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World No Tobacco Day — May 31, 2006

Tobacco use is responsible for approximately one in 10 premature deaths among adults worldwide (1). Sponsored by the World Health Organization (WHO), World No Tobacco Day is observed every year on May 31.

This year's theme is Tobacco: Deadly in Any Form or Disguise. The goal is to raise awareness about the harmful health effects of all forms of tobacco (e.g., cigarettes [including light, low-tar, and mild], smokeless tobacco, bidis, kreteks, clove cigarettes, cigars, shisha [flavored tobacco smoked in a hookah pipe], and others). For example, smokeless tobacco causes oral cancer and might be a risk factor for cardiovascular disease (2); bidis increase the risk for oral, lung, and esophageal cancers; and waterpipe smoking increases the risk for oral and lip cancer and obstructive lung disease (3,4).

The global burden of deaths attributable to tobacco use each year is estimated to double from 5 million in 2005 to 10 million in 2020 (5). Additional information on WHO's tobacco control initiative and World No Tobacco Day activities is available at <http://www.who.int/tobacco/en>.

References

1. Gajalakshmi CK, Jha P, Ranson K, Nguyen S. Global pattern of smoking and smoking-attributable mortality. In: Jha P, Chaloupka FJ, eds. Tobacco control in developing countries. Oxford, England: Oxford University Press; 2000:11–39.
2. National Cancer Institute. Smokeless tobacco or health: an international perspective. Bethesda, MD: US Department of Health and Human Services, National Institutes of Health, National Cancer Institute; 1992. Available at http://cancercontrol.cancer.gov/tcrb/monographs/2/m2_complete.pdf.
3. Rahman M, Fukui T. Bidi smoking and health. *Public Health* 2000;114:123–7.
4. El-Hakim IE, Uthman MA. Squamous cell carcinoma and keratoacanthoma of the lower lip associated with “Goza” and “Shisha” smoking. *Int J Dermatol* 1999;38:108–10.
5. Peto R, Lopez A, Boreham J, Thun M, Heath C. Mortality from smoking in developed countries 1950–2000. Oxford, England: Oxford University Press; 1994.

Use of Cigarettes and Other Tobacco Products Among Students Aged 13–15 Years — Worldwide, 1999–2005

The use of tobacco in any form is a major preventable cause of premature death and disease. Globally, nearly 5 million persons die every year from tobacco-related illnesses, with disproportionately higher mortality occurring in developing countries (1). The Global Youth Tobacco Survey (GYTS), initiated in 1999 by the World Health Organization (WHO), CDC, and the Canadian Public Health Association, is a school-based survey that includes questions on prevalence of cigarette and other tobacco use; attitudes toward tobacco; access to tobacco products; exposure to secondhand smoke, school curricula on tobacco, media, and advertising; and smoking cessation. This report presents estimates of self-reported cigarette and other tobacco-product use during 1999–2005 in 132 different countries and the Gaza Strip/West Bank. The data are aggregated within each of the six WHO regions. GYTS data indicate that nearly two of every 10 students reported currently using a tobacco product, with no statistically significant difference between the proportion of those reporting cigarette smoking (8.9%) and other tobacco use (11.2%). Use of tobacco by adolescents is a major public health

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problem in all six WHO regions. Worldwide, more countries need to develop, implement, and evaluate their tobacco-control programs to address the use of all types of tobacco products, especially among girls.

GYTS is a school-based survey that collects data from students aged 13–15 years by using a standardized methodology for constructing the sample frame, selecting participating schools and classes, and processing data. The survey uses a two-stage, cluster-sample design that produces representative samples of students attending public and private schools in grades associated with ages 13–15 years. At the first sampling stage, the probability of selecting a school is proportional to the number of students enrolled in the specified grades. At the second stage, individual classes in the designated grades for students aged 13–15 years within the selected schools are randomly selected. All students attending school in the selected classes on the day the survey was administered were eligible to participate. Data included in this report come from GYTS surveys conducted in 395 sites in 132 different countries and the Gaza Strip/West Bank during 1999–2005.* Nationally representative data were collected in 93 countries, and regionally representative data at the state, province/region, or city level were collected in 39 countries. In the 395 sites included in this study, 747,603 students in 9,900 schools completed the GYTS. Of the sites surveyed, 56.5% had school response rates of 100%, and 2.2% had school response rates below 80%. Approximately 40% of the sites had student response rates of nearly 90%, with 9.3% having student response rates less than 80%.

These analyses compared tobacco use, including current use of any tobacco products, current cigarette smoking, and current use of tobacco products other than cigarettes in the six WHO regions (Africa, Americas, Eastern Mediterranean, Europe, South-East Asia, and Western Pacific). Software for statistical analysis of correlated data was used to compute 95% confidence intervals. Two-tailed *t* tests were used to establish significant differences. Only significant differences ($p < 0.05$) are reported. Regional aggregations were calculated as means weighted by the population of the sampling frame. In many cases, the sampling frame was youths aged 13–15 years in the country, but in areas where samples were drawn to be representative of a subnational population, estimates were weighted by the population of the city, state, or administrative region and included in the regional aggregation. Indicators in this report include current cigarette smoking status (defined as the percentage of students who reported that

*The number of countries included by year: 1999 (one country); 2000 (15); 2001 (18); 2002 (23); 2003 (37); 2004 (32); and 2005 (seven). This reflects the year the data were collected. The most recent data were used for any country that had a repeat survey.

they had smoked a cigarette on ≥ 1 days during the preceding 30 days), current use of tobacco products other than cigarettes (defined as the percentage of students who reported that they had used another form of tobacco, including chewing tobacco, snuff, dip, cigars, cigarillos, little cigars, pipes, or shisha on ≥ 1 days during the preceding 30 days), and current use of any tobacco products (defined as the percentage of students who were either current cigarette smokers or current users of other tobacco products).

Nearly two in 10 students (17.3%) were currently using any form of tobacco (Table). Any tobacco use was highest in the American and European regions (22.2% and 19.8%, respectively) and lowest in the South-East Asian and Western Pacific regions (12.9% and 11.4%, respectively). Boys were significantly more likely than girls to currently use any tobacco products (i.e., cigarettes or tobacco products other than cigarettes) in the Eastern Mediterranean, South-East Asian, and Western Pacific regions. Approximately one of every 10 students (8.9%) currently smoked cigarettes. Current cigarette smoking was highest in the European and American regions (17.9% and 17.5%, respectively) and lowest in the South-East Asian, Eastern Mediterranean, and Western Pacific regions (4.3%, 5.0%, and 6.5%, respectively). Boys were significantly more likely than girls to smoke cigarettes in the African, South-East Asian, and Western Pacific regions.

Approximately one of every 10 students (11.2%) currently used tobacco products other than cigarettes (Table). Use of other tobacco products was highest in the South-East Asian and Eastern Mediterranean regions (13.3% and 12.9%, respectively) and lowest in the Western Pacific and European regions (6.4% and 8.1%, respectively). Boys were significantly more likely than girls to use other tobacco products overall and in the American and South-East Asian regions. Cigarette smoking was significantly higher than other tobacco use for girls in the Americas and for boys and girls in the European

Region. Other tobacco use was significantly higher than cigarette smoking for boys and girls in the Eastern Mediterranean and South-East Asian regions.

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Editorial Note: Before GYTS, few data existed on the use of tobacco products other than cigarettes among adolescents (2). GYTS provides data on overall tobacco use to assist countries in the development and implementation of tobacco-control program. The findings in this report suggest that tobacco-control programs must address all forms of tobacco, not just cigarettes. GYTS data indicate no significant differences in the rates of current cigarette smoking and current use of other tobacco products overall and in the African and Western Pacific regions. In the Americas and Europe, cigarette smoking prevalence is higher than other tobacco use, whereas in the Eastern Mediterranean and South-East Asian regions, other tobacco use is more common than cigarette smoking.

The popularity of specific forms of tobacco other than cigarettes varies among WHO regions: in the Eastern Mediterranean, shisha (flavored tobacco smoked in hookah pipes) is prevalent (3); in South-East Asia, bidis, smokeless tobacco (i.e. betel quid, gutka, and creamy snuff), and shisha use are popular (4); in the Western Pacific, betel nut is chewed with tobacco (5); pipe, snuff, and rolled tobacco leaves are common in the African Region; and in the Americas and Europe, use of cigars and smokeless tobacco are used (6).

The similarity in prevalence of cigarette smoking and other tobacco products between boys and girls is a cause for concern.

TABLE. Global Youth Tobacco Survey measures of tobacco use prevalence among students aged 13–15 years, by sex and World Health Organization (WHO) region, 1999–2005*

WHO region	Current use of any tobacco products			Current cigarette smoking			Current other tobacco [§] use		
	Girls % (95% CI) [†]	Boys % (95% CI)	Total % (95% CI)	Girls % (95% CI)	Boys % (95% CI)	Total % (95% CI)	Girls % (95% CI)	Boys % (95% CI)	Total % (95% CI)
Africa	13.9 (±3.1)	19.7 (±3.9)	16.8 (±2.7)	5.8 (±2.3)	13.0 (±3.6)	9.2 (±2.2)	9.9 (±2.6)	10.9 (±2.9)	10.5 (±2.2)
Americas	20.4 (±2.8)	24.0 (±3.0)	22.2 (±2.4)	17.5 (±2.6)	17.4 (±2.7)	17.5 (±2.3)	7.8 (±1.6)	14.8 (±2.2)	11.3 (±1.5)
Eastern Mediterranean	11.3 (±3.3)	18.8 (±3.6)	15.3 (±2.6)	3.2 (±2.1)	6.7 (±2.3)	5.0 (±1.7)	9.9 (±2.6)	15.6 (±3.2)	12.9 (±2.3)
Europe	17.0 (±3.2)	22.3 (±4.3)	19.8 (±3.2)	15.7 (±3.1)	19.9 (±3.8)	17.9 (±2.7)	6.0 (±2.0)	10.0 (±3.3)	8.1 (±2.3)
South-East Asia	7.1 (±2.4)	18.4 (±4.1)	12.9 (±2.7)	1.9 (±0.9)	5.8 (±1.7)	4.3 (±1.2)	8.4 (±1.6)	16.4 (±1.4)	13.3 (±1.0)
Western Pacific	7.8 (±2.0)	15.0 (±2.8)	11.4 (±1.9)	3.3 (±1.2)	9.9 (±2.8)	6.5 (±1.6)	5.4 (±1.5)	7.7 (±1.6)	6.4 (±1.2)
Total	14.3 (±2.8)	20.1 (±3.4)	17.3 (±2.5)	6.7 (±1.7)	10.5 (±2.4)	8.9 (±1.7)	7.8 (±1.8)	13.8 (±2.1)	11.2 (±1.5)

* Regional aggregations were calculated as means weighted by the population of the sampling frame. In many cases, the sampling frame was the country, but in areas where samples were drawn to be representative of a subnational population, estimates were weighted by the population of the city, state, or administrative region.

[†] Confidence interval.

[§] Including chewing tobacco, snuff, dip, cigars, cigarillos, little cigars, pipes, and shisha (flavored tobacco smoked in hookah pipes).

No significant differences were observed in current cigarette smoking by sex overall and in three of the six regions (Americas, Eastern Mediterranean, and Europe). In addition, no statistically significant differences by sex were observed in other tobacco use rates in four regions (Africa, Eastern Mediterranean, Europe, and Western Pacific). In contrast, available data for adults indicate that, globally, males have higher rates of smoking than females (6). In all six WHO regions, but especially in those where tobacco-use levels among boys and girls are similar, effective tobacco-control programs must be developed and implemented with special focus on girls.

The findings in this report are subject to at least four limitations. First, because GYTS is limited to students, it might not be representative of adolescents aged 13–15 years from participating countries. However, in most countries, the majority (82%) of children attend schools (7). Second, these data apply only to youths who were in school on the day of the survey and who completed the survey. Student response rates were high (approximately 40% of the sites had student response rates of approximately 90%), suggesting that bias attributable to absence or nonresponse is limited. Third, data are based on the self-report of students, who might underreport or overreport their use of tobacco. The extent of this bias cannot be determined from these data; however, responses to tobacco-related questions on surveys in the United States similar to GYTS have demonstrated good test-retest reliability (8). Finally, systematic data collection on the use of specific types of tobacco products other than cigarettes was not included in the core GYTS questionnaire. Many survey administrators added questions to the core survey regarding specific tobacco products used in their countries, so the lack of consistency across sites precludes systematic regional or global analyses.

The goal of WHO's 2006 World No Tobacco Day is to promote awareness of the harmful effects of tobacco in any form. The findings described in this report indicate the need to develop, implement, and evaluate effective, comprehensive tobacco-control programs, including evidence-based interventions for adolescents to decrease the burden of tobacco-related diseases. Tobacco-control measures should address both sexes, but focus on girls, and include all forms of tobacco to emphasize that use of any product containing tobacco seriously damages health.

References

1. Peto R, Lopez AD. Future worldwide health effects of current smoking patterns. In: Koop CD, Pearson C, Schwarz MR, eds. *Critical issues in global health*. New York, NY: Jossey-Bass; 2001.

2. CW Warren, NR Jones, MP Eriksen, S Asma, Global Tobacco Surveillance System Collaborative Group. Patterns of global tobacco use in young people and implications for future chronic disease burden in adults. *Lancet* 2006;367:749–53.
3. W Maziak, KD Ward, RA Afifi Soweid, T Eisenberg. Tobacco smoking using a waterpipe: a re-emerging strain in a global epidemic. *Tobacco Control* 2004;13:327–33.
4. Shafey O, Dolwick S, Guindon GE, eds. *Tobacco control country profiles 2003*. Atlanta, GA: American Cancer Society; 2003.
5. World Health Organization. Western Pacific Regional Office. Basic health information on tobacco use. Manila, Philippines: World Health Organization; March 2006. Available at http://www.wpro.who.int/information_sources/databases/Regional_statistics/rstat_tobacco_use.htm.
6. Mackey J, Eriksen M. *The tobacco atlas*. Geneva, Switzerland: World Health Organization; 2002. Available at http://www.who.int/tobacco/statistics/tobacco_atlas/en.
7. United Nations Children's Fund. *The state of the world's children, 2002*. New York, NY: United Nations Children's Fund; 2002. Available at <http://www.unicef.org/sowc02/fullreport.htm>.
8. Brener ND, Kann L, McMannus T, Kinchen SA, Sundberg EC, Ross JG. Reliability of the 1999 youth risk behaviors survey questionnaire. *J Adolesc Health* 2002;31:336–42.

