

Drug Overdose Deaths — Florida, 2003–2009

In the United States in 2007, unintentional poisonings were the second leading cause of injury death (after motor-vehicle crashes) (1); approximately 93% of all unintentional poisoning deaths were caused by drug poisoning, also known as drug overdose (2). From 1990 to 2001 in Florida, the nonsuicidal poisoning death rate increased 325% (3). To characterize recent trends in drug overdose death rates in Florida, CDC analyzed data from the Florida Medical Examiners Commission. This report summarizes the results of that analysis, which found that, from 2003 to 2009, the number of annual deaths in which medical examiner testing showed lethal concentrations of one or more drugs increased 61.0%, from 1,804 to 2,905, and the death rate increased 47.5%, from 10.6 to 15.7 per 100,000 population. During 2003–2009, death rates increased for all substances except cocaine and heroin. The death rate for prescription drugs increased 84.2%, from 7.3 to 13.4 per 100,000 population. The greatest increase was observed in the death rate from oxycodone (264.6%), followed by alprazolam (233.8%) and methadone (79.2%). By 2009, the number of deaths involving prescription drugs was four times the number involving illicit drugs. These findings indicate the need to strengthen interventions aimed at reducing overdose deaths from prescription drugs in Florida. Medical examiner records are a timely, population-based source for data regarding overdose deaths from specific drugs. The data in this report and subsequent analyses can be used to design and measure the effectiveness of interventions.

Florida has a system of regional state medical examiners whose jurisdiction includes all drug-related deaths. Drug overdose data were obtained for the period 2003–2009 from datasets of the Florida Medical Examiners Commission, which contain information on 34 types of drugs frequently abused, including ethanol (grain or beverage alcohol), prescription drugs, and illicit drugs (4). Drug-related deaths are divided into two categories: 1) drug-caused deaths, for which postmortem medical examiner toxicology testing determined that drugs were present in lethal amounts; and 2) drug-present deaths, for which drugs were found in nonlethal amounts. This analysis

included only drug-caused deaths, referred to in this report as drug overdose deaths.

Using U.S. Census resident population estimates, annual drug overdose death rates per 100,000 population were calculated for all drugs, prescription drugs, illicit drugs (including specifically heroin and cocaine), opioid analgesics (including specifically methadone, hydrocodone, oxycodone, and morphine), benzodiazepines (including specifically alprazolam), and ethanol. To test for the statistical significance of changes in death rates from 2003 to 2009, z-tests were conducted in categories with annual counts >100, and examination of overlapping confidence intervals from gamma distributions was used with counts <100.

During 2003–2009, a total of 16,550 drug overdose deaths were recorded by Florida medical examiners. The annual number of deaths increased 61.0%, from 1,804 to 2,905, and the death rate increased 47.5%, from 10.6 to 15.7 per 100,000 population. In 2009, approximately eight drug overdose deaths occurred each day. During 2003–2009, 85.9% of drug overdose deaths were unintentional, 11.1% were suicides, 2.6% were of undetermined intent, and 0.4% were homicides or pending. Prescription medications were implicated in 76.1%

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of all drug overdose deaths, and illicit drugs were implicated in 33.9% of deaths; in 10.0% of deaths, both prescription and illicit drugs were found in lethal concentrations.

In 85.5% of all drug overdose deaths, at least one of the seven specific drugs examined in this study was detected at a lethal concentration. Analysis of drug-specific death rates revealed different trends for different drugs during 2003–2009 (Table, Figure).

The death rate for prescription drugs increased 84.2%, from 7.3 to 13.4 per 100,000 population from 2003 to 2009. The greatest increase in death rate was observed for the prescription drug oxycodone (264.6%), followed by alprazolam (233.8%), methadone (79.2%), hydrocodone (34.9%), and morphine (26.2%). Conversely, the death rate for heroin decreased 62.2% from 2003 to 2009, and the death rate for cocaine increased until 2007 and then decreased 39.1% from 2007 to 2009 (Table).

In 2003, among the seven specific drugs examined, the highest death rate was for cocaine (3.2 per 100,000 population), followed by methadone (2.2), oxycodone (1.7), heroin (1.4), morphine and alprazolam (1.3), and hydrocodone (1.1). In 2009, the number of deaths involving prescription drugs was four times the number involving illicit drugs, and the highest death rate was for oxycodone (6.4 per 100,000 population), followed by alprazolam (4.4), methadone (3.9), cocaine (2.8), morphine (1.6), hydrocodone (1.4), and heroin (0.5) (Figure).

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Editorial Note

This report documents an increasing problem with fatal overdoses of prescription drugs, based on Florida medical examiner data, which are more timely and specific than national data available from death certificates. Recent national data indicate increasing numbers of deaths involving opioid analgesics and cocaine through 2006 (5). This report indicates a worsening problem in Florida with overdoses involving prescription drugs, especially oxycodone and alprazolam, and a recent sharp decline in cocaine-related deaths. Large national increases in rates of emergency department visits involving oxycodone and alprazolam occurred during 2004–2009 (6).

Similar recent changes in drug-specific death counts have been reported by the Office of the State Medical Examiner in Kentucky. From 2007 to 2009, the number of deaths involving oxycodone in Kentucky doubled, the number

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TABLE. Annual drug overdose death rates* for selected substances — Florida, 2003–2009

Substance	Year							% change 2003 to 2009 [§]
	2003	2004	2005	2006	2007	2008	2009 [†]	
Prescription drugs	7.3	8.2	8.6	9.5	11.0	11.9	13.4	84.2
Benzodiazepines	2.2	2.6	3.2	3.5	4.0	5.0	5.9	168.4
Alprazolam	1.3	1.8	2.3	2.5	3.1	3.8	4.4	233.8
Opioid analgesics	6.7	7.7	7.9	8.8	10.3	11.0	12.5	86.1
Oxycodone	1.7	2.0	1.9	2.7	3.8	5.1	6.4	264.6
Methadone	2.2	3.2	3.5	3.9	4.3	3.8	3.9	79.2
Hydrocodone	1.1	1.3	1.2	1.3	1.4	1.5	1.4	34.9
Morphine	1.3	1.2	1.4	1.2	1.4	1.6	1.6	26.2
Other prescription drugs [¶]	0.3	0.5	0.6	0.5	0.6	0.6	0.8	141.6
Illicit drugs	4.3	4.4	4.9	5.1	5.1	4.1	3.4	-21.4
Heroin	1.4	0.9	0.6	0.4	0.5	0.6	0.5	-62.2
Cocaine	3.2	3.4	4.1	4.5	4.6	3.5	2.8	-10.8
Other illicit drugs ^{**}	0.3	0.6	0.5	0.4	0.3	0.3	0.2	-4.1
Ethanol (alcohol)	1.5	1.6	1.7	1.8	2.3	2.4	2.8	81.4
All substances^{††}	10.6	11.7	12.1	13.1	14.3	14.6	15.7	47.5

* Per 100,000 population. Based on U.S. Census resident population estimates. Available at <http://www.census.gov/popest/states/states.html>.

[†] The addition of buprenorphine, oxycodone, and zolpidem to the list of monitored drugs resulted in small numbers of additional deaths in 2009, including 12 among all substances.

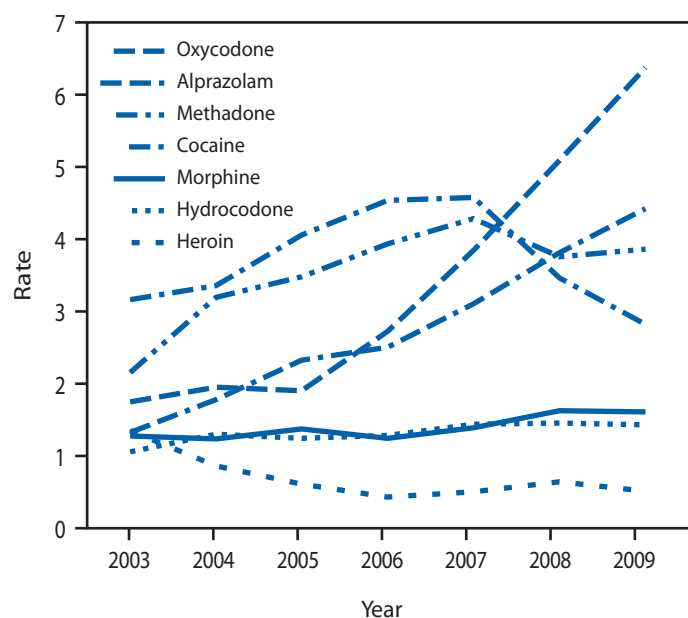
[§] Except for cocaine ($p = 0.06$) and other illicit drugs ($p = 0.9$), all the changes from 2003 to 2009 were statistically significant ($p < 0.05$). Percentage change might not match calculations based on table data because of rounding.

[¶] Includes amphetamine, carisoprodol/meprobamate, ketamine, and zolpidem.

^{**} Includes methamphetamine, inhalants, ecstasy, hallucinogens, and other illicit drugs.

^{††} Many deaths had several drugs contributing to the death; thus, the sum of the rates in each column exceeds the total death rate.

FIGURE. Annual drug overdose death rates* for selected prescription and illicit drugs — Florida, 2003–2009



* Per 100,000 population. Based on U.S. Census resident population estimates. Available at <http://www.census.gov/popest/states/states.html>.

involving alprazolam increased tenfold, and the numbers involving cocaine or methadone declined (7). Whether these specific trends with oxycodone and alprazolam are nationwide, regional, or indicative of common risk factors in Florida and Kentucky is unknown.

Since 2007, Florida has seen the proliferation of hundreds of pain clinics that prescribe large quantities of oxycodone and alprazolam, some of which is ultimately used for nonmedical purposes. Many of the customers of such clinics reportedly reside in Appalachian states such as Kentucky, and travel to Florida to obtain drugs for resale in their home states (8). In 2009, Florida passed legislation establishing standards for pain management clinics (9). The new legislation established more stringent licensure requirements, put a limit on the amount that could be prescribed when patients pay cash, and required tamper-resistant prescription forms. The impact of this legislation has not yet been determined. The dispensing of frequently abused prescription drugs, such as opioid analgesics and benzodiazepines, by pharmacies can be tracked using state prescription drug monitoring programs, now operational in 35 states (10). However, Florida does not yet have an operational prescription drug monitoring program.

The findings in this report are subject to at least five limitations. First, the analysis did not include all drug overdose deaths in Florida because the Florida Medical Examiners Commission collects data only on frequently abused drugs. Second, the death rates did not include Florida residents who died out of state but did include a small number of nonresidents who died in Florida. Third, reporting of deaths might have been incomplete from some medical examiner jurisdictions. Fourth, a few drugs were included in 2009 totals that were not tracked during 2003–2008. Finally, although the availability

References

What is already known on this topic?

In the United States in 2007, unintentional poisonings were the second leading cause of injury death. Approximately 93% of all unintentional poisoning deaths were caused by drug overdose. From 1990 to 2001 in Florida, the nonsuicidal poisoning death rate increased 325%.

What is added by this report?

The death rate from overdoses of prescription drugs in Florida increased 84.2% from 2003 to 2009, whereas the death rate from heroin overdose declined 62.2% and the death rate from cocaine overdose increased until 2007 and then declined 39.1% from 2007 to 2009. Among prescription drugs, the death rates for oxycodone and alprazolam increased 264.6% and 233.8%, respectively.

What are the implications for public health practice?

To address the increase in drug overdose deaths caused by prescription drugs, regulatory and public health agencies can implement surveillance systems that are able to count drug overdoses, describe patterns of drug use, and assess the impact of drug overdose prevention measures.

and scope of toxicologic testing were unchanged during 2003–2009, testing protocols among the nine laboratories in Florida providing the service are not standardized.

To address the increase in drug overdose deaths from prescription drugs, states need to implement surveillance systems that are able to track patterns of drug use and the impact of prevention measures. In addition, tighter regulation of pain clinics in all states might be necessary to prevent the migration of unethical clinics to jurisdictions without adequate regulation. Controls placed on wholesale distributors of frequently abused prescription drugs might prevent them from supplying unethical pain clinics. State and urban medical examiners can publish drug-specific overdose statistics to improve the timeliness of drug mortality surveillance.

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Cephalosporin Susceptibility Among *Neisseria gonorrhoeae* Isolates — United States, 2000–2010

Neisseria gonorrhoeae is a major cause of pelvic inflammatory disease, ectopic pregnancy, and infertility, and it can facilitate human immunodeficiency virus (HIV) transmission (1). Emergence of gonococcal resistance to penicillin and tetracycline occurred during the 1970s and became widespread during the early 1980s. More recently, resistance to fluoroquinolones developed. Resistance was documented first in Asia, then emerged in the United States in Hawaii followed by other western states. It then became prevalent in all other regions of the United States. In Hawaii, fluoroquinolone resistance was first noted among heterosexuals; however, resistance in the United States initially became prevalent among men who have sex with men (MSM) before generalizing to heterosexuals. This emergence of resistance led CDC, in 2007, to discontinue recommending any fluoroquinolone regimens for the treatment of gonorrhea (2–3). CDC now recommends dual therapy for gonorrhea with a cephalosporin (ceftriaxone 250 mg) plus either azithromycin or doxycycline (4). This report summarizes trends in cephalosporin susceptibility among *N. gonorrhoeae* isolates in the United States during 2000–2010 using data from the Gonococcal Isolate Surveillance Project (GISP). During that period, the percentage of isolates with elevated minimum inhibitory concentrations (MICs) to cephalosporins (≥ 0.25 $\mu\text{g}/\text{mL}$ for cefixime and ≥ 0.125 $\mu\text{g}/\text{mL}$ for ceftriaxone) increased from 0.2% in 2000 to 1.4% in 2010 for cefixime and from 0.1% in 2000 to 0.3% in 2010 for ceftriaxone. Although cephalosporins remain an effective treatment for gonococcal infections, health-care providers should be vigilant for treatment failure and are requested to report its occurrence to state and local health departments. State and local public health departments should promote maintenance of laboratory capability to culture *N. gonorrhoeae* to allow testing of isolates for cephalosporin resistance. They also should develop enhanced surveillance and response protocols for gonorrhea treatment failures and report gonococcal treatment failures to CDC.

