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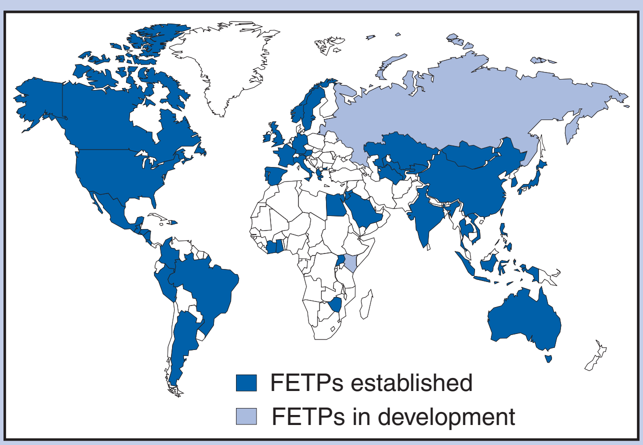
Building Epidemiology Capacity

Field epidemiology is an essential component of effective public health practice, and developing such capacity is a critical step in a country's efforts to improve the health of its citizens. Since 1975, a total of 28 Field Epidemiology Training Programs (FETPs) have been established worldwide (Figure). Most FETPs have resulted from partnerships among CDC, host country health agencies, the World Health Organization, the U.S. Agency for International Development, and others. Modeled on CDC's Epidemic Intelligence Service (EIS), FETPs follow the EIS approach of combining service with training. FETPs also participate in the Training Programs in the Epidemiology and Public Health Interventions Network, which provides a venue for information sharing, program development, and quality improvement. In 2003, EIS and FETPs graduated approximately 250 field epidemiologists. Four reports in this issue of *MMWR* illustrate how FETPs respond to health needs, and two reports describe the need to improve epidemiologic capacity in the United States.

FIGURE. Locations of field epidemiology and training programs (FETPs), by status — worldwide, 2003



Efficiency of Quarantine During an Epidemic of Severe Acute Respiratory Syndrome — Beijing, China, 2003

During March–July 2003, an epidemic of severe acute respiratory syndrome (SARS) in Beijing, China, accounted for 2,521 probable cases* (attack rate: 19 per 100,000 population). To control the epidemic, public health officials initiated enhanced surveillance, isolation of SARS patients, use of personal protective equipment (PPE) by health-care workers, and quarantine of contacts of known SARS patients. Approximately 30,000 Beijing residents were quarantined in their homes or quarantine sites. To guide future quarantine policy, the Chinese Field Epidemiology Training Program (China FETP) of the Chinese Center for Disease Control and Prevention (China CDC) conducted a survey to estimate the risk for acquiring SARS among quarantined residents of Haidian

* Defined by using the case definition of the Chinese Ministry of Health (CMoH), which is similar to the World Health Organization case definition (*1*). The CMoH case definition differs principally by including pneumonia patients whose contacts acquired SARS and by requiring radiographic evidence of atypical pneumonia.

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DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR DISEASE CONTROL AND PREVENTION

District (2001 population: 2.24 million), Beijing, in May 2003, 1 month after the epidemic peaked. This report summarizes the results of that survey, which indicate that, as a component of a comprehensive SARS-control program, quarantine should be limited to persons who have contact with an actively ill SARS patient in the home or hospital, allowing for better focus of resources in future outbreaks.

The 33 precincts in Haidian District were divided into five locations: north (seven precincts), south (six), west (seven), east (six), and central (seven). From each location, the precinct with the greatest number of persons quarantined was selected based on lists from precinct quarantine officers. The selected precincts had 171 (29%) SARS cases and 1,210 (23%) persons quarantined in the district. Quarantined persons were asked to complete a self-administered questionnaire regarding the reasons for quarantine. Quarantined persons and their contacts were categorized as having SARS according to the criteria released by the Chinese Ministry of Health (CMoH). Persons with probable SARS on quarantine and surveillance lists for the precincts and the district were compared with surveyed persons to verify SARS in quarantined persons and their contacts.

In Beijing, contact was defined as 30 minutes' exposure in the following situations to a SARS patient who required quarantine: 1) health-care workers who did not use PPE while evaluating or treating a SARS patient; 2) other persons (e.g., family members) who provided care for a SARS patient; 3) persons who shared the same living quarters as a SARS patient; 4) persons who visited a SARS patient; 5) persons who worked in the same office room or workshop as a SARS patient; 6) classmates or teachers of a SARS patient; and 7) persons using the same public conveyance as a SARS patient (rules varied by conveyance). Quarantine was for 14 days after exposure. Quarantine was initially for persons exposed to a SARS patient ≤14 days before the patient's illness onset, but this period was reduced to 10 and then to 3 days. Travelers who had fever (>100.4° F [>38° C]) arriving from other SARS-affected cities were placed under personal surveillance[†] instead of quarantine. All quarantined persons were followed up daily by a home visit or telephone call from the precinct quarantine officer and were given food and, if needed, medicine. If they acquired fever while under quarantine, they were transferred to a hospital for isolation. Some employers paid salaries to their employees under quarantine.

In Haidian District, during March 1–May 23, a total of 5,186 persons (0.23% of 2.24 million residents) were quarantined. During May 26–June 4, a total of 1,210 residents

[†] Close medical or other supervision of contacts to permit prompt recognition of infection or illness but without restricting their movements (*2*).

were sampled; 1,028 (85%) completed the questionnaire. A total of 232 (2.3%; 95% confidence interval [CI] = 1.6%–3.5%) residents of the surveyed population (n = 1,010) acquired probable SARS while under quarantine (Table 1). The median quarantine period was 14 days (range: 1–28 days). Only quarantined persons who had a history of contact with a SARS patient acquired SARS during quarantine. In contrast, none of the quarantined persons whose exposure did not involve contact with a SARS patient acquired SARS; these included persons (e.g., a contact of a SARS contact or a contact of a patient with fever only) who had been quarantined mistakenly early in the outbreak before procedures were well known to all quarantine officers. In addition, as hospital isolation of persons under surveillance for SARS was relaxed, these persons required quarantine for potential exposure to an actual SARS patient in the hospital.

Among the 626 (62%) quarantined persons with known contact with persons with probable SARS, those who cared for an actively ill SARS patient had the highest attack rate (Table 2). In contrast, quarantined persons who had contact with a SARS patient before they became ill had no detectable risk (95% CI = 0%–2.8%). In addition, no secondary transmission to relatives or other contacts was detected from persons who had SARS while under quarantine. No SARS patients detected through SARS surveillance reported a history of contact with a person under quarantine.