Tobacco Use Among Students Aged 13–15 Years — Kurdistan Region, Iraq, 2005

Tobacco use is one of the major preventable causes of premature death and disease in the world. The Global Youth Tobacco Survey (GYTS), part of the Global Tobacco Surveillance System initiated by the World Health Organization (WHO), CDC, and the Canadian Public Health Association, was developed to monitor tobacco use, attitudes about tobacco, and exposure to secondhand smoke among youths and has been conducted in 140 countries (1,2). This report presents findings from the GYTS conducted in the Kurdistan region of Iraq (i.e., Irbil, as-Sulaymaniyah, and Dahuk governorates) in 2005, which revealed that one in 10 students currently smoked cigarettes or used other tobacco products. Boys (21%) were statistically significantly more likely than girls (2.1%) to smoke cigarettes, but no significant difference was observed between boys and girls in their use of other tobacco products. Public health authorities in the Kurdistan Region of Iraq can use the baseline information from the GYTS to design and implement tobacco-control programs to reduce youth smoking.

GYTS is a school-based survey that collects data from students aged 13–15 years by using a standardized methodology for constructing the sample frame, selecting participating schools and classes, and processing data. GYTS uses a two-stage, cluster-sample design that produces representative

samples of students in grades associated with ages 13–15 years (2). In the Kurdistan region of Iraq, this age range is covered by the first through fourth years of secondary education; the GYTS sampling frame included all schools containing these grades from the governorates of Irbil, as-Sulaymaniyah, and Dahuk. At the first sampling stage, the probability of a school's being selected was proportional to the number of students in that school enrolled in the target grades. At the second stage, classes within the selected schools were selected randomly. Students attending school in the selected classes on the day the survey was administered were eligible to participate. In total, 1,989 students completed the GYTS (58.1% male and 41.9% female). The school response rate was 100% (25 schools), the student response rate was 95.6%, and the overall response rate (i.e., the school rate multiplied by student rate) was 95.6%.

This report presents data on the following indicators: prevalence of lifetime cigarette smoking, age of initiation of cigarette smoking, prevalence of current cigarette smoking, prevalence of tobacco dependency among current smokers (i.e., desire to have a cigarette first thing in the morning), prevalence of current tobacco use other than cigarettes, likelihood of never smokers beginning to smoke within the next year (i.e., susceptibility index) (3), prevalence of direct exposure to secondhand smoke at home and in public, and prevalence of potential exposure to secondhand smoke from parents and best friends who smoke. A weighting factor was applied to each student's record to adjust for the probability of selection at the school and class levels and for nonresponse rates at the school, class, and student levels. A final adjustment summed the weights by grade and sex to the population of school children in the first through fourth years of secondary education. Statistical software was used to account for the complex survey design and to compute standard errors and 95% confidence intervals for the estimates. Two-tailed *t* tests were used

to establish significant differences. Only significant differences ($p < 0.05$) are reported.

The results of this analysis indicated that 27.1% of Kurdistan students in the grades surveyed had ever smoked cigarettes and that boys (41.5%) were significantly more likely than girls (10.6%) to have ever smoked (Table 1). Approximately one in every 10 ever smokers of both sexes initiated smoking before age 10 years. Slightly more than one in 10 students currently smoked cigarettes (11.9%) or currently used other tobacco products (11.4%). Boys (21.0%) were significantly more likely than girls (2.1%) to smoke cigarettes currently. Two in 10 students (20.3%) currently used any tobacco product, with the rate for boys (29.0%) significantly higher than that for girls (10.3%). Results also demonstrated that 12.2% of current smokers who were boys wanted to have a cigarette within 30 minutes of waking each morning and that 14.2% of never smokers indicated they were likely to initiate smoking in the next year, with no significant difference between boys and girls. However, for girls the proportion of never smokers likely to initiate smoking (11.2%) was significantly higher than the current smoking rate (2.1%).

Exposure to secondhand smoke was significantly higher among students who currently smoked cigarettes than among never smokers both at home (71.9% versus 39.7%) and in public places (62.4% versus 23.0%). A significantly higher percentage of current smokers also had parents who smoked (56.2% versus 33.8%) and best friends who smoked (11.6% versus 2.5%); never smokers were significantly more likely than current smokers to favor a ban on smoking in public places (81.2% versus 59.8%) (Table 2).

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TABLE 1. Prevalence of tobacco use among students aged 13–15 years, by sex and smoking status — Kurdistan region of Iraq, 2006

Smoking status	Boys		Girls		Total	
	%	(95% CI)*	%	(95% CI)	%	(95% CI)
Ever smoked cigarettes	41.5	(31.7–52.0)	10.6	(6.4–17.1)	27.1	(18.5–38.0)
First smoked cigarettes before age 10 years	11.6	(7.2–18.2)	12.2	(8.8–16.6)	12.0	(8.1–17.4)
Current cigarette smoker	21.0	(13.6–31.0)	2.1	(1.1–3.9)	11.9	(6.6–20.4)
Current user of tobacco products other than cigarettes†	13.5	(10.5–17.4)	8.7	(5.9–12.5)	11.4	(9.2–14.0)
Current user of any tobacco product§	29.0	(22.8–36.1)	10.3	(7.4–14.1)	20.3	(14.8–27.0)
Current smokers dependent on tobacco¶	12.2	(5.3–25.4)	—**		12.2	(5.6–24.6)
Never smokers likely to initiate smoking in the next year	17.4	(13.4–22.4)	11.2	(7.1–17.1)	14.2	(10.9–18.4)

* Confidence interval.

† Including chewing tobacco, snuff, dip, cigars, cigarillos, little cigars, pipes, and shisha (flavored tobacco smoked in hookah pipes).

§ Anyone who is a current cigarette smoker or current user of other tobacco products.

¶ Those wanting to have first cigarette of the day within 30 minutes after waking.

** Not calculated because fewer than 35 girls reported being current cigarette smokers.

TABLE 2. Prevalence of exposure to secondhand smoke, risk for exposure to secondhand smoke from parents and friends, and support for a ban on smoking in public places among students aged 13–15 years, by smoking status — Kurdistan region of Iraq, 2006

Characteristic	Never smokers		Current smokers		Total	
	%	(95% CI)*	%	(95% CI)	%	(95% CI)
Exposed to secondhand smoke at home	39.7	(35.3–44.3)	71.9	(48.2–87.5)	46.5	(41.1–51.9)
Exposed to secondhand smoke in public places	23.0	(14.5–34.5)	62.4	(46.4–76.2)	30.4	(21.7–40.9)
One or more parents smoke	33.8	(29.5–38.4)	56.2	(44.8–67.0)	37.3	(33.0–41.8)
Most or all best friends smoke	2.5	(1.3–4.7)	11.6	(5.5–22.9)	10.6	(6.5–16.8)
Supports ban on smoking in public places	81.2	(76.2–85.4)	59.8	(48.5–70.2)	78.1	(21.7–40.9)

* Confidence interval.

Editorial Note: The findings in this report indicate that tobacco-control programs in the Kurdistan region of Iraq faces the several challenges. First, although boys were significantly more likely than girls to be current smokers (21.0% versus 2.1%), this difference might be changing soon because the likely rate of smoking initiation among never smokers was nearly as high among girls (11.2%) as among boys (17.4%). The susceptibility index, used to measure likely initiation of smoking among never smokers, has been shown to be a good predictor of future smoking behavior (3). Second, the prevalence of any current tobacco use (20.3%) is only slightly less than the sum of the prevalence of current cigarette smoking (11.9%) and the prevalence of other current tobacco use (11.4%), indicating that few students are using both cigarettes and other tobacco products at the same time. This observation suggests that the Kurdistan tobacco-control program should address all forms of tobacco use. Other tobacco use in the Kurdistan region primarily involves the use of shisha (i.e., flavored tobacco smoked in hookah pipes), and the 8.7% rate of smoking shisha in hookah pipes among girls is a concern. Third, the high rate of student exposure to secondhand smoke indicates a need for further measures to pass and enforce laws governing smoking in public places. Creating smoke-free areas and educating the public about the dangers of secondhand smoke likely will have a complementary effect by reducing the social acceptance of tobacco use around persons who do not smoke (4).

The Ministry of Health (MOH) in the Kurdistan region of Iraq has established a tobacco-control unit and made tobacco control a priority among health-care workers and youths. MOH also has begun training programs for health professionals on tobacco control and cessation and has initiated a health education campaign directed toward youths (5). In addition, a health-education campaign to be conducted in schools throughout the Kurdistan region during the 2006–07 academic year will include antismoking posters and pamphlets. Kurdistan law bans smoking in all government buildings, including schools and administrative office buildings of MOH and the Ministry of Education (MOE). MOH will convene a

tobacco-control meeting in November 2006 to bring together representatives from MOH, MOE, and the Ministry of Higher Education to discuss the findings from GYTS and to plan development of a comprehensive tobacco-control program.

The findings in this report are subject to at least three limitations. First, because the sample surveyed was limited to youths attending school, it might not be representative of all adolescents aged 13–15 years in the Kurdistan region of Iraq. According to MOE, the enrollment rate (i.e., the percentage of all eligible youth enrolled in secondary schools) in the region is 82% (Kurdistan regional government, MOE, unpublished data, 2006). Second, these data were based on responses of those students who were in school on the day of the survey and who completed the survey. However, the effect of this limitation is likely minimal because 100% of randomly selected schools and 95.6% of all eligible students in those schools participated. Finally, the data are based on self-reports of students, who might underreport or overreport their behavior or attitudes. Although the extent of this possible bias cannot be determined from the Iraq Kurdistan region GYTS, responses to tobacco-related questions on U.S. surveys similar to the GYTS have demonstrated good test-retest reliability (6).

Systematic global surveillance of youth tobacco use is the essential first step in preventing the worldwide epidemic of death and disease that smoking is projected to cause in the 21st century (7). The GYTS enhances the capacity of countries to develop, implement, and evaluate their tobacco-control programs. MOH now has baseline data on youth tobacco use and attitudes toward tobacco use that likely will help to develop a comprehensive tobacco-control program. GYTS should be repeated every 3–4 years to evaluate the effectiveness of such a program.

References

1. CW Warren, NR Jones, MP Eriksen, S Asma, Global Tobacco Surveillance System Collaborative Group. Patterns of global tobacco use in young people and implications for future chronic disease burden in adults. *Lancet* 2006;367:749–53.
2. Global Youth Tobacco Survey Collaborating Group. Tobacco use among youth: a cross-country comparison. *Tob Control* 2002;11:252–70.

- Pierce JP, Choi WS, Gilpin EA, Farkas AJ, Merritt RK. Validation of susceptibility as a predictor of which adolescents take up smoking in the United States. *Health Psychol* 1996;15:355–61.
- Fichtenberg CM, Glantz SA. Effects of smoke-free workplaces on smoking behavior: systematic review. *BMJ* 2002;325:188–96.
- Barzani D. Iraq: an important start in the Kurdish region. *Tob Control* 2006;15:3–4.
- Brener ND, Kann L, McMannus T, Kinchen SA, Sundberg EC, Ross JG. Reliability of the 1999 Youth Risk Behavior Survey questionnaire. *J Adolesc Health* 2002;31:336–42.
- Peto R, Lopez AD. Future worldwide health effects of current smoking patterns. In: Koop CD, Pearson C, Schwarz MR, eds. *Critical issues in global health*. New York, NY: Jossey-Bass; 2001.

Update: Multistate Outbreak of Mumps — United States, January 1–May 2, 2006

On May 18, this report was posted as an MMWR Dispatch on the MMWR website (<http://www.cdc.gov/mmwr>).

CDC and state and local health departments continue to investigate an outbreak of mumps that began in Iowa in December 2005 (1) and involved at least 10 additional states as of May 2, 2006. This report summarizes preliminary data reported to CDC from these 11 states and provides recommendations to prevent and control mumps during an outbreak.

Cases of mumps are reportable through the National Notifiable Diseases Surveillance System (NNDSS) (2). NNDSS reports are transmitted electronically to CDC each week and include information on individual cases such as age, sex, date of symptom onset, vaccination status, and complications of illness. Mumps cases included in this report are those with onset from January 1 (*MMWR* week 1) through April 29 (*MMWR* week 17) that were reported to CDC as of May 2 through NNDSS (or the Iowa mumps outbreak-specific reporting system) from Iowa and 10 additional states that reported one or more cases of mumps epidemiologically linked to the multistate outbreak. In addition to cases reported through NNDSS, to provide information rapidly during this outbreak, states have been reporting aggregate numbers of mumps cases and mumps-related hospitalizations and complications biweekly to CDC. Cases reported in this manner through May 2, 2006, also are included in this report.

The clinical case definition of mumps* is an illness with acute onset of unilateral or bilateral tender, self-limited swelling of the parotid or other salivary gland, lasting 2 or more days, and without other apparent cause. A confirmed case of mumps is

one that is laboratory confirmed or meets the clinical case definition and is linked epidemiologically to a confirmed or probable case. A case is classified as probable if it meets the clinical case definition but is neither laboratory-confirmed nor linked to another confirmed or probable mumps case. In accordance with these definitions, asymptomatic, laboratory confirmed infections were counted as confirmed cases in all states except Iowa. In Iowa, laboratory-confirmed cases that were asymptomatic or had clinical information pending, and cases for which high suspicion for mumps existed but case classification was not yet determined were classified as suspect.