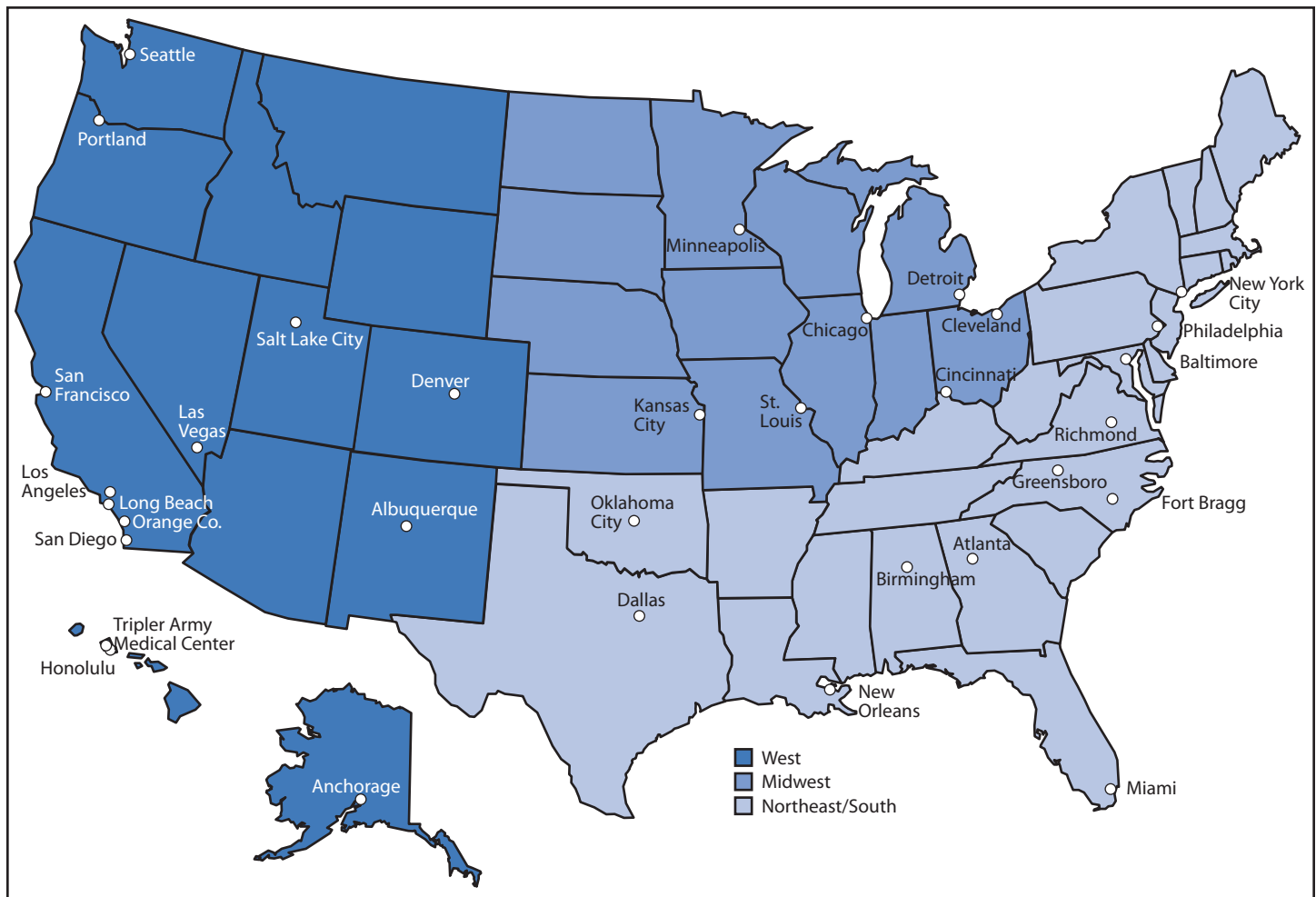
GISP is a CDC-sponsored, sentinel surveillance system that monitors antimicrobial susceptibilities in *N. gonorrhoeae* through ongoing testing of approximately 5,900 male urethral gonococcal isolates obtained annually from consecutive symptomatic men at 25–30 sexually transmitted disease (STD) clinics in the United States; approximately 4% of all reported gonorrhea cases among men are included annually (5). Antibiotic susceptibility is measured by MIC, the lowest concentration of an antibiotic that inhibits visible growth of the bacteria. MICs to cephalosporins (cefixime and ceftriaxone) among gonococcal isolates collected during

2000–2010 were analyzed. Cefixime susceptibilities were not determined during 2007–2008 because cefixime was unavailable in the United States during that period. Decreased antibiotic susceptibility for cefixime or ceftriaxone is defined by the Clinical and Laboratory Standards Institute (CLSI) as MICs ≥ 0.5 $\mu\text{g}/\text{mL}$; criteria for cefixime and ceftriaxone resistance in *N. gonorrhoeae* have not been defined (6). Because few isolates exhibited decreased susceptibility and increases in MICs can precede the emergence of resistance, the percentage of isolates with elevated MICs (≥ 0.25 $\mu\text{g}/\text{mL}$ for cefixime and ≥ 0.125 $\mu\text{g}/\text{mL}$ for ceftriaxone) was assessed to determine if MICs to cephalosporins were increasing with time. These breakpoints were used in GISP for surveillance purposes. The analyses were stratified by U.S. census region and sex of sex partner. The South and Northeast regions were combined because fewer samples are collected in the eastern half of the country compared with the western half (Figure 1). Sex of sex partner was categorized as MSM or men who have sex exclusively with women (MSW). Resistance to penicillin (MIC ≥ 2.0 $\mu\text{g}/\text{mL}$), tetracycline (MIC ≥ 2.0 $\mu\text{g}/\text{mL}$), and ciprofloxacin (MIC ≥ 1.0 $\mu\text{g}/\text{mL}$), a fluoroquinolone, were assessed. Cochran-Armitage trend tests were performed to assess statistical significance ($p < 0.05$).

An average of 5,865 isolates (range: 5,367–6,552) were tested annually during 2000–2010. Overall, the percentage of isolates with cefixime MICs ≥ 0.25 $\mu\text{g}/\text{mL}$ increased from 0.2% to 1.4% during 2000–2010 ($p < 0.001$). The percentage of isolates with ceftriaxone MICs ≥ 0.125 $\mu\text{g}/\text{mL}$ increased from 0.1% to 0.3% during 2000–2010 ($p = 0.047$). From 2000 to 2010, in the western region, the percentage of isolates with cefixime MICs ≥ 0.25 $\mu\text{g}/\text{mL}$ increased from 0% to 3.3% ($p < 0.001$), and the percentage of isolates with ceftriaxone MICs ≥ 0.125 $\mu\text{g}/\text{mL}$ increased from 0% to 0.5% ($p < 0.001$) (Table). In the western region, the most prominent increases in cefixime MICs were observed in Honolulu, Hawaii (0% in 2000 and 7.7% in 2010 [$p < 0.001$]), and in California (0% in 2000 and 4.5% in 2010 [$p < 0.001$]). An increase in ceftriaxone MICs also was observed in California (0% in 2000 and 0.6% in 2010 [$p = 0.001$]).

Among MSM, the percentage of isolates with cefixime MICs ≥ 0.25 $\mu\text{g}/\text{mL}$ increased from 0% in 2000 to 4.0% during 2010 ($p < 0.001$), and the percentage of isolates with ceftriaxone MICs ≥ 0.125 $\mu\text{g}/\text{mL}$ increased from 0% to 0.9% ($p < 0.001$). Overall, no statistically significant increases occurred in cefixime or ceftriaxone MICs among MSW (Figure 2). Regionally, increases in the percentage of isolates with cefixime MICs ≥ 0.25 $\mu\text{g}/\text{mL}$

FIGURE 1. Sentinel sites participating in the Gonococcal Isolate Surveillance Project — United States, 2000–2010*



* Sites had continuous participation during 2000–2010 with the following exceptions (and years of participation): Anchorage (2000–2003); Detroit (2003–2010); Fort Bragg (2000–2002); Greensboro (2002–2010); Kansas City (2000–2001 and 2007–2010); Los Angeles (2003–2010); Las Vegas (2002–2010); Long Beach (2000–2007); New York City (2006–2010); Oklahoma City (2003–2010); Richmond (2007–2010); Salt Lake City (2003); St. Louis (2000–2004); and Tripler Army Medical Center (2001–2006 and 2009–2010).

among MSM were observed in all regions during 2000–2010 (West: 0% in 2000 and 5.0% in 2010 [$p < 0.001$]; Midwest: 0% in 2000 and 3.4% in 2010 [$p = 0.001$]; Northeast and South: 0% in 2000 and 0.9% in 2010 [$p = 0.035$]). A significant increase among MSW was identified in the West (0% in 2000 and 1.3% in 2010 [$p < 0.001$]); however, no change occurred in the Midwest (0.3% in 2000 and 0.1% in 2010), and a significant decrease occurred in the Northeast and South (0.4% in 2000 and 0% in 2010 [$p < 0.001$]). For isolates with ceftriaxone MICs $\geq 0.125 \mu\text{g}/\text{mL}$, significant regional increases were observed among MSM in the West (0% in 2000 and 0.8% in 2010 [$p < 0.001$]) and Midwest (0% in 2000 and 2.0% in 2010 [$p = 0.046$]) and among MSW in the West (0% in 2000 and 0.2% in 2010 [$p = 0.008$]); no significant increases were observed among MSM or MSW in other regions.

During 2009–2010, 13 (0.11%) of 11,323 isolates had decreased susceptibility to cefixime (MICs = $0.5 \mu\text{g}/\text{mL}$), compared with seven (0.02%) of 41,462 isolates during 2000–2006 ($p < 0.001$) (isolates were not tested for cefixime susceptibility during 2007–2008). All 2009–2010 isolates with decreased susceptibility to cefixime were resistant to tetracycline and ciprofloxacin, all but one were resistant to penicillin, and none exhibited decreased susceptibility to azithromycin ($\geq 2 \mu\text{g}/\text{mL}$). Twelve of the men from whom the isolates were obtained were MSM; 10 men resided in the West, and three in the Midwest. No isolates had decreased susceptibility to ceftriaxone during 2000–2010.

TABLE. Number and percentage of gonorrhea isolates with cefixime MICs $\geq 0.25 \mu\text{g/mL}$ and ceftriaxone MICs $\geq 0.125 \mu\text{g/mL}$, by region — Gonococcal Isolate Surveillance Project, United States, 2000–2010

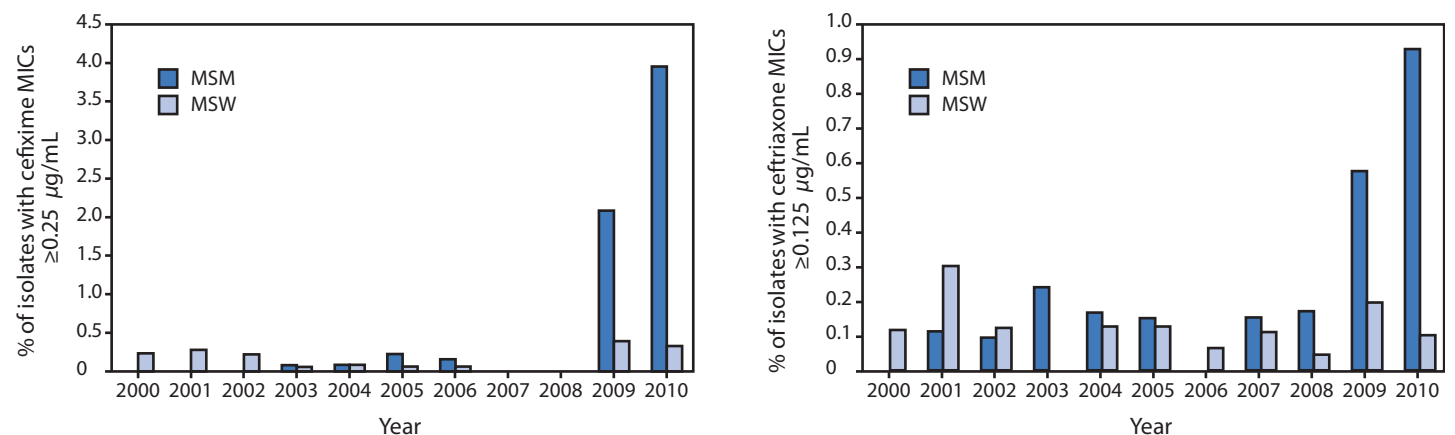
Year	Cefixime											
	West*			Midwest*			Northeast/South*			Total*		
	No.	(%)	No. of specimens tested	No.	(%)	No. of specimens tested	No.	(%)	No. of specimens tested	No.	(%)	No. of specimens tested
2000	0	(0.0)	1,910	3	(0.2)	1,565	7	(0.4)	1,986	10	(0.2)	5,461
2001	4	(0.2)	2,066	1	(0.1)	1,561	7	(0.4)	1,845	12	(0.2)	5,472
2002	0	(0.0)	2,163	1	(0.1)	1,273	8	(0.4)	1,931	9	(0.2)	5,367
2003	1	(0.0)	2,558	0	(0.0)	1,628	3	(0.1)	2,366	4	(0.1)	6,552
2004	2	(0.1)	2,540	2	(0.1)	1,673	2	(0.1)	2,109	6	(0.1)	6,322
2005	5	(0.2)	2,551	0	(0.0)	1,409	1	(0.0)	2,239	6	(0.1)	6,199
2006	4	(0.2)	2,489	0	(0.0)	1,420	1	(0.0)	2,180	5	(0.1)	6,089
2007	—	—	—	—	—	—	—	—	—	—	—	—
2008	—	—	—	—	—	—	—	—	—	—	—	—
2009	37	(1.9)	1,924	7	(0.5)	1,398	1	(0.0)	2,308	45	(0.8)	5,630
2010	68	(3.3)	2,072	6	(0.5)	1,146	3	(0.1)	2,475	77	(1.4)	5,693

Year	Ceftriaxone											
	West*			Midwest			Northeast/South			Total*		
	No.	(%)	No. of specimens tested	No.	(%)	No. of specimens tested	No.	(%)	No. of specimens tested	No.	(%)	No. of specimens tested
2000	0	(0.0)	1,910	5	(0.3)	1,565	0	(0.0)	1,986	5	(0.1)	5,461
2001	4	(0.2)	2,065	5	(0.3)	1,561	7	(0.4)	1,845	16	(0.3)	5,471
2002	0	(0.0)	2,163	1	(0.1)	1,273	6	(0.3)	1,931	7	(0.1)	5,367
2003	3	(0.1)	2,558	0	(0.0)	1,628	0	(0.0)	2,366	3	(0.0)	6,552
2004	3	(0.1)	2,540	3	(0.2)	1,673	3	(0.1)	2,109	9	(0.1)	6,322
2005	0	(0.0)	2,551	1	(0.1)	1,409	7	(0.3)	2,239	8	(0.1)	6,199
2006	1	(0.0)	2,489	0	(0.0)	1,420	2	(0.1)	2,180	3	(0.0)	6,089
2007	1	(0.0)	2,195	5	(0.4)	1,405	1	(0.0)	2,409	7	(0.1)	6,009
2008	4	(0.2)	1,906	0	(0.0)	1,407	0	(0.0)	2,410	4	(0.1)	5,723
2009	11	(0.6)	1,924	5	(0.4)	1,398	0	(0.0)	2,308	16	(0.3)	5,630
2010	11	(0.5)	2,072	4	(0.3)	1,146	4	(0.2)	2,475	19	(0.3)	5,693

Abbreviation: MICs = minimum inhibitory concentrations.