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Editorial Note: Quarantine is the separation and/or restriction of movement of persons who, because of recent exposure to a communicable disease, risk acquiring that disease and subsequently exposing others. Estimates of the risk for acquiring disease are used to assess the efficiency of quarantine measures among persons with different types of exposure. The findings from this survey indicate that the efficiency of SARS quarantine could be improved greatly in future outbreaks. Focusing only on persons who had contact with an actively ill SARS patient would have reduced the number of persons quarantined by approximately 66%, without compromising its effectiveness. Persons exposed to SARS patients only during the incubation period appeared to have low or no risk for acquiring SARS (*2,3*). Because fever is a reliable marker for both onset of SARS and risk for transmission, persons in contact with a SARS patient could be placed under personal surveillance, with temperature taken daily or more frequently. If fever is detected within the 10-day incubation period of SARS, they could then be isolated. Such a modification of quarantine policy could reduce resources expended for quarantine, including time adults spend in quarantine.

The findings in this report are subject to at least five limitations. First, the five selected precincts, although considered to be representative of Haidian District, were not a probability sample. Therefore, some selection bias might affect estimates of proportions in different exposure categories but would have a minimal effect on the estimated attack rates. Second, although exposure categories had estimated attack rates equal to 0, CIs for these estimates were too wide to determine if the actual rates differed from background or to suggest that persons in the exposure categories did or did not require special quarantine or control measures. Third, self-reported data are subject to recall bias and inaccurate reporting of reasons for quarantine. Fourth, because SARS cases were not laboratory-confirmed, some persons who were quarantined for exposure to another respiratory disease and some quarantined persons who had another respiratory disease might have been included. These two effects can counteract each other, and their magnitude would depend on the background

TABLE 1. Attack rates for probable severe acute respiratory syndrome (SARS)* among quarantined persons, by exposure category — Haidian District, Beijing, China, 2003†

	Exposed		Attack rate	
Exposure category	**%**	**(95% CI§)**	**%**	**(95% CI)**
Quarantine required¶				
Contact with SARS patient	62.4	(59.3–65.4)	3.8	(2.5–5.7)
Contact with excluded SARS patient(s)	13.8	(11.8–16.2)	0	(0–3.3)
Excluded SARS patients	4.5	(3.3–6.0)	0	(0–9.8)
Other discharged patients	0.8	(0.4–1.6)	0	NC**
Total	**81.5**	**(78.9–83.8)**	**2.9**	**(1.9–4.4)**
Quarantine not required¶				
Contact with contact of a SARS patient	12.8	(10.9–15.1)	0	(0–3.6)
Fever patients or contacts of fever patients	3.0	(2.1–4.4)	0	NC
No contact with any patients or contacts	2.6	(1.7–3.8)	0	NC
Total	**18.5**	**(16.2–21.1)**	**0**	**(0–2.5)**
Total	**100.0**	**(99.5–100.0)**	**2.3**	**(1.6–3.5)**

* Defined by using the case definition of the Chinese Ministry of Health (CMoH), which is similar to the World Health Organization case definition (*1*). The CMoH case definition differs principally by including pneumonia patients whose contacts acquired SARS and by requiring radiographic evidence of atypical pneumonia.
† N = 1,010. Excludes 18 quarantined residents who returned the questionnaire but did not answer specified question.
§ Confidence interval.
¶ According to quarantine rules in Beijing.
** Not calculated because proportion exposed was too small.

TABLE 2. Attack rates for probable severe acute respiratory syndrome (SARS)* among persons quarantined for direct contact with a probable SARS patient, by nature of contact — Haidian District, Beijing, March–May 2003†

	Contact during symptomatic period (n = 383)				Contact only during incubation period (n = 167)			
	Contacts		Attack rate		Contacts		Attack rate	
Nature of contact	%	(95% CI§)	%	(95% CI)	%	(95% CI)	%	(95% CI)
Cared for SARS patient¶	15.9	(12.5–20.1)	31.1	(20.2–44.4)	2.4	(0.8–6.4)**	0	NC††
Visited SARS patient§§	11.7	(8.8–15.5)	8.9	(2.9–22.1)	4.2	(1.8–8.8)	0	NC
Lived in same residence¶¶	50.9	(45.8–56.0)	4.6	(2.3–8.9)	31.1	(24.3–38.8)	0	(0–8.6)
Lived in same building***	26.9	(22.5–31.7)	0	(0–4.5)	13.7	(9.1–20.2)	0	NC
Worked with SARS patients†††	2.0	(0.8–3.9)	0	NC	38.9	(31.6–46.8)	0	(0–7.0)
Other manner of contact	6.0	(3.9–9.0)	0	NC	13.2	(8.6–19.5)	0	NC
Total	**100.0**	**(98.8–100.0)**	**6.3**	**(4.1–9.3)**	**100.0**	**(97.2–100.0)**	**0**	**(0–2.8)**

* Defined by using the case definition of the Chinese Ministry of Health (CMoH), which is similar to the World Health Organization case definition (*1*). The CMoH case definition differs principally by including pneumonia patients whose contacts acquired SARS and by requiring radiographic evidence of atypical pneumonia.
† N = 550. Excludes 80 persons with direct contact who did not answer specified question.
§ Confidence interval.
¶ Both at home and in the hospital.
** Cared for patients who had other medical conditions during these patients' incubation period.
†† Not calculated because proportion exposed was too small.
§§ Includes some persons who lived in the same residence or building.
¶¶ Includes some persons who visited or cared for a SARS patient.
*** Includes some persons who visited or cared for a SARS patient and excludes persons who lived in the same residence as a SARS patient.
††† Excludes persons who visited, cared for, lived with, or lived in the same building as a SARS patient.

incidence of other atypical pneumonias, which was probably very low relative to SARS. Finally, no information was available regarding the reasons for nonresponse, and some additional selection bias could result. However, because the nonresponse rate was relatively low, this effect should be minimal.

Although the findings described in this report suggest that quarantine effectively eliminated the risk for transmission of SARS from quarantined persons to others in the community, they also reveal certain challenges with applying quarantine measures under field conditions. Certain persons who were quarantined in Beijing did not have illnesses consistent with the quarantine criteria. In addition, early in the outbreak, persons were quarantined who had been exposed to persons evaluated for SARS who were excluded later. Furthermore, these same excluded SARS patients required quarantine for exposure to a SARS patient while in the hospital. Although this was corrected as SARS was characterized, more uniform and careful application of quarantine criteria at the beginning of a SARS epidemic might further reduce the number of persons quarantined.

The SARS attack rates in Beijing among all quarantined persons and special, well-defined exposure groups (i.e., persons treating or caring for a SARS patient, living in the same home with a SARS patient, or visiting a SARS patient) were approximately 10 times greater than those reported in a recent evaluation of SARS quarantine in Taiwan (*4*). Differences between the two outbreaks in the ratio of true SARS cases to SARS-like pneumonias from other causes, as well as differing classifications of exposure, could, in part, account for these findings.