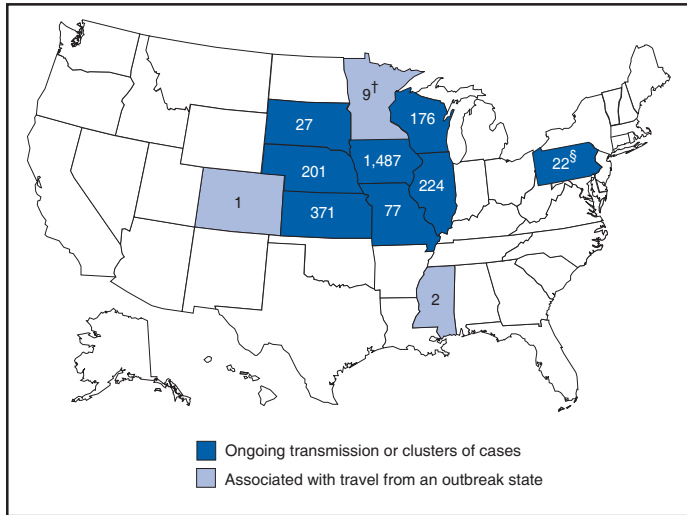
During January 1–May 2, 11 states reported 2,597 cases of mumps. Eight states (Illinois, Iowa, Kansas, Missouri, Nebraska, Pennsylvania, South Dakota, and Wisconsin) reported mumps outbreaks with ongoing local transmission or clusters of cases; three states (Colorado, Minnesota, and Mississippi) reported cases associated with travel from an outbreak state. The majority of mumps cases (1,487 [57%]) were reported from Iowa; states with the next highest case totals were Kansas (371), Illinois (224), Nebraska (201), and Wisconsin (176) (Figure 1). Of the 2,597 cases reported overall, 1,275 (49%) were classified as confirmed, 915 (35%) as probable, and 287 (11%) as suspect; for 120 (5%) cases, classification was unknown. Twelve mumps viral isolates from six states were characterized; all were mumps genotype G.

For 2,067 (80%) of the 2,597 mumps cases with patient age available, the median age was 21 years (range: <1 year to 96 years). In the eight states with outbreaks, the incidence rate was highest among persons aged 18–24 years (17.1 per 100,000 population), followed by persons aged 5–17 years (5.2) and 25–39 years (4.8) (Figure 2). Among the 2,073 patients for whom sex was known, 1,244 (60%) were female. Among the 2,073 cases for which week of onset was known, 1,426 (69%) were reported in April (Figure 3). The peak week of onset has been April 2–8 (week 14) in Iowa and April 16–22 (week 16) in other states. However, additional cases with onset dates in April continue to be reported.

Parotitis was reported in 870 (66%) of the 1,327 patients for whom such data were available. Data regarding mumps complications and hospitalizations are incomplete. However, complications have included 27 reports of orchitis, 11 meningitis, four encephalitis, four deafness, and one each of oophoritis, mastitis, pancreatitis, and unspecified complications. A total of 25 hospitalizations were reported, but insufficient data were provided to determine whether mumps caused all the hospitalizations. No deaths have been reported.

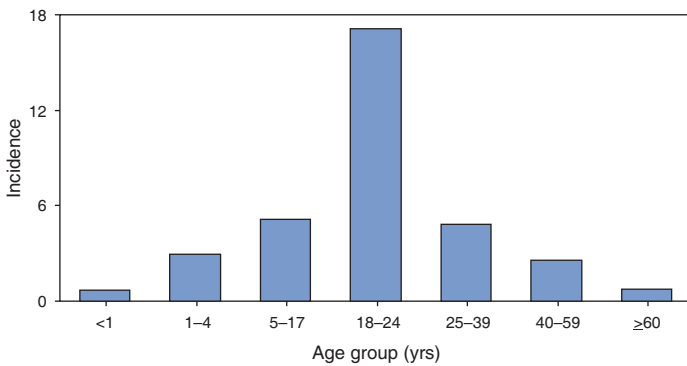
* Available at <http://www.cste.org/ps/1999/1999-id-09.htm>.

FIGURE 1. Number* of reported mumps cases linked to multistate outbreak, by state — United States, January 1– May 2, 2006



* N = 2,597.
 † Three cases related to the outbreak.
 § Twelve cases related to the outbreak.

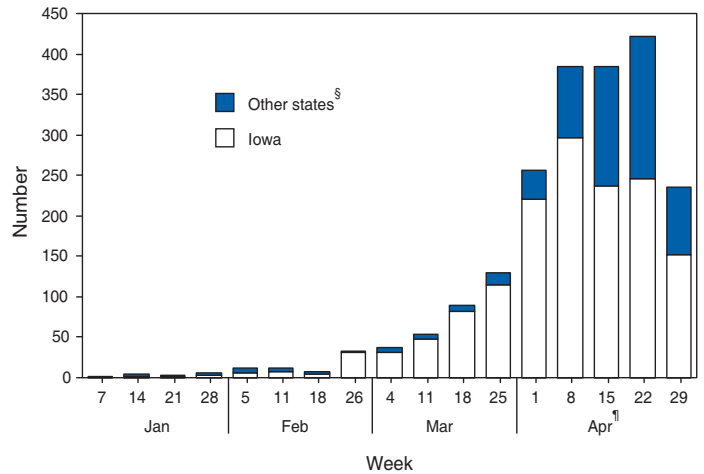
FIGURE 2. Incidence* of mumps reported in eight outbreak states,† by age group — United States, January 1– May 2, 2006



* Per 100,000 population (n = 2,061).
 † Iowa, Illinois, Kansas, Missouri, Nebraska, Pennsylvania, South Dakota, Wisconsin.

Vaccination status of reported mumps patients is being ascertained. In Iowa, preliminary vaccination data were reported through May 3, 2006.† Among 1,192 patients, 69 (6%) were unvaccinated, 141 (12%) had received 1 dose of measles, mumps, and rubella (MMR) vaccine, and 607 (51%) had received 2 doses of MMR vaccine; the vaccination status of 375 (31%) patients, the majority of whom were adults who did not have vaccination records, was unknown. Preliminary data, as of April 10, from two mumps

FIGURE 3. Number* of reported mumps cases linked to multistate outbreak, by week of onset† — United States, January 1– May 2, 2006



* n = 2,073.
 † Week of symptom onset for 1,880 (91%) cases, week of laboratory diagnosis for 131 (6%), week of report for 50 (2%), week of diagnosis for 11 (<1%), and category unknown for one (<1%).
 § Colorado, Illinois, Kansas, Minnesota, Mississippi, Missouri, Nebraska, Pennsylvania, South Dakota, and Wisconsin.
 ¶ Data for April are preliminary.

outbreaks on college campuses in an Iowa county affected early in the outbreak, identified attack rates of reported mumps cases§ of 2.0% (31 of 1,542 students) and 3.8% (44 of 1,168 students). Preliminary data from vaccine coverage surveys suggest that the college with the higher attack rate had a smaller proportion (77% versus 97%) of students documented as having received 2 doses of MMR vaccine.

As of May 10, a total of 11 persons potentially infected with mumps who traveled by aircraft during March 26–April 25 had been identified on 33 commercial flights operated by eight different airlines. Notifications had either been initiated or completed for persons potentially exposed on all identified flights. As of May 12, of approximately 575 persons potentially exposed on the flights, 132 had received follow-up >25 days after their potential exposure. Two cases of mumps were identified, possibly associated with transmission during air travel. Both cases occurred among Iowa residents, one of whom was a traveling companion of a person known to have mumps.

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† Available at http://www.idph.state.ia.us/adper/common/pdf/mumps/mumps_update_050406.pdf.

§ Defined as isolation of mumps virus from a clinical specimen; parotitis or orchitis; or submaxillary or submental swelling.

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Editorial Note: In the United States, the reported incidence of mumps declined after introduction of mumps vaccine in 1967 and the recommendation for its routine use in 1977 (3). After expanded recommendations for a 2-dose MMR vaccine schedule for measles control in 1989 (3), mumps cases declined further (Figure 4). During 2001–2003, fewer than 300 mumps cases were reported each year, a 99% decline from the 185,691 cases reported in 1968 (2).

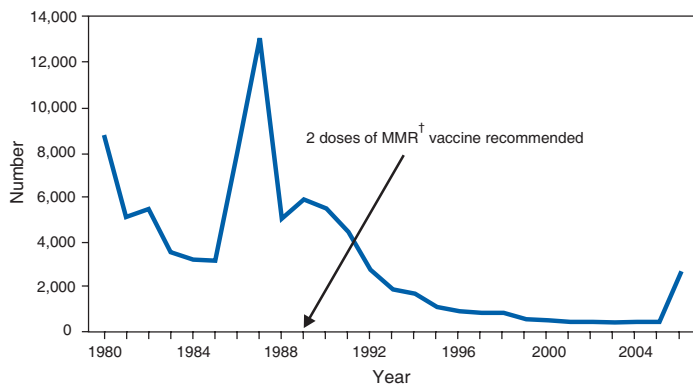
The current multistate mumps outbreak, with 2,597 cases reported through May 2, 2006, is the largest number of mumps cases reported to CDC in a single year since 1991, when 4,264 cases were reported (2). The first cases in the current outbreak were detected on a college campus in eastern Iowa in Decem-

ber 2005; the source of these initial cases is unknown (1). Although the age group most affected (38% of cases) has been young adults aged 18–24 years, many of whom are college students, the outbreak has spread to all age groups (1).

Multiple factors might have contributed to the spread of mumps in this outbreak and on college campuses. First, the college campus environment (e.g., living in dormitories with frequent and extended close contact with other students) facilitates transmission of mumps and other illnesses that are spread through respiratory and oral secretions. Second, only 25 states[§] and the District of Columbia report a college admission requirement of 2 doses of MMR vaccine, including three of the 11 states with outbreak-associated cases of mumps; no data on implementation and evaluation of the 2-dose college admission requirement are available (CDC, unpublished data, 2006). Thus, 2-dose coverage with mumps-containing vaccine among college students likely is lower than the median 97% (range: 57%–99%) coverage for measles-containing vaccine (almost exclusively administered as MMR vaccine) for students entering elementary school and the median 98% (range: 62%–99%) coverage for students entering middle school reported in 2000 from 38 and 25 states, respectively (4). Third, delayed recognition and diagnosis of mumps cases might have contributed to the spread in this outbreak; younger physicians in the United States likely have not seen mumps, and physicians might not consider the diagnosis in vaccinated persons. Fourth, 2 doses of MMR vaccine are not 100% effective in preventing disease, and accumulation of susceptible persons who were not successfully immunized might be sufficient to sustain transmission in certain settings. In addition, the vaccine might be less effective in preventing asymptomatic infection or atypical mumps than in preventing parotitis, and persons with asymptomatic infection or mild disease might contribute to transmission. Finally, waning immunity has been postulated as a contributing factor in this outbreak. Young adults aged 18–24 years would most commonly have received their most recent dose of mumps-containing vaccine (i.e., MMR vaccine) 6–17 years ago.

High vaccination coverage with 2 doses of MMR vaccine, especially in school-aged populations in the United States, likely prevented thousands of additional cases of mumps in this outbreak. Postlicensure studies conducted in the United States during 1973–1989 determined that 1 dose of mumps or MMR vaccine was 75%–91% effective in preventing mumps with

FIGURE 4. Number of reported mumps cases, by year — United States, 1980–2006*



* Data for 2005 and 2006 are provisional.

† Measles, mumps, and rubella.

[§] Arizona, Arkansas, Colorado, Connecticut, Delaware, Georgia, Hawaii, Illinois, Indiana, Kansas, Louisiana, Massachusetts, Mississippi, Montana, Nevada, New York, North Carolina, North Dakota, Oklahoma, Oregon, Rhode Island, Tennessee, Texas, Vermont, and Virginia.

parotitis that lasts ≥ 2 days (5). Although fewer data are available on the effectiveness of 2 doses of MMR vaccine against mumps, one study from the United Kingdom documented vaccine effectiveness of 88% with 2 doses (6). In a mumps outbreak in a high school in Kansas, students vaccinated with 1 dose of MMR vaccine had an attack rate five times that of students vaccinated with 2 doses (7). In a mumps outbreak in a middle school in 1982, before mumps vaccination became widespread, attack rates of 25%–49% occurred among unvaccinated students, depending on how cases were ascertained (8). During 1986–1990, after widespread implementation of a 1-dose mumps vaccination policy, attack rates of 2%–18% (most $>6\%$) were documented in mumps outbreaks among junior high and high school students with vaccination coverage of $>95\%$ (7,9). In contrast, preliminary data from two colleges in Iowa during the current outbreak identified attack rates of 2.0% and 3.8%, respectively, with the lower attack rate in the college with higher 2-dose vaccination coverage.

To prevent mumps, the Advisory Committee on Immunization Practices (ACIP) recommends a 2-dose MMR vaccination series for all children, with the first dose administered at ages 12–15 months and the second dose at ages 4–6 years (3). Two doses of MMR vaccine are recommended for school and college entry unless the student has other evidence of immunity (3). In a specially convened meeting on May 17, 2006, ACIP redefined evidence of immunity to mumps through vaccination as follows: 1 dose of a live mumps virus vaccine** for preschool children and adults not at high risk; 2 doses for children in grades K–12 and adults at high risk (i.e., persons who work in health-care facilities, international travelers, and students at post-high school educational institutions). Other criteria for evidence of immunity (i.e., birth before 1957, documentation of physician-diagnosed mumps, or laboratory evidence of immunity) are unchanged. Furthermore, health-care facilities should consider recommending 1 dose of MMR vaccine to unvaccinated health-care workers born before 1957 who do not have other evidence of mumps immunity.

