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### Prevalence of Diabetes and Impaired Fasting Glucose in Adults — United States, 1999–2000

Diabetes and its complications are major causes of morbidity and mortality in the United States and contribute substantially to health-care costs. Data from the National Health Interview Survey (NHIS) and the Behavioral Risk Factor Surveillance System (BRFSS) have documented steady increases in the prevalence of diabetes (1,2). However, these surveys rely only on self-reports of previously diagnosed diabetes and cannot measure the prevalence of undiagnosed diabetes. The change in prevalence demonstrated by these data might reflect other factors such as enhanced detection rather than true increases. The National Health and Nutrition Examination surveys (NHANES) are the only nationally representative surveys that examine both diagnosed and undiagnosed diabetes. During 1976–1980 (NHANES II) and 1988–1994 (NHANES III), the overall combined prevalence of diabetes (diagnosed and undiagnosed on the basis of fasting glucose) increased (3). This report presents data on prevalence of diagnosed and undiagnosed diabetes and impaired fasting glucose from NHANES 1999–2000 and NHANES III (1988–1994). The findings indicate that diabetes and impaired fasting glucose continue to affect a major proportion of the U.S. population. An estimated 29 million (14.4%) persons aged  $\geq 20$  years had either diagnosed diabetes, undiagnosed diabetes, or impaired fasting glucose; 29% of diabetes cases were undiagnosed. Persons can reduce their risk for diabetes through weight management and physical activity.

NHANES 1999–2000 (4) was designed to be nationally representative of the U.S. civilian, noninstitutionalized population on the basis of a complex, multistage probability sample. Survey participants were interviewed in their homes and subsequently received physical examinations in mobile examination centers. The household interview was completed by 81.9% of eligible subjects, including 4,880 persons aged  $\geq 20$  years. Persons were asked if, other than during pregnancy for women,

a doctor or a health-care professional had ever told them they had diabetes. From these responses, 480 persons aged  $\geq 20$  years were classified as having previously diagnosed diabetes. Of 1,996 persons aged  $\geq 20$  years without diagnosed diabetes who were randomly assigned to a morning examination session and who fasted 9 to  $< 24$  hours, plasma glucose values were obtained for 1,734 (87%). Plasma glucose was measured by using a hexokinase enzymatic method with a coefficient of variation of  $< 2.5\%$  during the 2 years of the survey. Diagnostic criteria of the American Diabetes Association (ADA) were used to categorize persons without previously diagnosed diabetes as to whether they had undiagnosed diabetes (fasting plasma glucose  $\geq 126$  mg/dL) or impaired fasting glucose (fasting plasma glucose 110 to  $< 126$  mg/dL) (5).

Findings from NHANES 1999–2000 were compared with those from NHANES III (1988–1994), which used similar procedures (3). Sampling weights for the interviewed sample and the morning plasma glucose sample were incorporated to provide estimates that were representative of the U.S. population. Prevalence based on fasting glucose in the morning sample

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Julie L. Gerberding, M.D., M.P.H.  
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#### Division of Public Health Surveillance and Informatics

#### Notifiable Disease Morbidity and 122 Cities Mortality Data

Robert F. Fagan  
Deborah A. Adams  
Felicia J. Connor  
Lateka Dammond  
Donna Edwards  
Patsy A. Hall  
Pearl C. Sharp

of persons without diagnosed diabetes was adjusted as described previously (6) so estimates based on these data would represent the total U.S. population. Age- and sex-adjusted rates were computed by the direct method by using U.S. 2000 Census data, with age categories of 20–39, 40–59, and  $\geq 60$  years. Replicated variance estimation methods were used to calculate the standard errors, accounting for both the complex sample design and the use of both interview and morning examination sample data in combination. Two sample t-tests were used to test differences in proportions.

The estimated unadjusted prevalence of previously diagnosed diabetes in adults aged  $\geq 20$  years during 1999–2000 was 5.9% (95% confidence interval [CI] = 4.9–6.9) (Table 1), representing 11.8 million (95% CI = 9.8–13.8 million) U.S. adults. The prevalence increased by age, reaching 15.0% (95% CI = 12.6–17.5) among persons aged  $\geq 60$  years. Rates were similar by sex. The adjusted prevalence was significantly lower in non-Hispanic whites compared with Mexican Americans and non-Hispanic blacks. The unadjusted prevalence of undiagnosed diabetes based on fasting glucose in adults aged  $\geq 20$  years was 2.4% (95% CI = 1.5–3.4) during 1999–2000, representing 4.9 million (95% CI = 3.0–6.8 million) U.S. adults. Prevalence increased slightly with age and was similar in men and women. Rates were similar by race/ethnicity.

Combining diagnosed and undiagnosed diabetes (Table 2), the unadjusted prevalence of total diabetes during 1999–2000 was 8.3% (95% CI = 6.9–9.8), affecting an estimated 16.7 million (95% CI = 13.8–19.6 million) persons aged  $\geq 20$  years. Differences in prevalence by age, sex, and race/ethnicity mirrored those for diagnosed diabetes. During 1999–2000, the proportion of total diabetes that was undiagnosed was 29% (95% CI = 21%–38%). The overall prevalence of diagnosed diabetes, undiagnosed diabetes, total diabetes, and the overall proportion of total diabetes that was undiagnosed did not change significantly from 1988–1994 to 1999–2000.

Overall prevalence of impaired fasting glucose during 1999–2000 was 6.1% (95% CI = 4.4–7.9) (Table 1), representing 12.3 million (95% CI = 8.8–15.8 million) persons aged  $\geq 20$  years. Rates increased with age, were higher in men (7.9%) (95% CI = 5.5–10.2) than in women (4.5%) (95% CI = 2.8–6.2), and were similar by race/ethnicity. The overall decrease in prevalence observed from 1988–1994 to 1999–2000 was not statistically significant.

During 1999–2000, the combined unadjusted prevalence of total diabetes and impaired fasting glucose in adults aged  $\geq 20$  years was 14.4% (95% CI = 12.3%–16.5%) (Table 2), representing 29.0 million (95% CI = 24.8–33.2 million) persons. Prevalence increased with age, reaching 33.6% (95% CI = 28.8%–38.4%) by age  $\geq 60$  years. Adjusted prevalence was significantly lower in women than in men, and in

**TABLE 1. Number and percentage of adults aged ≥20 years with previously diagnosed diabetes, undiagnosed diabetes\*, and impaired fasting glucose, by selected characteristics — National Health and Nutrition Examination surveys (NHANES), United States, 1988–1994 and 1999–2000**

Characteristic	1988–1994					1999–2000				
	No.	(Unadjusted)		(Adjusted†)		No.	(Unadjusted)		(Adjusted)	
		(%)	(95% CI‡)	(%)	(95% CI)		(%)	(95% CI)	(%)	(95% CI)
<b>Previously diagnosed diabetes</b>										
<b>Age group (yrs)</b>										
20–39	7,375	(1.1)	(0.8–1.4)	(1.1)	(0.7–1.4)	1,694	(1.4)	(0.8–2.0)	(1.4)	(0.6–2.2)
40–59	4,851	(5.5)	(4.8–6.2)	(5.5)	(4.3–6.7)	1,351	(5.8)	(4.4–7.3)	(5.8)	(4.1–7.6)
≥60	6,596	(12.8)	(11.8–13.8)	(12.7)	(11.3–14.2)	1,832	(15.0)	(12.6–17.5)	(15.2)	(12.4–17.9)
<b>Total</b>	<b>18,822</b>	<b>(5.1)</b>	<b>(4.8–5.5)</b>	<b>(5.4)</b>	<b>(5.0–5.8)</b>	<b>4,877</b>	<b>(5.9)</b>	<b>(4.9–6.9)</b>	<b>(6.1)</b>	<b>(5.1–7.1)</b>
<b>Sex</b>										
Male	8,816	(4.9)	(4.4–5.3)	(5.4)	(4.9–5.8)	2,268	(6.1)	(4.7–7.5)	(6.6)	(5.2–8.0)
Female	10,006	(5.4)	(4.8–5.9)	(5.4)	(4.8–6.0)	2,609	(5.7)	(4.7–6.6)	(5.7)	(4.7–6.7)
<b>Race/Ethnicity¶</b>										
White, non-Hispanic	8,146	(5.0)	(4.5–5.4)	(4.9)	(4.4–5.4)	2,233	(5.0)	(3.8–6.2)	(4.8)	(3.7–5.9)
Black, non-Hispanic	5,070	(6.9)	(6.2–7.6)	(8.4)	(7.6–9.3)**	923	(9.6)	(7.1–12.0)	(11.7)	(9.5–13.9)
Mexican American	4,891	(5.6)	(5.0–6.3)	(9.6)	(8.6–10.6)	1,282	(6.1)	(4.5–7.7)	(9.6)	(8.2–11.1)
<b>Undiagnosed diabetes</b>										
<b>Age group (yrs)</b>										
20–39	2,864	(0.6)	(0.3–0.8)	(0.6)	(0.3–0.8)	641	(0.8)	(0.0–1.7)	(0.9)	(0.0–1.8)
40–59	1,785	(3.4)	(2.4–4.3)	(3.4)	(2.4–4.3)	509	(3.3)	(1.6–4.9)	(3.3)	(1.6–5.0)
≥60	1,939	(6.1)	(4.9–7.3)	(6.3)	(5.0–7.6)	584	(4.2)	(2.0–6.4)	(4.2)	(2.0–6.3)
<b>Total</b>	<b>6,588</b>	<b>(2.7)</b>	<b>(2.2–3.2)</b>	<b>(2.8)</b>	<b>(2.3–3.3)</b>	<b>1,734</b>	<b>(2.4)</b>	<b>(1.5–3.4)</b>	<b>(2.5)</b>	<b>(1.6–3.4)</b>
<b>Sex</b>										
Male	3,072	(3.0)	(2.3–3.8)	(3.3)	(2.5–4.1)	810	(2.5)	(1.3–3.8)	(2.7)	(1.4–4.0)
Female	3,516	(2.4)	(1.8–3.0)	(2.5)	(1.8–3.1)	924	(2.4)	(1.2–3.5)	(2.3)	(1.2–3.5)
<b>Race/Ethnicity¶</b>										
White, non-Hispanic	2,798	(2.5)	(2.0–3.0)	(2.5)	(1.9–3.0)	810	(2.7)	(1.5–3.9)	(2.6)	(1.4–3.8)
Black, non-Hispanic	1,753	(3.4)	(2.8–4.0)	(3.9)	(3.2–4.6)	305	(2.9)	(1.2–4.6)	(3.2)	(1.5–4.9)
Mexican American	1,772	(3.4)	(2.5–4.3)	(4.5)	(3.3–5.7)††	473	(1.6)	(0.7–2.5)	(2.4)	(1.1–3.7)
<b>Impaired fasting glucose</b>										
<b>Age group (yrs)</b>										
20–39	2,864	(2.8)	(1.8–3.8)	(2.8)	(1.8–3.7)	641	(1.6)	(0.4–2.8)	(1.6)	(0.4–2.8)
40–59	1,785	(7.6)	(5.9–9.2)	(7.6)	(5.9–9.2)	509	(6.3)	(3.9–8.7)	(6.4)	(3.9–8.9)
≥60	1,939	(14.4)	(12.8–16.0)	(14.7)	(13.1–16.3)	584	(14.4)	(9.9–18.8)	(14.6)	(10.2–19.0)
<b>Total</b>	<b>6,588</b>	<b>(7.0)</b>	<b>(6.1–7.8)</b>	<b>(7.2)</b>	<b>(6.3–8.1)</b>	<b>1,734</b>	<b>(6.1)</b>	<b>(4.4–7.9)</b>	<b>(6.2)</b>	<b>(4.5–7.9)</b>
<b>Sex</b>										
Male	3,072	(8.8)	(7.4–10.3)	(9.3)	(7.8–10.8)	810	(7.9)	(5.5–10.2)	(8.3)	(5.9–10.6)
Female	3,516	(5.3)	(4.6–6.0)	(5.3)	(4.5–6.0)	924	(4.5)	(2.8–6.2)	(4.5)	(2.8–6.2)
<b>Race/Ethnicity¶</b>										
White, non-Hispanic	2,798	(7.0)	(6.0–8.0)	(7.0)	(5.9–8.1)	810	(6.0)	(3.5–8.5)	(5.7)	(3.4–7.9)
Black, non-Hispanic	1,753	(6.2)	(5.1–7.4)	(7.2)	(5.9–8.5)	305	(5.3)	(2.4–8.1)	(6.3)	(3.1–9.4)
Mexican American	1,772	(7.5)	(6.3–8.7)	(9.7)	(8.3–11.0)††	473	(5.5)	(3.4–7.5)	(6.7)	(4.8–8.7)

\* On the basis of fasting plasma glucose.

† Estimates for total and racial/ethnic populations were age- and sex-adjusted, estimates for age groups were sex-adjusted, and estimates for sex groups were age-adjusted, all by using the 2000 U.S. census population.

‡ Confidence interval.

¶ Numbers for racial/ethnic populations other than non-Hispanic whites, non-Hispanic blacks, and Mexican Americans were too small for meaningful analysis.

\*\* Compared with NHANES 1999–2000, p&lt;0.01.

†† Compared with NHANES 1999–2000, p&lt;0.05.