China FETP was initiated in October 2001 in the China CDC. China FETP also has training sites in several cooperating provincial CDCs. All 20 China FETP participants contributed substantially to the surveillance, investigation, and control of the 2003 SARS outbreak and completed five additional epidemiologic studies on SARS.

The use of quarantine, in combination with enhanced surveillance, isolation of SARS patients, and comprehensive use of PPE by health-care workers, appears to have been effective in controlling the recent epidemic of SARS in Beijing. Limiting quarantine to persons who have contact with an actively ill SARS patient will likely improve the efficiency of quarantine and allow for better focus of resources in future outbreaks.

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Prevalence of Selected Risk Factors for Chronic Disease — Jordan, 2002

In Jordan, the average life expectancy in 2002 was 72 years (*1*), and chronic diseases are becoming increasingly prevalent (*2–4*). Because personal behavior can influence the occurrence and progression of many chronic diseases, the Jordan Ministry of Health (JMoH) established surveillance for behavioral risk factors, particularly those related to cardiovascular diseases and diabetes. This report summarizes the key findings of the 2002 Behavioral Risk Factor Survey, the first reporting segment in Jordan's surveillance program for chronic diseases. The findings indicate that smoking, physical inactivity, and obesity contribute substantially to the burden of chronic disease in Jordan and underscores the need for effective public health interventions.

In May 2002, a total of 28 questions about behavioral risk factors and noncommunicable disease prevalence were added to the Jordan Department of Statistics' quarterly, multistage, cross-sectional employment and unemployment survey. The sample was based on the sampling frame provided by the 1994 Jordan Population and Housing Census. The frame excluded persons living in remote areas, the majority of whom are nomads, and those living in collective dwellings (e.g., hotels, hospitals, work camps, and prisons). The sampling frame was representative nationally and stratified by governorate, major city, and other urban and rural areas. Within each stratum, sample blocks were selected systematically with probability proportional to size, and sample households were selected by using a systematic random procedure. One respondent aged ≥18 years was selected from each sample household and interviewed directly. All reported estimates were weighted to account for the sample design and were further adjusted for the noninterview response rate. STATA-7 software (*5*) was used to calculate 95% confidence intervals.

Respondents were asked whether they ever had their blood pressure or cholesterol checked by a health-care professional and whether a health-care professional had ever told them that they had high blood pressure, high cholesterol, asthma, or diabetes or that they had had a heart attack. Gestational diabetes was excluded from the analysis. Smokers were classified as "ever smokers" (i.e., smokers who had smoked ≥100 cigarettes during their lifetime) or "current smokers" (i.e., smokers who had ever smoked 100 cigarettes and currently smoke every day or some days). Questions on self-reported height and weight were included, and body mass index (BMI) (i.e., ratio of weight in kilograms to height in meters squared [kg/m^2]) was calculated. Being overweight was classified as having a BMI of 25.0–25.9, and obesity was classified as having a BMI of ≥30. Respondents were asked whether they engaged in weekly moderate or vigorous activity. Moderate activity was defined as any activity that caused light sweating and small increases in heart rate or breathing for 30 minutes. Vigorous activity was defined as any activity that caused heavy sweating or large increases in heart rate or breathing for 20 minutes. Respondents also were asked when they had last sought health care from a health-care professional.

A total of 8,791 questionnaires were completed among 9,601 sampled households (response rate: 92%), excluding vacant and closed houses. The prevalence of persons who had ever had their blood pressure checked was 67% (74% of women and 61% of men) (Table). Of 6,147 respondents who ever had their blood pressure checked, 22% had been told by a health-care professional that they had high blood pressure. A total of 19% of respondents reported ever having had their blood cholesterol checked; however, this prevalence was 35% among respondents aged 50–64 years. The overall reported prevalence of diabetes was 6%; however, this prevalence increased to 20% for persons aged 50–64 years. The reported prevalence of asthma was 5% (6% of women and 4% of men), and 2% of respondents had ever been told by a health-care professional that they had had a heart attack. A total of 30% of respondents reported currently smoking cigarettes every day or some days, and 38% reported ever smoking ≥100 cigarettes. Nearly half (51%) of the male respondents were current smokers, compared with 8% of female respondents. Among current smokers, men smoked approximately 23 cigarettes per day, compared with 12 cigarettes a day among women. Among current smokers who had visited a health-care professional during the preceding 6 months, 43% had received counseling about smoking. The prevalence of being overweight was 32%, and the prevalence of obesity was 13% (16% of women and 10% of men). Among obese respondents who visited a health-care professional during the preceding 6 months, 26% received counseling about exercise and 34% about nutrition. The prevalence of any weekly vigorous physical activity was 32%, and 53% of all respondents reported weekly physical activity.

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Editorial Note: Chronic disease represents a substantial health problem for residents of Jordan. Because many questions in the Jordan survey are similar to those asked in the U.S. Behavioral Risk Factor Surveillance System, the two sets of results can be compared.

In 2001, of all U.S. states and territories in the United States in which respondents were asked if a health-care professional had ever told them they had high blood cholesterol, hypertension, or diabetes, the median percentages of persons

TABLE. Prevalence of selected risk factors for chronic diseases, by sex and age group — Behavioral Risk Factor Survey, Jordan, 2002