During an outbreak and depending on the epidemiology of the outbreak (e.g., the age groups and/or institutions involved), a second dose of vaccine should be considered for adults and for children aged 1–4 years who have received 1 dose. The second dose should be administered as early as 28 days after the first dose, the minimum recommended interval between 2 MMR vaccine doses. In addition, during an outbreak, health-care facilities should strongly consider recommending 2 doses

of MMR vaccine to unvaccinated workers born before 1957 who do not have other evidence of mumps immunity. An *MMWR Notice to Readers* will be published, summarizing these interim recommendations in more detail.

Additional means to decrease transmission in outbreak settings include exclusion of persons without evidence of immunity to mumps from institutions such as schools and colleges that are affected by the outbreak. Once vaccinated, students and staff can be readmitted to school immediately, even if they have been exposed to a case of mumps. The period of exclusion for those who remain unvaccinated is 26 days after the onset of parotitis in the last person in the affected institution. Students who acquire mumps illness should be excluded from school until 9 days after the onset of parotitis. After an exposure to mumps, unvaccinated health-care workers without evidence of immunity should be vaccinated and excluded from duty from the 12th day after the first exposure through the 26th day after the last exposure. Health-care workers with mumps illness should be excluded from work until 9 days after the onset of parotitis.

In response to the current outbreak, the Iowa Department of Public Health (IDPH) issued vaccination recommendations in March targeting college campus and health-care worker populations at high risk. On April 14, CDC issued a Health Advisory Notice summarizing vaccine policy recommendations for mumps prevention and control. In conjunction with local health departments, IDPH launched a statewide vaccination campaign during April 24–26, targeting persons aged 18–22 years in the 35 Iowa counties with the state's largest colleges and universities. In the second phase of the campaign, conducted May 2–4, vaccination was expanded to the remaining 64 counties, targeting persons aged 18–25 years. A third phase of the vaccination campaign was begun May 10 and targets persons aged 18–46 years. Vaccination activities also are being conducted or planned in Kansas, South Dakota, and Wisconsin.

The data presented in this report are preliminary; the case count is likely to change as additional data become available. Certain reported cases might not have been caused by mumps; cases in persons without parotitis might have been misclassified on the basis of serologic tests. Because of the low number of reported mumps cases during the last decade, laboratorians have limited experience with mumps tests, particularly IgM antibody tests (10). Several different mumps IgM antibody tests are in use; however, neither the sensitivities nor specificities of these tests when used with serum specimens from either unvaccinated or vaccinated persons have been clearly defined. Consequently, interpretation of these antibody test results is difficult, especially in previously vaccinated persons.

** Combined MMR vaccine generally should be used whenever any of its component vaccines are indicated. For children aged 1–12 years, MMRV vaccine can be considered if varicella vaccine is indicated.

Studies to define the sensitivity and specificity of mumps IgM antibody tests and reverse transcription–polymerase chain reaction (RT-PCR) tests for mumps virus RNA are in progress.

CDC continues to work with state and local health departments to conduct mumps surveillance, assist with prevention and control activities, and evaluate vaccine effectiveness, duration of immunity, and risk factors for mumps illness.

References

1. CDC. Mumps epidemic—Iowa, 2006. *MMWR* 2006;55:366–8.
2. CDC. Summary of notifiable diseases—United States, 2003. *MMWR* 2005;52(54).
3. CDC. Measles, mumps, and rubella—vaccine use and strategies for elimination of measles, rubella, and congenital rubella syndrome and control of mumps: recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR* 1998;47(No. RR-8).
4. Kolasa MS, Klemperec-Johnson S, Papania MJ. Progress toward implementation of a second-dose measles immunization requirement for all schoolchildren in the United States. *J Infect Dis* 2004;189(Suppl 1):S98–S103.
5. Plotkin SA, Orenstein WA, eds. *Vaccines*. 4th ed. Philadelphia, PA: Elsevier Inc.; 2003:441–5.
6. Harling R, White JM, Ramsay ME, Macsween KF, van den Bosch C. The effectiveness of the mumps component of the MMR vaccine: a case control study. *Vaccine* 2005;23:4070–4.
7. Hersh BS, Fine PE, Kent WK, et al. Mumps outbreak in a highly vaccinated population. *J Pediatr* 1991;119:187–93.
8. Kim-Farley R, Bart S, Stetler H, et al. Clinical mumps vaccine efficacy. *Am J Epidemiol* 1985;121:593–7.
9. Cheek JE, Baron R, Atlas H, Wilson DL, Crider RD. Mumps outbreak in a highly vaccinated school population: evidence for large-scale vaccination failure. *Arch Pediatr Adolesc Med* 1995;149:774–8.
10. Warren L, Samuel D. Evaluation of a commercial assay for the detection of mumps specific IgM antibodies in oral fluid and serum specimens. *J Clin Virol* 2006;35:130–4.

Update: *Fusarium* Keratitis — United States, 2005–2006

On May 19, this report was posted as an *MMWR* Dispatch on the *MMWR* website (<http://www.cdc.gov/mmwr>).

In April 2006, CDC reported on an ongoing multistate investigation of *Fusarium* keratitis occurring predominantly among contact lens wearers (1). This update summarizes epidemiologic developments in this investigation, which indicate an association with Bausch & Lomb's ReNu with MoistureLoc® contact lens solution.

Fusarium keratitis is a fungal infection of the cornea, preceded usually by trauma to the eye. Although not a notifiable disease, the infection is thought to be rare among contact lens wearers in temperate climates (2). *Fusarium* keratitis is treated with antifungal medication but can be severe and sometimes result in vision loss and the need for corneal transplantation (3).

As of May 18, 2006, CDC had received reports of 130 confirmed cases of *Fusarium* keratitis infection, defined as clinically consistent fungal keratitis with symptom onset after June 1, 2005, no history of recent ocular trauma, and a corneal culture yielding a *Fusarium* species. Cases have been reported from 26 states and one territory.* Patients had a median age of 41 years (range: 12–83 years), and 85 of 127 (67%) were female. As a result of this infection, corneal transplantation was required in 37 of 120 (31%) cases.

Among the 130 patients with confirmed cases, 125 reported wearing contact lenses, and 118 were able to identify which contact lens solution(s) they had used during the month before onset of infection. Seventy-five (64%) reported using Bausch & Lomb's ReNu with MoistureLoc alone, 14 (12%) reported using MoistureLoc in combination with another product, eight (7%) reported using an unspecified Bausch & Lomb solution, and 21 (18%) reported using only products other than MoistureLoc, from various manufacturers. Ongoing surveillance continues to identify persons who used MoistureLoc and had disease onset after April 13, when Bausch & Lomb withdrew this product from the market in the United States.

In April, a subset of confirmed case-patients who were soft contact lens wearers and aged ≥ 18 years was enrolled in a matched case-control investigation to evaluate risk factors for infection. To avoid potential bias from media coverage on case-patient responses, this subset was limited to those patients reported to CDC before online publication of the initial *MMWR Dispatch* on April 10. Neighborhood-matched controls were adults reporting soft contact lens use during March 2006 with no history of fungal keratitis. Information regarding contact lens types, solutions used, and contact lens hygiene practices was obtained via telephone interviews conducted by trained personnel who used standardized questionnaires. Exact conditional logistic regression was used to estimate odds ratios.

A total of 50 case-patients and 79 controls were enrolled in the matched case-control investigation. For the most stringent test of product association, analysis was limited to the matched sets of 25 case-patients and 37 controls who were soft contact lens wearers, reported using only a single solution type, and provided all the information requested. In a multivariable model, use of Bausch & Lomb's ReNu with MoistureLoc during the month before symptom onset was independently associated with being a case-patient (adjusted

* Arizona (one case), Arkansas (one), California (seven), Connecticut (three), Florida (26), Georgia (two), Illinois (eight), Iowa (one), Kansas (one), Kentucky (five), Louisiana (one), Maryland (one), Massachusetts (one), Michigan (three), Missouri (three), Nevada (one), New Jersey (four), New York (six), North Carolina (two), Ohio (seven), Oklahoma (one), Oregon (one), Pennsylvania (12), Tennessee (eight), Texas (seven), Vermont (two), and Puerto Rico (15).

odds ratio: 19.0, 95% confidence interval = 2.4–944.9, $p < 0.001$), when compared with contact lens solutions other than ReNu with MoistureLoc or ReNu Multiplus®; 19 case-patients and seven controls reported this exposure. This association was statistically significant even after controlling for poor contact lens care (i.e., reported reuse or topping off of contact lens solution). Use of ReNu Multiplus solution was not significantly associated with infection (adjusted odds ratio: 3.6, 95% confidence interval = 0.3–189.0, $p = 0.5$); five case-patients and 10 controls reported this exposure.

The results of this case-control investigation indicate an increased risk for *Fusarium* keratitis associated with use of Bausch & Lomb's ReNu with MoistureLoc. The cause of this association is not clear; however, further studies, including environmental and molecular testing, are ongoing. Although certain patients have reported use of other contact lens solutions, the analysis does not indicate that these products are associated with significantly increased risk for disease. Patients who reported using only products other than MoistureLoc might not have recalled all the contact lens solutions they had used, especially if the period between exposure and interview was lengthy. In addition, extensive surveillance for this infection might have identified patients whose disease was unrelated to the outbreak.

Given the association between *Fusarium* keratitis and MoistureLoc, Bausch & Lomb (Rochester, New York) announced its decision to voluntarily recall and permanently remove this contact lens solution from the worldwide market on May 15, 2006. Contact lens wearers should immediately discontinue use of this solution and consult an eye-care professional regarding use of an appropriate alternative product for cleaning or disinfecting lenses. Contact lens wearers also should practice good hygiene, including hand washing and drying before handling lenses, avoiding reuse of contact lens solutions, and following the specific instructions of manufacturers of contact lenses and contact lens solutions. Clinicians evaluating contact lens wearers with signs or symptoms of keratitis (e.g., unusual redness of the eyes, eye pain, tearing, discharge, or light sensitivity) should consider fungal keratitis and refer the patient to an ophthalmologist if appropriate. Eye-care professionals should continue to be vigilant in the diagnosis and treatment of *Fusarium* keratitis, and should report possible cases to state health departments or to CDC at telephone, 800-893-0485. Reports should also be submitted to the FDA via MedWatch at telephone, 800-FDA-1088; fax, 800-FDA-0178; or mail, MedWatch, Food and Drug Administration, 5600 Fishers Lane, Rockville, MD 20857-9787; or online at <http://www.fda.gov/medwatch/report.htm>.

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References

1. CDC. *Fusarium* keratitis—multiple states, 2006. MMWR 2006;55:400–1.
2. Thomas PA. Fungal infections of the cornea. *Eye* 2003;17:852–62.
3. Dursun D, Fernandez V, Miller D, Alfonso EC. Advanced *Fusarium* keratitis progressing to endophthalmitis. *Cornea* 2003;22:300–3.

Brief Report

Investigation into Recalled Human Tissue for Transplantation — United States, 2005–2006

On September 29, 2005, a human tissue-processing company discovered inaccuracies in donor records forwarded from a tissue-recovery firm and notified the Food and Drug Administration (FDA). An FDA investigation determined that the recovery firm, Biomedical Tissue Services, Ltd. (BTS) (Fort Lee, New Jersey), recovered tissues from human donors who might not have met donor eligibility requirements and who were not screened properly for certain infectious diseases. In October 2005, BTS and the five processors* that had received the tissues, working with FDA, issued a recall for all tissues recovered by BTS. The continuing FDA investigation determined that information for some donors (e.g., cause,

*Regeneration Technologies, Inc. (Alachua, Florida); LifeCell Corporation (Branchburg, New Jersey); Tutogen Medical, Inc. (Alachua, Florida); Central Texas Regional Blood and Tissue Center (Austin, Texas); and Lost Mountain Tissue Bank, Inc. (Kennesaw, Georgia).

place, or time of death) was not consistent with death certificate data obtained from the states where the deaths occurred. The investigation also determined that BTS had failed to recover tissues in a manner that would prevent contamination or cross-contamination and failed to control environmental conditions adequately during tissue recovery. These failures were violations of the Current Good Tissue Practice Rules[†] (effective May 25, 2005), which require manufacturers to recover, process, store, label, package, and distribute human cells, tissue, and cellular and tissue-based products (HCT/Ps) to prevent introduction, transmission, or spread of communicable diseases. In January 2006, FDA ordered BTS to cease manufacturing and to retain all HCT/Ps.

The tissues recovered by BTS had been sent to five processors, who distributed them through one or more sub-distributors or directly to clinicians and health-care facilities. CDC learned that, during June 2002–October 2005, approximately 25,000 BTS-recovered tissue products were distributed to all 50 states and internationally. Most of these tissue allografts were bone or demineralized bone matrix; others included skin and soft tissue (e.g., tendons or fascia lata). Before distribution, tissues were disinfected by tissue processors to reduce or eliminate contamination with bacteria, fungi, or viruses.

During September–October 2005, the five tissue processors recalled all products that had been produced from BTS tissues. Each of the processors and related distributors issued letters to consignees (i.e., health-care facilities or clinicians) to notify them of the recall and request return of unused products. The letters included a recommendation by FDA and CDC that transplant recipients be notified of the recall and offered access to testing for the communicable diseases for which donor screening is required: human immunodeficiency virus (HIV), hepatitis B virus (HBV), hepatitis C virus (HCV), and syphilis.

In March 2006, FDA determined that, in some instances, blood samples submitted for disease screening had not come from the persons from whom the linked tissues had been obtained. This finding cast doubt on the blood sample–screening status of the tissue donors, and FDA and CDC issued an update[§] that strongly recommended health-care providers offer patients access to or referral for testing for HIV, HBV, HCV, and syphilis. CDC recommendations[¶] for testing persons who received BTS tissues call for patients whose tissue implants have been in place >6 months to be offered

the following tests: HIV antibody, antibody to hepatitis B core antigen, antibody to hepatitis C virus, a non-treponemal syphilis test (i.e., rapid plasma reagin [RPR] or Venereal Disease Research Laboratory [VDRL]), and a treponemal syphilis test (i.e., *Treponema pallidum* particle agglutination [TP-PA] or any enzyme-linked immunosorbent assay [ELISA] test). Patients whose tissue implants have been in place <6 months can be offered the same tests; however, they also should be retested 6 months after the tissue was implanted. If all of these tests yield negative results, the likelihood that one of the diseases was contracted from an implanted BTS tissue is small; no further follow-up testing is recommended. Patients who have a positive result for any of these tests should undergo confirmatory or supplemental testing. Positive test results in recipients of BTS tissue should be reported to local or state health departments, the tissue distributor, FDA's MedWatch program (<http://www.fda.gov/medwatch>), or CDC at telephone 800-893-0485.