* Region had a statistically significant ($p < 0.05$) trend (increase or decrease) during 2000–2010, by the Cochran-Armitage test for trend.

FIGURE 2. Percentage of gonorrhea isolates with cefixime MICs $\geq 0.25 \mu\text{g/mL}$ and ceftriaxone MICs $\geq 0.125 \mu\text{g/mL}$, by sex of sex partner — Gonococcal Isolate Surveillance Project, United States, 2000–2010



Abbreviations: MICs = minimum inhibitory concentrations; MSM = men who have sex with men; MSW = men who have sex exclusively with women.

What is already known on this topic?

Cephalosporins are a critical component of CDC-recommended gonorrhea treatment; however, declining cephalosporin susceptibility and cephalosporin treatment failures have been reported in Asia and Europe.

What is added by this report?

This report describes current trends in cephalosporin susceptibility among *Neisseria gonorrhoeae* isolates in the United States: minimum inhibitory concentrations (MICs) to cephalosporins are increasing, suggesting that susceptibility to cephalosporins might be declining. The prevalence of isolates with elevated MICs remains low overall.

What are the implications for public health practice?

Health-care providers should use ceftriaxone and azithromycin for treatment of gonorrhea, remain vigilant for gonorrhea cephalosporin treatment failures, and report treatment failures to their local or state health departments. Local and state health departments should promote the maintenance of local gonococcal culture capacity, establish options for local gonococcal antibiotic susceptibility testing, consider enhancing surveillance for cephalosporin-resistant gonorrhea, and report gonorrhea cases with cephalosporin treatment failure to CDC.

Reported by

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Editorial Note

The epidemiologic pattern of cephalosporin susceptibility in the West and among MSM during 2009–2010 is similar to that previously observed during the emergence of fluoroquinolone-resistant *N. gonorrhoeae* in the United States (2–3,7). Although the history of fluoroquinolone-resistant *N. gonorrhoeae* might not predict the patterns of decreasing cephalosporin susceptibility, the observed trends are concerning. During 2001–2010, decreased gonococcal susceptibility to cephalosporins and reported treatment failures have been documented in Asia (8). Recently, two cases of gonococcal treatment failure were reported from Norway among heterosexual men with gonococcal urethritis treated with cefixime (9), and a pharyngeal isolate with a ceftriaxone MIC = 2.0 µg/mL was identified from a female commercial sex worker in Japan (10).

The potential emergence of gonococcal cephalosporin resistance is of particular concern because the U.S. gonorrhea control strategy relies upon effective antibiotic therapy. Previously, the emergence and spread of gonococcal antibiotic resistance in the United States was addressed by changing the recommended antibiotics for treatment. No other well-studied and effective antibiotic treatment options or combinations currently are available. The emergence of gonococcal cephalosporin resistance would substantially limit available treatment options.

In light of the diminished resources available to STD control programs and the past inability to prevent emergence of resistance, the eventual emergence of cephalosporin resistance appears likely. Actions undertaken now could delay the spread of cephalosporin-resistant strains and mitigate the public health consequences. Effective treatment of gonorrhea is essential and now requires two antibiotics. The findings in this report suggest that gonococcal resistance to cefixime might emerge in the United States before resistance to ceftriaxone. Ceftriaxone is the most effective cephalosporin for treatment of gonorrhea and should be used for treatment of gonorrhea in combination with azithromycin or doxycycline (4). Azithromycin is preferred over doxycycline for dual therapy with ceftriaxone; of the 2009–2010 isolates with decreased susceptibility to cefixime, none exhibited decreased susceptibility to azithromycin, and all of them exhibited tetracycline resistance. Based on the findings in this report, CDC currently is recommending ceftriaxone 250 mg intramuscularly and azithromycin 1 g orally as the most effective treatment for uncomplicated gonorrhea.

In addition to effective treatment, prompt recognition of cephalosporin-resistant gonorrhea is critical. Although GISP has been successful in identifying important shifts in gonococcal epidemiology and antimicrobial susceptibility, its effectiveness should be complemented through partnerships with local health departments and health-care providers. Clinicians should remain vigilant for treatment failures (evidenced by persistent symptoms or a positive follow-up test despite treatment) among patients treated for gonorrhea with CDC-recommended antibiotics and obtain specimens for gonococcal culture from patients with possible treatment failure. Clinicians caring for patients with gonorrhea, particularly MSM in the western United States, might consider having patients return 1 week after treatment for test-of-cure with culture, preferably, or with nucleic acid amplification tests (NAATs).

If a patient experiences cefixime treatment failure, clinicians should re-treat the patient with 250 mg ceftriaxone intramuscularly and 2 g azithromycin orally (4). If a patient experiences a ceftriaxone treatment failure, clinicians should consult with an infectious disease expert and CDC regarding re-treatment. These patients should return for tests-of-cure

within 1 week, preferably with culture, or, if culture is not available, with NAAT. If the follow-up NAAT result is positive, a specimen for culture should be obtained. Clinicians also should ensure that the patient's sex partners from the preceding 2 months are tested for gonorrhea (preferably with culture) and empirically treated with ceftriaxone 250 mg intramuscularly and azithromycin 2 g orally. Finally, these treatment failures should be reported to the local or state health department within 24 hours. Laboratorians are requested to report gonococcal isolates with decreased cefixime or ceftriaxone susceptibility ($\geq 0.5 \mu\text{g/mL}$) to their local or state health departments within 24 hours of identification. Local and state health departments are requested to report these cases immediately to CDC (gispinfo@cdc.gov or 404-639-8659). Isolates can be submitted to CDC's Neisseria Reference Laboratory for confirmation susceptibility testing.*

Local and state health departments also should promote maintenance of local gonococcal culture capacity, despite the widespread use of NAATs. Gonococcal antibiotic susceptibility testing (AST), necessary for identification of resistant isolates, only can be performed with culture specimens. Health departments should establish options for local availability of gonococcal cultures and AST, and consider enhancing surveillance for cephalosporin-resistant gonorrhea. Options for local culture and AST availability might involve building or enhancing local gonorrhea reference laboratory testing capacity, partnering with regional clinical laboratories or academic institutions, or sending isolates to CDC for susceptibility testing. Enhanced surveillance might include monitoring of multiple cases from the same patient reported within 30–60 days, often discarded as presumed duplicates. Finally, effective alternative antibiotics or antibiotic combinations for the treatment of gonorrhea are needed urgently; thus, the development of novel antibiotics and clinical trials to study combinations of existing antibiotics is necessary.

The findings in this report are subject to at least two limitations. First, data available in GISP only include results from urethral gonococcal isolates from males attending publicly funded STD clinics. Second, the clinical significance of shifts in MICs below CLSI criteria for decreased susceptibility is unclear, and transient increases and decreases in cephalosporin

MICs have been observed previously in GISP. However, in light of similar trends in other regions of the world, the patterns observed in GISP with higher MICs in isolates from the west and MSM, and the ability of *N. gonorrhoeae* to develop resistance, the increasing MICs to cephalosporins in the United States are concerning. Vigilance of clinicians and enhanced surveillance by local and state health departments will be critical for early detection of treatment failures.

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Update to CDC's *U.S. Medical Eligibility Criteria for Contraceptive Use, 2010*: Revised Recommendations for the Use of Contraceptive Methods During the Postpartum Period

Initiation of contraception during the postpartum period is important to prevent unintended pregnancy and short birth intervals, which can lead to negative health outcomes for mother and infant (1). In 2010, CDC published *U.S. Medical Eligibility Criteria for Contraceptive Use, 2010* (US MEC), providing evidence-based guidance for choosing a contraceptive method based on the relative safety of contraceptive methods for women with certain characteristics or medical conditions, including women who are postpartum (2). Recently, CDC assessed evidence regarding the safety of combined hormonal contraceptive use during the postpartum period. This report summarizes that assessment and the resulting updated guidance. These updated recommendations state that postpartum women should not use combined hormonal contraceptives during the first 21 days after delivery because of the high risk for venous thromboembolism (VTE) during this period. During 21–42 days postpartum, women without risk factors for VTE generally can initiate combined hormonal contraceptives, but women with risk factors for VTE (e.g., previous VTE or recent cesarean delivery) generally should not use these methods. After 42 days postpartum, no restrictions on the use of combined hormonal contraceptives based on postpartum status apply.

Importance of Contraception During the Postpartum Period

Half of all pregnancies in the United States are unintended, and these pregnancies have been associated with adverse pregnancy behaviors and outcomes, including later entry into prenatal care, decreased likelihood of smoking cessation, increased incidence of low birth weight, and decreased breastfeeding (3). In addition, short interpregnancy intervals can lead to negative consequences such as low birth weight and preterm birth (4). The postpartum period is an important time to initiate contraception because women are accessing the health-care system and might have increased motivation to avoid another pregnancy. Ovulation can occur as early as 25 days postpartum among nonbreastfeeding women, underscoring the importance of initiating contraception in the very early postpartum period (5).

However, safety of contraceptive use among postpartum women also must be considered. Hematologic changes that occur normally during pregnancy, including an increase in coagulation factors and fibrinogen and a decrease in natural anticoagulants, result in an increased risk for VTE during the postpartum period. In addition, many postpartum women have additional risk factors that further increase their risk for VTE, such as age ≥ 35 years, smoking, or recent cesarean delivery. This is of concern when considering postpartum contraception options because combined hormonal contraceptives (i.e., those that contain both estrogen and progestin) are themselves associated with a small increased risk for VTE among healthy women of reproductive age (6).

Rationale and Methods

US MEC, first published by CDC in 2010, was adapted from *Medical Eligibility Criteria for Contraceptive Use*, published by the World Health Organization (WHO) (2), which has been publishing global evidence-based contraceptive guidance since 1996. Although CDC adapted a small number of WHO recommendations and added a few new recommendations for U.S. health-care providers, the majority of the recommendations in the WHO guidance and US MEC are the same. Recommendations are provided using categories “1” to “4,” based on the balance of benefits and harms signifying whether or not the contraceptive method is safe for use among women with a particular medical condition or characteristic; category 1 represents a method that is safe to use without restriction and category 4 represents an unacceptable health risk (Table 1). CDC is committed to ensuring that these recommendations remain up-to-date and based on the best available scientific evidence. An update can be triggered either by identification of new evidence or by any evidence-based updates made to the WHO global guidance.

In 2010, based on new evidence (7), WHO updated its guidance on the safety of combined hormonal contraceptives among postpartum nonbreastfeeding women to be more restrictive regarding the use of combined hormonal contraceptives during the first 42 days postpartum, particularly among women with other risk factors for VTE (6).

TABLE 1. Updated recommendations for combined hormonal contraceptives, including combined oral contraceptives, combined hormonal patch, and combined vaginal ring, during the postpartum period among nonbreastfeeding women

Condition	Category*	Clarifications/Evidence
Postpartum (nonbreastfeeding women)		
a. <21 days	4	Evidence: There is no direct evidence examining the risk for VTE among postpartum women using CHCs. VTE risk is elevated during pregnancy and postpartum; this risk is most pronounced in the first weeks after delivery, declining to near baseline levels by 42 days postpartum. Use of CHCs, which increases the risk for VTE in healthy reproductive age women, might pose an additional risk if used during this time. Risk for pregnancy during the first 21 days postpartum is very low, but increases after that point; ovulation before first menses is common.
b. 21–42 days		
i. With other risk factors for VTE (such as age \geq 35 years, previous VTE, thrombophilia, immobility, transfusion at delivery, BMI \geq 30, postpartum hemorrhage, postcesarean delivery, preeclampsia, or smoking)	3	Clarification: For women with other risk factors for VTE, these risk factors might increase the classification to a "4"; for example, smoking, deep venous thrombosis/pulmonary embolism, known thrombogenic mutations, and peripartum cardiomyopathy. Evidence: There is no direct evidence examining the risk for VTE among postpartum women using CHCs. VTE risk is elevated during pregnancy and postpartum; this risk is most pronounced in the first weeks after delivery, declining to near baseline levels by 42 days postpartum. Use of CHCs, which increases the risk for VTE in healthy reproductive age women, might pose an additional risk if used during this time.
ii. Without other risk factors for VTE	2	
c. >42 days	1	

Abbreviations: VTE = venous thromboembolism; CHC = combined hormonal contraceptive; BMI = body mass index (weight [kg] / height [m²]).

* Categories: 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.

Recommendations for breastfeeding women were not changed. Because of this WHO update, CDC initiated a process to assess whether its guidance similarly should be updated. Before this process, US MEC recommended that women less than 21 days postpartum generally should not use combined hormonal contraceptives, but that after that time, combined hormonal contraceptives could be used without restriction.

From a systematic review conducted by WHO and CDC and used in the consultation to update the WHO guidance, evidence from 13 studies showed that the risk for VTE among women within the first 42 days postpartum is 22-fold to 84-fold greater than the risk among nonpregnant, nonpostpartum reproductive age women (7). The risk is highest immediately after delivery, declining rapidly during the first 21 days, but not returning to baseline until 42 days postpartum in most studies. Use of combined hormonal contraceptives, which can cause a small increased risk for VTE in healthy reproductive age women, might theoretically pose an additional risk if used during this time. However, no evidence was identified regarding risk for VTE among postpartum women using combined hormonal contraceptives. The evidence also is limited by the small number of studies that report risk for VTE at precise intervals during the postpartum period and report baseline risk for VTE in a reference population for comparison with the

risk among postpartum women. Evidence also was examined regarding the return to fertility among nonbreastfeeding postpartum women and indicated that ovulation can occur as early as 25 days postpartum, although fertile ovulation likely will not occur until at least 42 days postpartum (5).