	Sex				Age group (yrs)								Total	
	Men		Women		18–34		35–49		50–64		≥65			
Risk factor	%	(95% CI*)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)
High blood pressure	21.0	(±2.4)	23.2	(±2.1)	8.8	(±1.4)	22.8	(±2.5)	44.3	(±4.5)	43.8	(±6.3)	**22.2**	**(±1.6)**
High blood cholesterol	21.2	(±4.0)	20.5	(±4.4)	8.8	(±5.0)	18.3	(±4.5)	32.1	(±5.8)	34.0	(±9.9)	**20.9**	**(±3.0)**
Diabetes	6.5	(±1.0)	6.2	(±1.2)	0.7	(±0.3)	6.2	(±1.4)	19.9	(±3.5)	23.3	(±4.7)	**6.4**	**(±0.8)**
Heart attack history	3.2	(±0.7)	1.5	(±0.6)	0.2	(±0.1)	1.5	(±0.7)	8.2	(±2.4)	10.8	(±3.0)	**2.4**	**(±0.5)**
Asthma	3.7	(±0.7)	6.4	(±1.1)	3.7	(±0.8)	6.6	(±1.6)	6.8	(±2.0)	6.6	(±2.7)	**5.1**	**(±0.7)**
Smoking														
Ever smoker[†]	64.4	(±2.0)	10.9	(±1.7)	33.3	(±2.9)	44.5	(±3.8)	42.9	(±4.8)	45.5	(±6.0)	**38.2**	**(±2.8)**
Current smoker[§]	50.5	(±2.2)	8.3	(±1.4)	29.0	(±2.7)	34.9	(±3.2)	27.8	(±3.9)	22.2	(±5.3)	**29.8**	**(±2.3)**
Weight														
Overweight[¶]	36.0	(±2.2)	27.8	(±2.2)	26.2	(±2.1)	41.0	(±2.9)	41.0	(±4.4)	38.1	(±7.7)	**32.4**	**(±1.7)**
Obesity**	10.3	(±1.3)	16.2	(±1.9)	5.8	(±1.0)	20.8	(±2.4)	25.0	(±4.0)	19.3	(±6.0)	**12.8**	**(±1.1)**
Physical activity														
Any weekly vigorous[††]	38.9	(±2.4)	23.9	(±1.9)	35.8	(±2.5)	33.5	(±2.6)	22.3	(±3.5)	10.0	(±3.4)	**31.6**	**(±1.7)**
Any weekly activity[§§]	56.9	(±2.6)	48.2	(±2.4)	57.7	(±2.4)	54.9	(±2.8)	43.8	(±3.9)	22.0	(±4.4)	**52.6**	**(±1.7)**
Ever checked														
Blood pressure	61.1	(±2.3)	73.9	(±2.0)	56.1	(±2.2)	78.7	(±2.4)	83.6	(±2.8)	81.9	(±5.0)	**67.4**	**(±1.6)**
Cholesterol	20.8	(±2.0)	16.1	(±1.8)	9.6	(±1.2)	26.0	(±3.0)	35.0	(±4.2)	28.0	(±5.4)	**18.5**	**(±1.3)**

* Confidence interval.
† Ever smoked ≥100 cigarettes during lifetime.
§ Ever smoked ≥100 cigarettes during lifetime and currently smoke every day or some days.
¶ Body Mass Index (BMI) (i.e., ratio of weight in kilograms to height in meters squared [kg/m^2]) of 25.0–29.9.
** BMI of ≥30.
†† Vigorous activity (i.e., causing heavy sweating and large increases in breathing or heart rate for 20 minutes).
§§ Any moderate activity (i.e., causing light sweating and small increases in breathing or heart rate for 30 minutes) or vigorous activity.

responding "yes" were 30%, 26%, and 7%, respectively (*6*). Reporting of high blood cholesterol was substantially higher in the United States than in Jordan. This difference might be attributable to such factors as diet and genetic predisposition; however, the substantial differences in the percentages of persons in the two countries ever checked for high blood cholesterol (19% in Jordan versus 77% in the United States) suggest that Jordanians are less likely to seek or obtain preventive services. Efforts are needed to improve awareness among patients and health-care professionals of the value of preventive health care.

The median prevalence of current smoking in the United States was 23% (26% for men and 21% for women). Smoking in Jordan among men was more prevalent, with 51% of men aged ≥18 years being current smokers. The low prevalence (8%) of smoking among Jordanian women probably reflects cultural norms that dissuade women from starting to smoke. Creation of primary prevention programs that promote nonsmoking among young Jordanian women might be useful in sustaining this low prevalence in the future.

The substantial levels of obesity in Jordan, especially among women, combined with the overall low physical activity levels among both sexes, reflects the need to increase opportunities for counseling on exercise and nutrition. Such counseling by health-care professionals can improve health-related choices.

The findings in this report are subject to at least three limitations. First, the survey relied only on self-reports of diagnosed diseases such as diabetes and hypertension, and many persons might have undiagnosed disease. Second, the calculated BMIs might have been affected by biases in self-reported height and weight; the validity of such measures has not been studied in Jordan. Finally, in face-to-face interviews, women might have underreported their smoking habits because of general disapproval of smoking among women in Jordan.

The survey described in this report was conducted as part of the Jordan Field Epidemiology Training Program (FETP). The Jordan FETP began in 1999 as a 2-year program within JMoH's Directorate of Disease Control. Each year, the program accepts five to seven residents who are involved primarily in outbreak investigations and projects that strengthen infectious and noncommunicable disease surveillance.

The 2002 Jordan Behavioral Risk Factor Survey highlights substantial levels of risk for chronic disease in the Jordanian population. This survey represents an important step toward establishing the regular collection of information on risk factors, which can be useful for public health-care professionals in planning and evaluating interventions. JMoH will repeat the survey in 2004 and thereafter at regular intervals. The 2004 survey will include additional questions on nutrition, maternal health, and smoking-related behavior.

Acknowledgments

This report is based on contributions by N Salem, PhD, Minnesota Dept of Health. D Holtzman, PhD, Public Health Practice Program Office; D McQueen, ScD, National Center for Chronic Disease Prevention and Health Promotion, CDC.

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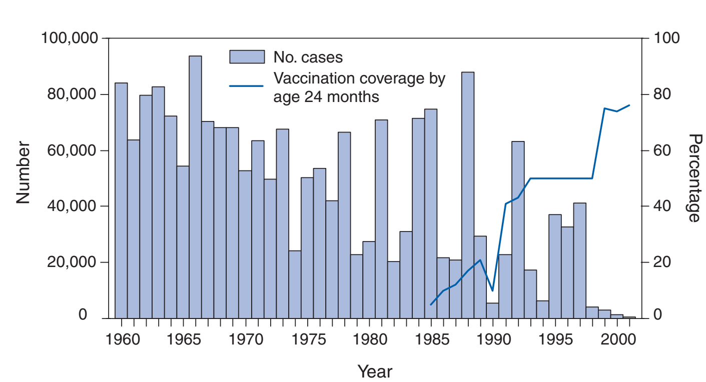
Measles Epidemic Attributed to Inadequate Vaccination Coverage — Campania, Italy, 2002

In Italy, measles has been a mandatory reportable disease for >100 years. During the prevaccination era, approximately 25,000–90,000 cases were reported annually. During the late 1980s and 1990s, incidence declined with increasing measles vaccination coverage, but measles epidemics continued to occur periodically, most recently during 1995–1997 (Figure 1). In early 2002, measles incidence increased sharply; the area most affected was Campania (2001 population: approximately 5,782,000, including 1,100,000 children aged <15 years), a

FIGURE 1. Number of measles cases and percentage of children vaccinated by age 24 months, by year — Italy, 1960–2001

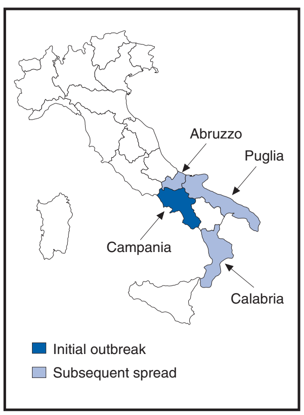


large region in southern Italy (Figure 2). In 2001, estimated measles vaccination coverage for the 1998 Campania birth cohort was 65% (*1*). Regional health authorities and the National Institute of Health investigated the measles outbreak in Campania. This report summarizes the preliminary results of the investigation, which attributed the epidemic to inadequate vaccination coverage. A coordinated effort is needed to interrupt measles transmission in Italy.