FDA and CDC are continuing to investigate reports of BTS tissue recipients who have undergone screening and tested positive for one of the four tested diseases. Some positive results would be expected in any U.S. population tested; the prevalence of current or past infection with HIV, HCV, and HBV is approximately 0.5% (2), 1.8% (3), and 4.9% (4), respectively. Transmission of infection via tissue allografts is rare, but transmission of HIV (5) and HCV (6) to tissue recipients has been documented previously. However, the relationship between implanted BTS tissue and positive test results reported to FDA and CDC is difficult to ascertain because of inaccurate BTS donor records and, in some cases, the absence of properly linked donor blood samples.

Allograft recipients who are concerned that they might have received tissue recovered by BTS should contact the health-care providers who performed their implants. Clinicians with specific questions about the recovery history of tissues they have used in implants should contact the health-care facility or the distributor that provided the tissues. State or local health departments can determine 1) where BTS-recovered tissues were sent and 2) whether they were implanted by contacting the tissue processors and working with local hospitals and health-care facilities. Tissue processors and distributors maintain information they receive regarding tissue providers and health-care facilities in each state that received products associated with recalls. However, because information regarding the tissue recipient might not be available to tissue processors and distributors, state or local health departments might need to provide patient follow-up by contacting the health-care facilities where implantation occurred.

[†] Available at <http://www.fda.gov/bbs/topics/news/2004/new01137.html>.

[§] Available at <http://www.fda.gov/cber/safety/bts030206.htm>.

[¶] Available at <http://www.cdc.gov/ncidod/dhqp/tissuetransplantsfaq.html>.

Reported by: M Malarkey, R Solomon, MD, C Witten, MD, PhD, E Bloom, PhD, M Wells, MPH, M Braun, MD, R Wise, MD, C Zinderman, MD, Center for Biologics Evaluation and Research, Food and Drug Administration. DB Jernigan, MD, MJ Kuehnert, MD, A Srinivasan, MD, Div of Healthcare Quality Promotion, National Center for Preparedness, Detection, and Control of Infectious Diseases (proposed); S Wang, MD, EIS Officer, CDC.

References

1. American Association of Tissue Banks. 2003 Annual Tissue Bank Survey. McLean, VA: American Association of Tissue Banks; 2003.
2. CDC. HIV/AIDS surveillance report: Cases of HIV infection and AIDS in the United States, 2004. Atlanta, GA: US Department of Health and Human Services, CDC; 2005. Available at <http://www.cdc.gov/hiv/topics/surveillance/resources/reports/2004report/default.htm>.
3. Alter MJ, Kruszon-Moran D, Nainan OV, et al. The prevalence of hepatitis C virus infection in the United States, 1988 through 1994. *N Engl J Med* 1999;341:556–62.
4. McQuillan GM, Coleman PJ, Kruszon-Moran D, Moyer LA, Lambert SB, Margolis HS. Prevalence of hepatitis B virus infection in the United States: the National Health and Nutrition Examination Surveys, 1976 through 1994. *Am J Public Health* 1999;89:14–8.
5. CDC. Transmission of HIV through bone transplantation: case report and public health recommendations. *MMWR* 1988;37:597–9.
6. Tugwell BD, Patel PR, Williams IT. Transmission of hepatitis C virus to several organ and tissue recipients from an antibody-negative donor. *Ann Intern Med* 2005;143:648–54.

Notice to Readers

Drownings in Recreational Water Settings

Memorial Day marks the beginning of the swimming and boating season. Drowning is a leading cause of unintentional injury death for persons of all ages and is the second leading cause of death from injury among persons aged 1–14 years (1). Many of these deaths occur in recreational water settings, including pools, spas/hot tubs, and natural water settings (e.g., lakes, rivers, or oceans). During 2003, a total of 3,386 deaths were attributed to unintentional drowning in recreational water settings (2). During 2001–2002, an estimated 4,174 persons on average per year were treated in U.S. hospital emergency departments for nonfatal unintentional drowning injuries* in recreational water settings (3); approximately 53% of these persons required hospitalization or transfer for more specialized care. Fatal and nonfatal drowning rates were highest for children aged ≤ 4 years and for males of all ages; 50% of fatalities and 56% of nonfatal drownings occurred during

June–August. Among children aged ≤ 4 years, 50% of fatalities and approximately 80% of reported nonfatal injuries occurred in swimming pools; both fatal and nonfatal drownings in natural water settings increased with age.

To reduce the number of drownings, environmental protections (e.g., isolation pool fencing, weight-bearing pool covers, and lifeguards) should be adopted. Alcohol use should be avoided while swimming, boating, or water skiing or while supervising children; all participants, caregivers, and supervisors should be knowledgeable regarding water-safety skills and be trained in cardiopulmonary resuscitation (CPR) (4). Additional CDC recommendations to prevent drowning have been published previously (3). Other agencies and organizations promoting water safety include the Consumer Product Safety Commission (<http://www.cpsc.gov/cpsc/pub/prerel/prhtml06/06164.html>), Safe Kids Worldwide (<http://www.usa.safekids.org/water>), and the National Drowning Prevention Alliance (<http://www.drowningpreventionalliance.com>).

References

1. CDC. Web-based Injury Statistics Query and Reporting System (WISQARS™). Atlanta, GA: US Department of Health and Human Services, CDC. Available at <http://www.cdc.gov/ncipc/wisqars>.
2. Hoyert DL, Heron M, Murphy SL, Kung HC. Deaths: final data for 2003. *Natl Vital Stat Rep* 2006;54(13).
3. Gilchrist J, Gotsch K, Ryan G. Nonfatal and fatal drownings in recreational water settings—United States, 2001–2002. *MMWR* 2004;53:447–52.
4. Quan L, Branche C. Interventions to prevent drowning [chapter 5]. In: Doll L, Bonzo S, Mercy J, Sleet D, eds. *Handbook of injury and violence prevention*. New York, NY: Springer. In press 2006.

Notice to Readers

Fifth Annual Conference on Public Health Law — June 12–14, 2006

U.S. surgeon general, the assistant U.S. secretary for health, and the mayor of New York City will be among the speakers at the fifth annual public health law conference, The Public's Health and the Law in the 21st Century, June 12–14, 2006, in Atlanta, Georgia. The CDC Public Health Law Program and the American Society of Law, Medicine and Ethics, along with 27 collaborating organizations, are sponsoring the conference, which will focus on legal issues, developments, and tools important to public health practitioners and policy makers.

Conference sessions will address a range of legal and policy concerns, including public health emergency legal preparedness, quarantine and mutual aid legal powers, translation of science into policy and law, legal tools to prevent obesity and

*In 2002, for statistical purposes, the World Congress on Drowning created the following definition for drowning: "the process of experiencing respiratory impairment from submersion/immersion in liquid." This definition is used by the World Health Organization and the National Center for Injury Prevention and Control at CDC, both of which categorize drownings as fatal (i.e., resulting in death) or nonfatal (i.e., not resulting in death).

chronic disease, health-oriented urban redevelopment, legislative considerations related to new adolescent vaccines, and the 2006 Massachusetts Health Care Reform Act. Participants and faculty will include public health practitioners and medical professionals, attorneys, judges, elected officials, emergency management and law enforcement professionals, and researchers.

CME, CNE, CLE, and other continuing education credits will be offered. Additional information is available at <http://www2a.cdc.gov/phlp/conference2006.asp> or by e-mail, cqu3@cdc.gov.

Notice to Readers

Healthy Vision Month — May 2006

May is Healthy Vision Month. The theme this year is Eye Safety at Work Is Everyone's Business, and the focus is on reducing occupational eye injuries. An estimated 300,000 persons with work-related eye injuries and illnesses are treated in U.S. hospital emergency departments each year (1), representing approximately one third of all medically treated occupational eye injuries and illnesses in the United States (2). Among private industry employers, approximately 37,000 eye injuries and illnesses resulting in one or more days away from work occur each year (3).

Healthy People 2010 objectives include reducing the rate of occupational eye injuries and illnesses among U.S. workers. To aid in this goal, the National Eye Institute, National Safety Council, and CDC's National Institute for Occupational Safety and Health, in collaboration with the American Association of Occupational Health Nurses, have cosponsored this year's Healthy Vision Month and launched an educational campaign to increase occupational eye injury awareness. Information to assist employers, workers, and communities in reducing workplace eye injuries is available at <http://www.healthyvision2010.org/hvm>.

References

1. CDC. Work-related injury statistics query system (Work-RISQS). US Department of Health and Human Services, CDC, National Institute for Occupational Safety and Health; 2002. Available at <http://www2a.cdc.gov/risqs>.
2. CDC. Nonfatal occupational injuries and illnesses treated in hospital emergency departments—United States, 2003. *MMWR* 2006;55:449–52.
3. Bureau of Labor Statistics. Lost-worktime injuries and illnesses: characteristics and resulting time away from work, 2004. Washington, DC: US Department of Labor, Bureau of Labor Statistics; 2005. Available at <http://www.bls.gov/news.release/pdf/osh2.pdf>.

Notice to Readers

MMWR Editorial Board Instituted

On May 18, 2006, *MMWR* instituted its first editorial board, chaired by William L. Roper, a former director of CDC. Editorial board members will provide guidance to help continue to assure the quality reporting and scientific excellence of the *MMWR* series of publications. In addition, the board will assist *MMWR* in continually improving the efficiency and effectiveness of its delivery of health information to the public, CDC partners, and the public health community. The 17 board members will be listed on page 2 of *MMWR* print publications and also on the *MMWR* website.

Notice to Readers

Limited Supply of Meningococcal Conjugate Vaccine, Recommendation to Defer Vaccination of Persons Aged 11–12 Years

On May 19, this notice was posted as an *MMWR* Dispatch on the *MMWR* website (<http://www.cdc.gov/mmwr>).

In January 2005, a tetravalent meningococcal polysaccharide-protein conjugate vaccine ([MCV4] Menactra[®], manufactured by Sanofi Pasteur, Inc., Swiftwater, Pennsylvania), was licensed for use among persons aged 11–55 years. The Advisory Committee on Immunization Practices (ACIP) recommends routine vaccination with MCV4 of persons aged 11–12 years, of adolescents at high school entry (i.e., at approximately age 15 years) if not previously vaccinated with MCV4, and of college freshmen living in dormitories. Vaccination also is recommended for other persons at increased risk for meningococcal disease (i.e., military recruits, travelers to areas where meningococcal disease is hyperendemic or epidemic, microbiologists who are routinely exposed to isolates of *Neisseria meningitidis*, persons with anatomic or functional asplenia, and persons with terminal complement deficiency) (1).

Sanofi Pasteur anticipates that MCV4 demand will outpace supply at least through summer 2006. CDC, in consultation with ACIP, the American Academy of Pediatrics, American Academy of Family Physicians, American College Health Association, and Society for Adolescent Medicine, recommends that providers continue to vaccinate adolescents at high school entry who have not previously received MCV4 and college freshmen living in dormitories. Current supply projections from Sanofi Pasteur suggest that enough MCV4 will

be available to meet vaccine demand for these groups. Until further notice, administration of MCV4 to persons aged 11–12 years should be deferred. If possible, providers should track persons aged 11–12 years for whom MCV4 has been deferred and recall them for vaccination when supply improves. Other persons at high risk for meningococcal disease (i.e., military recruits, travelers to areas where meningococcal disease is hyperendemic or epidemic, microbiologists who are routinely exposed to isolates of *N. meningitidis*, persons with anatomic or functional asplenia, and persons with terminal complement deficiency) also should be vaccinated.

For vaccination of most persons, MCV4 is preferable to tetravalent meningococcal polysaccharide vaccine ([MPSV4] Menomune[®]-A,C,Y,W-135, manufactured by Sanofi Pasteur). MPSV4 is highly effective in preventing meningococcal disease caused by serogroups A, C, Y, and W-135 and is an acceptable alternative to MCV4, particularly in persons who have brief elevations in their risk for meningococcal disease (e.g., travelers to areas where meningococcal disease is hyperendemic or epidemic); however, availability of MPSV4 also is limited.

Periodic updates of vaccine supply will be available at <http://www.cdc.gov/nip/news/shortages/default.htm>. Providers who have questions about their orders may contact Sanofi Pasteur at 800-VACCINE (i.e., 822-2463) or via its Internet site at <http://www.vaccineshoppe.com>.

Reference

1. CDC. Prevention and control of meningococcal disease: recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 2005;54(No. RR-7).

Erratum: Vol. 55, No. 15

In the *MMWR Notice to Readers, National Infant Immunization Week — April 22–29, 2006*, the first sentence of the third paragraph should read: “In 2005, a total of 62 cases of measles, one case of **imported vaccine-associated** poliovirus, and no cases of diphtheria were reported in the United States (3).”