**TABLE 2. Percentage of adults aged  $\geq 20$  years with diabetes (diagnosed and undiagnosed\*) and combined total diabetes and impaired fasting glucose, by selected characteristics — National Health and Nutrition Examination surveys (NHANES), United States, 1988–1994 and 1999–2000**

Characteristic	1988–1994				1999–2000			
	(Unadjusted)		(Adjusted†)		(Unadjusted)		(Adjusted)	
	(%)	(95% CI§)	(%)	(95% CI)	(%)	(95% CI)	(%)	(95% CI)
<b>Total diabetes</b>								
<b>Age group (yrs)</b>								
20–39	(1.6)	(1.2–2.1)	(1.6)	(1.2–2.1)	(2.2)	(1.1–3.3)	(2.2)	(1.1–3.4)
40–59	(8.9)	(7.7–10.0)	(8.9)	(7.7–10.0)	(9.1)	(7.1–11.1)	(9.2)	(7.1–11.2)
$\geq 60$	(18.9)	(17.3–20.4)	(19.0)	(17.4–20.6)	(19.2)	(16.0–22.5)	(19.3)	(16.1–22.6)
<b>Total</b>	<b>(7.8)</b>	<b>(7.2–8.4)</b>	<b>(8.2)</b>	<b>(7.6–8.9)</b>	<b>(8.3)</b>	<b>(6.9–9.8)</b>	<b>(8.6)</b>	<b>(7.2–10.1)</b>
<b>Sex</b>								
Male	(7.9)	(7.2–8.6)	(8.7)	(7.9–9.4)	(8.6)	(6.7–10.6)	(9.3)	(7.4–11.3)
Female	(7.8)	(6.8–8.7)	(7.9)	(6.8–8.9)	(8.0)	(6.4–9.6)	(8.1)	(6.6–9.5)
<b>Race/Ethnicity¶</b>								
White, non-Hispanic	(7.5)	(6.8–8.1)	(7.4)	(6.7–8.1)	(7.6)	(5.8–9.5)	(7.4)	(5.7–9.1)
Black, non-Hispanic	(10.4)	(9.6–11.1)	(12.3)	(11.4–13.2)**	(12.5)	(10.1–14.8)	(14.9)	(12.7–17.1)
Mexican American	(9.0)	(7.9–10.2)	(14.1)	(12.3–15.8)	(7.7)	(6.1–9.3)	(12.0)	(10.3–13.7)
<b>Total diabetes and impaired fasting glucose</b>								
<b>Age group (yrs)</b>								
20–39	(4.4)	(3.3–5.5)	(4.4)	(3.3–5.4)	(3.8)	(2.3–5.3)	(3.8)	(2.3–5.3)
40–59	(16.4)	(14.2–18.7)	(16.4)	(14.2–18.6)	(15.4)	(12.3–18.5)	(15.5)	(12.3–18.7)
$\geq 60$	(33.3)	(31.4–35.1)	(33.7)	(31.8–35.6)	(33.6)	(28.8–38.4)	(33.9)	(29.2–38.7)
<b>Total</b>	<b>(14.8)</b>	<b>(13.7–15.8)</b>	<b>(15.4)</b>	<b>(14.3–16.6)</b>	<b>(14.4)</b>	<b>(12.3–16.5)</b>	<b>(14.9)</b>	<b>(12.9–16.8)</b>
<b>Sex</b>								
Male	(16.7)	(15.0–18.4)	(18.0)	(16.2–19.8)	(16.5)	(13.6–19.3)	(17.6)	(15.0–20.2)
Female	(13.1)	(12.0–14.1)	(13.1)	(12.0–14.3)	(12.6)	(10.4–14.7)	(12.5)	(10.5–14.5)
<b>Race/Ethnicity¶</b>								
White, non-Hispanic	(14.5)	(13.3–15.6)	(14.4)	(13.1–15.8)	(13.7)	(10.8–16.5)	(13.1)	(10.6–15.5)
Black, non-Hispanic	(16.6)	(15.3–17.9)	(19.5)	(17.9–21.0)	(17.7)	(14.0–21.4)	(21.1)	(17.2–25.0)
Mexican American	(16.5)	(14.7–18.3)	(23.7)	(21.5–26.0)††	(13.1)	(10.3–16.0)	(18.8)	(16.2–21.4)

\* On the basis of fasting plasma glucose.

† Estimates for total and racial/ethnic populations were age- and sex-adjusted, estimates for age groups were sex-adjusted, and estimates for sex groups were age-adjusted, all by using the 2000 U.S. census population.

§ Confidence interval.

¶ Numbers for racial/ethnic populations other than non-Hispanic whites, non-Hispanic blacks, and Mexican Americans were too small for meaningful analysis.

\*\* Compared with NHANES 1999–2000,  $p < 0.05$ .†† Compared with NHANES 1999–2000,  $p < 0.01$ .

non-Hispanic whites compared with non-Hispanic blacks and Mexican Americans. Rates were similar in 1988–1994 and 1999–2000.

**Reported by:** CC Cowie, PhD, National Institute of Diabetes and Digestive and Kidney Diseases, Bethesda; KF Rust, PhD, Westat, Inc., Rockville; D Byrd-Holt, Social & Scientific Systems, Inc., Silver Spring, Maryland. MS Eberhardt, PhD, S Saydah, PhD, National Center for Health Statistics; LS Geiss, MA, MM Engelgau, MD, ES Ford, MD, EW Gregg, PhD, National Center for Chronic Disease Prevention and Health Promotion, CDC.

**Editorial Note:** Diabetes continues to affect a substantial proportion of U.S. adults. On the basis of NHANES 1999–2000, a total of 8.3% of persons aged  $\geq 20$  years had either diagnosed or undiagnosed diabetes, and this percent increased to 19.2% for persons aged  $\geq 60$  years. Men and women were affected similarly by diabetes. However, non-Hispanic blacks and Mexican

Americans had a disproportionately high prevalence compared with non-Hispanic whites. Impaired fasting glucose increases the risk for diabetes and is associated with other cardiovascular risk factors (7). In 1999–2000, an additional 6.1% of adults had impaired fasting glucose (a rate similar in magnitude to the prevalence of diagnosed diabetes), increasing to 14.4% for persons aged  $\geq 60$  years, with men affected more than women. Overall, an estimated 14.4% of the U.S. population aged  $\geq 20$  years and 33.6% of those aged  $\geq 60$  years had either diabetes or impaired fasting glucose.

The findings in this report are subject to at least two limitations. First, the substantially smaller sample size of NHANES 1999–2000 limits the precision of estimated prevalences and the statistical power to detect changes in these estimates between the surveys. Second, because an oral glucose tolerance test (OGTT) was not performed in NHANES 1999–2000,

this survey does not capture the additional proportion of persons with abnormal postload glucose tolerance and normal fasting glucose levels. NHANES III (1988–1994) indicated that total glucose intolerance was 36% higher based on OGTT data (3).

The findings in this report indicate that the prevalence of diabetes, either diagnosed or undiagnosed, and impaired fasting glucose did not appear to increase substantially during the 1990s. Estimates of diagnosed diabetes in NHANES 1999–2000 are similar in magnitude to those from NHIS and BRFSS during the same years. The apparent lack of increase in prevalence is unexpected in light of the increasing prevalence of obesity and overweight in U.S. adults documented by the NHANES surveys (8). Although a potential change in the ratio of undiagnosed to total diabetes prevalence would be an important finding, the observed differences are not statistically significant. Further investigation with additional years of NHANES data will be necessary to provide more precise estimates. In addition, the potential impact on the prevalence estimates of the change in diagnosis of diabetes adopted by the ADA in 1997 (5) should be accounted for, along with changes in demographic characteristics and overweight.

Recent trials have documented that lifestyle modification (i.e., weight management and increased physical activity) reduces the risk for developing diabetes among persons with impaired glucose tolerance (9). Other clinical trials and studies have demonstrated that the risk for diabetic complications is reduced substantially by blood glucose, blood pressure, and blood lipid control (10). These messages should continue to be communicated through education and outreach activities such as the “Steps to a HealthierUS” by the U.S. Department of Health and Human Services (<http://www.healthierus.gov/steps>), and the “Small Steps, Big Rewards” (<http://ndep.nih.gov/get-info/dpc.htm>) and “Control the ABCs of Diabetes” (<http://ndep.nih.gov/control/control.htm>) campaigns of the National Diabetes Education Program.

#### References

1. CDC. Prevalence of diabetes. Available at <http://www.cdc.gov/diabetes/statistics/prev/national/fig2.htm>.
2. Mokdad AH, Ford ES, Bowman BA, et al. Diabetes trends in the U.S.: 1990–1998. *Diabetes Care* 2000;23:1278–83.
3. Harris MI, Flegal KM, Cowie CC, et al. Prevalence of diabetes, impaired fasting glucose, and impaired glucose tolerance in U.S. adults: The Third National Health and Nutrition Examination Survey, 1988–1994. *Diabetes Care* 1998;21:518–24.
4. CDC. National Health and Nutrition Examination Survey 1999–2000 data files. Available at [http://www.cdc.gov/nchs/about/major/nhanes/NHANES99\\_00.htm](http://www.cdc.gov/nchs/about/major/nhanes/NHANES99_00.htm).
5. Expert Committee on the Diagnosis and Classification of Diabetes Mellitus. Report of the Expert Committee on the Diagnosis and Classification of Diabetes Mellitus. *Diabetes Care* 1997;20:1183–97.
6. Flegal KM, Ezzati TM, Harris MI, et al. Prevalence of diabetes in Mexican Americans, Cubans, and Puerto Ricans from the Hispanic Health and Nutrition Examination Survey, 1982–1984. *Diabetes Care* 1991;14:628–38.
7. International Diabetes Federation. IGT/IFG Consensus Statement. Report of an Expert Consensus Workshop August 1–4, 2001, Stoke Poges, United Kingdom. Impaired glucose tolerance and impaired fasting glycaemia: the current status on definition and intervention. *Diabet Med* 2002;19:708–23.
8. Flegal KM, Carroll MD, Ogden CL, et al. Prevalence and trends in obesity among U.S. adults, 1999–2000. *JAMA* 2002;288:1723–7.
9. Diabetes Prevention Program Research Group. Reduction in the incidence of type 2 diabetes with lifestyle intervention or metformin. *N Engl J Med* 2002;346:393–403.
10. UK Prospective Diabetes Study Group. Intensive blood-glucose control with sulphonylureas or insulin compared with conventional treatment and risk of complications in patients with type 2 diabetes (UKPDS 33). UK Prospective Diabetes Study (UKPDS) Group. *Lancet* 1998;352:837–53.

## Severe Morbidity and Mortality Associated with Influenza in Children and Young Adults — Michigan, 2003

During late January 2003, the Michigan Department of Community Health (MDCH) received reports of severe unexplained illnesses and deaths in children and young adults aged <21 years residing in Michigan. Subsequently, two of the deaths were found to be associated with influenza, including one with neurologic complications. To identify cases of severe influenza in otherwise healthy children and young adults aged <21 years, MDCH conducted enhanced surveillance for influenza-associated illness. This report summarizes the findings of this ongoing investigation, which indicate the need to better define the frequency of serious complications from influenza in healthy children and to incorporate such findings into evaluations of current vaccine recommendations for children.

Enhanced surveillance for influenza-associated severe illnesses and deaths focused on children and young adults aged <21 years at low risk\* for influenza complications who had illness onset or death after January 1, 2003. Severe influenza-associated illnesses included nonrespiratory complications requiring hospital admission (e.g., myocarditis, rhabdomyolysis, encephalitis, encephalopathy, and prolonged seizures) or any complications requiring intensive care unit

\*Not a member of a high-risk group (i.e., residents of chronic care facilities; persons with chronic disorders of the circulatory or respiratory system, including asthma; persons with chronic metabolic disorders, renal dysfunction, hemoglobinopathies, or immunosuppression; children on aspirin therapy for chronic conditions; and women who are pregnant (1).

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(ICU) admission. Influenza infections were confirmed by viral culture, rapid antigen test, immunofluorescence, or immunohistochemical staining (IHC). Surveillance for unexplained deaths also was conducted because of the possibility that such deaths were associated with influenza infection. An unexplained death was defined as a fatal, community-acquired illness in a person aged <21 years with evidence of an infectious process<sup>†</sup> but for which no specific etiology had been identified.

MDCH performed case finding by contacting local health departments, infection-control practitioners, health-care providers, and clinical laboratory directors through the Michigan Health Alert Network, broadcast fax, and e-mail listservs. Medical charts and medical examiner reports were reviewed, health-care providers were interviewed, and clinicians were asked to perform influenza testing on children who were experiencing severe complications from influenza-like illness (ILI). In addition, one Michigan county initiated active emergency department (ED) surveillance in two large tertiary care hospitals by laboratory testing all patients with ILI and evaluating all hospitalized children testing positive for influenza to determine if they had illness consistent with the case definition for influenza-associated severe illness. Available respiratory specimens were obtained and cultured for influenza and other respiratory viruses at local clinical and MDCH laboratories. CDC characterized influenza isolates and evaluated available autopsy specimens by using IHC.

Enhanced surveillance identified 14 influenza cases, comprising four deaths and 10 severe illnesses with onset during January 17–February 21 among children and young adults aged <21 years in Michigan. Of these 14 cases, eight (57%) had evidence of encephalopathy<sup>§</sup>, including two deaths, and one case had evidence of myocarditis. In addition, four other unexplained deaths are under investigation. This report describes the four influenza-associated deaths and the 10 severe influenza illnesses.

### Influenza-Associated Fatality Reports

**Case 1.** In January, a previously healthy male teenager had onset of fever, nasal congestion, cough, nausea, vomiting, and leg pain. He took over-the-counter (OTC) medications containing pseudoephedrine and acetaminophen that evening and the following morning. On that morning, he was found unresponsive and was transported to an ED, where he could not be resuscitated. ED laboratory tests showed a

<sup>†</sup> Includes any of the following: fever, leukocytosis or leukopenia, histopathologic evidence of acute infection or inflammation, inflammation of usually sterile fluids, or imaging studies consistent with infection or inflammation.

<sup>§</sup> Defined as altered mental status of any duration, including seizure but not including simple febrile seizures.

markedly elevated white blood cell count (WBC) of 34,000 cells/mm<sup>3</sup>, (normal range: 4,000–10,500 cells/mm<sup>3</sup>) with a neutrophilic predominance, a substantially elevated troponin of 98.5 ng/ml (normal range: 0–0.39 ng/ml), and a negative toxicology screen. Evaluation of autopsy specimens indicated interstitial pneumonia and focal myocyte necrosis without frank myocarditis. IHC of respiratory epithelial cells of bronchi from centrally located lung tissue was positive for influenza A virus. Review of available records revealed no history of influenza vaccination.