To monitor the incidence of measles and other vaccine-preventable diseases among children aged <15 years, in January 2000, a national pediatric sentinel surveillance system (SPES) was initiated, covering approximately 4% of children aged <15 years (*2*). Children are tracked by National Health System primary-care pediatricians who participate voluntarily. These pediatricians report cases of measles and other vaccine-preventable diseases diagnosed during the preceding month by e-mail or fax to the National Institute of Health in Rome. SPES uses a standard clinical case definition for measles (*3*), but laboratory confirmation is not required. Information collected on each case includes date of birth, date of illness onset, sex, and vaccination status. Reporting on presence or absence of cases is required, and the monthly incidence rate is calculated by using the number of reported cases as the numerator and the total patient population cared for by the pediatricians participating in the surveillance system during that month as the denominator.

Data on measles-associated hospitalizations that occurred during January–July 2002 were collected by reviewing discharge records of the five main regional hospitals with infectious diseases units. For each patient, information about sex, date of birth, admission and discharge dates, and diagnosis at discharge was collected. Information on regional vaccination coverage was derived from a survey conducted during 2000–2001 of a sample of 12,647 children aged 24–36 months who were born in 1998 (*1*).

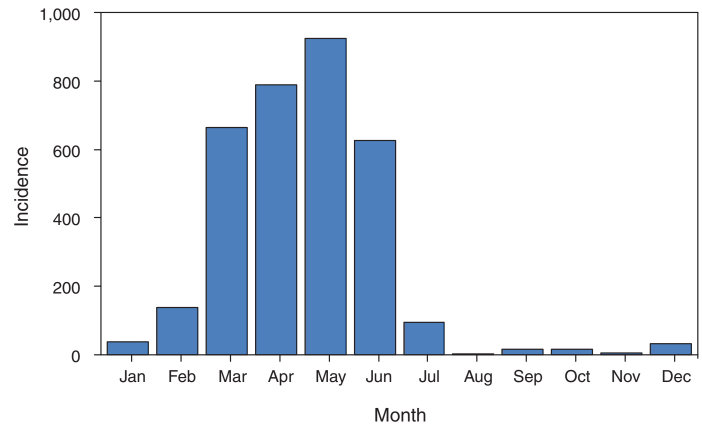
FIGURE 2. Location of measles epidemic — southern Italy, 2002



In 2002, an average of 51 pediatricians in Campania participated in SPES, covering an estimated 41,888 children (3.8% of the regional total). A total of 1,571 measles cases were reported, resulting in an annual incidence of 3,750 cases per 100,000 children aged <15 years. The majority (1,543 [98%]) of cases occurred during January–July, with a peak in May (Figure 3).

Incidence increased with age, from 1,088 per 100,000 in children aged <1 year to 2,413 in

FIGURE 3. Incidence* of measles among children aged <15 years, by month of onset — Campania, Italy, 2002



* Per 100,000 children.

those aged 1–4 years, 3,506 in those aged 5–9 years, and 5,592 in those aged 10–14 years. Incidences were highest in the provinces of Naples and Caserta, the areas with the lowest measles vaccination coverage (Table).

Vaccination status was known for 1,543 (98%) of the reported patients; of these, 101 (7%) were vaccinated, and the remainder were unvaccinated. The number of administered doses was reported for 72 (71%) children; 70 were vaccinated with 1 dose, and two with 2 doses. The proportion of vaccinated patients aged ≥1 year decreased with age, from 10.5% among children aged 1–4 years to 5.5% among children aged 5–14 years.

Hospital record review identified 594 measles-associated hospitalizations that occurred during January–July 2002. Of these, 469 (79%) occurred among children aged <15 years, and 44 (7%) in infants aged <1 year. Diagnosis at discharge was available for 425 (91%) children; 99 (23%) had respiratory complications (pneumonia/bronchopneumonia), 12 (3%) encephalitis, and two (1%) thrombocytopenia. Of the remain-

TABLE. Number of children aged <15 years under surveillance for measles, number of measles cases reported, incidence*, and percentage of children born in 1998 who have received measles vaccine, by province — Campania, Italy, 2002

Province	No. children	No. cases	Incidence	% children born in 1998 who have received measles vaccine†
Caserta	3,364	276	8,204	61
Napoli	9,982	892	8,936	63
Salerno	8,007	186	2,323	67
Avellino	1,298	2	154	70
Benevento	19,237	215	1,118	84
Total	41,888	1,571	3,750	65

* Per 100,000 children.
† Estimated in 2001.

ing children, 15 (4%) had other complications, and 297 (70%) had uncomplicated measles. Three children (aged 6 months, 4 years, and 10 years, respectively) died. The remaining 125 (21%) cases of identified measles-associated hospitalizations occurred among persons aged >15 years, including three additional cases of encephalitis and one measles-associated death attributed to respiratory failure in a person aged 29 years.

Regional health authorities recommended 1) vaccinating persons exposed to patients in family and school settings; 2) offering measles, mumps, and rubella (MMR) vaccine to all persons who had not been vaccinated or who did not have a history of measles; and 3) temporarily lowering the age of MMR vaccination to 6 months, with subsequent revaccination after 1 year of those children vaccinated at age 6–12 months. However, these measures did not stop the epidemic, which spread subsequently to other areas. Approximately 1,000 additional cases were reported to SPES from other regions, and the national annual attack rate in children aged <15 years was 738 per 100,000. The most affected regions were central and southern Italy, with regional incidences seven to 36 times higher than in northern Italy. After an apparent decline in reported incidence during August–December 2002, the epidemic continued during the first half of 2003, affecting the southern regions of Abruzzo, Puglia, and Calabria (Figure 2) (*4*).

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Editorial Note: Four measles-associated deaths and 594 hospitalizations occurred during January–July 2002 in Campania. This outbreak indicates that measles can be severe and sometimes fatal, even in industrialized countries. The outbreak occurred as a result of low vaccination coverage and affected primarily unvaccinated school-aged children. Vaccination coverage levels were lower for school-aged children than for preschool-aged children. The regional measles vaccination coverage estimated for the 1991 birth cohort was 16% in 1993 (*5*), increasing to 65% for the 1998 birth cohort (*1*). Inadequate vaccination coverage could not interrupt virus circulation but resulted in a prolonged interepidemic interval (an earlier epidemic in Campania occurred in 1996) and a shift of the disease incidence toward older age groups during the 2002 epidemic.