As part of the CDC assessment, CDC recruited 13 persons from outside the agency to serve as ad hoc reviewers of the WHO revised recommendations; they were selected based on their expertise in thromboembolic disease, hematology, and family planning. The reviewers were asked to participate in a January 2011 teleconference with CDC, during which participants would review the evidence base and assess whether WHO's revised recommendations were suitable for use in the United States. A key issue identified was that immediate postpartum use of combined hormonal contraceptives would impose a high risk for VTE without any substantial benefit in pregnancy prevention because most nonlactating women will not have a fertile ovulation until at least 42 days postpartum (5). Women with risk factors for VTE in addition to being postpartum (e.g., obesity or cesarean delivery) are already at elevated risk for VTE; use of combined hormonal contraceptives theoretically would further compound that risk. Finally, access to contraceptive methods was a concern of the group; however, unlike methods that require a visit to

a provider (e.g., implants and intrauterine devices [IUDs]), combined hormonal contraceptives can be started by the woman herself at the appropriate time if given a prescription or sample in advance (either before hospital discharge or at a postpartum visit).

Recommendations for Use of Combined Hormonal Contraceptives During the Postpartum Period

CDC recommends the following updated guidelines for the safety of combined hormonal contraceptives in postpartum women who are not breastfeeding (Table 1). In women who are <21 days postpartum, use of combined hormonal contraceptives represents an unacceptable health risk and should not be used (category 4). In women who are 21–42 days postpartum and have other risk factors for VTE in addition to being postpartum, the risks for combined hormonal contraceptives usually outweigh the advantages and therefore combined hormonal contraceptives generally should not be used (category 3); however, in the absence of other risk factors for VTE, the advantages of combined hormonal contraceptives generally outweigh the risks, and they can usually be used (category 2). In women who are >42 days postpartum, no restriction applies for the use of combined hormonal contraceptives because of postpartum status (category 1). Nonetheless, any other medical conditions still should be taken into consideration when determining the safety of the contraceptive method.

Separate recommendations in the 2010 US MEC for combined hormonal contraceptive use among women who are breastfeeding remain unchanged (2). These recommendations are based on evidence regarding potential negative effects of hormonal contraceptive use on breastfeeding, such as decreased duration of breastfeeding and higher rates of supplemental feeding (8). Among women who are breastfeeding and are <1 month postpartum, combined hormonal contraceptives are given a category 3 because of concerns about the effects of estrogen on breastfeeding duration and success. After 1 month, combined hormonal contraceptive use is given a category 2 for breastfeeding women. However, some of the updated recommendations based on risk for VTE in postpartum

women now supersede the breastfeeding recommendations. For example, combined hormonal contraception is now classified as a category 4 (unacceptable health risk) for all postpartum women, regardless of breastfeeding status, for the first 21 days (Table 2).

Health-care providers assessing a woman's individual risk also should consider any other characteristics or medical conditions that might impact the classification. For postpartum women, this might include examining the recommendations for other risk factors for VTE, such as known thrombogenic mutations (category 4) or history of VTE with risk factors for recurrence (category 4), both of which pose an unacceptable health risk for combined hormonal contraceptive use, whether or not women are postpartum (2).

Recommendations for Use of Other Contraceptive Methods During the Postpartum Period

Recommendations for use of other contraceptives, including progestin-only hormonal contraceptives, remain unchanged and many are good options for postpartum women (Table 3). Progestin-only hormonal methods, including progestin-only pills, depot medroxyprogesterone acetate injections, and implants, are safe for postpartum women, including women who are breastfeeding, and can be initiated immediately postpartum (categories 1 and 2). IUDs, including the levonorgestrel-releasing IUD and copper-bearing IUD, also can be inserted postpartum, including immediately after delivery (categories 1 and 2) and are not associated with an increase in complications. Although IUD expulsion rates are somewhat higher when insertion occurs within 28 days of delivery, continuation rates at 6 months are similar among women who receive an IUD postpartum and those who plan for delayed insertion (9,10). Condoms can be used anytime (category 1), and the diaphragm and cap should be started at 6 weeks postpartum (category 1 after 6 weeks). In addition, women who have completed their childbearing might wish to consider sterilization at this time. Postpartum contraception is important for the health of mother and infant, and education for both health-care providers and women should focus on the range of contraception options and the safety of most of these methods during the postpartum period.

TABLE 2. Updated recommendations for combined hormonal contraceptives, including combined oral contraceptives, combined hormonal patch, and combined vaginal ring, during the postpartum period among breastfeeding women

Condition	Category*	Clarifications/Evidence
Postpartum (breastfeeding women [†])		Clarification: The U.S. Department of Health and Human Services recommends that infants should be exclusively breastfed during the first 4–6 months of life, preferably for a full 6 months. Ideally, breastfeeding should continue through the first year of life. Evidence: Clinical studies demonstrate conflicting results about effects on milk volume in women exposed to COCs during lactation; no consistent effect on infant weight has been reported. Adverse health outcomes or manifestations of exogenous estrogen in infants exposed to CHCs through breast milk have not been demonstrated. In general, these studies are of poor quality, lack standard definitions of breastfeeding or outcome measures, and have not included premature or ill infants. Theoretical concerns about effects of CHCs on breast milk production are greater in the early postpartum period when milk flow is being established.
a. <21 days	4	Evidence: There is no direct evidence examining the risk for VTE among postpartum women using CHCs. VTE risk is elevated during pregnancy and postpartum; this risk is most pronounced in the first weeks after delivery, declining to near baseline levels by 42 days postpartum. Use of CHCs, which increases the risk for VTE in healthy reproductive age women, might pose an additional risk if used during this time. Risk of pregnancy during the first 21 days postpartum is very low, but increases after that point; ovulation before first menses is common.
b. 21 to <30 days		
i. With other risk factors for VTE (such as age ≥35 years, previous VTE, thrombophilia, immobility, transfusion at delivery, BMI ≥30, postpartum hemorrhage, postcesarean delivery, preeclampsia, or smoking)	3	Clarification: For women with other risk factors for VTE, these risk factors might increase the classification to a “4”; for example, smoking, deep venous thrombosis/pulmonary embolism, known thrombogenic mutations, and peripartum cardiomyopathy. Evidence: There is no direct evidence examining the risk for VTE among postpartum women using CHCs. VTE risk is elevated during pregnancy and postpartum; this risk is most pronounced in the first weeks after delivery, declining to near baseline levels by 42 days postpartum. Use of CHCs, which increases the risk for VTE in healthy reproductive age women, might pose an additional risk if used during this time.
ii. Without other risk factors for VTE	3	
c. 30–42 days		
i. With other risk factors for VTE (such as age ≥35 years, previous VTE, thrombophilia, immobility, transfusion at delivery, BMI ≥30, postpartum hemorrhage, postcesarean delivery, preeclampsia, or smoking)	3	Clarification: For women with other risk factors for VTE, these risk factors might increase the classification to a “4”; for example, smoking, deep venous thrombosis/pulmonary embolism, known thrombogenic mutations, and peripartum cardiomyopathy. Evidence: There is no direct evidence examining the risk for VTE among postpartum women using CHCs. VTE risk is elevated during pregnancy and postpartum; this risk is most pronounced in the first weeks after delivery, declining to near baseline levels by 42 days postpartum. Use of CHCs, which increases the risk for VTE in healthy reproductive age women, might pose an additional risk if used during this time.
ii. Without other risk factors for VTE	2	
d. >42 days	2	

Abbreviations: VTE = venous thromboembolism; CHC = combined hormonal contraceptive; BMI = body mass index (weight [kg] / height [m²]); COC = combined oral contraceptives.

* Categories: 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.

[†] The breastfeeding recommendations are divided by month in *U.S. Medical Eligibility Criteria for Contraceptive Use, 2010*. They have been divided by days for purposes of integration with the postpartum recommendations.

TABLE 3. Summary of recommendations and risk classifications* for hormonal contraceptive methods and intrauterine devices during the postpartum period

Condition	COC/P/R	POP	DMPA	Implants	LNG-IUD	Cu-IUD
Postpartum (nonbreastfeeding women)						
a. <21 days	4	1	1	1		
b. 21 days to 42 days						
i. With other risk factors for VTE (such as age \geq 35 years, previous VTE, thrombophilia, immobility, transfusion at delivery, BMI \geq 30, postpartum hemorrhage, postcesarean delivery, preeclampsia or smoking)	3 [†]	1	1	1		
ii. Without other risk factors for VTE	2	1	1	1		
c. >42 days	1	1	1	1		
Postpartum (breastfeeding women [§])						
a. <21 days	4	2	2	2		
b. 21 to <30 days						
i. With other risk factors for VTE (such as age \geq 35 years, previous VTE, thrombophilia, immobility, transfusion at delivery, BMI \geq 30 kg/m ² , postpartum hemorrhage, postcesarean delivery, preeclampsia or smoking)	3 [†]	2	2	2		
ii. Without other risk factors for VTE	3	2	2	2		
c. 30–42 days						
i. With other risk factors for VTE (such as age \geq 35 years, previous VTE, thrombophilia, immobility, transfusion at delivery, BMI \geq 30, postpartum hemorrhage, postcesarean delivery, preeclampsia or smoking)	3 [†]	1	1	1		
ii. Without other risk factors for VTE	2	1	1	1		
d. >42 days	2	1	1	1		
Postpartum (breastfeeding or nonbreastfeeding women, including postcesarean delivery)						
a. <10 min after delivery of the placenta					2	1
b. 10 min after delivery of the placenta to <4 wks					2	2
c. \geq 4 wks					1	1
d. Puerperal sepsis					4	4

Abbreviations: COC = combined oral contraceptives; P = combined hormonal patch; R = combined vaginal ring; POP = progestin-only pill; DMPA = depot medroxyprogesterone acetate; IUD = intrauterine device; LNG-IUD = levonorgestrel-releasing IUD; Cu-IUD = copper-bearing IUD; VTE = venous thromboembolism; CHC = combined hormonal contraceptive; BMI = body mass index (weight [kg] / height [m²]).

* Categories: 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.

[†] Clarification: For women with other risk factors for VTE, these risk factors might increase the classification to a "4"; for example, smoking, deep venous thrombosis/pulmonary embolism, known thrombogenic mutations, and peripartum cardiomyopathy.

[§] The breastfeeding recommendations are divided by month in *U.S. Medical Eligibility Criteria for Contraceptive Use, 2010*. They have been divided by days for purposes of integration with the postpartum recommendations.

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Vital Signs: Colorectal Cancer Screening, Incidence, and Mortality — United States, 2002–2010

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Abstract

Background: Screening lowers colorectal cancer (CRC) incidence and mortality. CRC is preventable through the removal of premalignant polyps and is curable if diagnosed early. Increased CRC screening and reduced CRC incidence and mortality are among the *Healthy People 2020* objectives.

Methods: CRC screening data are reported using information from 2002–2010 Behavioral Risk Factor Surveillance System surveys. State-specific CRC incidence and mortality data were drawn from the United States Cancer Statistics. Annual percentage changes (APCs) in incidence and death rates from 2003 to 2007 were calculated by state.

Results: From 2002 to 2010, the percentage of persons aged 50–75 years who were adequately screened for colorectal cancer increased from 52.3% to 65.4%. In 2007, CRC incidence ranged from 34.3 per 100,000 population in Utah to 56.9 in North Dakota; death rates ranged from 12.3 per 100,000 in Utah to 21.1 in the District of Columbia (DC). From 2003 to 2007, CRC incidence declined significantly in 35 states, and mortality declined in 49 states and DC, with APCs ranging from 1.0% per year in Alabama to 6.3% per year in Rhode Island.

Conclusions: CRC incidence and mortality have declined in recent years throughout the United States, and CRC screening has increased.

Implications for Public Health Practice: Continued declines in incidence and mortality are expected as past and current public health emphasis on the importance of CRC screening become evident with the increase in screening. To ensure these gains continue, CRC screening should be accessible and used as recommended by all eligible persons in the United States.

Introduction

Colorectal cancer (CRC) is the second most commonly diagnosed cancer and the second leading cause of cancer mortality in the United States among cancers that affect both men and women (1). Strong evidence indicates that screening for CRC reduces the incidence of and mortality from the disease (2). Screening tests for CRC, including fecal occult blood testing (FOBT), sigmoidoscopy, and colonoscopy, used at appropriate intervals, reduce incidence and mortality through prevention (identification and removal of premalignant polyps) and early detection (2). Since 1996, the United States Preventive Services Task Force (USPSTF) and other organizations have recommended CRC screening for persons aged ≥ 50 years. In 2008, updated guidelines from USPSTF recommended that routine screening continue only until age 75 years, based on review of the risks and benefits of screening (2). Despite the evidence linking CRC screening to lower incidence and mortality, a significant number of age-eligible persons in the United States have not received potentially life-saving screening.

Healthy People 2020 (HP 2020) objectives call for reducing the incidence of CRC to 38.6 per 100,000 population, reducing

the death rate to 14.5 per 100,000 population, and increasing the prevalence of CRC screening to 70.5% (3). This report updates CRC screening prevalence data with data from the 2010 Behavioral Risk Factor Surveillance System (BRFSS) survey and presents state-specific data for CRC incidence and death rates for 2007 and annual percentage changes from 2003 to 2007.

Methods

BRFSS is a state-based, random-digit-dialed telephone survey of the civilian, noninstitutionalized adult population that collects information on health risk behaviors, preventive health practices, and health-care access in the United States (4). Survey data were available for all 50 states (except for Hawaii in 2004) and the District of Columbia (DC). For 2010, the median Council of American Survey and Research Organizations (CASRO) response rate for BRFSS was 54.6%, and the median cooperation rate was 76.9% (4).

During 2002–2010, every 2 years, respondents aged ≥ 50 years were asked whether they have ever used a “special kit at home to determine whether the stool contains blood (fecal occult blood test [FOBT]),” whether they have ever had a “tube

inserted into the rectum to view the colon for signs of cancer or other health problems (sigmoidoscopy or colonoscopy),” and when these tests were last performed. CDC calculated the percentage of adults who reported having had an FOBT within the past year or lower endoscopy (i.e., sigmoidoscopy or colonoscopy) within the preceding 10 years, enabling comparison with previous reports (5). This analysis is restricted to persons aged 50–75 years, in accordance with the USPSTF recommended age range for screening (2). Respondents who refused to answer, had a missing answer, or who answered “don’t know/not sure” were excluded from the analysis. Data were weighted to the age, sex, and racial/ethnic distribution of each state’s adult population using intercensal estimates and were age-standardized to the 2010 BRFSS population.