**Case 2.** In January, a previously healthy girl aged 6 years with a 1-day history of fever, sore throat, and cough was examined by her primary-care physician and noted to have harsh upper airway sounds. A rapid test of a throat swab for Group A Streptococcus was negative. The patient received oral prednisone for the treatment of croup and an OTC cold medicine containing acetaminophen without salicylates. Later the same day, she complained of leg pain. The next morning, she was found apneic. When paramedics arrived, the patient was in cardiopulmonary arrest and was intubated, resuscitated, and transported to an ED. Her WBC count was 15,900 cells/mm<sup>3</sup>. She was transferred to the pediatric ICU, where she died the same day. A viral culture of an endotracheal aspirate was positive for influenza A virus that was antigenically similar to the vaccine strain A/New Caledonia/20/99 (H1N1)-like. A bacterial culture of a throat swab taken at her primary-care physician's office was positive for Group A Streptococcus. Evaluation of autopsy specimens indicated bronchopneumonia with numerous intracellular bacteria in the intra-alveolar infiltrate. IHC of bronchiolar epithelial cells from lung tissue was positive for influenza A virus but negative for Group A Streptococcus. Review of available records revealed no history of influenza vaccination.

**Case 3.** In February, a girl aged 5 years with no underlying health conditions had onset of a low-grade fever. During the evening, she became disoriented and lethargic and vomited at least seven times. She had recently completed a course of amoxicillin for treatment of streptococcal pharyngitis. The patient received medications containing ibuprofen; no information about aspirin exposure was available. On arrival to an ED the next day, she had a temperature of 104.1° F (40.05° C) and a WBC count of 13,100 cells/mm<sup>3</sup> and again vomited. Antibiotics were administered. A nasopharyngeal swab was positive for influenza A virus by a rapid antigen test, and treatment with oseltamivir was initiated. Liver function tests showed an elevated aspartate transaminase of 494 U/L (normal range: 20–45 U/L) and elevated alanine aminotransferase of 383 U/L (normal range: 5–25 U/L). The patient's neurologic status deteriorated rapidly, and she progressed to respiratory arrest. After intubation, a computerized tomography

scan indicated uncal herniation. The patient died 19 hours after admission. Autopsy was declined. A viral culture of the nasopharyngeal specimen obtained during the hospitalization was positive for influenza A virus that was antigenically similar to the vaccine strain influenza A/ New Caledonia/20/99 (H1N1)-like. The patient's illness was consistent with influenza-associated encephalopathy; however, Reye syndrome could not categorically be ruled out because no autopsy was performed. Review of available records revealed no history of influenza vaccination.

**Case 4.** In February, a boy aged 2 years with a history of resolved reactive airway disease had onset of a fever and cough. The next evening and on the third morning, the patient received a children's formulation of an OTC combination cold medication. After several hours of lethargy, the boy was found unresponsive at home. Paramedics transported the child to the hospital, where attempts to resuscitate were unsuccessful. A postmortem lung swab was positive for influenza A virus by a rapid antigen test, but viral culture was negative. Evaluation of autopsy specimens indicated tracheobronchitis and massive brain edema without evidence of inflammation. IHC of respiratory epithelial cells of trachea and bronchi from centrally located lung tissue was positive for influenza A virus. The patient had not been vaccinated against influenza.

### Severe Nonfatal Influenza Illness

Surveillance identified 10 children with severe illnesses that were likely complications of influenza (Table). The median age of these children was 2.5 years (range: 14 months–9 years); eight patients were female. Nine patients were influenza A virus–positive, and one was influenza B virus–positive. Of the nine influenza A virus cases, eight were confirmed by culture and one by rapid antigen test. Three influenza A virus isolates were H1N1, four were H1N2, and one was H3N2. Of those antigenically characterized, the H1N1 virus isolates and H3N2

**TABLE. Number and percentage of signs and symptoms and conditions among influenza-positive patients\* — Michigan, 2003**

Signs and symptoms/Conditions	No.	(%)
Fever	14	(100)
Encephalopathy†	8	(57)
Seizures	4	(29)
Nausea/Vomiting	5	(36)
Rhabdomyolysis	2	(14)
Leg pains	3	(21)
Myocarditis	1	(7)
ALT‡/AST¶ >3x normal	4/10	(40)

\* N = 14.

† Defined as altered mental status of any duration, including seizure, and not including simple febrile seizures.

‡ Alanine aminotransferase.

¶ Aspartate transaminase.

virus isolates were similar to the 2002–03 influenza vaccine strains A/New Caledonia/20/99 (H1N1) and A/Panama/2007/99 (H3N2). Of the H1N2 isolates, the H1 antigen was similar to that from the A/New Caledonia/20/99 (H1N1) vaccine strain, and the N2 antigen was similar to that from the A/Panama/2007/99 (H3N2) vaccine strain; the vaccine should provide protection against influenza A(H1N2) virus. The influenza B isolate was most similar antigenically to the reference strain B/Brisbane/32/2002, a minor variant of the B/Hong Kong/330/2001 vaccine strain. Vaccination history of these 10 children is unknown.

**Reported by:** *MJ Wilkins, DVM, ML Boulton, MD, GA Stoltman, PhD, SA Bidol, MPH, KS Enger, MPH, JJ Lai, MPH, Michigan Dept of Community Health. T Ujeki, MD, S Harper, MD, Div of Viral and Rickettsial Diseases; M Fischer, MD, SP Reagan, MPH, Div of Bacterial and Mycotic Diseases; J Jones, MD, P Terebuh, MD, SD Stonecipher, DVM, EIS officers, CDC.*

**Editorial Note:** Nationally, the 2002–03 influenza season was mild; however, this investigation documented severe influenza-associated morbidity and mortality, including encephalopathy, among children and young adults aged <21 years in Michigan (1). In Japan, influenza-associated acute encephalopathy among children is a substantial public health problem; in the winter of 1998–99, for example, a total of 148 cases of encephalitis/encephalopathy associated with influenza were reported (2). Few such cases have been reported in the United States (3,4). The reasons for these differences are unclear.

Influenza-associated deaths and severe illnesses in children might be underreported in the United States. Because baseline data on such events are not generally available, whether the cases described in this report represent an increase or are the result of enhanced surveillance is unknown. In addition, because influenza is not a nationally reportable disease, the estimated numbers of annual deaths from influenza are derived from modeling techniques (5).

Of the four deaths associated with influenza, none were in children considered to be at high risk for influenza, nor were they in the age group for which influenza vaccination is encouraged by the Advisory Committee on Immunization Practices (ACIP) (6). The risk factors for severe complications and death from influenza in previously healthy children have not been well described. The viruses isolated from these cases were of different types and subtypes and were antigenically similar to viruses in circulation throughout the United States during 2002–03.

Vaccination for influenza is recommended for persons at high risk for complications from influenza. Young, otherwise healthy children aged 6–23 months are at increased risk for influenza-related hospitalization. For this reason, influenza

vaccination of healthy children aged 6–23 months is encouraged when feasible (6). The results of this ongoing investigation indicate the need for further studies to better define the frequency of serious complications from influenza in children and young adults and to incorporate such findings into evaluations of current vaccine recommendations for children.

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#### References

1. CDC. Update: influenza activity—United States and worldwide, 2002–03 season, and composition of the 2003–04 influenza vaccine. *MMWR* 2003;52:516–21.
2. Morishima R, Togashi T, Yokota S, et al. Encephalitis and encephalopathy associated with an influenza epidemic in Japan. *Clin Infect Dis* 2002;35:512–7.
3. Straumanis JJ, Tapia MD, King JC. Influenza B infection associated with encephalitis: treatment with oseltamivir. *Pediatr Infect Dis J* 2002;21:173–5.
4. McCullers JA, Facchini S, Chensney PJ, Webster RG. Influenza B virus encephalitis. *Clin Infect Dis* 1999;28:898–900.
5. Thompson WW, Shay DK, Weintraub E, et al. Mortality associated with influenza and respiratory syncytial virus in the United States. *JAMA* 2003;289:179–86.
6. CDC. Prevention and control of influenza: recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR* 2003;52(No. RR-8).

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## Self-Reported Concern About Food Security Associated with Obesity — Washington, 1995–1999

Obesity is epidemic among all segments of the U.S. population and in all regions of the country, and persons who are obese are at higher risk for several chronic diseases (1). Previous studies have suggested a possible relation between obesity and food insecurity (i.e., not having access at all times to enough safe and nutritious food for an active, healthy lifestyle [2] because such foods are not available consistently or household resources are insufficient to meet the cost) (3–5). To assess the relation between obesity and concern about food security, the Washington state Department of Health analyzed statewide data from the 1995–1999 Behavioral Risk Factor



Surveillance System (BRFSS). This report summarizes the results of the analysis, which indicate that concern about food security is associated with obesity. Longitudinal studies are needed to determine whether food insecurity causes obesity so appropriate interventions can be designed and implemented.

BRFSS is an ongoing, random-digit-dialed telephone survey of the U.S. civilian, noninstitutionalized population aged  $\geq 18$  years. The state-based survey collects data about modifiable risk factors for chronic diseases and leading causes of death. During 1995–1999, a total of 17,371 persons responded to the Washington BRFSS (median response rate: 52.4%; range: 50.2%–61.5%). The survey collected self-reported data on height and weight that were used to calculate body mass index (BMI) (i.e., weight in kilograms divided by height in meters squared [weight (kg)/height squared ( $m^2$ )]). Obesity was defined as having BMI of  $\geq 30.0$  kg/ $m^2$ . Having concerns about food security was defined as answering “yes” to the question, “In the past 30 days, have you been concerned about having enough food for you or your family?” Each potential risk factor was analyzed separately by using simple logistic regression to identify risk factors for obesity. Multiple logistic regressions were conducted to identify risk factors for obesity while controlling for potential confounders. SUDAAN was used to account for the complex sampling design.

During 1995–1999, of 17,371 respondents, 3,252 (18.7%) were classified as obese. Persons who reported concern about food security, whose annual household income was  $\leq \$20,000$ , who had no college education, or who were female, black, American Indian/Alaska Native, Hispanic, or aged  $>45$  years were more likely to be obese than other persons (Table). Asians/Pacific Islanders were less likely to be obese than whites. Obese persons also were more likely to report a sedentary lifestyle, to eat fewer fruits and vegetables, to have poorer health, and to have received a diagnosis of asthma. Because no significant interactions were found among the independent variables, only the main-effect variables

were included in the model. Although reporting poor or fair health status and having received a previous diagnosis of asthma were associated with obesity in the simple logistic regression analyses, these conditions were not included in the multiple regression model because they probably result from rather than cause obesity (6).

The multiple logistic regression model included income and education as potential confounders. Persons who reported concern about food security were more likely to be obese than those who did not report such concerns (adjusted odds ratio = 1.29; 95% confidence interval = 1.04–1.83 (Table).

**TABLE. Number, percentage, and adjusted odds ratio (AOR) of persons reporting being obese, by selected characteristics — Behavioral Risk Factor Surveillance System, Washington, 1995–1999**

Characteristic	No.*	(%)	(95% CI) <sup>†</sup>	AOR <sup>§</sup>	(95% CI)
<b>Food insecure</b>					
Yes	230	(24.7)	(21.3–28.1)	1.3	(1.0–1.8) <sup>¶</sup>
No	2,984	(18.1)	(17.4–18.8)	1.0	(referent)
<b>Sex</b>					
Female	1,915	(19.6)	(18.7–20.5)	—	—
Male	1,337	(17.5)	(16.5–18.5)	—	—
<b>Race/Ethnicity</b>					
Black	98	(26.6)	(20.9–32.3)	2.7	(1.7–4.2)
American Indian/Alaska Native	64	(26.5)	(20.3–32.7)	1.1	(0.6–2.3)
Asian/Pacific Islander	58	(10.1)	(7.3–12.9)	0.4	(0.2–0.8)
White	2,970	(18.6)	(17.9–19.3)	1.0	(referent)
Hispanic	166	(23.6)	(19.9–27.3)	1.5	(1.0–2.1)
Non-Hispanic	3,060	(18.3)	(17.6–19.0)	1.0	(referent)
<b>Age (yrs)</b>					
$>45$	1,704	(21.6)	(22.6–23.6)	1.3	(1.1–1.6)
$\leq 45$	1,524	(15.9)	(15.0–16.8)	1.0	(referent)
<b>Education</b>					
No college education	1,308	(20.9)	(19.7–22.1)	—	—
Some college education	1,936	(17.1)	(16.3–17.9)	—	—
<b>Annual household income</b>					
$\leq \$20,000$	657	(20.3)	(18.6–22.0)	—	—
$> \$20,000$	2,595	(18.2)	(17.5–18.9)	—	—
<b>Physical activity</b>					
Sedentary	373	(30.4)	(27.5–33.3)	2.0	(1.6–2.4)
Active	965	(16.6)	(15.5–17.7)	1.0	(referent)
<b>Fruit and vegetable intake</b>					
Less than five servings per day	1,047	(20.0)	(18.7–21.3)	1.3	(1.1–1.5)
At least five servings per day	293	(16.2)	(14.3–18.1)	1.0	(referent)
<b>Health status</b>					
Poor /Fair	602	(31.5)	(29.1–33.9)	—	—
Good/Very good/Excellent	2,638	(17.0)	(16.3–17.7)	—	—
<b>Ever had asthma diagnosed</b>					
Yes	290	(23.5)	(20.8–26.2)	—	—
No	1,640	(18.0)	(17.1–18.9)	—	—
<b>Total</b>	<b>3,252</b>	<b>(18.7)</b>			

\* Total numbers by selected characteristics might differ because respondents with missing data for selected characteristics were excluded.

<sup>†</sup> Confidence interval.

<sup>§</sup> All odds ratios control for other factors in the model and for income and education.

<sup>¶</sup> Actual CI = 1.04–1.83.

**Reported by:** *J VanEenwyk, PhD, Washington State Dept of Health. J Sabel, PhD, EIS Officer, CDC.*

**Editorial Note:** Both obesity and food insecurity are increasing in the United States (1,7). Previously identified risk factors for obesity among adults include having a low income (among women) or education level, being aged  $\geq 45$  years or a member of certain racial/ethnic populations, and not being active physically or eating the recommended amount of fruits and vegetables daily (1). This report supports the findings of previous studies that food insecurity is associated with obesity (3–5).

Possible explanations for the association between food insecurity and obesity include periods of both under- and overconsumption, physiologic adaptation of increased body fat in response to episodic food shortages, and higher consumption of cheaper foods that are higher in fat (5). For example, diets of food-insecure women include fewer fruits and vegetables (3). Studies of dieters, prisoners of war, and children with food-restrictive parents indicate that food deprivation can lead to overconsumption of foods restricted previously after the restriction ends (5).