The findings in this report are subject to at least two limitations. First, although SPES is four times more sensitive than statutory notification in detecting measles cases at the national level, and 22 times more sensitive in southern Italy (*1*), it obtains data only on children aged <15 years. Because incidence data on older adolescents and adults were lacking, the extent of the epidemic probably was underestimated, and biased age distribution of cases probably occurred. Because incidence increased with age and peaked among children aged 10–14 years, many cases probably occurred among persons aged ≥15 years, which is consistent with data obtained through the hospital record review. Second, provincial results should be interpreted cautiously. SPES was designed to obtain information at the regional level. Although the large number of children in Campania under surveillance permitted estimation of incidence figures for each province, not all provinces were represented equally.

In Italy in 1979, measles vaccination was recommended for children aged >15 months. During the early 1990s, combined MMR vaccines were introduced, and in 1999, the recommended age of administration was lowered to 12–15 months. In areas where vaccine coverage among infants aged ≤2 years was >80%, administration of a second dose at age 5–6 years or at age 11–12 years has been recommended since 1999. However, each of the country's 20 regions establishes its own measles vaccination policy, and adherence to recommendations has not been universal. As a result, national vaccination coverage with 1 dose of MMR vaccine by age 24 months remains inadequate, with an estimated coverage of 74% in 2001 (*6*). Coverage is lowest in southern Italy (*7*).

Italy's Field Epidemiology Training Program (FETP, known locally as PROFEA) assisted in this investigation. Modeled after CDC's Epidemic Intelligence Service, PROFEA was created to establish an experienced group of epidemiologists at local and regional levels.

Measles elimination requires achieving and sustaining 2-dose coverage of ≥95% in multiple subsequent cohorts, either through routine vaccination (*8*) or a combination of routine and supplemental immunization activities (*9*). The World Health Organization's European Region aims to eliminate measles by 2007, but large differences in vaccination coverage and disease incidence exist among European countries (*10*). In Italy, the interruption of measles transmission can be achieved at the national level only with coordinated and uniform actions throughout the country. For this reason, a national plan has been developed jointly by regional health authorities, the National Institute of Health, and the Ministry of Health. Key strategies to achieve measles elimination in Italy include 1) improving routine coverage with 1 dose of MMR vaccine to ≥95% of children aged 24 months, 2) conducting a national "catch-up" vaccination campaign for children aged 6–13 years during 2004–2005, 3) achieving and sustaining a high coverage with a second routine dose of MMR vaccine among children aged 5–6 years while administering the MMR vaccine simultaneously with the DTaP booster dose included in the national schedule, and 4) strengthening surveillance.

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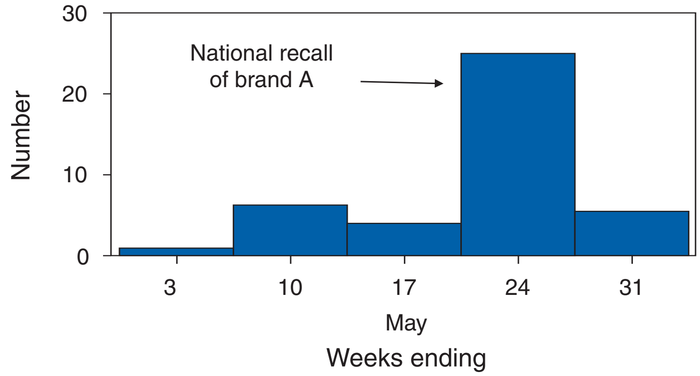
Barium Toxicity After Exposure to Contaminated Contrast Solution — Goias State, Brazil, 2003

Barium-containing contrast solutions are commonly used in radiologic studies. On May 22, 2003, three patients at radiology clinics in Goias State, Brazil, were hospitalized after ingesting such solutions; two persons died within 24 hours of hospitalization. Exposure occurred during radiologic examination of the upper or lower gastrointestinal tract. An investigation was conducted by municipal and state public health authorities with assistance from the Ministry of Health's National Agency for Sanitary Surveillance (ANVISA) and Brazil's Field Epidemiology Training Program (FETP), known locally as EPISUS. This report summarizes the results of that investigation, which found that 44 persons had suspected barium toxicity (Figure), nine of whom died. Eight of the nine deaths were linked to a single lot of brand A contrast solution. A national recall was announced on May 23, and the manufacturing facility was inspected and closed. Clinicians should be alert for signs of barium toxicity in patients in the hours after administration of contrast solutions during radiologic studies.

FIGURE. Number* of persons with barium toxicity after exposure to barium-containing contrast solution during radiologic examination, by week of reported symptom onset — Goias State, Brazil, 2003



* N = 41. Dates of symptom onset were not reported for three of the 44 patients whose conditions met the case definition.

The field investigation included searches at 15 clinics and hospitals in Goias State that performed radiologic examinations using barium-containing contrast solution. Details were collected regarding contrast administration (i.e., brand, lot number, dose, and route of administration). Hospital charts were reviewed, and interviews were conducted with surviving patients and the family members of children and those patients who died to collect demographic information, medical histories, symptoms, and outcomes. A possible case of barium intoxication in a patient was defined as acute onset of two or more symptoms (i.e., nausea, vomiting, diarrhea, or abdominal pain) occurring $\leq$24 hours of undergoing radiologic examination with contrast solution, during April 29–May 31.

Of 223 patients in Goias State undergoing radiologic examination with barium-containing contrast solution during the study period, 44 (20%) had suspected toxicity, and 11 (26%) were hospitalized; nine (21%) of the 44 died. Median age of persons with conditions meeting the case definition was 51 years (range: 3 months–97 years); 24 (55%) were female. Contrast solution had been administered orally in 38 (86%) symptomatic persons during evaluations of the esophagus, stomach, or upper gastrointestinal tract, and rectally in six (14%) persons for barium enema study. The median interval between administration and symptom onset was 1.0 hours (range: 0.1 hours– 5 hours), and all deaths occurred $\leq$24 hours of exposure. Among those patients who reported specific symptoms, 40 (93%) of 43 had nausea, 38 (88%) of 43 had abdominal pain, 35 (80%) of 44 had diarrhea, 29 (27%) of 43 had vomiting, 14 (37%) of 38 had headache, 14 (34%) of 41 had dyspnea, 10 (29%) of 35 had cardiac arrhythmias, and 11 (27%) of 40 had agitation.