United States Cancer Statistics (USCS) (1) provides official federal statistics on cancer incidence (newly diagnosed cases) and cancer deaths in each state, using data from the National Program of Cancer Registries (NPCR) and/or the Surveillance, Epidemiology, and End Results (SEER) Program and from the National Vital Statistics System. In 2007, the most recent year for which incidence data were available, 49 states and DC met USCS data criteria representing 99.2% of the U.S. population. Incidence trend analyses included new cases of colorectal cancer diagnosed during 2003–2007 from NPCR/SEER registries that met USCS criteria for every year of the study period; 48 states and DC, representing 97.2% of the U.S. population, were included. Incident colorectal cancers were coded according to the *International Classification of Disease for Oncology, Third Edition* (ICD-O-3).

Cancer mortality statistics are based on information from all death certificates filed in the 50 states and DC and therefore cover 100% of the U.S. population. All reported deaths with CRC identified as the underlying cause of death according to the *International Classification of Diseases, Tenth Revision* (ICD-10) during 2003–2007 were included in this analysis. For trends in incidence and mortality, annual percentage changes (APCs) are reported, using the weighted least squares method and the joinpoint regression program. Population estimates for the denominators of incidence and death rates were from the U.S. Census, as modified by SEER (1). Data were age-adjusted to the 2000 U.S. standard population by the direct method; corresponding 95% confidence limits (CLs) were calculated as modified gamma intervals (6). Rates and APCs are shown for all races/ethnicities, and all age groups combined for each state.

Results

The 2010 BRFSS survey was administered to 236,186 persons aged 50–75 years. In this population, the overall age-adjusted combined CRC screening (FOBT and lower endoscopy) increased from 52.3% in 2002 to 65.4% in 2010

(Table, Figure 1). From 2002 to 2010, FOBT use declined from 21.1% to 11.8%.

During 2003–2007, a total of 722,542 CRC cases were reported in the United States. Overall age-adjusted CRC incidence rates decreased from 52.3 per 100,000 in 2003 to 45.5 per 100,000 in 2007 (an APC of 3.4% per year), representing 65,994 fewer new cases of cancer than expected during this period (2003–2007) compared with 2002. In 2007, North Dakota reported the highest CRC incidence (56.9 per 100,000) and Utah reported the lowest (34.3) (Figure 2). CRC incidence rates decreased significantly in 35 states from 2003 to 2007, with Maryland reporting the largest percentage decrease in CRC incidence (6.5% per year) (Table).

During 2003–2007, a total of 268,783 CRC deaths were reported in the United States. The overall age-adjusted CRC death rate decreased from 19.0 per 100,000 in 2003 to 16.7 per 100,000 in 2007 (an APC of 3.0% per year), representing 31,800 fewer deaths than expected during this period (2003–2007) compared with 2002. In 2007, DC reported the highest CRC mortality (21.1 per 100,000), and Colorado and Montana reported the lowest (14.1 per 100,000) (Figure 2). CRC mortality rates decreased significantly in 49 states and DC from 2003–2007, with Rhode Island reporting the largest decrease in CRC mortality (6.3% per year).

Conclusion and Comments

CRC incidence decreased by 3.4% per year, and the CRC death rate decreased by 3.0% per year from 2003 to 2007 in the United States. These decreases in CRC incidence and mortality represent approximately 66,000 fewer new cases and 32,000 fewer deaths than expected from 2003 to 2007, compared with 2002. A total of 35 states had significant decreases in CRC incidence. Forty-nine states and DC experienced a statistically significant decrease in CRC mortality, with the largest declines occurring in states with some of the highest screening prevalence. Approximately 50% of the improvement in mortality can be attributed to increased screening, with 35% attributed to reductions in risk factors such as smoking and obesity, and 12% to improved CRC treatment (7). For incidence, CRC screening and changes in risk factors each accounted for 50% of the decline (7).

The decreases in CRC incidence and mortality from 2003 to 2007 were part of a larger U.S. trend from 1975 to 2007 (Figure 3). According to SEER statistics, beginning in 1975, CRC incidence increased from 59.5 per 100,000 population to 66.3 in 1985, before declining steadily to 44.7 in 2007. The CRC death rate declined from 28.6 in 1976 to 16.7 in 2007 (http://seer.cancer.gov/csr/1975_2007/index.html). However, CRC incidence and death rates overall remained above the

TABLE. Annual percentage change (APC)* in colorectal cancer death and incidence† rates from 2003 to 2007, and percentage of respondents aged 50–75 years with up-to-date screening in 2010, by state/area — United States

State/Area	Mortality		Incidence		Screening§	
	APC 2003 to 2007	(95% CL)	APC 2003 to 2007	(95% CL)	%	(95% CL)
United States	-3.0	(-4.2, -1.7)	-3.4	(-3.7, -3.2)	65.4	(65.0, 65.8)
Alabama	-1.0	(-1.3, -0.7)	-0.7¶	(-2.2, 0.8)	63.4	(61.3, 65.4)
Alaska	-1.5	(-2.3, -0.8)	-6.2¶	(-17.0, 6.1)	59.3	(55.0, 63.5)
Arizona	-2.0	(-2.3, -1.6)	-6.3	(-9.0, -3.4)	63.4	(60.5, 66.3)
Arkansas	-3.0	(-4.4, -1.7)	-3.0	(-5.3, -0.6)	59.4	(56.8, 62.0)
California	-2.2	(-2.3, -2.1)	-1.9	(-3.4, -0.4)	64.1	(62.7, 65.5)
Colorado	-4.6	(-8.6, -0.4)	-3.9	(-7.4, -0.4)	66.0	(64.5, 67.5)
Connecticut	-5.1	(-6.3, -3.8)	-4.7	(-7.5, -1.8)	75.6	(73.6, 77.4)
Delaware	-2.1	(-2.4, -1.7)	-1.7¶	(-6.4, 3.3)	71.0	(68.5, 73.3)
District of Columbia	-1.6	(-1.9, -1.2)	-5.1¶	(-13.6, 4.1)	70.7	(68.2, 73.2)
Florida	-2.9	(-3.5, -2.2)	-4.5	(-5.7, -3.3)	67.3	(65.7, 68.9)
Georgia	-3.1	(-4.1, -2.1)	-2.7	(-5.1, -0.3)	67.4	(65.2, 69.4)
Hawaii	-1.5	(-1.8, -1.1)	-2.9¶	(-6.1, 0.4)	62.0	(59.8, 64.2)
Idaho	-1.9	(-2.4, -1.4)	-3.6	(-6.3, -0.8)	57.0	(55.0, 58.9)
Illinois	-2.1	(-2.4, -1.9)	-2.4	(-4.0, -0.7)	59.4	(57.0, 61.7)
Indiana	-3.6	(-5.4, -1.8)	-3.6	(-4.8, -2.4)	61.8	(60.1, 63.6)
Iowa	-2.8	(-3.6, -1.9)	-3.0	(-5.1, -0.9)	63.8	(61.8, 65.7)
Kansas	-1.7	(-2.0, -1.4)	-3.6	(-6.4, -0.7)	63.7	(62.1, 65.3)
Kentucky	-1.6	(-2.0, -1.3)	-2.5	(-3.5, -1.5)	62.4	(60.2, 64.5)
Louisiana	-4.5	(-6.6, -2.3)	-2.2	(-4.1, -0.3)	60.8	(58.9, 62.6)
Maine	-2.5	(-2.9, -2.2)	-4.0	(-6.6, -1.4)	73.7	(72.1, 75.2)
Maryland	-3.1	(-3.6, -2.7)	-6.5	(-9.0, -4.0)	72.6	(70.8, 74.3)
Massachusetts	-5.3	(-7.0, -3.5)	-6.0	(-7.4, -4.7)	75.8	(74.4, 77.2)
Michigan	-2.4	(-2.6, -2.1)	-3.5	(-5.6, -1.5)	70.1	(68.5, 71.6)
Minnesota	-2.4	(-2.9, -2.0)	-2.4	(-4.0, -0.7)	70.7	(68.7, 72.5)
Mississippi	-0.1¶	(-0.4, 0.1)	-2.1¶	(-4.4, 0.3)	58.2	(56.3, 60.0)
Missouri	-3.6	(-5.2, -2.0)	-2.7¶	(-5.5, 0.1)	63.5	(61.0, 66.0)
Montana	-1.6	(-2.0, -1.3)	-2.2	(-4.3, 0.0)	58.7	(56.8, 60.7)
Nebraska	-1.5	(-1.7, -1.3)	-1.0¶	(-4.7, 2.9)	60.4	(58.6, 62.1)
Nevada	-1.1	(-1.5, -0.8)	NS	NS	57.7	(54.4, 61.0)
New Hampshire	-2.3	(-2.7, -2.0)	-4.6	(-8.5, -0.5)	75.7	(73.9, 77.4)
New Jersey	-2.8	(-3.0, -2.5)	-4.0	(-6.3, -1.7)	65.5	(63.8, 67.2)
New Mexico	-1.2	(-1.5, -0.9)	-3.6	(-6.4, -0.7)	60.1	(58.2, 62.1)
New York	-4.7	(-5.7, -3.7)	-3.8	(-5.5, -2.2)	70.1	(68.4, 71.7)
North Carolina	-2.2	(-2.7, -1.8)	-2.4¶	(-5.9, 1.1)	68.9	(67.2, 70.5)
North Dakota	-2.3	(-3.2, -1.5)	-1.4¶	(-7.5, 5.1)	58.4	(56.3, 60.5)
Ohio	-2.1	(-2.3, -1.9)	-2.7	(-4.5, -0.9)	63.4	(61.7, 65.1)
Oklahoma	-1.0	(-1.2, -0.8)	-1.4	(-2.4, -0.4)	54.9	(53.1, 56.6)
Oregon	-1.6	(-1.9, -1.4)	-4.3	(-6.1, -2.5)	64.8	(62.7, 66.8)
Pennsylvania	-3.4	(-4.2, -2.6)	-2.8	(-3.9, -1.7)	67.0	(65.4, 68.6)
Rhode Island	-6.3	(-10.3, -2.2)	-1.9¶	(-5.4, 1.7)	74.7	(72.8, 76.4)
South Carolina	-1.9	(-2.5, -1.4)	-5.6	(-7.5, -3.6)	65.1	(63.0, 67.2)
South Dakota	-4.3	(-7.1, -1.5)	-3.4¶	(-8.0, 1.5)	64.4	(62.4, 66.4)
Tennessee	-1.4	(-1.8, -1.1)	NS	NS	61.2	(58.8, 63.6)
Texas	-2.5	(-2.9, -2.2)	-2.9	(-3.8, -1.9)	59.9	(57.9, 61.7)
Utah	-4.4	(-7.1, -1.7)	-4.8	(-8.1, -1.4)	67.5	(65.8, 69.1)
Vermont	-2.2	(-2.7, -1.7)	-3.3¶	(-9.8, 3.6)	71.7	(70.0, 73.3)
Virginia	-3.8	(-5.2, -2.4)	-4.5	(-6.0, -2.9)	68.1	(65.6, 70.6)
Washington	-3.6	(-5.3, -1.8)	-4.5	(-7.0, -1.9)	72.4	(71.3, 73.4)
West Virginia	-3.1	(-5.4, -0.7)	-4.2	(-6.6, -1.7)	54.7	(52.3, 57.0)
Wisconsin	-4.4	(-6.2, -2.6)	-6.0	(-10.2, -1.6)	68.9	(66.6, 71.2)
Wyoming	-3.3	(-5.0, -1.6)	-2.8¶	(-11.0, 6.2)	57.6	(55.7, 59.5)

Abbreviation: CL = confidence limits; NS = not shown; state did not meet United States Cancer Statistics (USCS) publication criteria for 2003–2007.

Sources: Mortality data are provided by the National Vital Statistics System, covering 100% of the U.S. population.

Cancer incidence combines cancer registry data from the National Program of Cancer Registries and the Surveillance, Epidemiology and End Results Program that met USCS publication criteria for 2003–2007, covering 97.2% of the U.S. population. Additional information available at <http://www.cdc.gov/uscs>.

Colorectal cancer screening data are from the 2010 Behavioral Risk Factor Surveillance System (BRFSS) survey. Available at <http://www.cdc.gov/brfss>.

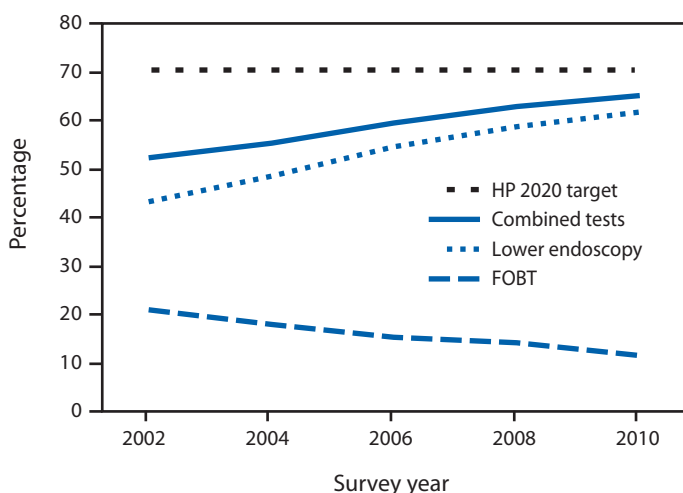
* Calculated using weighted least squares method and joinpoint regression modeling.

† Per 100,000 population, age-adjusted to the 2000 U.S. standard population.

§ Percentage of persons aged 50–75 years who reported receiving a fecal occult blood test within 1 year or a lower endoscopy (i.e., sigmoidoscopy or colonoscopy) within 10 years; age-standardized to the 2010 BRFSS population aged 50–75 years.

¶ The APC was not significantly different from zero ($p \geq 0.05$).

FIGURE 1. Percentage of respondents aged 50–75 years who reported receiving a fecal occult blood test (FOBT) within 1 year and/or a lower endoscopy* within 10 years and Healthy People 2020 (HP 2020) target — Behavioral Risk Factor Surveillance System (BRFSS) surveys, United States, 2002, 2004, 2006, 2008, and 2010†



* Sigmoidoscopy or colonoscopy.

† Age-standardized to the population aged 50–75 years in the 2010 BRFSS survey.

HP 2020 targets of 38.6 per 100,000 and 14.5 per 100,000, respectively (Figure 3).