The findings in this report are subject to at least five limitations. First, self-reported data are subject to recall bias and inaccurate reporting of behaviors. Persons who are obese tend to underreport their weight (8). Second, the data might not be generalizable to the entire population. Third, these data are cross-sectional, which limits the ability to draw conclusions about cause and effect. Fourth, the number of food-insecure persons might be underestimated because such persons might be less likely to have telephones. Finally, the question used to assess concern about food security has not been tested for reliability or validity. However, patterns of concern about food security and income as determined from one question (9) are consistent with patterns identified from surveys using more questions to determine food security (10).

Further longitudinal research is needed to determine whether food insecurity causes obesity. If such a relation were to be demonstrated, interventions to reduce food insecurity might reduce the burden of obesity in the United States.

#### References

1. U.S. Department of Health and Human Services. The Surgeon General's call to action to prevent and decrease overweight and obesity. Washington, DC: Office of the Surgeon General, 2001.
2. U.S. Department of Health and Human Services. Healthy People 2010, 2nd ed. With Understanding and Improving Health and Objectives for Improving Health (2 vols.). Washington, DC: U.S. Department of Health and Human Services, 2000.
3. Olson CM. Nutrition and health outcomes associated with food insecurity and hunger. *J Nutr* 1999;129:521–4.
4. Townsend MS, Peerson J, Love B, Achterberg C, Murphy SP. Food insecurity is positively related to overweight in women. *J Nutr* 2001;131:1738–45.
5. Adams EJ, Grummer-Strawn L, Chavez G. Food insecurity is associated with risk of obesity in California women. *J Nutr* 2003;133:1070–4.
6. Chinn S. Obesity and asthma: evidence for and against a causal relation. *J Asthma* 2003;40:1–16.
7. Nord M, Andrews M, Carlson S. Household food security in the United States, 2001. Washington, DC: Economic Research Service, U.S. Department of Agriculture, 2002. Available at <http://www.ers.usda.gov/publications/fanrr29>.
8. Rowland ML. Self-reported weight and height. *Am J Clin Nutr* 1990;52:1125–33.
9. CDC. Self-reported concern about food security—eight states, 1996–1998. *MMWR* 2000;49:933–6.
10. Rose D, Gundersen C, Oliveira V. Socio-economic determinants of food insecurity in the United States: evidence from the SIPP and CSFII datasets. Washington, DC: Economic Research Service, U.S. Department of Agriculture, 1998. Available at <http://www.ers.usda.gov/publications/tb1869>.

## Cigarette Smoking-Attributable Morbidity — United States, 2000

Each year in the United States, approximately 440,000 persons die of a cigarette smoking-attributable illness, resulting in 5.6 million years of potential life lost, \$75 billion in direct medical costs, and \$82 billion in lost productivity (1). To assess smoking-attributable morbidity, the Roswell Park Cancer Institute, Research Triangle Institute, and CDC analyzed data from three sources: the Behavioral Risk Factor Surveillance System (BRFSS), the National Health and Nutrition Examination Survey III (NHANES III), and the U.S. Census. This report summarizes the results of that analysis, which indicate that an estimated 8.6 million persons in the United States have serious illnesses attributed to smoking; chronic bronchitis and emphysema account for 59% of all smoking-attributable diseases. These findings underscore the need to expand surveillance of the disease burden caused by smoking and to establish comprehensive tobacco-use prevention and cessation efforts to reduce the adverse health impact of smoking.

Data on the number of persons by sex, age group (18–34 years, 35–49 years, 50–64 years, and  $\geq 65$  years), and race (white or other race) for each state and the District of Columbia were obtained from the 2000 U.S. Census. National estimates of the prevalence of current, former, and never smokers\* were derived from the combined data from the 1999, 2000, and 2001 BRFSS surveys.

\* Current smokers were defined as persons who reported smoking  $\geq 100$  cigarettes during their lifetime and who now smoke some days or every day. Former smokers were defined as persons who reported having smoked  $\geq 100$  cigarettes during their lifetime but did not smoke at the time of interview. Never smokers were defined as persons who reported having smoked  $< 100$  cigarettes during their lifetime.

Estimates of the prevalence of smoking-related conditions were obtained from the NHANES III survey for 1988–1994 for current, former, and never smokers for each demographic group to estimate the smoking-attributable fractions of morbid conditions. The smoking-related conditions for which data were collected are those categorized by the U.S. Surgeon General as caused by smoking (2) and addressed in NHANES III. Respondents reported whether a “doctor ever told” them if they had any of the following conditions: stroke, heart attack, emphysema, chronic bronchitis, and specific cancer types, including lung, bladder, mouth/pharynx, esophagus, cervix, kidney, larynx, or pancreas. Smoking-attributable morbidity estimates were obtained in two ways. For one estimate, each person was considered as the unit of analysis, and persons with at least one smoking-related condition were counted as having a condition. For the second estimate, the condition was treated as the unit of analysis, so persons with multiple conditions were counted more than once. Estimates were derived separately for each condition, and the total of all conditions was summed.

The number of persons with a smoking-attributable morbid condition was estimated by state and demographic subpopulations from the following five steps: 1) BRFSS smoking status estimates by demographic group were applied to census data to estimate the number of current, former, and never smokers in each demographic group in each state; 2) NHANES III smoking-related disease frequency data were applied to the numbers from the first step to estimate the number of adults with a smoking-related condition; 3) attributable fractions for current and former smokers in each demographic group were multiplied by the number of persons with a smoking-related disease to yield an estimate of the number of persons with a disease that is attributable to smoking (attributable fraction =  $[\text{disease prevalence rate}_{\text{exposed}} - \text{disease prevalence rate}_{\text{unexposed}}] / \text{disease prevalence rate}_{\text{exposed}}$ ); 4) the numbers obtained from the third step were summed across all demographic categories in each state to yield an estimate of persons with smoking-attributable conditions in each state; and 5) the numbers of smoking-attributable morbid conditions obtained in each state from step four were summed to yield an overall U.S. estimate. Survey design-adjusted variance estimates were calculated for each smoking and disease prevalence by using SUDAAN. The variance estimate for the attributable

fraction was calculated by using standard methodology (3), and a joint 95% confidence interval (CI) was obtained for each attributable fraction by using Bonferroni's adjustment method (4).

In 2000, an estimated 8.6 million (95% CI = 6.9–10.5 million) persons in the United States had an estimated 12.7 million (95% CI = 10.8–15.0 million) smoking-attributable conditions. For current smokers, chronic bronchitis was the most prevalent (49%) condition, followed by emphysema (24%). For former smokers, the three most prevalent conditions were chronic bronchitis (26%), emphysema (24%), and previous heart attack (24%). Lung cancer accounted for 1% of all cigarette smoking-attributable illnesses (Table).

**Reported by:** A Hyland, PhD, C Vena, J Bauer, PhD, Q Li, MS, GA Giovino, PhD, J Yang, PhD, KM Cummings, PhD, Dept of Cancer Prevention, Epidemiology, and Biostatistics, Roswell Park Cancer Institute, Buffalo, New York. P Mowery, MS, Research Triangle Institute, Research Triangle Park, North Carolina. J Fellows, PhD, T Pechacek, PhD, L Pederson, PhD, Office on Smoking and Health, CDC.

**Editorial Note:** This report provides the first national estimates of the number of persons with serious chronic illnesses caused by smoking and the total number of their smoking-attributable conditions. The findings indicate that more persons are harmed by tobacco use than is indicated by mortality estimates. Examining trends in tobacco-attributable morbidity provides another way to monitor the progress of tobacco-control efforts.

Smoking-attributable mortality estimates published in 2002 (1) differ from the estimates described in this report. Mortality data indicate the number of persons who die of a disease each year, and morbidity data from this study are used to estimate the prevalence of persons living with diseases caused

**TABLE. Number and percentage of cigarette smoking-attributable conditions\* among current and former smokers†, by condition — United States, 2000§**

Condition	Current smokers		Former smokers		Overall	
	No.	(%)	No.	(%)	No.	(%)
Chronic bronchitis	2,633,000	(49)	1,872,000	(26)	<b>4,505,000</b>	<b>(35)</b>
Emphysema	1,273,000	(24)	1,743,000	(24)	<b>3,016,000</b>	<b>(24)</b>
Heart attack	719,000	(13)	1,755,000	(24)	<b>2,474,000</b>	<b>(19)</b>
All cancer except lung cancer	358,000	(7)	1,154,000	(16)	<b>1,512,000</b>	<b>(12)</b>
Stroke	384,000	(7)	637,000	(9)	<b>1,021,000</b>	<b>(8)</b>
Lung cancer	46,000	(1)	138,000	(2)	<b>184,000</b>	<b>(1)</b>
<b>Total¶</b>	<b>5,412,000</b>	<b>(100)</b>	<b>7,299,000</b>	<b>(100)</b>	<b>12,711,000</b>	<b>(100)</b>

\* Cigarette smoking-attributable conditions considered are stroke, heart attack, emphysema, chronic bronchitis, and cancer of the lung, bladder, mouth/pharynx, esophagus, cervix, kidney, larynx, and pancreas.

† Current smokers were defined as persons who reported smoking  $\geq 100$  cigarettes during their lifetime and who now smoke some days or every day. Former smokers were defined as persons who reported having smoked  $\geq 100$  cigarettes during their lifetime but did not smoke at the time of interview.

§ Results are adjusted for age, race, sex, and state/area of residence and rounded to the nearest 1,000.

¶ Numbers might not add to total because of rounding.

by smoking at a point in time. In addition, mortality estimates are based on official cause of death data and smoking-attributable fractions derived from data from the Cancer Prevention Study II, and the smoking-attributable morbidity fractions in this study are based solely on self-reported survey data on diseases addressed in NHANES III.

The findings in this report are subject to at least three limitations. First, the estimates do not adjust for potential confounders (e.g., diet, exercise, or geography) other than age, sex, and race/ethnicity. The impact of confounding was examined in a prospective cohort study of approximately one million persons; findings indicated that adjusting for several demographic, behavioral, medical, and occupational factors reduced the smoking attributable mortality estimate by only 2.5%. However, no analyses have been performed that examine smoking-attributable morbidity or that use a broader range of potential confounders (5). Second, disease data are self-reported and might not represent the true rate or type of disease. A Canadian study found that the rate of underreporting of the chronic conditions cancer, stroke, and hypertension was approximately two times greater than the rate of overreporting (6). In addition, 63% of NHANES III respondents with documented low-lung function (forced expiratory volume in 1 second was <80% of the predicted value) did not self-report any diagnosis of obstructive lung disease (7). Therefore, these self-reported data are probably substantial underestimates of a true disease burden. Finally, the scope of diseases considered in this report was limited to those diseases for which survey data were available and those the U.S. Surgeon General implicated smoking as the cause. Various additional chronic and acute conditions affect quality of life and are caused by cigarette smoking. Inclusion of additional diseases would increase the amount of morbidity attributable to smoking.

The findings in this report complement CDC mortality data and estimates of the number of adults with chronic diseases caused by smoking. Approximately 10% of all current and former adult smokers have a smoking-attributable chronic disease. Many of these persons are already experiencing decreased quality of life, and society will likely bear substantial direct and indirect economic costs from these diseases (1). More persons will experience serious chronic diseases attributable to smoking if they continue to smoke (8). This report underscores the need to expand the implementation of proven strategies to reduce tobacco use such as increasing the cost of cigarettes, increasing clean indoor air regulations, and implementing comprehensive tobacco-use prevention and cessation programs.

## References

1. CDC. Annual smoking-attributable mortality, years of potential life lost, and economic costs—United States, 1995–1999. *MMWR* 2002;51:300–3.
2. CDC. Reducing the health consequences of smoking: 25 years of progress—a report of the Surgeon General. Rockville, Maryland: U.S. Department of Health and Human Services, CDC, 1989; DHHS publication no. (CDC) 89-8411.
3. Walter SD. Calculation of attributable risks from epidemiologic data. *Int J Epidemiol* 1978;7:175–82.
4. Winer BJ, Brown DR, Michels KM. *Statistical principles in experimental design*, 3rd ed. New York, New York: McGraw-Hill, 1991.
5. Thun MJ, Apicella LF, Henley SJ. Smoking vs other risk factors as the cause of smoking-attributable deaths. *JAMA* 2000;284:706–12.
6. Baker M, Stabile M, Deri C. What do self-reported, objective, measures of health measure? Cambridge, Massachusetts: National Bureau of Economic Research, 2001; NBER working paper no. 8419.
7. Mannino DM, Gagnon RC, Petty TL, Lydick E. Obstructive lung disease and low lung function in adults in the United States: data from the National Health and Nutrition Examination Survey, 1988–1994. *Arch Intern Med* 2000;160:1683–9.
8. Peto R, Lopez AD, Boreham J, Thun M, Heath C. *Mortality from smoking in developed countries 1950–2000. Indirect estimates from national vital statistics*. Oxford, United Kingdom: Oxford University Press, 1994.

## *Public Health Dispatch*

### **Multistate Outbreak of Hepatitis A Among Young Adult Concert Attendees — United States, 2003**

In July 2003, a cluster of hepatitis A cases was identified among young adults who had attended outdoor concert and camping events featuring various “jam bands.” As of September 2, a total of 25 cases have been reported among residents of nine states (Arizona, California, Colorado, Indiana, Michigan, New York, Oregon, Tennessee, and Wisconsin). The majority of cases were among young adults who attended concerts during the spring and summer. The median age of infected persons was 23 years (range: 17–44 years); 14 (56%) were male.

The bands performing at these concerts and festivals attract fans who travel from one concert to another, sometimes continuously over several months. Concerts often are multiday events involving camping on established or impromptu campgrounds, and sanitary conditions sometimes are poor. Unofficial food vendors are common at these events, and many are concert attendees. Attendance at the events has ranged from 1,200 to 82,000 persons. At large outdoor gatherings, crowded conditions, a lack of hand-washing facilities, and poor sanitation might contribute to the potential for disease transmission (1,2).

Epidemiologic and laboratory investigations are under way to identify potential sources of hepatitis A virus infection and modes of transmission. Several patients have reported close contact with other ill patients during the incubation period,

suggesting that person-to-person transmission might play an important role in the spread of the infection. On the basis of early findings in this investigation, vaccination and education campaigns were held at two recent concert events. Approximately 300 attendees were vaccinated, and several contacts were administered postexposure prophylaxis.