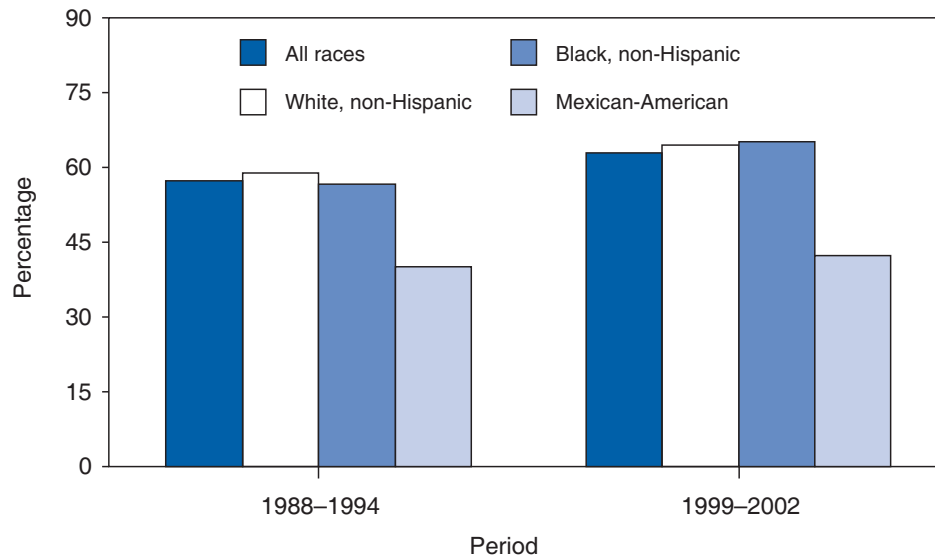
Erratum: Vol. 54, No. RR-11

In the *MMWR Recommendations and Reports, “Guidelines for Identifying and Referring Persons with Fetal Alcohol Syndrome,”* an error occurred on page 2. The last sentence of the first paragraph under the heading “Prevalence” should read: “On the basis of these prevalence estimates, **among the approximately 4 million infants born each year**, an estimated 1,000–6,000 will be born with FAS.”

QuickStats

FROM THE NATIONAL CENTER FOR HEALTH STATISTICS

Prevalence of Antihypertensive Medication Use* During the Preceding Month Among Persons with Hypertension† Aged ≥ 18 Years, by Race/Ethnicity — United States, 1988–1994 and 1999–2002



* Specific prescription antihypertensive medications were identified from an inventory of all prescription medications used during the 1-month period before the interview.

† Persons with systolic blood pressure ≥ 140 mm Hg or diastolic blood pressure ≥ 90 mm Hg or who reported current use of a prescription medication for high blood pressure.

The prevalence of antihypertensive medication use during the preceding month among adults with hypertension increased from 57% in 1988–1994 to nearly 63% in 1999–2002. Substantial increases in use also occurred among non-Hispanic white and black adults but not among Mexican-Americans, for whom prevalence remained at approximately 40%.

SOURCE: Gu Q, Paulose-Ram R, Dillon C, Burt V. Antihypertensive medication use among US adults with hypertension. *Circulation* 2006;113:213–21.

TABLE I. Provisional cases of infrequently reported notifiable diseases (<1,000 cases reported during the preceding year) — United States, week ending May 20, 2006 (20th Week)*

Disease	Current week	Cum 2006	5-year weekly average†	Total cases reported for previous years					States reporting cases during current week (No.)
				2005	2004	2003	2002	2001	
Anthrax	—	1	—	—	—	—	2	23	
Botulism:									
foodborne	—	1	0	17	16	20	28	39	
infant	—	26	2	90	87	76	69	97	
other (wound & unspecified)	—	20	0	33	30	33	21	19	
Brucellosis	1	33	2	120	114	104	125	136	CA (1)
Chancroid	1	14	1	17	30	54	67	38	LA (1)
Cholera	—	1	0	6	5	2	2	3	
Cyclosporiasis§	—	16	17	734	171	75	156	147	
Diphtheria	—	—	0	1	—	1	1	2	
Domestic arboviral diseases§§:									
California serogroup	—	—	0	78	112	108	164	128	
eastern equine	—	—	0	21	6	14	10	9	
Powassan	—	—	—	1	1	—	1	N	
St. Louis	—	—	0	10	12	41	28	79	
western equine	—	—	—	—	—	—	—	—	
Ehrlichiosis§:									
human granulocytic	—	20	5	757	537	362	511	261	
human monocytic	4	48	3	478	338	321	216	142	NC (3), FL (1)
human (other & unspecified)	1	5	1	121	59	44	23	6	MO (1)
<i>Haemophilus influenzae</i> ,**									
invasive disease (age <5 yrs):									
serotype b	—	2	1	10	19	32	34	—	
nonserotype b	1	37	3	132	135	117	144	—	IN (1)
unknown serotype	1	75	4	215	177	227	153	—	PA (1)
Hansen disease§	1	15	2	89	105	95	96	79	NYC (1)
Hantavirus pulmonary syndrome§	—	8	1	22	24	26	19	8	
Hemolytic uremic syndrome, postdiarrheal§	2	39	3	215	200	178	216	202	GA (2)
Hepatitis C viral, acute	6	298	31	791	713	1,102	1,835	3,976	MI (1), FL (1), KY (2), TX (1), NV (1)
HIV infection, pediatric (age <13 yrs)§§††	—	52	5	380	436	504	420	543	
Influenza-associated pediatric mortality§§§¶¶	1	31	0	49	—	N	N	N	PA (1)
Listeriosis	2	176	11	887	753	696	665	613	FL (1), CA (1)
Measles	—	13***	1	65	37	56	44	116	
Meningococcal disease,††† invasive:									
A, C, Y, & W-135	4	105	6	314	—	—	—	—	CT (1), OH (2), MN (1)
serogroup B	1	57	3	177	—	—	—	—	MN (1)
other serogroup	—	11	0	28	—	—	—	—	
Mumps	85	3,295	6	310	258	231	270	266	NY (7), PA (7), OH (2), IN (1), MN (1), IA (8), MO (5), NE (17), KS (31), AR (2), WY (3), CA (1)
Plague	—	1	0	7	3	1	2	2	
Poliomyelitis, paralytic	—	—	—	1	—	—	—	—	
Psittacosis§	—	7	0	19	12	12	18	25	
Q fever§	1	42	2	134	70	71	61	26	MA (1)
Rabies, human	—	—	—	2	7	2	3	1	
Rubella	—	2	0	11	10	7	18	23	
Rubella, congenital syndrome	—	1	—	1	—	1	1	3	
SARS-CoV§§	—	—	0	—	—	8	N	N	
Smallpox§	—	—	—	—	—	—	—	—	
Streptococcal toxic-shock syndrome§	1	50	3	129	132	161	118	77	VT (1)
<i>Streptococcus pneumoniae</i> ,§									
invasive disease (age <5 yrs)	13	464	17	1,217	1,162	845	513	498	MA (1), PA (2), MN (6), MO (1), OK (2), TX (1)
Syphilis, congenital (age <1 yr)	3	84	8	360	353	413	412	441	NC (3)
Tetanus	—	7	1	26	34	20	25	37	
Toxic-shock syndrome (other than streptococcal)§	—	39	2	94	95	133	109	127	
Trichinellosis	—	3	0	20	5	6	14	22	
Tularemia§	—	10	2	147	134	129	90	129	
Typhoid fever	2	90	6	319	322	356	321	368	FL (1), WA (1)
Vancomycin-intermediate <i>Staphylococcus aureus</i> §	—	1	—	2	—	N	N	N	
Vancomycin-resistant <i>Staphylococcus aureus</i> §	—	—	0	—	1	N	N	N	
Yellow fever	—	—	—	—	—	—	1	—	

—: No reported cases. N: Not notifiable. Cum: Cumulative year-to-date counts.

* Incidence data for reporting years 2004, 2005, and 2006 are provisional, whereas data for 2001, 2002, and 2003 are finalized.

† Calculated by summing the incidence counts for the current week, the two weeks preceding the current week, and the two weeks following the current week, for a total of 5 preceding years. Additional information is available at <http://www.cdc.gov/epo/dphsi/phs/files/5yearweeklyaverage.pdf>.

§ Not notifiable in all states.

¶ Includes both neuroinvasive and non-neuroinvasive. Updated weekly from reports to the Division of Vector-Borne Infectious Diseases, National Center for Infectious Diseases (ArboNET Surveillance).

** Data for *H. influenzae* (all ages, all serotypes) are available in Table II.

†† Updated monthly from reports to the Division of HIV/AIDS Prevention, National Center for HIV, STD, and TB Prevention. Implementation of HIV reporting influences the number of cases reported. Data for HIV/AIDS are available in Table IV quarterly.

§§ Updated weekly from reports to the Division of Viral and Rickettsial Diseases, National Center for Infectious Diseases.

¶¶ Of the 36 cases reported since October 2, 2005 (week 40), only 34 occurred during the current 2005–06 season.

*** No measles cases were reported for the current week.

††† Data for meningococcal disease (all serogroups and unknown serogroups) are available in Table II.

TABLE II. (Continued) Provisional cases of selected notifiable diseases, United States, weeks ending May 20, 2006, and May 21, 2005 (20th Week)*

Reporting area	Lyme disease					Malaria				
	Current week	Previous 52 weeks		Cum 2006	Cum 2005	Current week	Previous 52 weeks		Cum 2006	Cum 2005
		Med	Max				Med	Max		
United States	65	286	2,151	1,869	2,424	12	26	124	358	425
New England	13	60	780	122	328	2	1	12	15	23
Connecticut	11	8	753	67	26	—	0	10	1	—
Maine	—	2	26	15	18	—	0	1	2	2
Massachusetts	—	19	205	11	257	2	0	3	9	16
New Hampshire	—	5	21	21	22	—	0	1	2	3
Rhode Island	—	0	12	—	3	—	0	8	—	2
Vermont†	2	1	5	8	2	—	0	1	1	—
Mid. Atlantic	36	156	1,177	1,285	1,344	2	5	15	53	115
New Jersey	3	26	311	224	497	—	1	7	—	30
New York (Upstate)	19	73	1,151	627	268	1	1	11	10	20
New York City	—	4	33	—	80	1	3	8	32	53
Pennsylvania	14	39	376	434	499	—	1	2	11	12
E.N. Central	1	12	160	69	152	2	3	8	40	43
Illinois	—	1	13	—	10	—	1	5	10	24
Indiana	—	0	4	2	2	1	0	3	6	3
Michigan	—	1	7	9	1	—	0	2	6	8
Ohio	1	1	5	15	18	1	1	3	13	3
Wisconsin	—	9	145	43	121	—	0	3	5	5
W.N. Central	2	11	99	47	74	—	0	32	21	20
Iowa	—	0	8	2	16	—	0	1	1	3
Kansas	—	0	1	1	1	—	0	1	—	2
Minnesota	2	7	96	42	54	—	0	30	14	6
Missouri	—	0	2	1	3	—	0	2	3	9
Nebraska†	—	0	2	1	—	—	0	2	1	—
North Dakota	—	0	1	—	—	—	0	1	1	—
South Dakota	—	0	1	—	—	—	0	1	1	—
S. Atlantic	2	32	124	266	467	3	6	16	115	90
Delaware	—	9	37	105	185	—	0	1	2	1
District of Columbia	—	0	2	7	3	—	0	2	—	2
Florida	1	1	5	13	10	1	1	6	21	17
Georgia	—	0	1	—	1	1	1	6	34	14
Maryland†	—	16	87	120	212	—	1	9	26	29
North Carolina	1	0	5	9	18	1	0	8	11	13
South Carolina†	—	0	3	2	8	—	0	2	4	3
Virginia†	—	3	22	10	30	—	1	9	16	10
West Virginia	—	0	44	—	—	—	0	2	1	1
E.S. Central	—	0	4	1	7	—	0	3	8	8
Alabama†	—	0	1	—	—	—	0	1	3	3
Kentucky	—	0	2	—	—	—	0	2	1	1
Mississippi	—	0	0	—	—	—	0	1	2	—
Tennessee†	—	0	4	1	7	—	0	2	2	4
W.S. Central	—	0	7	1	27	—	2	30	20	33
Arkansas	—	0	1	—	2	—	0	2	1	2
Louisiana	—	0	0	—	3	—	0	1	—	2
Oklahoma	—	0	0	—	—	—	0	6	2	2
Texas†	—	0	7	1	22	—	1	29	17	27
Mountain	1	0	4	3	2	—	1	9	16	16
Arizona	—	0	4	2	—	—	0	9	4	2
Colorado	—	0	0	—	—	—	0	3	4	8
Idaho†	—	0	1	—	—	—	0	0	—	—
Montana	—	0	0	—	—	—	0	1	1	—
Nevada†	—	0	2	—	—	—	0	2	—	—
New Mexico†	—	0	1	—	—	—	0	1	—	1
Utah	1	0	1	1	1	—	0	2	7	4
Wyoming	—	0	1	—	1	—	0	1	—	1
Pacific	10	3	18	75	23	3	4	12	70	77
Alaska	—	0	1	—	1	—	0	2	6	2
California	10	2	18	75	19	1	3	10	50	66
Hawaii	N	0	0	N	N	—	0	4	—	4
Oregon†	—	0	3	—	3	—	0	2	4	2
Washington	—	0	3	—	—	2	0	5	10	3
American Samoa	U	0	0	U	U	U	0	0	U	U
C.N.M.I.	U	0	0	U	U	U	0	0	U	U
Guam	—	0	0	—	—	—	0	0	—	—
Puerto Rico	N	0	0	N	N	—	0	1	—	—
U.S. Virgin Islands	—	0	0	—	—	—	0	0	—	—

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

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

* Incidence data for reporting years 2005 and 2006 are provisional.