The prevalence of being up-to-date with CRC screening improved with 65.4% reporting being screened at recommended intervals (2). This represents a substantial improvement in the past decade; only 40.9% of U.S. residents reported CRC screening in 1997 (8). Endoscopy is currently the predominant screening modality in the United States; 61.8% of U.S. residents aged 50–75 years reported lower endoscopy within the past 10 years. A recent report estimated that, in 2005, colonoscopy use prevented an estimated 7,000 CRC deaths, but an additional 14,000 CRC deaths could have been prevented that year if more persons had undergone colonoscopy (9). If the HP 2020 target for CRC screening (70.5%) is met, almost 1,000 additional deaths will be averted per year (10).

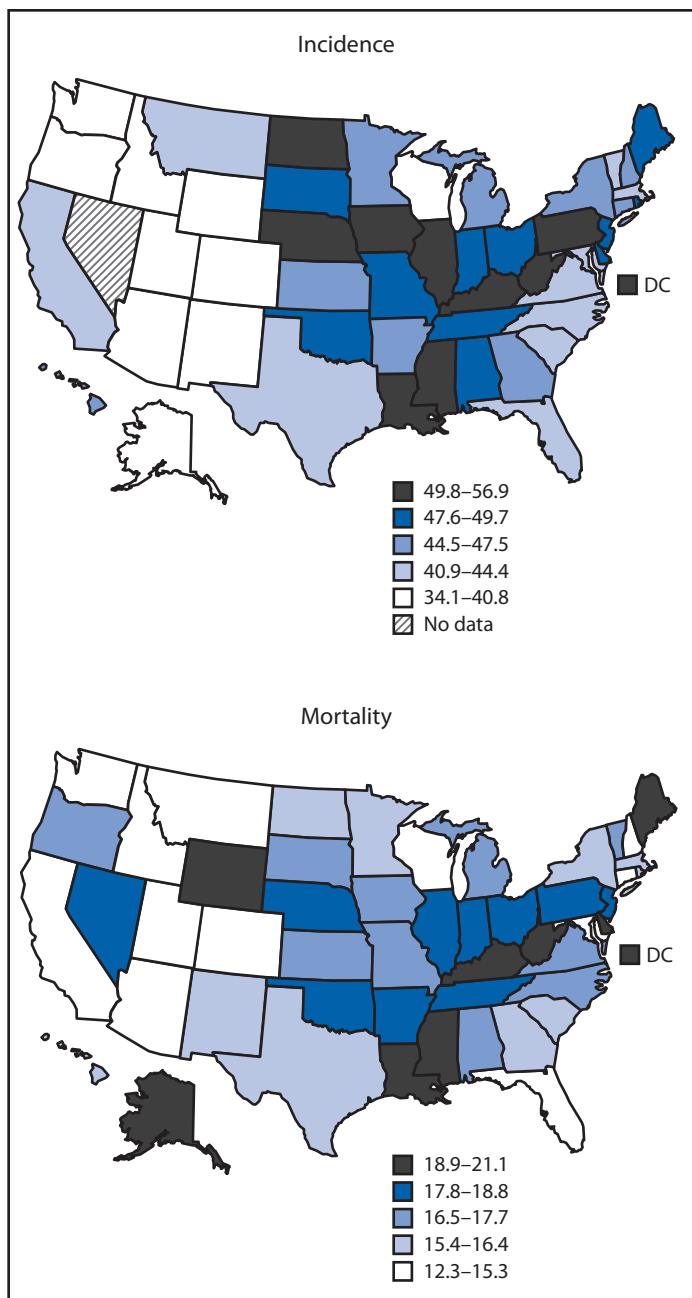
More than one third of respondents reported not being up-to-date with screening. A recent review of predictors of CRC screening found that physician recommendation continues to be a major facilitator of screening and a barrier when no recommendation is made (11). Lack of knowledge about CRC screening, lack of health insurance, lower income and education, and being from a racial or ethnic minority group were additional barriers to screening (11). A survey of U.S. and Canada residents regarding their preference for CRC screening reported that 31% of survey respondents in the United States would choose not to be screened for CRC even when their preferred screening test was offered (12). Given provider influence on patients' use of CRC screening, this appears to provide an opportunity to recommend screening to eligible patients.

The medical and societal costs of CRC are substantial. Estimated direct medical costs for CRC care in 2010 were \$14 billion, with projected costs of up to \$20 billion by 2020 (13). In 2006, estimated lost productivity costs for persons who died from CRC were \$15.3 billion (14). This equals \$288,468 of lost productivity per CRC death in 2006 (14). Screening costs per person vary by test. The lifetime (age 50–80 years) average per person cost of screening ranges from \$71 per person for guaiac-based FOBT to \$1,397 per person for colonoscopy (15).

CDC established the Colorectal Cancer Control Program in 2009, funding a total of 22 states and four tribal organizations to promote CRC screening and increase population-level screening rates to 80% and, subsequently, to reduce CRC incidence and mortality. In 2010, three additional states were funded, bringing the total number of grantees to 29. Grantees work through partnership with state and local organizations, Federally Qualified Health Centers, and other health-care systems that will be critical to effect population-level change. Many of the program strategies draw from the *Community Guide to Preventive Services*, which has identified evidence-based interventions to increase cancer screening in communities by targeting providers and the general population (available at <http://www.thecommunityguide.org/index.html>).

Implementation of the Affordable Care Act is expected to remove financial barriers to CRC screening. However, additional effort will be needed to improve population-based screening and outcomes. Targeting systems-level changes and providers might be an effective method to improve CRC screening and follow-up in health-care systems. For example, from 2005 to 2009, Kaiser Northern California doubled its up-to-date CRC screening from 35% to 69% among commercially insured enrollees and increased screening for Medicare enrollees from 46% to 75% (16) by implementing a highly organized screening program based on evidence-based recommendations from the *Community Guide*. These strategies also have been effective at the community-level to improve CRC screening (17). State health departments should build on existing infrastructure and seek opportunities to develop highly-organized screening service delivery systems and enhance assurance of screening service delivery. State health departments could work with Medicaid to institute policies that facilitate systematic screening programs for the Medicaid population and design systems that allow linkage of Medicaid enrollee data to other datasets, if such linkages are allowed by the state or jurisdiction. This would enable identification and active recruitment for screening, and develop program registries to monitor participation, diagnostic follow-up, treatment initiation and long-term outcomes.

FIGURE 2. Colorectal cancer incidence and death rates* — United States, 2007

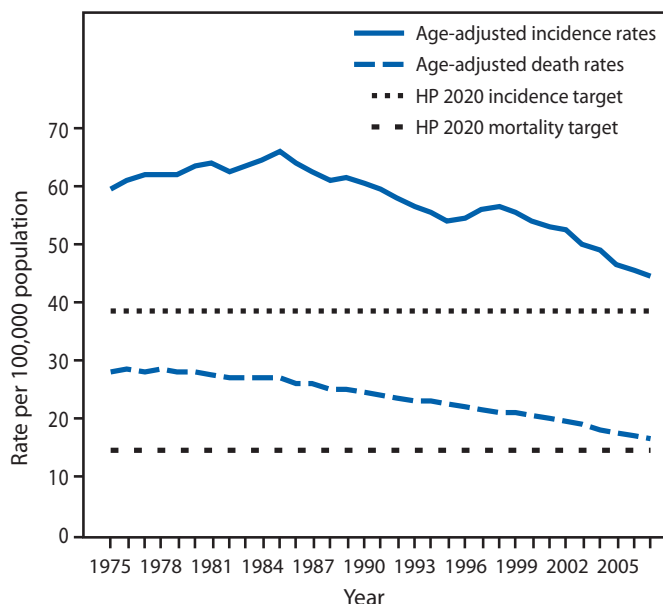


Sources: Cancer incidence combines cancer registry data from the National Program of Cancer Registries and the Surveillance, Epidemiology, and End Results Program that meet United States Cancer Statistics publication criteria for 2007, covering 99.2% of the U.S. population. Additional information available at <http://www.cdc.gov/uscs>.

Mortality data are provided by the National Vital Statistics System, covering 100% of the U.S. population.

* Per 100,000 population, age-adjusted to the 2000 U.S. standard population.

FIGURE 3. Age-adjusted colorectal cancer incidence and death rates* and Healthy People 2020 (HP 2020) targets — United States, 1975–2007



Sources: Incidence data are provided from nine areas (San Francisco, Connecticut, Detroit, Hawaii, Iowa, New Mexico, Seattle, Utah, and Atlanta) of the Surveillance, Epidemiology, and End Results (SEER) Program. Additional information available at <http://seer.cancer.gov>.

Mortality data are provided by U.S. Mortality Files of the National Vital Statistics System.

* Per 100,000 population, age-adjusted to the 2000 U.S. standard population.

The findings in this report are subject to at least four limitations. First, because BRFSS is administered by telephone, only adults living in households with landline telephones are represented; therefore, the results might not be representative of the entire U.S. population. Adults living in wireless-only households tend to be younger, to have lower incomes, and to be members of minority populations, which might result in overestimates (18). Second, responses are self-reported and not confirmed by review of medical records. Third, the survey response rate was relatively low and variable among states. Fourth, the percentages of adults who reported having had an FOBT in the past year and/or lower endoscopy within the preceding 10 years are presented to enable comparison with previous reports. However, USPSTF states that modeling evidence suggests CRC screening using any of the following three regimens will be approximately equally effective in life-years gained: 1) annual FOBT, 2) sigmoidoscopy every 5 years combined with FOBT every 3 years, or 3) colonoscopy at intervals of 10 years (2).

Recent significant improvements in CRC screening in the United States have contributed to reductions in incidence and death rates, but HP 2020 targets have not yet been reached. Adherence to recommended CRC screening recommendations will prevent more CRC cases and deaths.

Key Points

- Colorectal cancer (CRC) incidence decreased 13% and mortality decreased 12% from 2003 to 2007, a decline of approximately 66,000 cases and 32,000 deaths compared with 2002.
- Screening prevented approximately half of the expected new CRC cases and deaths during 2003–2007 (33,000 new cases and 16,000 deaths).
- A total of \$288,468 in productivity was lost per CRC death in 2006.
- Approximately 22 million U.S. residents aged 50–75 years have never been screened for CRC.
- Innovative systems-level changes should be developed to make screening available, affordable, and routine for all adults aged 50–75 years.
- Additional information is available at <http://www.cdc.gov/vitalsigns>.

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Notes from the Field

Botulism Caused by Consumption of Commercially Produced Potato Soups Stored Improperly — Ohio and Georgia, 2011

In January and April 2011, CDC provided antitoxin for treatment of two persons with toxin type A botulism associated with consumption of potato soup produced by two companies. On January 28, 2011, an Ohio resident, aged 29 years, was hospitalized after 5 days of progressive dizziness, blurred vision, dysphagia, and difficulty breathing. The patient required mechanical ventilation and botulism antitoxin. On January 18, he had tasted potato soup from a bulging plastic container, noted a bad taste, and discarded the remainder. The soup had been purchased on December 7, 2010, from the refrigerated section of a local grocer, but it had been kept unrefrigerated for 42 days. He was hospitalized for 57 days and then was transferred with residual weakness to a rehabilitation facility.

On April 8, 2011, a Georgia resident, aged 41 years, was hospitalized after 4 days of progressive dizziness and dysphagia. The patient developed respiratory distress, required mechanical ventilation, and was treated with botulism antitoxin. On April 3, she had tasted potato soup purchased from a local grocer, noted a sour taste, and discarded the remainder. The soup, stored in a plastic container labeled “keep refrigerated” in letters 1/8 inch tall, had been purchased on March 16, but had been left unrefrigerated for 18 days. She was hospitalized for 16 days and then was transferred with residual weakness to a rehabilitation facility.

Botulism is caused by a paralyzing toxin produced by *Clostridium botulinum* bacteria. *C. botulinum* spores are present in soil and can be found on raw produce, especially potatoes and other root vegetables (1). If a low-acid food such as potato soup is stored unrefrigerated in an anaerobic environment (e.g., a sealed container), without a barrier to bacterial growth, spores can germinate, resulting in bacterial growth and botulinum toxin production (2). Because heating food to a temperature of 185°F (85°C) for 5 minutes inactivates the toxin, proper preparation also is an important safeguard (3).

Improper storage has been documented in previous botulism outbreaks associated with commercially produced, chilled

foods. Since 1975, 19 U.S. botulism cases were linked to six such products. Demand for prepared, chilled foods is increasing (4). Labels advising refrigeration might be ignored or not noticed, and do not warn about the danger of consuming unrefrigerated food. The Food and Drug Administration is reexamining labeling requirements. Storage at an improper temperature also can occur before products reach consumers (5). To inhibit the growth of *C. botulinum* and other microbes, an acidifying agent or other microbial inhibitor, such as citric or phosphoric acid, can be added to prepared, chilled foods before they are sealed in a package. This procedure was used successfully to reduce the danger of botulism from commercial garlic-in-oil products after two outbreaks (6).

Reported by

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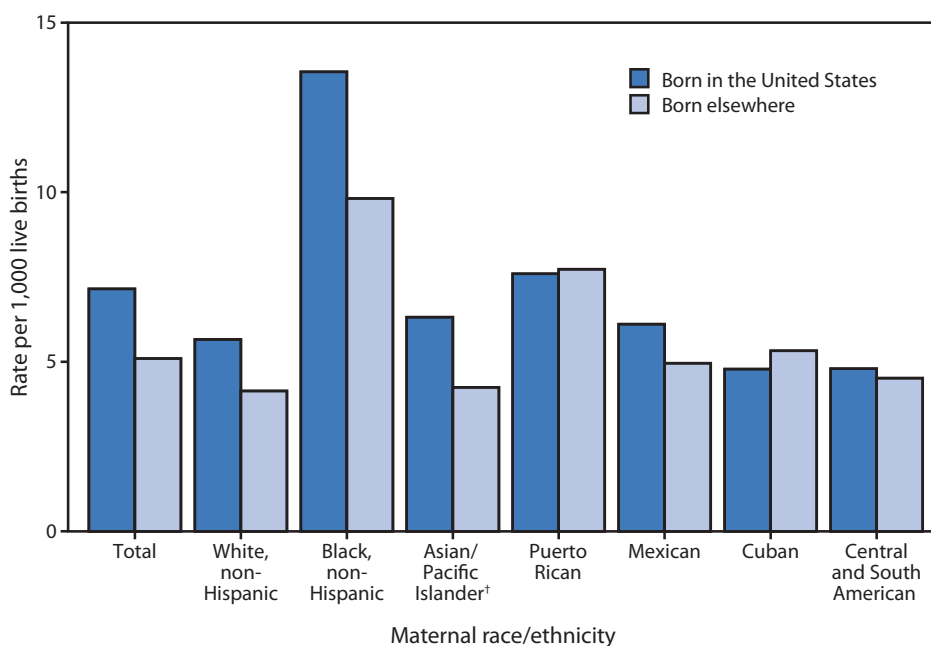
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QuickStats

FROM THE NATIONAL CENTER FOR HEALTH STATISTICS

Infant Mortality Rates, by Mother's Place of Birth and Race/Ethnicity — United States,* 2007



* Includes all 50 states and the District of Columbia.