The three bands that infected persons most commonly followed completed their summer concert tours in early August. However, fall tours are scheduled to begin in September. Concert attendees are advised to wash their hands frequently with soap and water, particularly after using the bathroom and before eating; to cook their food and drink only potable water; and to avoid food or drugs that could have been prepared under unsanitary conditions or handled by an infected person.

On July 9, the Colorado Department of Public Health and Environment first notified all other states and CDC of a possible cluster of hepatitis A among concert attendees; CDC requested reports of similar cases from other health departments. CDC plans to continue enhanced surveillance for additional cases. Because of the relatively long incubation period for hepatitis A (15–50 days), persons exposed at summer concerts might not become symptomatic until early fall, and transmission could continue with the start of fall tours. CDC requests that young to middle-aged adults with newly diagnosed hepatitis A be asked if they have attended a “jam band” concert or any outdoor concert and associated camping event. Cases of hepatitis A among concert attendees or their infected contacts should be reported to CDC through state or local health departments, and available serum should be saved for molecular testing at CDC. In addition, health departments are encouraged to contact CDC’s Division of Viral Hepatitis, telephone 404-371-5419, about cases of hepatitis A that might be related to these concerts.

**Reported by:** *P Grande, Tri-County Health Dept, Englewood; A Cronquist, MPH, Colorado Dept of Public Health and Environment. S Fernyak, MD, S Huang, MD, I Bihl, San Francisco Dept of Public Health; E Osvold-Doppelhauer, Trinity County Health and Human Svcs Dept, Weaverville; C Woodfill, PhD, D Vugia, MD, G Agyekum, MPH, California Dept of Health Svcs. J Kravitz, MD, Washington County Dept of Health and Human Svcs, Hillsboro; H Gillette, MPH, Oregon Dept of Human Svcs. G Armstrong, MD, P George, MPH, L Finelli, DrPH, Div of Viral Hepatitis, National Center for Infectious Diseases; P Patel, MD, N Jain, MD, EIS officers, CDC.*

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L Duncan, Oregon Dept of Human Svcs. D Portnoy, MPH, San Francisco Dept of Public Health, California. R Vogt, MD, L Dippold, MPH, Tri-County Health Dept, Englewood, Colorado. O Nainan, PhD, W Kuhnert, PhD, Div of Viral Hepatitis, National Center for Infectious Diseases, CDC.

#### References

1. Wharton M, Spiegel RA, Horan JM, et al. A large outbreak of antibiotic-resistant shigellosis at a mass gathering. *J Infect Dis* 1990;162:1324–8.
2. Lee LA, Ostroff SM, McGee HB, et al. An outbreak of shigellosis at an outdoor music festival. *Am J Epidemiol* 1991;133:608–15.

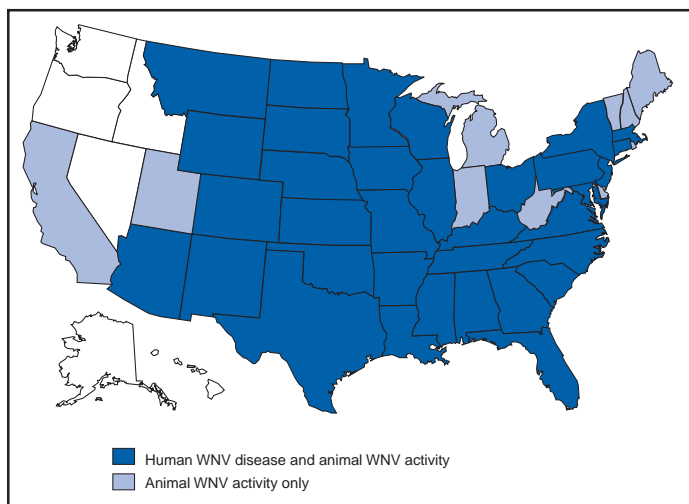
## West Nile Virus Activity — United States, August 28–September 3, 2003

This report summarizes West Nile virus (WNV) surveillance data reported to CDC through ArboNET as of 3 a.m., Mountain Daylight Time, September 3, 2003.

During the reporting week of August 28–September 3, a total of 414 human cases of WNV infection were reported from 22 states (Alabama, Georgia, Iowa, Kansas, Kentucky, Louisiana, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Jersey, New Mexico, New York, Ohio, Oklahoma, Pennsylvania, South Dakota, Tennessee, Texas, Virginia, and Wyoming), including 16 fatal cases from eight states (Iowa, Missouri, Nebraska, New Mexico, New York, South Dakota, Texas, and Wyoming). During the same period, WNV infections were reported in 975 dead birds, 252 horses, one dog, one squirrel, two unidentified animal species, and 532 mosquito pools.

During 2003, a total of 1,856 human cases of WNV infection have been reported from Colorado (n = 635), Nebraska (n = 280), South Dakota (n = 250), Wyoming (n = 164), Texas (n = 146), New Mexico (n = 57), Louisiana (n = 42), Pennsylvania (n = 38), Montana (n = 32), Mississippi (n = 30), North Dakota (n = 28), Alabama (n = 20), Oklahoma (n = 18), Kansas (n = 17), Minnesota (n = 17), Iowa (n = 15), Ohio (n = 14), Missouri (n = six), New York (n = six), Arkansas (n = five), Georgia (n = five), Tennessee (n = five), Florida (n = four), Kentucky (n = four), Virginia (four), New Jersey (n = three), Illinois (n = two), Maryland (n = two), North Carolina (n = two), Arizona (n = one), Connecticut (n = one), Massachusetts (n = one), South Carolina (n = one), and Wisconsin (n = one) (Figure). Of 1,172 (63%) cases for which demographic data were available, 660 (56%) occurred among males; the median age was 49 years (range: 3 months–97 years), and the dates of illness onset ranged from March 28 to August 27. Of the 1,172 cases, 37 fatal cases were reported

**FIGURE. Areas reporting West Nile virus (WNV) activity — United States, 2003\***



\* As of 3 a.m., Mountain Daylight Time, September 3, 2003.

from Nebraska (n = eight), Colorado (n = six), New Mexico (n = four), Wyoming (n = four), South Dakota (n = three), Texas (n = three), Alabama (n = two), Iowa (n = two), Kansas (n = one), Mississippi (n = one), Missouri (n = one), New York (n = one), and Ohio (n = one). A total of 157 presumptive WNV viremic blood donors have been reported from Nebraska (n = 73), South Dakota (n = 41), Texas (n = 20), New Mexico (n = seven), Oklahoma (n = four), Iowa (n = three), Mississippi (n = three), Minnesota (n = two), Montana (n = two), Florida (n = one), and Louisiana (n = one). Of these donors, 12 subsequently had WNV fever, and none subsequently had WNV meningoencephalitis. In addition, 5,197 dead birds with WNV infection were reported from 40 states and New York City; 1,162 WNV infections in horses have been reported from 33 states, five WNV infections were reported in dogs, two infections in squirrels, and 12 infections in unidentified animal species. During 2003, WNV seroconversions have been reported in 546 sentinel chicken flocks from 12 states. Louisiana and South Dakota each reported three seropositive sentinel horses. A total of 3,174 WNV-positive mosquito pools have been reported from 32 states and New York City.

Additional information about WNV activity is available from CDC at <http://www.cdc.gov/ncidod/dvbid/westnile/index.htm> and <http://westnilemaps.usgs.gov>.

### *Notice to Readers*

#### **Missing Vials of Aventis Pasteur Rabies Vaccine, August 2003**

On August 27, 2003, Aventis Pasteur notified CDC about reports of packages of IMOVAX<sup>®</sup> Rabies, Rabies Vaccine (a reconstituted vaccine) that are missing the vial of freeze-dried vaccine. Each package should contain one diluent syringe and one vaccine vial containing freeze-dried vaccine. An investigation is under way. A communication about this issue will be sent from Aventis Pasteur to customers when additional information becomes available.

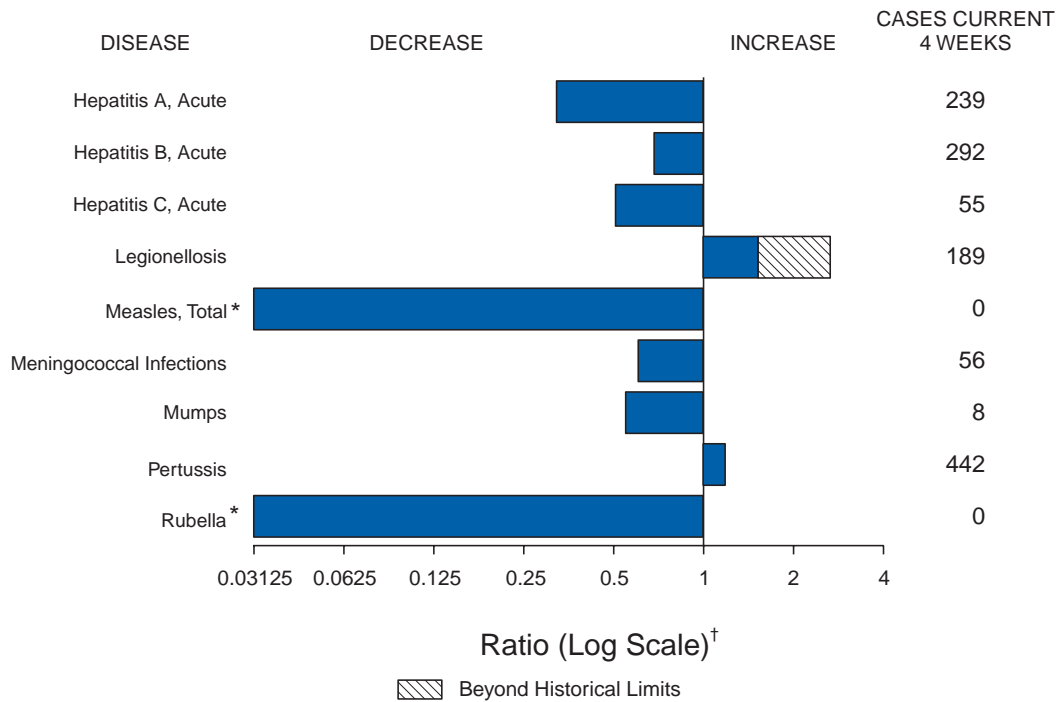
### *Notice to Readers*

#### **Satellite Broadcast and Webcast on Managing Rodents and Mosquitoes**

CDC will present "Managing Rodents and Mosquitoes through Integrated Pest Management," a live, interactive satellite broadcast and webcast on September 18, 2003, from 1:00–2:30 p.m., EDT. The program will provide information on the need for local health authorities to implement integrated pest management (IPM) as a systems approach in the management of pests and vectors. IPM focuses on the management of the environment in a manner that is effective, safe, economical, and sustained and emphasizes surveillance, community education and outreach, sanitation, and code development and enforcement on a community-wide basis. A question and answer session will enable participants nationwide to ask questions to panelists through toll-free telephone, fax, or TTY lines.

The target audience for this program includes environmental health program directors, managers, and practitioners; directors of health departments and other public health officials; public health nurses; environmental protection practitioners; policy makers; boards of health; academic institutions; national advocacy organizations; and civic leaders. Additional information about program content, registration, continuing education credit, and accessing the live broadcast/webcast is available at <http://www.phppo.cdc.gov/phtn/ipm>. Information about registration also is available from CDC, telephone 800-418-7246 or 404-639-1292.

**FIGURE I. Selected notifiable disease reports, United States, comparison of provisional 4-week totals August 30, 2003, with historical data**



\* No measles or rubella cases were reported for the current 4-week period yielding a ratio for week 35 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.

**TABLE I. Summary of provisional cases of selected notifiable diseases, United States, cumulative, week ending August 30, 2003 (35th Week)\***

	Cum. 2003	Cum. 2002		Cum. 2003	Cum. 2002
Anthrax	-	2	Hansen disease (leprosy)†	37	64
Botulism:	-	-	Hantavirus pulmonary syndrome†	12	15
foodborne	7	20	Hemolytic uremic syndrome, postdiarrheal†	74	141
infant	38	47	HIV infection, pediatric‡§	144	112
other (wound & unspecified)	18	10	Measles, total	31¶	26**
Brucellosis†	49	76	Mumps	135	189
Chancroid	28	48	Plague	1	-
Cholera	1	1	Poliomyelitis, paralytic	-	-
Cyclosporiasis†	49	140	Psittacosis†	13	13
Diphtheria	-	1	Q fever†	50	35
Ehrlichiosis:	-	-	Rabies, human	-	1
human granulocytic (HGE)†	190	188	Rubella	7	10
human monocytic (HME)†	89	124	Rubella, congenital	-	1
other and unspecified	15	15	Streptococcal toxic-shock syndrome†	117	85
Encephalitis/Meningitis:	-	-	Tetanus	9	16
California serogroup viral†	16	49	Toxic-shock syndrome	88	74
eastern equine†	5	1	Trichinosis	2	13
Powassan†	-	1	Tularemia†	47	53
St. Louis†	1	13	Yellow fever	-	-
western equine†	64	-			

-: No reported cases.  
 \* Incidence data for reporting years 2002 and 2003 are provisional and cumulative (year-to-date).  
 † Not notifiable in all states.  
 ‡ Updated monthly from reports to the Division of HIV/AIDS Prevention — Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention. Last update July 27, 2003.  
 ¶ Of 31 cases reported, 27 were indigenous, and four were imported from another country.  
 \*\* Of 26 cases reported, 13 were indigenous, and 13 were imported from another country.

**TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending August 30, 2003, and August 31, 2002 (35th Week)\***

Reporting area	AIDS		Chlamydia†		Coccidiomycosis		Cryptosporidiosis		Encephalitis/Meningitis West Nile	
	Cum. 2003§	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002
UNITED STATES	26,605	27,801	521,566	548,027	2,422	2,974	1,517	1,806	242	941
NEW ENGLAND	905	1,102	18,131	18,128	-	-	98	120	-	6
Maine	49	25	1,277	1,087	N	N	10	9	-	-
N.H.	22	22	978	1,050	-	-	10	21	-	-
Vt.	11	8	650	587	-	-	23	20	-	-
Mass.	371	579	7,316	7,211	-	-	36	45	-	6
R.I.	69	74	1,892	1,824	-	-	12	13	-	-
Conn.	383	394	6,018	6,369	N	N	7	12	-	-
MID. ATLANTIC	6,223	6,439	60,434	61,820	-	-	205	223	14	26
Upstate N.Y.	665	501	12,713	11,034	N	N	67	58	1	5
N.Y. City	3,189	3,666	21,706	20,593	-	-	51	97	-	12
N.J.	1,044	1,026	9,313	9,413	-	-	4	12	2	8
Pa.	1,325	1,246	16,702	20,780	N	N	83	56	11	1
E.N. CENTRAL	2,625	2,869	82,886	100,181	7	18	360	583	13	427
Ohio	466	510	18,012	25,259	-	-	65	86	13	35
Ind.	345	397	9,909	11,002	N	N	54	26	-	1
Ill.	1,238	1,358	24,947	31,909	-	2	34	79	-	334
Mich.	451	461	20,415	20,732	7	16	75	76	-	43
Wis.	125	143	9,603	11,279	-	-	132	316	-	14
W.N. CENTRAL	486	478	30,921	30,762	1	1	227	233	71	21
Minn.	95	105	6,607	6,964	N	N	79	109	7	-
Iowa	55	58	2,676	3,394	N	N	46	22	6	-
Mo.	230	218	11,434	10,385	-	-	21	24	3	13
N. Dak.	2	1	700	813	N	N	11	10	5	-
S. Dak.	8	3	1,719	1,412	-	-	25	17	16	7
Nebr.†	35	44	3,142	3,077	1	1	9	38	17	-
Kans.	61	49	4,643	4,717	N	N	36	13	17	1
S. ATLANTIC	7,717	8,217	103,911	102,527	3	3	219	205	16	21
Del.	149	142	2,019	1,753	N	N	3	2	-	-
Md.	882	1,198	10,970	10,403	3	3	12	13	1	5
D.C.	725	394	1,898	2,183	-	-	11	4	-	-
Va.	627	578	10,911	11,516	-	-	30	9	-	-
W. Va.	54	66	1,711	1,605	N	N	3	2	-	-
N.C.	799	628	17,499	16,195	N	N	23	25	-	-
S.C.†	504	586	9,634	9,484	-	-	3	4	1	-
Ga.	1,202	1,228	22,444	21,121	-	-	71	84	2	15
Fla.	2,775	3,397	26,825	28,267	N	N	63	62	12	1
E.S. CENTRAL	1,144	1,247	35,176	35,380	N	N	81	96	10	167
Ky.	98	198	5,498	5,807	N	N	19	3	3	4
Tenn.	517	525	13,350	10,886	N	N	29	47	1	-
Ala.	271	248	8,245	11,066	-	-	25	41	6	9
Miss.	258	276	8,083	7,621	N	N	8	5	-	154
W.S. CENTRAL	2,737	3,029	66,225	73,289	-	7	20	42	81	273
Ark.	107	175	4,977	5,149	-	-	5	7	2	4
L.a.	402	782	11,642	13,207	N	N	2	8	2	160
Okla.	139	143	6,828	7,750	N	N	9	8	1	-
Tex.	2,089	1,929	42,778	47,183	-	7	4	19	76	109
MOUNTAIN	967	886	30,343	33,938	1,693	1,925	82	110	37	-
Mont.	10	8	1,284	1,387	N	N	14	4	33	-
Idaho	15	23	1,705	1,676	N	N	17	20	-	-
Wyo.	6	6	661	615	1	-	3	7	1	-
Colo.	215	178	6,730	9,350	N	N	20	39	-	-
N. Mex.	75	59	4,416	5,090	4	6	6	18	2	-
Ariz.	432	371	9,043	10,012	1,656	1,884	4	11	-	-
Utah	40	49	2,945	1,845	8	10	12	8	1	-
Nev.	174	192	3,559	3,963	24	25	6	3	-	-
PACIFIC	3,801	3,533	93,539	92,002	717	1,019	225	194	-	-
Wash.	290	336	10,634	9,669	N	N	25	22	-	-
Oreg.	165	234	4,378	4,632	-	-	29	27	-	-
Calif.	3,271	2,860	73,999	72,305	717	1,019	171	144	-	-
Alaska	13	22	2,378	2,447	-	-	-	-	-	-
Hawaii	62	81	2,150	2,949	-	-	-	1	-	-
Guam	6	1	-	418	-	-	-	-	-	-
P.R.	724	798	1,241	1,746	N	N	N	N	-	-
V.I.	22	63	142	124	-	-	-	-	-	-
Amer. Samoa	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	2	U	-	U	-	U	-	U	-	U

N: Not notifiable. U: Unavailable. -: No reported cases. C.N.M.I.: Commonwealth of Northern Mariana Islands.

\* Incidence data for reporting years 2002 and 2003 are provisional and cumulative (year-to-date).

† Chlamydia refers to genital infections caused by *C. trachomatis*.

§ Updated monthly from reports to the Division of HIV/AIDS Prevention — Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention. Last update July 27, 2003.

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



TABLE II. (Continued) Provisional cases of selected notifiable diseases, United States, weeks ending August 30, 2003, and August 31, 2002 (35th Week)\*

Reporting area	<i>Escherichia coli</i> , Enterohemorrhagic (EHEC)						Giardiasis		Gonorrhea	
	O157:H7		Shiga toxin positive, serogroup non-O157		Shiga toxin positive, not serogrouped		Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002
	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002				
UNITED STATES	1,271	2,134	150	124	84	30	10,639	12,613	197,327	232,650
NEW ENGLAND	86	169	27	37	8	4	734	1,150	4,651	5,121
Maine	7	23	1	6	-	-	108	126	130	89
N.H.	11	19	2	-	-	-	20	31	72	79
Vt.	12	5	-	1	-	-	67	86	49	71
Mass.	29	80	3	16	8	4	304	625	1,861	2,193
R.I.	1	8	-	1	-	-	74	93	631	581
Conn.	26	34	21	13	-	-	161	189	1,908	2,108
MID. ATLANTIC	148	227	9	1	23	4	2,124	2,575	24,228	28,066
Upstate N.Y.	60	105	5	-	11	-	620	721	4,887	5,648
N.Y. City	3	12	-	-	-	-	705	981	8,418	8,423
N.J.	12	39	-	-	-	-	217	304	5,623	5,118
Pa.	73	71	4	1	12	4	582	569	5,300	8,877
E.N. CENTRAL	289	513	18	24	15	3	1,706	2,152	36,618	48,654
Ohio	66	90	15	8	14	2	571	565	9,746	14,218
Ind.	57	43	-	-	-	-	-	-	3,784	4,735
Ill.	42	124	-	6	-	-	420	630	11,109	16,203
Mich.	49	85	-	3	-	1	450	553	8,714	9,486
Wis.	75	171	3	7	1	-	265	404	3,265	4,012
W.N. CENTRAL	229	302	25	21	18	3	1,150	1,207	10,870	11,951
Minn.	73	96	14	18	1	-	449	424	1,787	2,084
Iowa	49	71	-	-	-	-	159	184	607	771
Mo.	56	42	8	-	1	-	296	308	5,538	5,906
N. Dak.	8	4	-	-	9	-	24	13	30	48
S. Dak.	14	31	3	1	-	-	40	50	146	166
Nebr.	14	36	-	2	-	-	77	115	1,016	1,036
Kans.	15	22	-	-	7	3	105	113	1,746	1,940
S. ATLANTIC	99	164	46	18	5	-	1,740	1,872	51,443	58,860
Del.	4	5	N	N	N	N	25	32	793	1,067
Md.	6	18	-	-	-	-	67	71	5,281	5,879
D.C.	1	-	-	-	-	-	29	29	1,489	1,784
Va.	28	34	7	2	-	-	230	173	5,045	6,514
W. Va.	3	3	-	-	-	-	25	32	588	660
N.C.	5	28	14	-	-	-	N	N	10,073	10,753
S.C.	-	4	-	-	-	-	81	64	5,189	5,973
Ga.	19	37	2	7	-	-	589	611	11,155	11,562
Fla.	33	35	23	9	5	-	694	860	11,830	14,668
E.S. CENTRAL	53	74	2	-	6	9	213	237	16,978	20,337
Ky.	17	19	2	-	6	9	N	N	2,399	2,422
Tenn.	22	33	-	-	-	-	104	107	5,450	6,248
Ala.	11	14	-	-	-	-	109	130	5,086	7,099
Miss.	3	8	-	-	-	-	-	-	4,043	4,568
W.S. CENTRAL	35	78	1	-	3	3	182	150	27,286	32,780
Ark.	5	6	-	-	-	-	97	100	2,610	3,173
La.	3	2	-	-	-	-	5	4	6,983	8,105
Okla.	17	16	-	-	-	-	80	44	2,691	3,270
Tex.	10	54	1	-	3	3	-	2	15,002	18,232
MOUNTAIN	167	204	20	17	6	4	967	989	6,427	7,328
Mont.	12	15	-	-	-	-	62	60	69	60
Idaho	38	28	15	9	-	-	118	73	52	58
Wyo.	2	6	-	1	-	-	15	20	30	42
Colo.	35	67	2	4	6	4	263	335	1,566	2,299
N. Mex.	6	4	3	3	-	-	30	111	722	1,003
Ariz.	23	23	N	N	N	N	185	123	2,493	2,430
Utah	35	41	-	-	-	-	218	182	285	184
Nev.	16	20	-	-	-	-	76	85	1,210	1,252
PACIFIC	165	403	2	6	-	-	1,823	2,281	18,826	19,553
Wash.	49	98	1	-	-	-	170	262	1,835	1,889
Oreg.	33	132	1	6	-	-	233	273	581	579
Calif.	77	137	-	-	-	-	1,311	1,614	15,579	16,235
Alaska	1	6	-	-	-	-	51	65	332	407
Hawaii	5	30	-	-	-	-	58	67	499	443
Guam	N	N	-	-	-	-	-	7	-	35
P.R.	-	1	-	-	-	-	35	53	137	249
V.I.	-	-	-	-	-	-	-	-	36	31
Amer. Samoa	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	-	U	-	U	-	U	-	U	-	U

N: Not notifiable. U: Unavailable. - : No reported cases.

\* Incidence data for reporting years 2002 and 2003 are provisional and cumulative (year-to-date).

TABLE II. (Continued) Provisional cases of selected notifiable diseases, United States, weeks ending August 30, 2003, and August 31, 2002 (35th Week)\*

Reporting area	<i>Haemophilus influenzae</i> , invasive†								Hepatitis (viral, acute), by type	
	All ages		Age <5 years						A	
	All serotypes		Serotype b		Non-serotype b		Unknown serotype		Cum. 2003	Cum. 2002
	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002		
UNITED STATES	1,180	1,181	12	25	66	94	128	109	3,819	6,167
NEW ENGLAND	91	79	1	-	6	8	5	2	187	217
Maine	2	1	-	-	-	-	1	-	9	7
N.H.	11	6	1	-	-	-	-	-	8	11
Vt.	6	6	-	-	-	-	-	-	5	1
Mass.	43	38	-	-	6	4	3	2	107	96
R.I.	4	10	-	-	-	-	1	-	11	29
Conn.	25	18	-	-	-	4	-	-	47	73
MID. ATLANTIC	266	214	-	2	1	12	34	20	741	776
Upstate N.Y.	98	83	-	2	1	4	10	6	83	128
N.Y. City	43	51	-	-	-	-	9	9	237	282
N.J.	50	42	-	-	-	-	6	5	97	129
Pa.	75	38	-	-	-	8	9	-	324	237
E.N. CENTRAL	169	235	3	3	6	9	27	31	419	782
Ohio	54	62	-	-	-	1	10	7	76	219
Ind.	36	35	-	1	4	7	-	-	47	35
Ill.	55	88	-	-	-	-	14	16	127	203
Mich.	16	11	3	2	2	1	1	-	131	167
Wis.	8	39	-	-	-	-	2	8	38	158
W.N. CENTRAL	87	49	-	1	6	2	11	3	127	223
Minn.	34	30	-	1	6	2	2	1	33	32
Iowa	-	1	-	-	-	-	-	-	21	51
Mo.	35	10	-	-	-	-	9	2	46	63
N. Dak.	1	4	-	-	-	-	-	-	-	1
S. Dak.	1	1	-	-	-	-	-	-	-	3
Nebr.	2	-	-	-	-	-	-	-	6	16
Kans.	14	3	-	-	-	-	-	-	21	57
S. ATLANTIC	272	266	1	5	10	14	14	19	917	1,703
Del.	-	-	-	-	-	-	-	-	4	10
Md.	61	68	-	2	5	3	-	1	95	209
D.C.	-	-	-	-	-	-	-	-	27	56
Va.	40	22	-	-	-	-	5	3	52	73
W. Va.	13	13	-	-	-	-	-	1	13	14
N.C.	24	26	-	-	2	3	1	-	47	158
S.C.	3	10	-	-	-	-	-	2	26	48
Ga.	50	56	-	-	-	-	5	9	351	349
Fla.	81	71	1	3	3	8	3	3	302	786
E.S. CENTRAL	52	51	1	1	-	4	6	9	116	195
Ky.	3	4	-	-	-	1	-	-	23	40
Tenn.	31	25	-	-	-	-	4	6	67	78
Ala.	16	14	1	1	-	3	1	1	12	30
Miss.	2	8	-	-	-	-	1	2	14	47
W.S. CENTRAL	48	42	1	2	7	7	3	2	177	682
Ark.	6	1	-	-	1	-	-	-	17	40
La.	7	6	-	-	-	-	2	2	38	58
Okla.	32	33	-	-	6	7	1	-	10	35
Tex.	3	2	1	2	-	-	-	-	112	549
MOUNTAIN	126	133	4	4	17	22	19	12	330	377
Mont.	-	-	-	-	-	-	-	-	7	11
Idaho	3	2	-	-	-	-	1	1	-	23
Wyo.	1	2	-	-	-	-	-	-	1	2
Colo.	24	25	-	-	-	-	5	2	46	60
N. Mex.	15	21	-	-	4	5	2	1	13	14
Ariz.	64	61	4	2	6	13	8	6	199	202
Utah	11	14	-	1	4	3	3	-	27	29
Nev.	8	8	-	1	3	1	-	2	37	36
PACIFIC	69	112	1	7	13	16	9	11	805	1,212
Wash.	7	2	-	1	5	1	1	-	38	121
Oreg.	33	43	-	-	-	-	3	3	42	45
Calif.	16	37	1	6	8	15	4	4	711	1,019
Alaska	-	1	-	-	-	-	-	1	8	7
Hawaii	13	29	-	-	-	-	1	3	6	20
Guam	-	-	-	-	-	-	-	-	-	-
P.R.	-	1	-	-	-	-	-	-	24	154
V.I.	-	-	-	-	-	-	-	-	-	-
Amer. Samoa	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	-	U	U	U	-	U	-	U	-	U

N: Not notifiable. U: Unavailable. -: No reported cases.