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

TABLE II. (Continued) Provisional cases of selected notifiable diseases, United States, weeks ending May 20, 2006, and May 21, 2005 (20th Week)*

Reporting area	Shiga toxin-producing <i>E. coli</i> (STEC) [†]					Shigellosis					Streptococcal disease, invasive, group A				
	Current week	Previous 52 weeks		Cum 2006	Cum 2005	Current week	Previous 52 weeks		Cum 2006	Cum 2005	Current week	Previous 52 weeks		Cum 2006	Cum 2005
		Med	Max				Med	Max				Med	Max		
United States	12	54	288	361	575	174	297	680	3,110	4,167	46	86	275	2,205	2,179
New England	—	3	14	33	50	2	5	23	93	77	1	5	11	82	130
Connecticut	—	1	13	13	16	—	0	17	17	18	U	1	4	—	54
Maine	—	0	5	—	9	—	0	3	—	5	—	0	2	7	3
Massachusetts	—	1	7	17	18	1	4	11	67	44	—	3	6	52	53
New Hampshire	—	0	2	3	3	—	0	4	4	4	1	0	3	15	7
Rhode Island	—	0	2	—	1	1	0	6	4	2	—	0	3	3	6
Vermont [§]	—	0	2	2	3	—	0	4	1	4	—	0	2	5	7
Mid. Atlantic	—	5	107	7	57	3	17	72	226	428	11	14	43	373	476
New Jersey	—	1	7	—	16	—	5	18	55	112	—	2	8	10	100
New York (Upstate)	—	2	103	29	22	2	4	60	85	100	5	4	32	155	151
New York City	—	0	3	7	—	—	5	14	53	184	—	3	8	50	89
Pennsylvania	—	2	8	—	19	1	2	48	33	32	6	5	13	158	136
E.N. Central	3	10	38	85	116	3	19	96	288	340	14	15	37	413	501
Illinois	—	1	10	—	33	—	7	26	72	87	—	4	10	61	171
Indiana	1	1	7	13	14	2	1	56	52	36	9	1	11	63	51
Michigan	—	1	8	19	15	—	3	10	73	116	1	3	11	119	122
Ohio	2	2	14	30	35	—	3	11	54	22	4	4	19	142	99
Wisconsin	—	3	15	23	19	1	3	10	37	79	—	1	4	28	58
W.N. Central	1	7	35	59	74	70	42	73	410	269	—	5	57	171	144
Iowa	—	1	10	12	13	—	1	7	13	43	N	0	0	N	N
Kansas	—	0	4	—	10	2	4	20	30	16	—	0	5	33	26
Minnesota	1	3	19	44	12	3	2	6	29	26	—	0	52	78	52
Missouri	3	2	7	26	21	65	23	70	287	145	—	1	5	34	40
Nebraska [§]	1	1	4	8	15	—	2	10	25	22	—	0	4	16	10
North Dakota	—	0	15	—	1	—	0	2	4	2	—	0	5	5	4
South Dakota	—	0	5	3	2	—	2	17	22	15	—	0	3	5	12
S. Atlantic	4	7	39	71	102	45	51	122	859	612	13	19	40	517	403
Delaware	—	0	2	1	—	—	0	2	—	5	—	0	2	4	—
District of Columbia	—	0	1	—	—	—	0	2	3	6	2	0	2	7	5
Florida	4	1	29	33	52	15	25	66	367	274	6	6	12	121	100
Georgia	—	0	6	—	9	19	13	34	303	165	3	4	13	123	81
Maryland [§]	—	1	5	5	10	—	2	8	36	23	—	3	12	99	81
North Carolina	1	1	11	28	15	10	1	22	75	63	—	1	21	61	63
South Carolina [§]	—	0	2	3	1	1	2	9	57	41	2	0	6	34	23
Virginia [§]	—	1	8	—	15	—	2	9	18	35	—	2	11	59	41
West Virginia	—	0	2	—	—	—	0	1	—	—	—	0	4	9	9
E.S. Central	—	2	11	16	26	21	14	46	233	551	1	4	10	97	85
Alabama [§]	—	0	3	1	7	13	3	15	60	114	N	0	0	N	N
Kentucky	—	1	8	12	6	4	7	23	114	40	—	0	5	23	20
Mississippi	—	0	2	—	1	—	1	5	26	36	—	0	0	—	—
Tennessee [§]	—	1	4	27	12	4	3	28	33	361	1	3	9	74	65
W.S. Central	—	2	44	5	20	4	66	267	264	1,040	3	8	51	191	109
Arkansas	—	0	2	2	3	—	1	8	31	20	—	0	5	16	7
Louisiana	—	0	2	—	7	—	2	11	37	50	—	0	2	5	5
Oklahoma	—	0	3	3	3	4	7	41	33	280	3	2	8	57	59
Texas [§]	—	1	44	21	7	—	51	243	163	690	—	5	43	113	38
Mountain	—	5	15	34	66	6	17	47	224	212	3	10	78	325	287
Arizona	—	0	4	13	9	—	9	29	120	100	—	4	57	183	123
Colorado	—	1	6	15	14	—	3	18	39	33	—	3	8	71	98
Idaho [§]	—	1	7	9	9	—	0	4	5	2	—	0	2	6	1
Montana	—	0	2	—	3	1	0	1	2	2	—	0	0	—	—
Nevada [§]	—	0	3	2	10	4	1	6	17	25	—	0	6	—	—
New Mexico [§]	—	0	3	2	7	—	2	9	24	34	—	1	7	25	34
Utah	1	1	7	8	13	1	1	4	16	16	3	1	6	38	29
Wyoming	—	0	3	1	1	—	0	1	1	—	—	0	1	2	2
Pacific	4	7	55	51	64	20	38	149	513	638	—	2	9	36	44
Alaska	—	0	2	—	3	—	0	2	6	8	—	0	0	—	—
California	2	3	18	37	28	14	33	104	376	573	—	0	0	—	—
Hawaii	—	0	4	4	3	—	0	4	15	11	—	2	9	36	44
Oregon [§]	—	1	47	17	27	—	1	31	59	25	N	0	0	N	N
Washington	2	2	32	10	3	6	2	43	57	21	N	0	0	N	N
American Samoa	U	0	0	U	U	U	0	2	U	3	U	0	0	U	U
C.N.M.I.	U	0	0	U	U	U	0	0	U	U	U	0	0	U	U
Guam	—	0	0	—	—	—	0	0	—	1	—	0	0	—	—
Puerto Rico	—	0	1	—	—	1	0	2	2	—	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 notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.

* Incidence data for reporting years 2005 and 2006 are provisional.

† Includes *E. coli* O157:H7; Shiga toxin positive, serogroup non-O157; and Shiga toxin positive, not serogrouped.

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

TABLE II. (Continued) Provisional cases of selected notifiable diseases, United States, weeks ending May 20, 2006, and May 21, 2005 (20th Week)*

Reporting area	<i>Streptococcus pneumoniae</i> , invasive disease Drug resistant, all ages					Syphilis, primary and secondary					Varicella (chickenpox)				
	Current week	Previous 52 weeks		Cum 2006	Cum 2005	Current week	Previous 52 weeks		Cum 2006	Cum 2005	Current week	Previous 52 weeks		Cum 2006	Cum 2005
		Med	Max				Med	Max				Med	Max		
United States	32	51	335	1,230	1,340	82	170	334	2,906	3,084	915	762	3,163	20,942	11,940
New England	—	1	24	10	116	2	4	17	70	72	11	52	165	640	2,085
Connecticut	U	1	7	U	47	—	0	11	16	9	U	13	67	U	772
Maine	N	0	0	N	N	1	0	2	4	1	—	4	20	85	164
Massachusetts	—	0	6	—	57	1	2	5	40	54	—	19	86	92	1,125
New Hampshire	—	0	0	—	—	—	0	2	5	4	4	7	42	151	63
Rhode Island	—	0	11	1	7	—	0	6	3	4	—	0	0	—	—
Vermont†	—	0	2	9	5	—	0	1	2	—	7	8	32	312	24
Mid. Atlantic	3	2	15	71	136	15	21	35	415	387	74	103	183	2,407	2,324
New Jersey	N	0	0	N	N	—	2	7	70	50	—	0	0	—	—
New York (Upstate)	1	1	10	21	55	2	2	14	60	29	—	0	0	—	—
New York City	U	0	0	U	U	7	11	21	203	247	—	0	0	—	—
Pennsylvania	2	2	9	50	81	6	5	9	82	61	74	103	183	2,407	2,324
E.N. Central	11	11	40	302	319	15	18	38	306	324	435	197	564	8,230	2,906
Illinois	—	1	3	8	12	5	9	23	128	177	—	1	5	4	41
Indiana	4	2	21	74	98	2	1	4	26	29	N	0	347	N	47
Michigan	2	0	4	12	23	—	2	19	48	32	64	92	231	2,355	1,786
Ohio	5	6	32	208	186	7	4	11	88	76	371	51	423	5,513	783
Wisconsin	N	0	0	N	N	1	1	3	16	10	—	10	41	358	249
W.N. Central	—	1	191	23	26	1	4	9	74	100	12	20	84	796	130
Iowa	N	0	0	N	N	—	0	2	6	4	N	0	0	N	N
Kansas	N	0	0	N	N	—	0	2	9	8	—	0	0	—	—
Minnesota	—	0	191	—	—	—	1	4	11	28	—	0	0	—	—
Missouri	—	1	3	23	22	1	3	8	47	58	12	15	82	749	59
Nebraska†	—	0	0	—	2	—	0	1	1	2	—	0	1	—	—
North Dakota	—	0	1	—	—	—	0	1	—	—	—	0	25	18	10
South Dakota	—	0	1	—	2	—	0	1	—	—	—	1	12	29	61
S. Atlantic	15	24	53	643	533	29	43	186	711	706	58	59	858	2,092	995
Delaware	—	0	2	—	1	—	0	2	10	6	—	1	5	33	12
District of Columbia	—	0	3	19	13	4	2	9	44	43	2	0	5	16	15
Florida	15	13	36	358	271	14	14	29	273	285	—	0	0	—	—
Georgia	—	8	21	226	195	—	9	147	74	102	—	0	0	—	—
Maryland†	—	0	0	—	—	2	5	19	114	114	—	0	0	—	—
North Carolina	N	0	0	N	N	5	5	17	115	90	—	0	0	—	—
South Carolina†	—	0	0	—	—	1	1	7	27	25	11	15	50	556	254
Virginia†	N	0	0	N	N	3	3	12	54	39	2	18	812	725	163
West Virginia	—	1	10	40	53	—	0	1	—	2	43	24	70	762	551
E.S. Central	2	3	14	96	92	8	10	19	209	162	—	0	70	16	—
Alabama†	N	0	1	N	N	2	3	12	97	63	—	0	70	16	—
Kentucky	—	1	5	20	15	—	1	8	29	12	N	0	0	N	N
Mississippi	—	0	0	—	1	—	0	5	11	22	—	0	0	—	—
Tennessee†	2	2	13	76	76	6	4	11	72	65	N	0	0	N	N
W.S. Central	—	1	8	42	84	7	24	37	511	485	312	180	1,717	5,299	1,992
Arkansas	—	0	3	6	8	—	1	6	34	21	—	3	110	335	—
Louisiana	—	1	5	36	76	—	4	17	58	93	—	0	17	83	105
Oklahoma	N	0	0	N	N	1	1	6	30	16	—	0	0	—	—
Texas†	N	0	0	N	N	6	17	30	389	355	312	170	1,607	4,881	1,887
Mountain	1	1	27	43	34	3	7	17	136	162	13	52	135	1,462	1,508
Arizona	N	0	0	N	N	2	3	13	73	53	—	0	0	—	—
Colorado	N	0	0	N	N	—	1	3	10	20	—	34	76	777	1,040
Idaho†	N	0	0	N	N	—	0	3	2	13	—	0	0	—	—
Montana	—	0	1	—	—	—	0	1	—	5	—	0	0	—	—
Nevada†	1	0	27	2	2	1	2	6	30	46	—	0	2	4	—
New Mexico†	—	0	0	—	—	—	1	5	19	20	—	3	32	205	128
Utah	—	0	8	19	15	—	0	1	2	5	13	10	55	466	296
Wyoming	—	0	3	22	17	—	0	0	—	—	—	0	3	10	44
Pacific	—	0	0	—	—	2	33	47	474	686	—	0	0	—	—
Alaska	—	0	0	—	—	—	0	4	5	4	—	0	0	—	—
California	N	0	0	N	N	2	28	42	386	613	—	0	0	—	—
Hawaii	—	0	0	—	—	—	0	2	7	1	N	0	0	N	N
Oregon†	N	0	0	N	N	—	0	6	5	12	N	0	0	N	N
Washington	N	0	0	N	N	—	2	11	71	56	N	0	0	N	N
American Samoa	—	0	0	—	—	U	0	0	U	U	U	0	0	U	U
C.N.M.I.	—	0	0	—	—	U	0	0	U	U	U	0	0	U	U
Guam	—	0	0	—	—	—	0	0	—	—	—	0	0	—	26
Puerto Rico	N	0	0	N	N	1	4	16	54	55	3	9	47	110	325
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 notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.

* Incidence data for reporting years 2005 and 2006 are provisional.