In Goias State, three brands of barium-containing contrast solution were used by radiology clinics during the outbreak period. However, a single lot of brand A contrast solution was associated with eight (89%) of the nine deaths. Although brand A was not administered routinely at the clinic visited by the ninth victim, medical staff believed brand A might have been administered unintentionally after purchase at a local pharmacy. Laboratory testing of unopened containers of the implicated lot of contrast solution showed the concentration of soluble barium was 7,190 + 863 mg/L (mean + 1 s.d.) compared with a reference standard of <5 mg/L (*1*). In the implicated lot of contrast solution, soluble barium salts (e.g., carbonate or sulfite) were present at approximately 12,370 mg/100 mL (most frequent solution dosage was 150 mL). Previous findings based on animal and human data suggest a lethal oral dose for humans in the range of 2,000 mg–4,000 mg (*2*).

Active searches in other states using the same case definition found that, overall, barium toxicity likely occurred in seven (58%) of the 12 states where brand A was distributed. In states other than Goias, 25 persons were identified with suspected barium toxicity; six (24%) died. A site inspection of the factory producing brand A documented purchases of primary ingredients that were not of pharmaceutical grade. In response, ANVISA revoked the manufacturer's license and forced closure of all facilities.

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Editorial Note: Radio-opaque solutions containing barium are used worldwide to provide contrast for diagnostic radiographic examinations, mainly of the gastrointestinal tract (*3*). Barium sulfate has minimal toxicity when used in contrast solutions because this salt is insoluble in water or lipid and not normally absorbed by the gastrointestinal mucosa. Nevertheless, severe, life-threatening intoxication can occur after ingestion or inhalation of even minute amounts of the absorbable salts of barium (e.g., barium chloride, carbonate, or sulfide) during radiologic examination or in occupational settings (e.g., mining, refining operations, or production of fireworks or rodenticides) (*4–7*).

Brazil's FETP assisted in this investigation. Created in 2000 to establish an experienced core group of epidemiologists in the Ministry of Health, the program has trained 21 epidemiologists to rapidly investigate infectious disease outbreaks, natural disasters, and other events of public health importance.

Nausea, vomiting, and profuse watery diarrhea can occur rapidly after exposure to soluble barium salts. Symptoms of intoxication can include severe muscle weakness, respiratory arrest, coma, cardiac arrhythmia, or electrolyte imbalance (e.g., severe hypokalemia) (*8–10*). Clinicians should watch for signs of barium toxicity in persons receiving contrast solutions during radiologic studies and be prepared to monitor and stabilize cardiorespiratory dysfunction or electrolyte imbalances that might occur rapidly after exposure. In addition, regulators should ensure that only pharmaceutical grade barium sulfate is used in the production of contrast solution for radiologic studies.

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Assessment of the Epidemiologic Capacity in State and Territorial Health Departments — United States, 2001

Epidemiology is essential for the detection, control, and prevention of major health problems. Described as the foundation of all public health functions (*1*), epidemiology provides information needed to perform the 10 essential public health services (*2*). One of the national health objectives for 2010 calls for increases in the proportion of tribal, state, and local public health agencies that provide or ensure comprehensive epidemiology services to support essential public health services (objective 23-14) (*3*). Although national infectious disease capacity has been assessed (*4–6*), no comprehensive national assessment of epidemiologic capacity has been conducted. To assess core epidemiology and infectious disease capacity of public health departments, the Council of State and Territorial Epidemiologists (CSTE) surveyed state and territorial health departments in November 2001 (*7*), immediately before the release of approximately $1 billion in federal funding to state health departments for terrorism and public health emergency preparedness. This report summarizes the results of that survey, which indicate that the national epidemiology infrastructure in state and local health departments is far below optimal capacity and that approximately 42% of epidemiologists working in public health have no formal epidemiologic training. Although recent terrorism preparedness initiatives have improved capacity in infectious disease epidemiology, increased resources are needed to build epidemiologic capacity necessary to address the major causes of morbidity and mortality.

In October 2001, a draft version of the Epidemiology Capacity Assessment (ECA) was piloted in 10 states. In November, the final version was sent electronically and by mail to the 50 states, the District of Columbia, and the five territories. Responses were received during November 2001–April 2002. ECA included general questions about the epidemiology workforce and specific questions pertaining to the 10 essential public health services. Of the 108 questions, 22 addressed core epidemiologic capacity, and 86 addressed infectious disease capacity. State epidemiologists were identified as key informants, and follow-up was made by telephone and e-mail to nonresponding states. A total of 41 states and three territories (78.6%) responded to the survey.

As of November 2001, responding state and territorial health departments employed 1,366 persons as epidemiologists in all program areas; 652 (47.7%) worked in infectious disease programs, and <50 worked in each of the areas of injury epidemiology, occupational epidemiology, or oral health. A total of 77 (5.6%) persons were former CDC Epidemic Intelligence Service (EIS) officers. Among persons employed as epidemiologists in state health departments, the level of training varied substantially (Table); 787 (42.4%) persons had no formal training in epidemiology. Formal training included either academic coursework or other training in epidemiology (e.g., the EIS program).

The median total state (n = 26) expenditure for all epidemiology programs was $2.7 million (interquartile range [IQR]: $1.15 million–$6.6 million), with a median per-capita expenditure of $0.70 (IQR: $0.31–$1.73). Federal sources provided 61.3% and state sources 36.6% of funding for all epidemiology programs in the reporting state and territories (n = 42).

States were asked to assess core epidemiologic capacity in eight program areas (i.e., infectious disease, chronic disease, maternal/child health, injury, bioterrorism/emergency management, environmental health, oral health, and occupational health) by using a four-point scale* based on the estimated percentage of the activity or resource described in the question that was met (Figure). In addition, states were asked to assess the four essential public health services with a substantial epidemiologic component. "Partial" or "minimal to no" capacity was reported by 24 (54.5%) respondents in monitoring health status to identify and solve community health problems; 17 (39.5%) in diagnosing and investigating health problems and health hazards in the community; 32 (72.7%) in evaluating effectiveness, accessibility, and quality of personal and population-based services; and 41 (93.2%) in conducting research for new insights and innovative solutions to health problems.

States' self-assessed capacity for conducting the 10 essential services varied substantially. Although 31 (72.1%) states reported "full/almost full" capacity to monitor all diseases

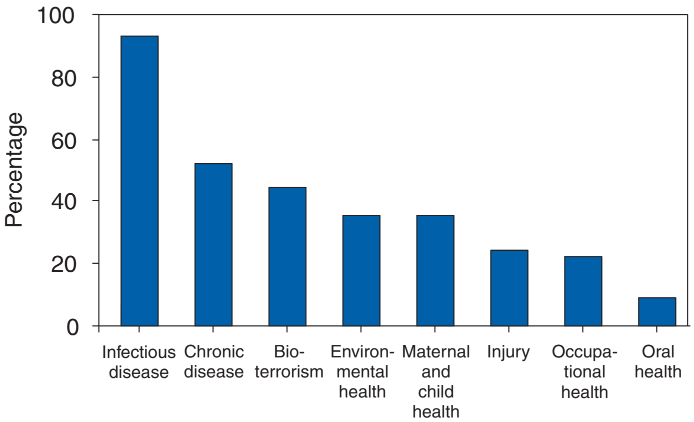
* "Full/almost full": 75%–100% of activity or resource described in the question is met; "substantial": 50%–75%; "partial": 25%–50%; or "minimal to no": <25%.