\* Incidence data for reporting years 2002 and 2003 are provisional and cumulative (year-to-date).

† Non-serotype b: nontypeable and type other than b; Unknown serotype: type unknown or not reported. Previously, cases reported without type information were counted as non-serotype b.

TABLE II. (Continued) Provisional cases of selected notifiable diseases, United States, weeks ending August 30, 2003, and August 31, 2002 (35th Week)\*

Reporting area	Hepatitis (viral, acute), by type				Legionellosis		Listeriosis		Lyme disease	
	B		C		Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002
	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002						
UNITED STATES	4,089	4,912	860	1,266	1,132	692	368	382	9,611	12,333
NEW ENGLAND	154	186	2	18	46	61	32	39	1,593	2,765
Maine	1	6	-	-	1	2	5	4	134	49
N.H.	11	13	-	-	5	4	3	4	74	170
Vt.	2	3	2	12	4	25	-	2	21	21
Mass.	124	106	-	6	17	21	14	19	275	1,572
R.I.	8	21	-	-	3	1	-	1	286	173
Conn.	8	37	U	U	16	8	10	9	803	780
MID. ATLANTIC	641	1,030	115	67	289	171	71	104	6,495	7,214
Upstate N.Y.	74	80	33	28	87	47	18	31	2,745	3,187
N.Y. City	249	516	-	-	20	32	11	27	2	54
N.J.	135	207	-	4	19	23	9	17	915	1,840
Pa.	183	227	82	35	163	69	33	29	2,833	2,133
E.N. CENTRAL	258	441	107	71	232	188	44	54	409	1,021
Ohio	92	67	7	-	150	67	17	15	49	45
Ind.	23	31	4	-	14	13	4	6	15	14
Ill.	1	95	9	13	3	21	5	13	-	43
Mich.	119	212	87	55	54	58	14	14	4	21
Wis.	23	36	-	3	11	29	4	6	341	898
W.N. CENTRAL	211	141	148	554	43	36	10	10	223	184
Minn.	28	13	8	2	3	7	3	-	166	112
Iowa	7	12	1	1	9	8	-	1	22	29
Mo.	144	75	138	541	20	10	4	6	26	33
N. Dak.	2	4	-	-	1	-	-	1	-	-
S. Dak.	2	1	-	1	1	2	-	-	-	1
Nebr.	16	20	1	9	2	9	3	1	2	5
Kans.	12	16	-	-	7	-	-	1	7	4
S. ATLANTIC	1,306	1,189	117	141	341	126	84	52	736	912
Del.	5	13	-	-	19	7	N	N	122	138
Md.	86	91	11	8	83	22	14	11	442	552
D.C.	7	14	-	-	9	5	-	-	6	17
Va.	115	139	6	5	65	16	9	4	49	67
W. Va.	20	18	1	2	12	-	5	-	11	9
N.C.	111	174	8	19	26	7	14	4	57	77
S.C.	106	76	24	4	5	6	2	8	1	10
Ga.	404	316	3	58	19	10	20	9	12	1
Fla.	452	348	64	45	103	53	20	16	36	41
E. S. CENTRAL	267	251	56	94	71	24	18	10	38	42
Ky.	48	40	8	4	27	10	5	2	9	13
Tenn.	124	99	15	22	28	8	4	5	11	13
Ala.	43	51	6	6	13	6	7	3	3	8
Miss.	52	61	27	62	3	-	2	-	15	8
W.S. CENTRAL	214	684	194	195	13	18	15	22	33	106
Ark.	38	87	3	10	2	-	1	-	-	2
La.	46	93	46	64	-	4	1	1	3	3
Okla.	31	35	2	4	5	3	1	6	-	-
Tex.	99	469	143	117	6	11	12	15	30	101
MOUNTAIN	436	415	49	44	44	26	23	21	15	12
Mont.	13	4	1	-	2	3	1	-	-	-
Idaho	-	6	-	-	3	-	2	2	3	3
Wyo.	26	14	-	5	2	1	-	-	1	1
Colo.	53	54	25	6	9	5	9	4	4	1
N. Mex.	24	117	-	2	2	2	2	2	-	1
Ariz.	223	151	6	4	9	6	7	9	1	2
Utah	45	28	-	4	13	7	-	3	3	3
Nev.	52	41	17	23	4	2	2	1	3	1
PACIFIC	602	575	72	82	53	42	71	70	69	77
Wash.	42	51	12	16	6	3	2	8	1	7
Oreg.	79	97	11	10	N	N	3	8	14	11
Calif.	461	415	47	55	47	39	62	48	51	57
Alaska	8	6	1	-	-	-	-	-	3	2
Hawaii	12	6	1	1	-	-	4	6	N	N
Guam	-	-	-	-	-	-	-	-	-	-
P.R.	39	126	-	-	-	-	-	2	N	N
V.I.	-	-	-	-	-	-	-	-	-	-
Amer. Samoa	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	-	U	-	U	-	U	-	U	-	U

N: Not notifiable. U: Unavailable. -: No reported cases.

\* Incidence data for reporting years 2002 and 2003 are provisional and cumulative (year-to-date).

TABLE II. (Continued) Provisional cases of selected notifiable diseases, United States, weeks ending August 30, 2003, and August 31, 2002 (35th Week)\*

Reporting area	Malaria		Meningococcal disease		Pertussis		Rabies, animal		Rocky Mountain spotted fever	
	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002
UNITED STATES	640	938	1,090	1,310	4,264	5,304	3,490	5,122	410	650
NEW ENGLAND	29	56	51	74	396	462	356	604	-	2
Maine	3	3	5	4	12	5	34	38	-	-
N.H.	2	6	3	9	50	9	13	28	-	-
Vt.	-	2	-	4	48	91	25	77	-	-
Mass.	9	24	33	39	273	321	125	194	-	2
R.I.	1	3	2	5	12	10	41	48	-	-
Conn.	14	18	8	13	1	26	118	219	-	-
MID. ATLANTIC	154	238	134	164	425	233	300	821	21	42
Upstate N.Y.	37	30	33	38	237	155	233	473	2	-
N.Y. City	70	149	26	29	-	11	5	10	6	9
N.J.	24	34	19	25	31	-	62	112	7	16
Pa.	23	25	56	72	157	67	-	226	6	17
E.N. CENTRAL	59	128	167	191	329	622	107	112	9	26
Ohio	14	15	46	60	161	299	41	20	6	10
Ind.	2	10	36	24	43	61	16	26	1	3
Ill.	19	55	38	43	-	103	11	22	-	11
Mich.	19	38	33	30	60	38	34	32	2	2
Wis.	5	10	14	34	65	121	5	12	-	-
W.N. CENTRAL	35	49	101	110	213	447	419	348	40	83
Minn.	21	16	20	24	59	198	24	28	1	-
Iowa	3	3	16	16	57	107	75	57	2	3
Mo.	3	14	48	39	57	87	19	35	29	76
N. Dak.	1	1	1	-	3	5	41	30	-	-
S. Dak.	2	1	1	2	3	5	67	69	4	-
Nebr.	-	5	7	22	4	6	58	-	2	4
Kans.	5	9	8	7	30	39	135	129	2	-
S. ATLANTIC	192	214	210	206	407	298	1,751	1,809	237	297
Del.	3	2	7	6	1	2	26	24	-	-
Md.	49	76	24	7	53	49	244	285	67	32
D.C.	8	15	-	-	-	1	-	-	-	-
Va.	22	18	20	29	76	107	372	391	14	22
W. Va.	4	3	4	3	6	26	63	131	5	1
N.C.	14	14	27	24	87	28	543	476	100	175
S.C.	3	6	19	20	80	30	159	83	13	42
Ga.	33	35	22	22	29	22	244	292	30	19
Fla.	56	45	87	95	75	33	100	127	8	6
E.S. CENTRAL	11	15	59	74	107	170	129	174	55	90
Ky.	4	5	13	12	37	73	29	18	-	3
Tenn.	4	3	16	30	52	62	85	108	41	54
Ala.	3	3	15	17	14	27	15	46	6	11
Miss.	-	4	15	15	4	8	-	2	8	22
W.S. CENTRAL	18	47	74	158	331	1,300	170	841	39	95
Ark.	4	1	11	20	16	458	25	2	-	24
La.	3	3	25	32	6	7	-	-	-	-
Okla.	4	6	13	17	12	34	145	82	38	61
Tex.	7	37	25	89	297	801	-	757	1	10
MOUNTAIN	29	36	56	76	673	651	119	206	9	13
Mont.	-	1	3	2	2	4	16	10	1	1
Idaho	1	-	6	3	59	52	11	24	2	-
Wyo.	1	-	2	-	119	10	4	14	2	4
Colo.	13	20	15	23	224	254	24	35	2	2
N. Mex.	1	2	7	3	42	128	5	8	-	1
Ariz.	10	6	15	23	124	108	47	105	1	-
Utah	2	4	1	4	80	58	9	7	1	-
Nev.	1	3	7	18	23	37	3	3	-	5
PACIFIC	113	155	238	257	1,383	1,121	139	207	-	2
Wash.	17	15	22	50	391	335	-	-	-	-
Oreg.	7	8	38	37	331	151	5	11	-	2
Calif.	83	124	166	162	651	606	129	170	-	-
Alaska	-	2	3	2	-	4	5	26	-	-
Hawaii	6	6	9	6	10	25	-	-	-	-
Guam	-	-	-	1	-	2	-	-	-	-
P.R.	-	1	2	5	-	2	48	61	N	N
V.I.	-	-	-	-	-	-	-	-	-	-
Amer. Samoa	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	-	U	-	U	-	U	-	U	-	U

N: Not notifiable. U: Unavailable. -: No reported cases.

\* Incidence data for reporting years 2002 and 2003 are provisional and cumulative (year-to-date).

TABLE II. (Continued) Provisional cases of selected notifiable diseases, United States, weeks ending August 30, 2003, and August 31, 2002 (35th Week)\*

Reporting area	Salmonellosis		Shigellosis		Streptococcal disease, invasive, group A		<i>Streptococcus pneumoniae</i> , invasive			
	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Drug resistant, all ages		Age <5 years	
							Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002
UNITED STATES	23,287	26,166	13,086	11,984	3,952	3,405	1,548	1,756	312	231
NEW ENGLAND	1,345	1,412	198	217	323	262	40	81	6	2
Maine	95	94	6	3	22	20	-	-	-	-
N.H.	89	85	5	8	20	28	-	-	N	N
Vt.	45	49	6	-	17	9	6	4	3	1
Mass.	777	808	133	143	153	90	N	N	N	N
R.I.	73	100	8	8	9	14	10	11	3	1
Conn.	266	276	40	55	102	101	24	66	U	U
MID. ATLANTIC	2,685	3,519	1,471	1,081	722	557	95	83	72	58
Upstate N.Y.	651	919	249	178	291	225	53	72	55	48
N.Y. City	728	912	243	312	92	128	U	U	U	U
N.J.	326	728	198	400	128	119	N	N	N	N
Pa.	980	960	781	191	211	85	42	11	17	10
E.N. CENTRAL	3,396	3,793	1,155	1,386	864	738	327	157	130	86
Ohio	968	881	245	441	251	169	215	30	76	1
Ind.	391	343	103	64	91	41	112	125	34	43
Ill.	1,029	1,319	540	641	179	212	-	2	-	-
Mich.	525	627	184	115	295	232	N	N	N	N
Wis.	483	623	83	125	48	84	N	N	20	42
W.N. CENTRAL	1,646	1,614	542	755	256	189	126	331	44	40
Minn.	367	381	64	152	127	96	-	220	38	36
Iowa	248	264	43	93	N	N	N	N	N	N
Mo.	641	532	281	116	54	38	9	5	2	1
N. Dak.	28	24	3	16	11	-	3	1	4	3
S. Dak.	70	76	11	151	18	11	1	1	-	-
Nebr.	99	115	89	161	21	16	-	25	N	N
Kans.	193	222	51	66	25	28	113	79	N	N
S. ATLANTIC	6,198	6,325	5,127	3,782	701	558	800	811	15	23
Del.	54	57	146	57	6	2	1	3	N	N
Md.	511	609	448	761	211	88	-	-	-	18
D.C.	26	50	48	42	11	6	2	-	5	3
Va.	667	632	296	613	88	58	N	N	N	N
W. Va.	80	90	-	7	30	16	56	34	10	2
N.C.	770	844	603	234	80	103	N	N	U	U
S.C.	375	413	302	78	32	29	112	141	N	N
Ga.	1,158	1,167	1,312	857	84	106	189	204	N	N
Fla.	2,557	2,463	1,972	1,133	159	150	440	429	N	N
E.S. CENTRAL	1,547	1,895	608	907	154	79	104	110	-	-
Ky.	267	218	69	93	37	14	13	13	N	N
Tenn.	485	487	227	56	117	65	91	97	N	N
Ala.	338	496	181	477	-	-	-	-	N	N
Miss.	457	694	131	281	-	-	-	-	-	-
W.S. CENTRAL	1,894	2,742	1,745	1,814	140	225	33	148	41	19
Ark.	411	579	69	143	5	6	8	6	-	-
La.	258	489	144	312	1	1	25	142	10	6
Okla.	284	302	580	317	64	35	N	N	26	2
Tex.	941	1,372	952	1,042	70	183	N	N	5	11
MOUNTAIN	1,379	1,442	673	454	349	410	20	35	4	3
Mont.	68	64	2	3	2	-	-	-	-	-
Idaho	122	98	23	3	15	6	N	N	N	N
Wyo.	67	41	5	6	2	7	4	10	-	-
Colo.	307	422	118	101	98	86	-	-	-	-
N. Mex.	129	187	122	87	87	78	16	25	-	-
Ariz.	439	370	334	200	135	206	-	-	N	N
Utah	146	115	37	21	9	27	-	-	4	3
Nev.	101	145	32	33	1	-	-	-	-	-
PACIFIC	3,197	3,424	1,567	1,588	443	387	3	-	-	-
Wash.	349	320	106	101	38	46	-	-	N	N
Oreg.	261	239	167	70	N	N	N	N	N	N
Calif.	2,398	2,640	1,257	1,377	326	294	N	N	N	N
Alaska	54	43	6	3	-	-	-	-	N	N
Hawaii	135	182	31	37	79	47	3	-	-	-
Guam	-	30	-	22	-	-	-	4	-	-
P.R.	159	316	2	24	N	N	N	N	N	N
V.I.	-	-	-	-	-	-	-	-	-	-
Amer. Samoa	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	-	U	-	U	-	U	-	U	-	U

N: Not notifiable. U: Unavailable. -: No reported cases.