† Includes persons of Hispanic and non-Hispanic ethnicity.

In 2007, the mortality rate for infants of mothers born in the United States (7.15 per 1,000 live births) was 40% higher than the rate for infants of mothers born outside the United States (5.10). Mortality rates for infants of non-Hispanic white, non-Hispanic black, and Asian/Pacific Islander mothers were significantly higher for infants of mothers born in the United States compared with infants of mothers born elsewhere. Among Hispanic populations, only mothers of Mexican descent born in the United States had infants with higher mortality rates compared with infants of mothers born elsewhere. Differences for other racial/ethnic populations were not statistically significant.

Source: Mathews TJ, MacDorman MF. Infant mortality statistics from the 2007 period linked birth/infant death data set. Natl Vital Stat Rep 2011;59(6). Available at http://www.cdc.gov/nchs/data/nvsr/nvsr59/nvsr59_06.pdf.

Notifiable Diseases and Mortality Tables

TABLE I. Provisional cases of infrequently reported notifiable diseases (<1,000 cases reported during the preceding year) — United States, week ending July 2, 2011 (26th week)*

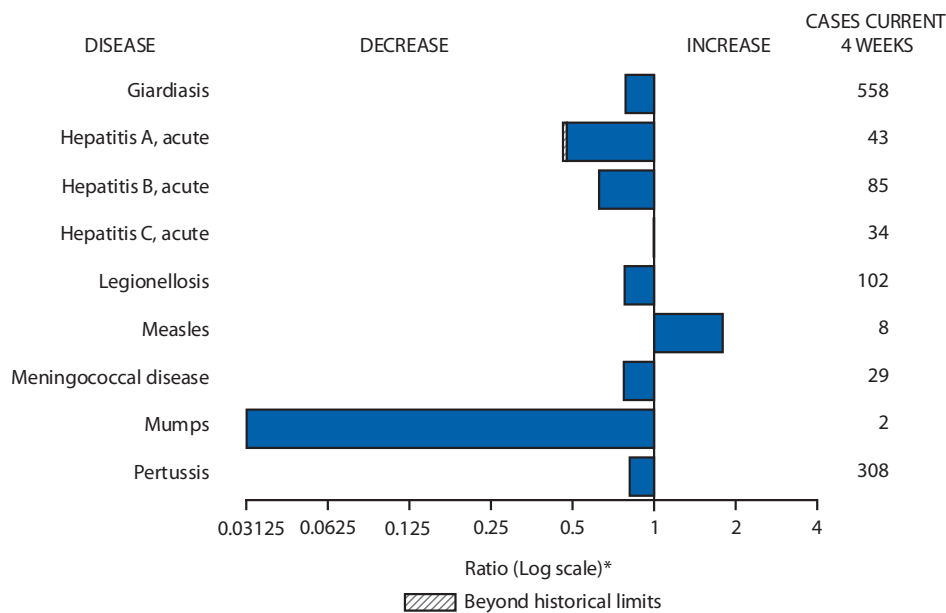
Disease	Current week	Cum 2011	5-year weekly average [†]	Total cases reported for previous years					States reporting cases during current week (No.)
				2010	2009	2008	2007	2006	
Anthrax	—	—	—	—	1	—	1	1	
Arboviral diseases ^{§, ¶} :									
California serogroup virus disease	—	—	2	75	55	62	55	67	
Eastern equine encephalitis virus disease	—	—	0	10	4	4	4	8	
Powassan virus disease	—	—	0	8	6	2	7	1	
St. Louis encephalitis virus disease	—	—	1	10	12	13	9	10	
Western equine encephalitis virus disease	—	—	—	—	—	—	—	—	
Babesiosis	8	61	3	NN	NN	NN	NN	NN	NY (8)
Botulism, total	—	39	3	112	118	145	144	165	
foodborne	—	4	0	7	10	17	32	20	
infant	—	29	2	80	83	109	85	97	
other (wound and unspecified)	—	6	1	25	25	19	27	48	
Brucellosis	2	32	2	115	115	80	131	121	NE (1), TX (1)
Chancroid	—	10	0	24	28	25	23	33	
Cholera	—	18	0	13	10	5	7	9	
Cyclosporiasis [§]	2	61	7	179	141	139	93	137	VA (1), FL (1)
Diphtheria	—	—	—	—	—	—	—	—	
<i>Haemophilus influenzae</i> ,** invasive disease (age <5 yrs):									
serotype b	—	3	0	23	35	30	22	29	
nonsensory type b	—	54	4	200	236	244	199	175	
unknown serotype	2	130	4	223	178	163	180	179	PA (1), OR (1)
Hansen disease [§]	—	21	2	98	103	80	101	66	
Hantavirus pulmonary syndrome [§]	—	7	1	20	20	18	32	40	
Hemolytic uremic syndrome, postdiarrheal [§]	2	47	7	266	242	330	292	288	NY (1), TN (1)
Influenza-associated pediatric mortality ^{§, ††}	—	108	2	61	358	90	77	43	
Listeriosis	3	207	18	821	851	759	808	884	FL (1), TN (1), CA (1)
Measles ^{§§}	1	127	3	63	71	140	43	55	NY (1)
Meningococcal disease, invasive ^{¶¶} :									
A, C, Y, and W-135	—	99	5	280	301	330	325	318	
serogroup B	—	54	4	135	174	188	167	193	
other serogroup	—	5	0	12	23	38	35	32	
unknown serogroup	2	238	10	406	482	616	550	651	NY (1), MO (1)
Novel influenza A virus infections***	—	1	0	4	43,774	2	4	NN	
Plague	—	1	0	2	8	3	7	17	
Poliomyelitis, paralytic	—	—	—	—	1	—	—	—	
Polio virus Infection, nonparalytic [§]	—	—	—	—	—	—	—	NN	
Psittacosis [§]	—	1	0	4	9	8	12	21	
Q fever, total [§]	—	30	4	131	113	120	171	169	
acute	—	19	2	106	93	106	—	—	
chronic	—	11	0	25	20	14	—	—	
Rabies, human	—	1	0	2	4	2	1	3	
Rubella ^{†††}	—	3	0	5	3	16	12	11	
Rubella, congenital syndrome	—	—	—	—	2	—	—	1	
SARS-CoV [§]	—	—	—	—	—	—	—	—	
Smallpox [§]	—	—	—	—	—	—	—	—	
Streptococcal toxic-shock syndrome [§]	1	62	2	148	161	157	132	125	NY (1)
Syphilis, congenital (age <1 yr) ^{§§§}	—	72	8	377	423	431	430	349	
Tetanus	—	4	0	10	18	19	28	41	
Toxic-shock syndrome (staphylococcal) [§]	—	39	2	82	74	71	92	101	
Trichinellosis	—	7	0	7	13	39	5	15	
Tularemia	2	34	5	124	93	123	137	95	MO (1), WA (1)
Typhoid fever	3	170	7	468	397	449	434	353	NE (1), GA (1), CA (1)
Vancomycin-intermediate <i>Staphylococcus aureus</i> [§]	—	26	1	91	78	63	37	6	
Vancomycin-resistant <i>Staphylococcus aureus</i> [§]	—	—	—	2	1	—	2	1	
Vibriosis (noncholera <i>Vibrio</i> species infections) [§]	12	182	12	848	789	588	549	NN	MD (2), GA (1), FL (5), TX (1), CA (3)
Viral hemorrhagic fever ^{¶¶¶}	—	—	—	1	NN	NN	NN	NN	
Yellow fever	—	—	—	—	—	—	—	—	

See Table 1 footnotes on next page.

TABLE I. (Continued) Provisional cases of infrequently reported notifiable diseases (<1,000 cases reported during the preceding year) — United States, week ending July 2, 2011 (26th week)*

—: No reported cases. N: Not reportable. NN: Not Nationally Notifiable. Cum: Cumulative year-to-date counts.
 * Case counts for reporting years 2010 and 2011 are provisional and subject to change. For further information on interpretation of these data, see http://www.cdc.gov/osels/ph_surveillance/nndss/phs/files/ProvisionalNationa%20NotifiableDiseasesSurveillanceData20100927.pdf.
 † Calculated by summing the incidence counts for the current week, the 2 weeks preceding the current week, the 2 weeks following the current week, for a total of 5 preceding years. Additional information is available at http://www.cdc.gov/osels/ph_surveillance/nndss/phs/files/5yearweeklyaverage.pdf.
 ‡ Not reportable in all states. Data from states where the condition is not reportable are excluded from this table except starting in 2007 for the arboviral diseases, STD data, TB data, and influenza-associated pediatric mortality, and in 2003 for SARS-CoV. Reporting exceptions are available at http://www.cdc.gov/osels/ph_surveillance/nndss/phs/infdis.htm.
 ¶ Includes both neuroinvasive and nonneuroinvasive. Updated weekly from reports to the Division of Vector-Borne Infectious Diseases, National Center for Zoonotic, Vector-Borne, and Enteric Diseases (ArboNET Surveillance). Data for West Nile virus are available in Table II.
 ** Data for H. influenzae (all ages, all serotypes) are available in Table II.
 †† Updated weekly from reports to the Influenza Division, National Center for Immunization and Respiratory Diseases. Since October 3, 2010, 112 influenza-associated pediatric deaths occurring during the 2010-11 influenza season have been reported.
 ‡‡ The one measles case reported for the current week was imported.
 ¶¶ Data for meningococcal disease (all serogroups) are available in Table II.
 *** CDC discontinued reporting of individual confirmed and probable cases of 2009 pandemic influenza A (H1N1) virus infections on July 24, 2009. During 2009, four cases of human infection with novel influenza A viruses, different from the 2009 pandemic influenza A (H1N1) strain, were reported to CDC. The four cases of novel influenza A virus infection reported to CDC during 2010, and the one case reported during 2011, were identified as swine influenza A (H3N2) virus and are unrelated to the 2009 pandemic influenza A (H1N1) virus. Total case counts for 2009 were provided by the Influenza Division, National Center for Immunization and Respiratory Diseases (NCIRD).
 ††† No rubella cases were reported for the current week.
 §§§ Updated weekly from reports to the Division of STD Prevention, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention.
 ¶¶¶ There was one case of viral hemorrhagic fever reported during week 12 of 2010. The one case report was confirmed as lassa fever. See Table II for dengue hemorrhagic fever.

FIGURE I. Selected notifiable disease reports, United States, comparison of provisional 4-week totals July 2, 2011, with historical data



* Ratio of current 4-week total to mean of 15 4-week totals (from previous, comparable, and subsequent 4-week periods for the past 5 years). The point where the hatched area begins is based on the mean and two standard deviations of these 4-week totals.

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TABLE II. (Continued) Provisional cases of selected notifiable diseases, United States, weeks ending July 2, 2011, and July 3, 2010 (26th week)*

Reporting area	Dengue Virus Infection†									
	Dengue Fever§					Dengue Hemorrhagic Fever¶				
	Current week	Previous 52 weeks		Cum 2011	Cum 2010	Current week	Previous 52 weeks		Cum 2011	Cum 2010
	Med	Max				Med	Max			
United States	—	4	52	45	170	—	0	2	—	3
New England	—	0	3	1	1	—	0	0	—	—
Connecticut	—	0	0	—	—	—	0	0	—	—
Maine**	—	0	2	—	1	—	0	0	—	—
Massachusetts	—	0	0	—	—	—	0	0	—	—
New Hampshire	—	0	0	—	—	—	0	0	—	—
Rhode Island**	—	0	1	—	—	—	0	0	—	—
Vermont**	—	0	1	1	—	—	0	0	—	—
Mid. Atlantic	—	2	25	19	54	—	0	1	—	2
New Jersey	—	0	5	—	5	—	0	0	—	—
New York (Upstate)	—	0	5	—	7	—	0	1	—	1
New York City	—	1	17	10	37	—	0	1	—	1
Pennsylvania	—	0	3	9	5	—	0	0	—	—
E.N. Central	—	0	5	5	13	—	0	1	—	—
Illinois	—	0	1	2	—	—	0	0	—	—
Indiana	—	0	2	1	4	—	0	0	—	—
Michigan	—	0	2	—	3	—	0	0	—	—
Ohio	—	0	2	—	5	—	0	0	—	—
Wisconsin	—	0	2	2	1	—	0	1	—	—
W.N. Central	—	0	6	—	11	—	0	1	—	—
Iowa	—	0	1	—	1	—	0	0	—	—
Kansas	—	0	1	—	1	—	0	0	—	—
Minnesota	U	0	1	—	8	U	0	0	—	—
Missouri	—	0	0	—	—	—	0	0	—	—
Nebraska**	—	0	6	—	—	—	0	0	—	—
North Dakota	—	0	0	—	1	—	0	0	—	—
South Dakota	—	0	0	—	—	—	0	1	—	—
S. Atlantic	—	1	19	11	71	—	0	1	—	1
Delaware	—	0	0	—	—	—	0	0	—	—
District of Columbia	—	0	0	—	—	—	0	0	—	—
Florida	—	1	14	10	57	—	0	1	—	1
Georgia	—	0	2	—	5	—	0	0	—	—
Maryland**	—	0	0	—	—	—	0	0	—	—
North Carolina	—	0	2	1	—	—	0	0	—	—
South Carolina**	—	0	3	—	4	—	0	0	—	—
Virginia**	—	0	3	—	4	—	0	0	—	—
West Virginia	—	0	1	—	1	—	0	0	—	—
E.S. Central	—	0	2	—	1	—	0	0	—	—
Alabama**	—	0	2	—	—	—	0	0	—	—
Kentucky	—	0	1	—	—	—	0	0	—	—
Mississippi	—	0	0	—	—	—	0	0	—	—
Tennessee**	—	0	0	—	1	—	0	0	—	—
W.S. Central	—	0	1	—	—	—	0	1	—	—
Arkansas**	—	0	0	—	—	—	0	1	—	—
Louisiana	—	0	0	—	—	—	0	0	—	—
Oklahoma	—	0	1	—	—	—	0	0	—	—
Texas**	—	0	1	—	—	—	0	0	—	—
Mountain	—	0	2	3	5	—	0	0	—	—
Arizona	—	0	2	2	1	—	0	0	—	—
Colorado	—	0	0	—	—	—	0	0	—	—
Idaho**	—	0	1	—	1	—	0	0	—	—
Montana**	—	0	1	—	1	—	0	0	—	—
Nevada**	—	0	1	—	1	—	0	0	—	—
New Mexico**	—	0	0	—	1	—	0	0	—	—
Utah	—	0	1	1	—	—	0	0	—	—
Wyoming**	—	0	0	—	—	—	0	0	—	—
Pacific	—	0	7	6	14	—	0	0	—	—
Alaska	—	0	0	—	1	—	0	0	—	—
California	—	0	5	2	9	—	0	0	—	—
Hawaii	—	0	0	—	—	—	0	0	—	—
Oregon	—	0	0	—	—	—	0	0	—	—
Washington	—	0	2	4	4	—	0	0	—	—
Territories										
American Samoa	—	0	0	—	—	—	0	0	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—
Guam	—	0	0	—	—	—	0	0	—	—
Puerto Rico	—	33	454	254	2,728	—	0	20	1	83
U.S. Virgin Islands	—	0	0	—	—	—	0	0	—	—

C.N.M.I.: Commonwealth of Northern Mariana Islands.

