Interest

No conflicts of interest were reported.

[1]Epidemic Intelligence Service, CDC; [2]Pennsylvania Department of Health; [3]New Jersey Department of Health; [4]Ohio Department of Health; [5]Montgomery County Health Department, Norristown, Pennsylvania; [6]Pediatric Infectious Diseases, Children's Hospital of Philadelphia, Philadelphia, Pennsylvania; [7]Division Of High-Consequence Pathogens and Pathology, CDC.

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Errata

Vol. 66, No. 31

In the report "Notes from the Field: Zika Virus-Associated Neonatal Birth Defects Surveillance — Texas, January 2016–July 2017," on page 835, the final sentence in the third paragraph should have read "Zika virus-associated birth defects identified in the remaining **five** infants included holoprosencephaly, cataracts, and ventral pons hypoplasia."

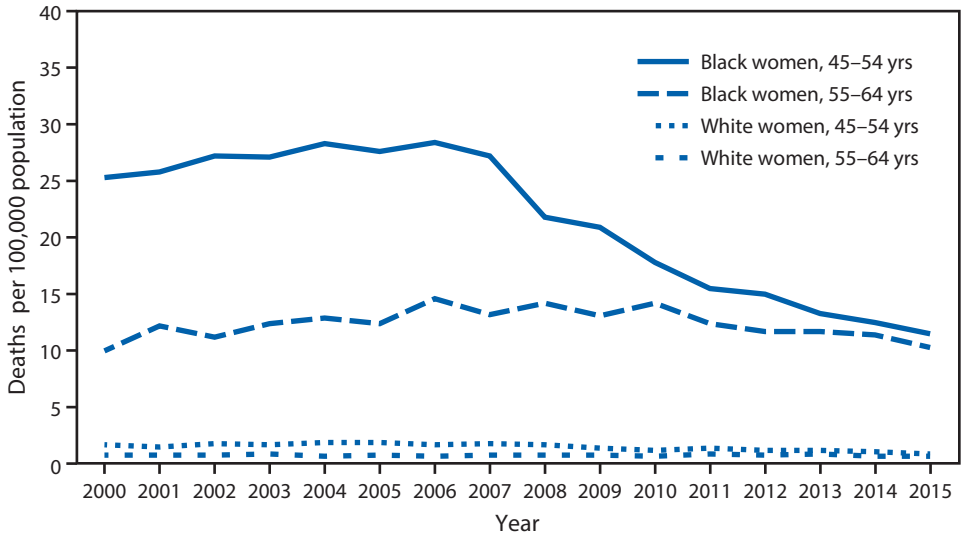
Vol. 66, No. 35

In the report "Notes from the Field: *Clostridium perfringens* Outbreak at a Catered Lunch — Connecticut, September 2016," on page 940, the sixth sentence of the second paragraph should have read "Coffee was also associated with illness; however, **all 13 coffee drinkers also ate the beef**."

QuickStats

FROM THE NATIONAL CENTER FOR HEALTH STATISTICS

Human Immunodeficiency Virus Disease Death Rates* Among Women Aged 45–64 Years, by Race and Age Group — National Vital Statistics System, United States, 2000–2015



* Deaths include those with underlying cause coded as B20–B24 in the *International Classification of Diseases, Tenth Revision*.

Among black women aged 45–54 years, the human immunodeficiency virus (HIV) disease death rate decreased 60% from 28.4 per 100,000 in 2006 to 11.5 in 2015. Among black women aged 55–64 years, the rate increased 42% from 10.0 in 2000 to 14.2 in 2008, before declining to 10.3 in 2015. Among white women aged 45–54 years, the rate decreased 53% from 1.9 in 2005 to 0.9 in 2015. Among white women aged 55–64 years, the rate did not change, remaining at about 0.8. Throughout the period, HIV disease death rates among black women were higher compared with rates among white women for both age groups.

Source: National Vital Statistics System. https://www.cdc.gov/nchs/data_access/vitalstatsonline.htm.

Reported by: Yelena Gorina, yag9@cdc.gov, 301-458-4241.

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