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

TABLE II. (Continued) Provisional cases of selected notifiable diseases, United States, weeks ending May 20, 2006, and May 21, 2005 (20th Week)*

Reporting area	West Nile virus disease [†]									
	Neuroinvasive					Non-neuroinvasive				
	Current week	Previous 52 weeks		Cum 2006	Cum 2005	Current week	Previous 52 weeks		Cum 2006	Cum 2005
		Med	Max				Med	Max		
United States	—	1	154	3	1	—	1	203	—	12
New England	—	0	3	—	—	—	0	2	—	—
Connecticut	—	0	2	—	—	—	0	1	—	—
Maine	—	0	0	—	—	—	0	0	—	—
Massachusetts	—	0	3	—	—	—	0	1	—	—
New Hampshire	—	0	0	—	—	—	0	0	—	—
Rhode Island	—	0	1	—	—	—	0	0	—	—
Vermont [§]	—	0	0	—	—	—	0	0	—	—
Mid. Atlantic	—	0	10	—	—	—	0	4	—	—
New Jersey	—	0	1	—	—	—	0	2	—	—
New York (Upstate)	—	0	7	—	—	—	0	2	—	—
New York City	—	0	2	—	—	—	0	2	—	—
Pennsylvania	—	0	3	—	—	—	0	2	—	—
E.N. Central	—	0	39	—	—	—	0	18	—	—
Illinois	—	0	25	—	—	—	0	16	—	—
Indiana	—	0	2	—	—	—	0	1	—	—
Michigan	—	0	14	—	—	—	0	3	—	—
Ohio	—	0	9	—	—	—	0	4	—	—
Wisconsin	—	0	3	—	—	—	0	2	—	—
W.N. Central	—	0	26	—	—	—	0	80	—	—
Iowa	—	0	3	—	—	—	0	5	—	—
Kansas	—	0	3	—	—	N	0	3	N	N
Minnesota	—	0	5	—	—	—	0	5	—	—
Missouri	—	0	4	—	—	—	0	3	—	—
Nebraska [§]	—	0	9	—	—	—	0	24	—	—
North Dakota	—	0	4	—	—	—	0	15	—	—
South Dakota	—	0	7	—	—	—	0	33	—	—
S. Atlantic	—	0	6	—	—	—	0	4	—	—
Delaware	—	0	1	—	—	—	0	0	—	—
District of Columbia	—	0	1	—	—	—	0	1	—	—
Florida	—	0	2	—	—	—	0	4	—	—
Georgia	—	0	3	—	—	—	0	3	—	—
Maryland [§]	—	0	2	—	—	—	0	1	—	—
North Carolina	—	0	1	—	—	—	0	1	—	—
South Carolina [§]	—	0	1	—	—	—	0	0	—	—
Virginia [§]	—	0	0	—	—	—	0	1	—	—
West Virginia	—	0	0	—	—	N	0	0	N	N
E.S. Central	—	0	10	1	—	—	0	5	—	—
Alabama [§]	—	0	1	—	—	—	0	2	—	—
Kentucky	—	0	1	—	—	—	0	0	—	—
Mississippi	—	0	9	1	—	—	0	5	—	—
Tennessee [§]	—	0	3	—	—	—	0	1	—	—
W.S. Central	—	0	32	2	—	—	0	22	—	2
Arkansas	—	0	3	—	—	—	0	2	—	—
Louisiana	—	0	20	—	—	—	0	9	—	2
Oklahoma	—	0	6	—	—	—	0	3	—	—
Texas [§]	—	0	16	2	—	—	0	13	—	—
Mountain	—	0	16	—	1	—	0	39	—	2
Arizona	—	0	8	—	1	—	0	8	—	—
Colorado	—	0	5	—	—	—	0	13	—	2
Idaho [§]	—	0	2	—	—	—	0	3	—	—
Montana	—	0	3	—	—	—	0	9	—	—
Nevada [§]	—	0	3	—	—	—	0	8	—	—
New Mexico [§]	—	0	3	—	—	—	0	4	—	—
Utah	—	0	6	—	—	—	0	8	—	—
Wyoming	—	0	2	—	—	—	0	1	—	—
Pacific	—	0	50	—	—	—	0	90	—	5
Alaska	—	0	0	—	—	—	0	0	—	—
California	—	0	50	—	—	—	0	89	—	5
Hawaii	—	0	0	—	—	—	0	0	—	—
Oregon [§]	—	0	1	—	—	—	0	2	—	—
Washington	—	0	0	—	—	—	0	0	—	—
American Samoa	U	0	0	U	U	U	0	0	U	U
C.N.M.I.	U	0	0	U	U	U	0	0	U	U
Guam	—	0	0	—	—	—	0	0	—	—
Puerto Rico	—	0	0	—	—	—	0	0	—	—
U.S. Virgin Islands	—	0	0	—	—	—	0	0	—	—

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

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

* Incidence data for reporting years 2005 and 2006 are provisional.

[†] Updated weekly from reports to the Division of Vector-Borne Infectious Diseases, National Center for Infectious Diseases (ArboNet Surveillance).

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

TABLE III. Deaths in 122 U.S. cities,* week ending May 20, 2006 (20th Week)

Reporting Area	All causes, by age (years)							Reporting Area	All causes, by age (years)						
	All Ages	≥65	45-64	25-44	1-24	<1	P&I [†] Total		All Ages	≥65	45-64	25-44	1-24	<1	P&I [†] Total
New England	504	351	105	30	10	8	44	S. Atlantic	1,147	675	305	109	33	25	68
Boston, MA	128	83	27	6	7	5	8	Atlanta, GA	119	63	36	16	4	—	7
Bridgeport, CT	26	15	3	7	1	—	3	Baltimore, MD	146	77	40	23	4	2	14
Cambridge, MA	15	10	5	—	—	—	—	Charlotte, NC	100	65	21	9	4	1	12
Fall River, MA	28	23	4	—	1	—	5	Jacksonville, FL	163	94	52	9	6	2	7
Hartford, CT	53	36	15	2	—	—	7	Miami, FL	79	49	14	10	2	4	4
Lowell, MA	24	17	4	3	—	—	2	Norfolk, VA	42	24	11	3	2	2	3
Lynn, MA	12	11	1	—	—	—	1	Richmond, VA	55	25	16	9	3	2	1
New Bedford, MA	19	12	4	3	—	—	2	Savannah, GA	61	33	19	6	2	1	3
New Haven, CT	U	U	U	U	U	U	U	St. Petersburg, FL	75	56	12	2	3	2	13
Providence, RI	78	56	17	3	—	2	7	Tampa, FL	176	113	45	11	2	5	2
Somerville, MA	4	3	1	—	—	—	—	Washington, D.C.	113	65	32	11	1	4	1
Springfield, MA	45	35	7	1	1	1	4	Wilmington, DE	18	11	7	—	—	—	1
Waterbury, CT	16	11	3	2	—	—	1	E.S. Central	678	429	159	50	26	14	46
Worcester, MA	56	39	14	3	—	—	4	Birmingham, AL	179	107	48	10	5	9	10
Mid. Atlantic	1,947	1,348	424	104	40	31	105	Chattanooga, TN	76	58	11	4	3	—	9
Albany, NY	40	26	9	2	2	1	1	Knoxville, TN	104	64	24	10	5	1	6
Allentown, PA	26	22	2	1	1	—	1	Lexington, KY	90	59	20	6	5	—	6
Buffalo, NY	75	58	13	3	1	—	5	Memphis, TN	U	U	U	U	U	U	U
Camden, NJ	37	27	8	1	1	—	1	Mobile, AL	60	32	16	7	3	2	3
Elizabeth, NJ	10	5	5	—	—	—	2	Montgomery, AL	39	29	7	1	1	1	3
Erie, PA	40	33	4	1	1	1	2	Nashville, TN	130	80	33	12	4	1	9
Jersey City, NJ	40	26	13	1	—	—	—	W.S. Central	1,536	963	369	113	48	42	69
New York City, NY	940	640	212	57	18	13	45	Austin, TX	107	61	30	9	3	4	9
Newark, NJ	U	U	U	U	U	U	U	Baton Rouge, LA	95	64	16	5	4	6	—
Paterson, NJ	15	11	2	1	—	1	—	Corpus Christi, TX	45	34	7	1	2	1	2
Philadelphia, PA	319	195	90	18	7	9	19	Dallas, TX	173	97	57	12	4	3	6
Pittsburgh, PA [§]	27	18	4	2	1	2	—	El Paso, TX	134	91	32	6	3	2	5
Reading, PA	24	16	6	2	—	—	5	Fort Worth, TX	111	85	18	6	1	1	10
Rochester, NY	135	102	19	8	3	3	8	Houston, TX	368	215	94	25	19	15	9
Schenectady, NY	27	22	4	—	1	—	1	Little Rock, AR	74	39	23	8	3	1	1
Scranton, PA	26	21	3	2	—	—	1	New Orleans, LA [¶]	U	U	U	U	U	U	U
Syracuse, NY	108	79	21	5	2	1	10	San Antonio, TX	277	182	56	28	6	4	19
Trenton, NJ	18	15	1	—	2	—	—	Shreveport, LA	47	29	12	4	1	1	6
Utica, NY	21	17	4	—	—	—	1	Tulsa, OK	105	66	24	9	2	4	2
Yonkers, NY	19	15	4	—	—	—	3	Mountain	953	614	220	71	20	28	63
E.N. Central	2,094	1,416	458	117	54	49	136	Albuquerque, NM	104	66	28	6	3	1	7
Akron, OH	53	39	5	2	3	4	3	Boise, ID	57	40	11	4	—	2	3
Canton, OH	40	27	12	1	—	—	7	Colorado Springs, CO	86	61	16	6	1	2	4
Chicago, IL	323	196	72	33	10	12	22	Denver, CO	97	62	23	8	1	3	6
Cincinnati, OH	76	46	16	10	2	2	10	Las Vegas, NV	245	165	59	14	3	4	13
Cleveland, OH	267	192	63	8	3	1	14	Ogden, UT	30	26	2	—	1	1	2
Columbus, OH	247	154	62	12	9	10	29	Phoenix, AZ	199	99	55	25	8	12	18
Dayton, OH	120	93	17	5	2	3	8	Pueblo, CO	25	19	6	—	—	—	1
Detroit, MI	171	88	59	10	7	7	11	Salt Lake City, UT	110	76	20	8	3	3	9
Evansville, IN	48	39	6	3	—	—	2	Tucson, AZ	U	U	U	U	U	U	U
Fort Wayne, IN	70	54	9	6	1	—	—	Pacific	1,646	1,160	330	92	40	22	126
Gary, IN	11	7	2	1	—	1	—	Berkeley, CA	13	11	—	1	—	1	2
Grand Rapids, MI	59	43	7	5	1	3	5	Fresno, CA	80	52	17	5	4	2	3
Indianapolis, IN	184	108	55	12	7	2	8	Glendale, CA	16	12	3	1	—	—	2
Lansing, MI	43	25	15	2	1	—	—	Honolulu, HI	109	75	20	10	2	2	—
Milwaukee, WI	99	72	21	2	1	3	4	Long Beach, CA	79	49	24	4	2	—	4
Peoria, IL	42	36	5	—	1	—	2	Los Angeles, CA	295	211	58	15	9	2	41
Rockford, IL	62	44	13	2	3	—	3	Pasadena, CA	33	29	3	—	1	—	5
South Bend, IN	46	36	6	1	3	—	3	Portland, OR	140	102	31	5	1	1	8
Toledo, OH	91	81	7	2	—	1	2	Sacramento, CA	111	82	14	11	4	—	7
Youngstown, OH	42	36	6	—	—	—	3	San Diego, CA	139	100	21	8	6	2	13
W.N. Central	660	415	156	54	13	21	44	San Francisco, CA	109	75	28	2	1	3	8
Des Moines, IA	44	39	5	—	—	—	5	San Jose, CA	179	135	29	11	1	3	17
Duluth, MN	35	27	7	1	—	—	1	Santa Cruz, CA	35	25	7	3	—	—	2
Kansas City, KS	32	16	9	5	—	2	3	Seattle, WA	138	81	41	8	4	4	3
Kansas City, MO	78	57	13	5	1	2	2	Spokane, WA	61	49	8	3	—	1	6
Lincoln, NE	42	32	9	—	—	1	6	Tacoma, WA	109	72	26	5	5	1	5
Minneapolis, MN	65	40	12	4	3	6	8	Total	11,165**	7,371	2,526	740	284	240	701
Omaha, NE	88	59	16	9	1	3	12								
St. Louis, MO	131	60	49	15	3	3	4								
St. Paul, MN	57	34	15	6	1	1	2								
Wichita, KS	88	51	21	9	4	3	1								

U: Unavailable. —: No reported cases.

* Mortality data in this table are voluntarily reported from 122 cities in the United States, most of which have populations of ≥100,000. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

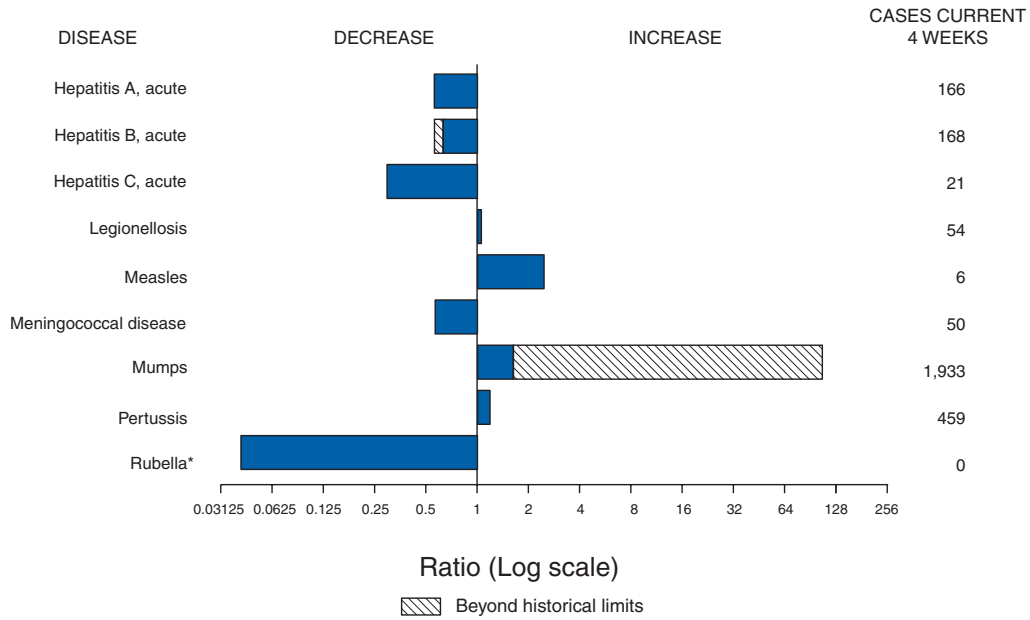
[†] Pneumonia and influenza.

[§] Because of changes in reporting methods in this Pennsylvania city, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

[¶] Because of Hurricane Katrina, weekly reporting of deaths has been temporarily disrupted.

** Total includes unknown ages.

FIGURE I. Selected notifiable disease reports, United States, comparison of provisional 4-week totals May 20, 2006, with historical data



* No rubella cases were reported for the current 4-week period yielding a ratio for week 20 of zero (0).
 † 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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