U: Unavailable. —: No reported cases. N: Not reportable. NN: Not Nationally Notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.

* Case counts for reporting year 2010 and 2011 are provisional and subject to change. For further information on interpretation of these data, see http://www.cdc.gov/osels/ph_surveillance/nndss/phs/files/ProvisionalNationalNotifiableDiseasesSurveillanceData20100927.pdf. Data for TB are displayed in Table IV, which appears quarterly.

† Updated weekly from reports to the Division of Vector-Borne Infectious Diseases, National Center for Zoonotic, Vector-Borne, and Enteric Diseases (ArboNET Surveillance).

§ Dengue Fever includes cases that meet criteria for Dengue Fever with hemorrhage, other clinical and unknown case classifications.

¶ DHF includes cases that meet criteria for dengue shock syndrome (DSS), a more severe form of DHF.

** Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

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TABLE II. (Continued) Provisional cases of selected notifiable diseases, United States, weeks ending July 2, 2011, and July 3, 2010 (26th week)*

Reporting area	Ehrlichiosis/Anaplasmosis†														
	<i>Ehrlichia chaffeensis</i>					<i>Anaplasma phagocytophilum</i>					Undetermined				
	Current week	Previous 52 weeks		Cum 2011	Cum 2010	Current week	Previous 52 weeks		Cum 2011	Cum 2010	Current week	Previous 52 weeks		Cum 2011	Cum 2010
		Med	Max				Med	Max				Med	Max		
United States	20	6	109	163	272	12	15	145	108	891	5	1	13	39	47
New England	—	0	2	2	3	—	1	8	11	48	—	0	1	1	2
Connecticut	—	0	0	—	—	—	0	6	—	14	—	0	0	—	—
Maine [§]	—	0	1	1	2	—	0	2	6	12	—	0	0	—	—
Massachusetts	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
New Hampshire	—	0	1	1	1	—	0	3	5	8	—	0	1	1	2
Rhode Island [§]	—	0	1	—	—	—	0	6	—	13	—	0	0	—	—
Vermont [§]	—	0	0	—	—	—	0	1	—	1	—	0	0	—	—
Mid. Atlantic	4	1	7	15	43	11	4	18	58	91	2	0	2	3	6
New Jersey	—	0	2	—	33	—	0	6	—	42	—	0	0	—	1
New York (Upstate)	4	0	7	12	7	11	3	18	48	46	2	0	2	3	4
New York City	—	0	1	3	2	—	0	3	10	3	—	0	0	—	—
Pennsylvania	—	0	1	—	1	—	0	1	—	—	—	0	1	—	1
E.N. Central	—	0	4	8	20	—	1	45	3	293	—	0	6	13	24
Illinois	—	0	2	5	8	—	0	2	—	1	—	0	1	2	3
Indiana	—	0	0	—	—	—	0	0	—	—	—	0	3	9	10
Michigan	—	0	1	1	—	—	0	1	—	1	—	0	1	1	—
Ohio	—	0	3	2	1	—	0	1	1	—	—	0	0	—	—
Wisconsin	—	0	1	—	11	—	1	45	2	291	—	0	3	1	11
W.N. Central	1	1	13	47	63	—	2	77	12	423	3	0	11	17	5
Iowa	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
Kansas	—	0	2	2	4	—	0	1	—	1	—	0	0	—	—
Minnesota	U	0	12	—	—	U	0	75	1	418	U	0	11	—	—
Missouri	1	0	13	45	59	—	0	3	11	4	3	0	9	15	5
Nebraska [§]	—	0	1	—	—	—	0	0	—	—	—	0	1	1	—
North Dakota	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
South Dakota	—	0	0	—	—	—	0	0	—	—	—	0	1	1	—
S. Atlantic	11	3	18	68	99	1	1	4	19	29	—	0	1	1	1
Delaware	—	0	2	10	10	—	0	1	1	3	—	0	0	—	—
District of Columbia	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
Florida	—	0	3	10	4	—	0	1	3	1	—	0	0	—	—
Georgia	1	0	3	8	15	—	0	1	5	1	—	0	1	1	1
Maryland [§]	2	0	2	9	11	—	0	2	1	10	—	0	1	—	—
North Carolina	8	0	13	15	33	1	0	4	7	10	—	0	0	—	—
South Carolina [§]	—	0	1	—	2	—	0	1	—	—	—	0	0	—	—
Virginia [§]	—	1	8	16	23	—	0	1	2	4	—	0	1	—	—
West Virginia	—	0	1	—	1	—	0	0	—	—	—	0	0	—	—
E.S. Central	4	0	11	23	34	—	0	2	5	7	—	0	1	1	7
Alabama [§]	—	0	3	—	5	—	0	2	2	1	N	0	0	N	N
Kentucky	1	0	2	7	5	—	0	0	—	—	—	0	0	—	1
Mississippi	—	0	1	—	1	—	0	1	—	1	—	0	0	—	1
Tennessee [§]	3	0	7	16	23	—	0	2	3	5	—	0	1	1	5
W.S. Central	—	0	87	—	9	—	0	9	—	—	—	0	1	—	—
Arkansas [§]	—	0	5	—	—	—	0	2	—	—	—	0	0	—	—
Louisiana	—	0	0	—	1	—	0	0	—	—	—	0	0	—	—
Oklahoma	—	0	82	—	7	—	0	7	—	—	—	0	0	—	—
Texas [§]	—	0	1	—	1	—	0	1	—	—	—	0	1	—	—
Mountain	—	0	0	—	—	—	0	0	—	—	—	0	1	2	—
Arizona	—	0	0	—	—	—	0	0	—	—	—	0	1	2	—
Colorado	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
Idaho [§]	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
Montana [§]	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
Nevada [§]	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
New Mexico [§]	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
Utah	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Wyoming [§]	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Pacific	—	0	1	—	1	—	0	0	—	—	—	0	1	1	2
Alaska	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
California	—	0	1	—	1	—	0	0	—	—	—	0	1	1	2
Hawaii	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
Oregon	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Washington	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Territories															
American Samoa	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
Puerto Rico	N	0	0	N	N	N	0	0	N	N	N	0	0	N	N
U.S. Virgin Islands	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—

C.N.M.I.: Commonwealth of Northern Mariana Islands.

U: Unavailable. —: No reported cases. N: Not reportable. NN: Not Nationally Notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.

* Case counts for reporting year 2010 and 2011 are provisional and subject to change. For further information on interpretation of these data, see http://www.cdc.gov/osels/ph_surveillance/nndss/phs/files/ProvisionalNationa%20NotifiableDiseasesSurveillanceData20100927.pdf. Data for TB are displayed in Table IV, which appears quarterly.

† Cumulative total *E. ewingii* cases reported for year 2010 = 10, and 5 cases reported for 2011.

§ Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

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TABLE II. (Continued) Provisional cases of selected notifiable diseases, United States, weeks ending July 2, 2011, and July 3, 2010 (26th week)*

Reporting area	Hepatitis (viral, acute), by type														
	A				B				C						
	Current week	Previous 52 weeks		Cum 2011	Cum 2010	Current week	Previous 52 weeks		Cum 2011	Cum 2010	Current week	Previous 52 weeks		Cum 2011	Cum 2010
	Med	Max				Med	Max				Med	Max			
United States	7	24	74	486	758	17	57	167	1,059	1,573	10	17	39	447	400
New England	—	1	6	12	59	—	0	5	21	32	—	1	4	24	34
Connecticut	—	0	4	5	14	—	0	4	7	9	—	0	3	15	20
Maine†	—	0	1	1	4	—	0	2	5	9	—	0	2	5	2
Massachusetts	—	0	5	3	35	—	0	3	8	8	—	0	1	1	12
New Hampshire	—	0	1	—	—	—	0	1	1	4	N	0	0	N	N
Rhode Island†	—	0	1	1	6	U	0	0	U	U	U	0	0	U	U
Vermont†	—	0	1	2	—	—	0	0	—	2	—	0	1	3	—
Mid. Atlantic	—	4	12	96	121	2	5	11	128	158	3	1	6	35	51
New Jersey	—	1	4	10	36	—	1	4	26	43	—	0	4	—	10
New York (Upstate)	—	1	4	25	25	2	1	9	24	26	3	0	3	21	26
New York City	—	1	6	33	34	—	1	5	39	48	—	0	1	—	1
Pennsylvania	—	1	3	28	26	—	1	4	39	41	—	0	2	14	14
E.N. Central	—	4	9	84	88	—	6	23	131	264	2	3	12	95	48
Illinois	—	1	3	15	24	—	2	7	35	66	—	0	1	1	—
Indiana	—	0	3	10	9	—	1	6	15	37	—	0	5	37	18
Michigan	—	1	5	34	29	—	2	5	44	68	2	1	7	54	22
Ohio	—	1	5	22	17	—	1	16	25	63	—	0	1	2	5
Wisconsin	—	0	2	3	9	—	0	3	12	30	—	0	1	1	3
W.N. Central	—	1	25	17	24	—	2	16	62	61	—	0	6	2	6
Iowa	—	0	3	2	4	—	0	1	5	10	—	0	0	—	—
Kansas	—	0	2	3	7	—	0	2	7	4	—	0	1	2	—
Minnesota	U	0	22	2	1	U	0	15	2	2	U	0	6	—	3
Missouri	—	0	1	5	10	—	2	4	40	35	—	0	1	—	2
Nebraska†	—	0	4	3	2	—	0	3	7	9	—	0	1	—	1
North Dakota	—	0	3	—	—	—	0	0	—	—	—	0	0	—	—
South Dakota	—	0	2	2	—	—	0	1	1	1	—	0	0	—	—
S. Atlantic	—	5	14	112	169	6	14	33	301	437	4	4	11	106	90
Delaware	—	0	1	1	5	—	0	1	—	17	U	0	0	U	U
District of Columbia	—	0	0	—	1	—	0	0	—	3	—	0	0	—	2
Florida	—	2	7	39	61	4	4	11	103	151	1	1	5	26	24
Georgia	—	1	4	27	19	—	2	8	42	94	—	1	3	15	12
Maryland†	—	0	2	11	12	—	1	4	26	31	1	0	2	17	14
North Carolina	—	0	4	12	30	2	2	16	66	34	2	0	7	31	24
South Carolina†	—	0	2	5	18	—	1	4	13	30	—	0	1	—	—
Virginia†	—	1	6	12	22	—	1	7	32	46	—	0	2	8	8
West Virginia	—	0	5	5	1	—	0	18	19	31	—	0	5	9	6
E.S. Central	3	0	6	21	21	4	8	14	187	161	1	3	8	80	72
Alabama†	—	0	2	1	4	—	1	4	34	33	—	0	1	5	3
Kentucky	—	0	6	3	9	—	3	8	59	53	—	2	6	37	50
Mississippi	—	0	1	2	1	—	1	3	18	17	U	0	0	U	U
Tennessee†	3	0	5	15	7	4	3	8	76	58	1	1	5	38	19
W.S. Central	3	2	15	48	69	4	8	67	125	245	—	2	11	41	36
Arkansas†	—	0	1	—	—	—	1	4	20	35	—	0	1	—	1
Louisiana	—	0	1	1	5	—	1	4	18	25	—	0	2	4	1
Oklahoma	—	0	4	1	1	—	2	16	25	38	—	1	10	21	12
Texas†	3	2	11	46	63	4	4	45	62	147	—	0	3	16	22
Mountain	1	2	5	37	90	—	2	7	43	68	—	1	4	33	29
Arizona	—	0	2	7	41	—	0	3	11	14	U	0	0	U	U
Colorado	—	0	2	14	21	—	0	5	10	18	—	0	3	12	8
Idaho†	1	0	1	5	6	—	0	1	2	4	—	0	2	6	7
Montana†	—	0	1	2	4	—	0	0	—	—	—	0	1	2	—
Nevada†	—	0	3	4	6	—	0	3	15	22	—	0	2	6	2
New Mexico†	—	0	1	3	3	—	0	2	4	3	—	0	1	4	9
Utah	—	0	2	—	6	—	0	1	1	7	—	0	2	1	3
Wyoming†	—	0	1	2	3	—	0	1	—	—	—	0	1	2	—
Pacific	—	4	15	59	117	1	4	25	61	147	—	1	12	31	34
Alaska	—	0	1	1	—	—	0	1	4	1	U	0	1	U	U
California	—	3	15	39	90	—	2	22	23	99	—	0	4	9	15
Hawaii	—	0	2	4	5	—	0	1	5	3	U	0	0	U	U
Oregon	—	0	2	5	11	—	1	3	17	24	—	0	3	10	8
Washington	—	0	2	10	11	1	1	4	12	20	—	0	5	12	11
Territories															
American Samoa	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guam	—	0	5	8	4	—	0	8	28	48	—	0	8	10	40
Puerto Rico	—	0	2	3	9	—	0	3	4	12	N	0	0	N	N
U.S. Virgin Islands	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—

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