\* Incidence data for reporting years 2002 and 2003 are provisional and cumulative (year-to-date).

TABLE II. (Continued) Provisional cases of selected notifiable diseases, United States, weeks ending August 30, 2003, and August 31, 2002 (35th Week)\*

Reporting area	Syphilis				Tuberculosis		Typhoid fever		Varicella (Chickenpox)
	Primary & secondary		Congenital		Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003
	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002					
UNITED STATES	4,441	4,406	236	269	7,068	8,469	174	198	8,394
NEW ENGLAND	139	95	1	-	201	269	19	10	1,252
Maine	6	2	1	-	5	10	-	-	640
N.H.	13	2	-	-	7	9	2	-	-
Vt.	-	1	-	-	3	4	-	-	492
Mass.	92	64	-	-	126	138	10	7	117
R.I.	14	5	-	-	27	38	2	-	3
Conn.	14	21	-	-	33	70	5	3	-
MID. ATLANTIC	542	469	45	38	1,412	1,460	22	50	24
Upstate N.Y.	27	23	13	1	183	213	5	4	N
N.Y. City	311	276	24	17	768	710	10	26	-
N.J.	113	94	8	19	273	321	6	13	-
Pa.	91	76	-	1	188	216	1	7	24
E.N. CENTRAL	588	823	42	41	731	844	11	21	3,779
Ohio	141	100	2	2	135	139	1	5	934
Ind.	31	40	7	2	88	76	3	2	-
Ill.	218	313	14	30	334	402	1	7	-
Mich.	188	352	19	7	140	178	6	3	2,269
Wis.	10	18	-	-	34	49	-	4	576
W.N. CENTRAL	94	86	3	-	308	361	3	9	39
Minn.	33	41	-	-	126	149	-	3	N
Iowa	4	2	-	-	17	21	1	-	N
Mo.	33	21	3	-	77	101	1	2	-
N. Dak.	-	-	-	-	-	4	-	-	39
S. Dak.	1	-	-	-	16	10	-	-	-
Nebr.	3	5	-	-	8	17	1	4	-
Kans.	20	17	-	-	64	59	-	-	-
S. ATLANTIC	1,203	1,093	44	63	1,382	1,749	35	26	1,572
Del.	4	9	-	-	-	13	-	-	20
Md.	210	129	8	12	145	200	7	5	-
D.C.	35	35	-	1	-	-	-	-	22
Va.	57	52	1	1	176	181	10	3	436
W. Va.	2	2	-	-	12	24	-	-	919
N.C.	110	202	14	17	198	216	6	1	N
S.C.	78	83	4	8	105	115	-	-	175
Ga.	292	233	4	10	200	353	6	5	-
Fla.	415	348	13	14	546	647	6	12	N
E. S. CENTRAL	204	343	12	19	436	516	5	4	-
Ky.	29	66	1	3	82	95	-	4	N
Tenn.	88	126	5	6	148	206	2	-	N
Ala.	71	117	4	7	139	133	3	-	-
Miss.	16	34	2	3	67	82	-	-	-
W. S. CENTRAL	568	568	41	61	959	1,293	7	24	1,331
Ark.	37	22	-	4	64	81	-	-	-
La.	82	98	-	-	-	-	-	-	4
Okla.	34	43	1	1	90	107	-	-	N
Tex.	415	405	40	56	805	1,105	7	24	1,327
MOUNTAIN	201	216	21	9	255	255	3	7	397
Mont.	-	-	-	-	5	6	-	-	N
Idaho	6	1	-	-	5	10	-	-	N
Wyo.	-	-	-	-	3	2	-	-	42
Colo.	12	45	3	1	56	58	3	3	-
N. Mex.	35	22	-	-	6	23	-	-	-
Ariz.	134	136	18	8	130	125	-	-	4
Utah	5	4	-	-	28	18	-	2	351
Nev.	9	8	-	-	22	13	-	2	-
PACIFIC	902	713	27	38	1,384	1,722	69	47	-
Wash.	50	37	-	1	169	155	2	4	-
Oreg.	27	11	-	-	65	75	3	2	-
Calif.	823	658	27	36	1,070	1,354	63	40	-
Alaska	-	-	-	-	39	32	-	-	-
Hawaii	2	7	-	1	41	106	1	1	-
Guam	-	6	-	-	-	44	-	-	-
P.R.	118	177	1	21	33	75	-	-	275
V.I.	1	1	-	-	-	-	-	-	-
Amer. Samoa	U	U	U	U	U	U	U	U	U
C.N.M.I.	-	U	-	U	-	U	-	U	-

N: Not notifiable. U: Unavailable. -: No reported cases.

\* Incidence data for reporting years 2002 and 2003 are provisional and cumulative (year-to-date).

TABLE III. Deaths in 122 U.S. cities,\* week ending August 30, 2003 (35th Week)

Reporting Area	All causes, by age (years)							P&I <sup>†</sup> Total	Reporting Area	All causes, by age (years)							P&I <sup>†</sup> Total
	All Ages	≥65	45-64	25-44	1-24	<1				All Ages	≥65	45-64	25-44	1-24	<1		
NEW ENGLAND	444	312	93	25	6	8	39	S. ATLANTIC	1,208	716	290	114	49	39	73		
Boston, Mass.	135	87	33	10	3	2	6	Atlanta, Ga.	160	88	37	23	6	6	2		
Bridgeport, Conn.	45	33	10	1	-	1	2	Baltimore, Md.	245	140	66	27	6	6	19		
Cambridge, Mass.	13	11	2	-	-	-	1	Charlotte, N.C.	92	62	20	5	4	1	6		
Fall River, Mass.	25	22	2	1	-	-	5	Jacksonville, Fla.	113	61	36	5	7	4	8		
Hartford, Conn.	U	U	U	U	U	U	U	Miami, Fla.	84	55	16	10	3	-	7		
Lowell, Mass.	14	9	4	1	-	-	2	Norfolk, Va.	40	20	9	3	2	6	2		
Lynn, Mass.	11	9	1	1	-	-	-	Richmond, Va.	49	25	11	8	4	1	8		
New Bedford, Mass.	21	15	3	3	-	-	2	Savannah, Ga.	68	39	19	3	3	4	4		
New Haven, Conn.	49	30	13	3	-	3	9	St. Petersburg, Fla.	82	55	17	6	3	1	5		
Providence, R.I.	U	U	U	U	U	U	U	Tampa, Fla.	160	103	34	13	5	5	7		
Somerville, Mass.	2	1	-	1	-	-	-	Washington, D.C.	100	56	22	11	6	5	3		
Springfield, Mass.	44	28	11	2	2	1	6	Wilmington, Del.	15	12	3	-	-	-	2		
Waterbury, Conn.	34	28	5	1	-	-	-	E.S. CENTRAL	721	468	164	48	22	19	43		
Worcester, Mass.	51	39	9	1	1	1	6	Birmingham, Ala.	162	108	38	10	4	2	10		
MID. ATLANTIC	1,957	1,316	407	149	48	32	83	Chattanooga, Tenn.	70	51	10	4	1	4	5		
Albany, N.Y.	42	31	5	2	4	-	-	Knoxville, Tenn.	102	69	22	5	2	4	-		
Allentown, Pa.	17	13	3	-	-	1	1	Lexington, Ky.	57	36	11	7	1	2	4		
Buffalo, N.Y.	79	54	17	2	5	1	8	Memphis, Tenn.	232	141	64	15	8	4	14		
Camden, N.J.	11	6	-	4	1	-	-	Mobile, Ala.	61	37	14	3	5	2	3		
Elizabeth, N.J.	21	17	3	-	-	1	-	Montgomery, Ala.	37	26	5	4	1	1	7		
Erie, Pa.	27	22	4	-	-	1	-	Nashville, Tenn.	U	U	U	U	U	U	U		
Jersey City, N.J.	35	16	10	8	1	-	-	W.S. CENTRAL	1,416	897	306	111	66	36	84		
New York City, N.Y.	898	619	171	73	16	15	27	Austin, Tex.	69	48	15	4	-	2	3		
Newark, N.J.	58	26	18	12	1	1	6	Baton Rouge, La.	U	U	U	U	U	U	U		
Paterson, N.J.	15	8	6	-	-	1	-	Corpus Christi, Tex.	48	33	10	4	-	1	1		
Philadelphia, Pa.	438	274	114	29	13	7	18	Dallas, Tex.	182	103	52	14	8	5	8		
Pittsburgh, Pa. <sup>‡</sup>	29	20	7	1	1	-	1	El Paso, Tex.	85	70	9	2	3	1	2		
Reading, Pa.	17	15	2	-	-	-	1	Ft. Worth, Tex.	111	68	22	9	8	4	3		
Rochester, N.Y.	120	91	18	6	3	2	5	Houston, Tex.	398	226	81	42	36	13	36		
Schenectady, N.Y.	15	12	1	2	-	-	4	Little Rock, Ark.	89	53	22	6	2	6	4		
Scranton, Pa.	26	20	5	1	-	-	3	New Orleans, La.	39	23	10	4	2	-	-		
Syracuse, N.Y.	63	39	15	6	2	1	6	San Antonio, Tex.	212	152	43	10	4	3	13		
Trenton, N.J.	30	17	8	3	1	1	2	Shreveport, La.	61	36	17	6	1	1	6		
Utica, N.Y.	16	16	-	-	-	-	1	Tulsa, Okla.	122	85	25	10	2	-	8		
Yonkers, N.Y.	U	U	U	U	U	U	U	MOUNTAIN	895	554	136	76	20	17	51		
E.N. CENTRAL	1,859	1,182	427	136	51	59	103	Albuquerque, N.M.	109	82	15	8	4	-	1		
Akron, Ohio	50	35	8	5	1	1	6	Boise, Idaho	38	28	6	1	-	3	2		
Canton, Ohio	36	22	9	3	1	1	3	Colorado Springs, Colo.	51	31	11	7	-	2	-		
Chicago, Ill.	360	199	95	37	13	12	14	Denver, Colo.	103	65	20	9	4	5	4		
Cincinnati, Ohio	75	50	17	5	2	1	7	Las Vegas, Nev.	229	148	48	21	6	4	16		
Cleveland, Ohio	105	76	22	3	1	3	5	Ogden, Utah	23	14	6	3	-	-	2		
Columbus, Ohio	191	123	48	9	3	8	14	Phoenix, Ariz.	91	1	-	-	-	-	6		
Dayton, Ohio	105	70	24	7	4	-	3	Pueblo, Colo.	22	15	4	3	-	-	2		
Detroit, Mich.	196	98	57	19	11	11	6	Salt Lake City, Utah	126	92	13	14	5	2	14		
Evansville, Ind.	44	35	8	-	-	1	4	Tucson, Ariz.	103	78	13	10	1	1	4		
Fort Wayne, Ind.	45	29	11	3	2	-	3	PACIFIC	1,892	1,301	391	119	49	31	137		
Gary, Ind.	30	12	12	3	1	2	-	Berkeley, Calif.	18	12	4	1	-	1	1		
Grand Rapids, Mich.	69	51	7	6	2	3	10	Fresno, Calif.	130	90	24	10	3	3	7		
Indianapolis, Ind.	114	71	25	11	1	6	5	Glendale, Calif.	16	15	1	-	-	-	2		
Lansing, Mich.	54	37	13	2	-	2	3	Honolulu, Hawaii	68	45	18	3	-	2	6		
Milwaukee, Wis.	100	68	19	7	2	4	7	Long Beach, Calif.	58	42	10	4	1	1	7		
Peoria, Ill.	33	22	6	3	1	1	-	Los Angeles, Calif.	324	224	67	22	9	2	20		
Rockford, Ill.	58	39	15	2	1	1	4	Pasadena, Calif.	34	23	7	2	1	1	5		
South Bend, Ind.	48	36	11	1	-	-	2	Portland, Oreg.	617	412	134	41	17	13	34		
Toledo, Ohio	99	71	17	6	5	-	3	Sacramento, Calif.	U	U	U	U	U	U	U		
Youngstown, Ohio	47	38	3	4	-	2	4	San Diego, Calif.	154	97	38	10	7	1	15		
W.N. CENTRAL	521	368	93	39	14	6	26	San Francisco, Calif.	U	U	U	U	U	U	U		
Des Moines, Iowa	125	93	22	3	6	1	4	San Jose, Calif.	160	114	36	7	3	-	15		
Duluth, Minn.	23	18	3	2	-	-	2	Santa Cruz, Calif.	37	27	4	5	1	-	4		
Kansas City, Kans.	33	21	5	7	-	-	-	Seattle, Wash.	126	90	21	8	3	4	10		
Kansas City, Mo.	80	54	18	5	1	1	3	Spokane, Wash.	57	43	8	3	1	2	8		
Lincoln, Nebr.	31	21	7	3	-	-	1	Tacoma, Wash.	93	67	19	3	3	1	3		
Minneapolis, Minn.	45	28	7	5	4	1	1	TOTAL	10,913 <sup>†</sup>	7,114	2,307	817	325	247	639		
Omaha, Nebr.	79	55	18	4	1	1	7										
St. Louis, Mo.	U	U	U	U	U	U	U										
St. Paul, Minn.	41	31	4	4	-	2	4										
Wichita, Kans.	64	47	9	6	2	-	4										

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.

§ Total includes unknown ages.

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