TABLE. Number* and percentage of epidemiologists in state and territorial† health departments with academic training, by degree§/level of training — United States, 2001

Degree/Level of training	No.	(%)
Doctoral degree	390	(28.6)
Masters degree	546	(40.0)
Baccalaureate degree	252	(18.4)
Other degree/training	179	(13.1)

* N = 1,366.
† The reporting territories (n = three) had the lowest proportion of persons with doctoral degrees (15.9%) and the highest proportion of epidemiologists with "other training" (28.4%).
§ Academic degrees might be in areas other than public health or epidemiology; 787 (42.4%) epidemiologists had no formal training in epidemiology.

FIGURE. Proportion of state and territorial health departments reporting "full/almost full" or "substantial" capacity in epidemiology and surveillance programs, by program area — United States, 2001



under the Nationally Notifiable Disease Surveillance System, only eight (18.6%) states had "full/almost full" capacity for analysis and reporting of data from the 24 different databases (e.g., emergency rooms, poison control centers, or Medicaid) mentioned in the survey. Few states and territories reported having "full/almost full" capacity to maintain surveillance systems for health outcomes related to emergencies, including four (9.3%) for bioterrorism events, two (4.8%) for radiologic events, and three (7.5%) for environmental or other hazardous substances; no respondents reported "full/almost full" surveillance capacity for incendiary devices or natural disasters.

A total of 28 (63.6%) states and territories reported having "full/almost full" or "substantial" capacity to diagnose and investigate infectious disease problems or health hazards. Nine (20.9%) states and territories reported "full/almost full" or "substantial" capacity to evaluate infectious disease public health programs, and nine (20.5%) reported engaging in applied epidemiologic research and publication.

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Editorial Note: A 1992 CSTE survey of 51 state and territorial epidemiologists indicated that 1,608 full-time epidemiologists were working in infectious disease epidemiology and surveillance (*4*). Although the methodology and response rate for ECA differed from those used in the 1992 study, results from the 2001 survey suggest that the number of epidemiologists in state and territorial health departments probably had declined. Because of the expansion in the scope of responsibility for epidemiology over this same period, the majority of state and territorial epidemiologists who responded to the survey reported an insufficient number of staff and resources.

The finding that approximately 42% of epidemiologists in state health departments lacked any formal training in epidemiology indicates a large training gap in the public health workforce. Professionals (e.g., nurses, sanitarians, health educators, or disease intervention specialists) who might lack training in epidemiology accounted for approximately one third of this workforce. The findings indicate the need to better define what combination of skills, education, and training is sufficient for the designation of epidemiologist. CSTE, in collaboration with CDC and the Association of Schools of Public Health, recently launched an epidemiology fellowship initiative to increase the number of trained public health epidemiologists (*8*). To enhance state and local health departments' response to public health emergencies, CDC has placed 12 former EIS officers in the newly established Career Epidemiology Field Officer (CEFO) program. Increased continuing education opportunities for the current workforce should be developed. In addition, schools of public health, many of which have a public health practice office, should encourage more epidemiology graduates to apply for positions in state or local health departments. Addressing the scarcity of trained epidemiologists in the area of noninfectious disease is especially critical.

States reported their capacities to be inadequate for all epidemiology program areas except infectious disease. Although recent bioterrorism funding initiatives have improved capacity in infectious disease epidemiology (*9*), other program areas also need support to build infrastructure. Epidemiology capacity remains inadequate for performing the 10 essential public health services. Because of state budget deficits, additional resources for increased epidemiologic capacity must be identified. Although much of the focus of epidemiologists is terrorism preparedness, the goal of the new epidemiology training programs is a larger and better educated workforce prepared to respond to multiple public health problems, including emerging infectious diseases and chronic diseases (*10*).

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Terrorism Preparedness in State Health Departments — United States, 2001–2003

The anthrax attacks in fall 2001 highlighted the role of infectious disease (ID) epidemiologists in terrorism preparedness and response. Beginning in 2002, state health departments (SHDs) received approximately $1 billion in new federal funding to prepare for and respond to terrorism, infectious disease outbreaks, and other public health threats and emergencies (*1*). This funding is being used in part to improve epidemiologic and surveillance capabilities. To determine how states have used a portion of their new funding to increase ID epidemiology capacity, the Iowa Department of Public Health's Center for Acute Disease Epidemiology and the Iowa State University Department of Microbiology conducted two surveys of U.S. state epidemiologists during September 2000–August 2001 and October 2002–June 2003. This report summarizes the results of these surveys, which determined that although the number of SHD epidemiology workers assigned to ID and terrorism preparedness increased by 132%, concerns remained regarding the ability of SHDs to hire qualified personnel. These findings underscore the need to develop additional and more diverse training venues for current and future ID epidemiologists.

All 50 SHDs responded to both surveys. A total of 47 SHDs reported adding or expecting to add ID epidemiologists, who were assigned various responsibilities (e.g., terrorism preparedness, ID and terrorist agent surveillance, outbreak and possible terrorist threat investigation, public health worker and health-care provider training, and grant writing) (Table 1). Overall, during 2001–2003, the number of epidemiology workers employed in ID and terrorism preparedness increased by 132%, from 366 to 848 (Table 2).

TABLE 1. Number and percentage of state health departments hiring epidemiology workers, by planned activities — United States, 2001–2003

Activity	No.*	(%)
Develop surveillance activities for possible terrorist agents and infectious diseases	47/47	(100)
Investigate outbreaks and possible terrorist threats	46/47	(98)
Train public health workers	44/47	(94)
Develop and test epidemiologic plans for terrorism preparedness	43/46	(93)
Train health-care providers	43/47	(91)
Write grants for funding	29/47	(62)
Perform other duties†	23/47	(49)

* Number who responded "yes" versus all respondents who answered the question.
† Including community education and collaborating with other agencies.

Despite these hiring increases, the surveys identified multiple challenges, including problems 1) allocating time for planning (66% of responding SHDs), 2) establishing disease surveillance systems (55%), and 3) hiring qualified ID epidemiologists (57%). Other challenges to preparedness included the complexity of food-security issues, state hiring freezes and budget deficits, political and public policy considerations, and difficulty allocating the necessary time and resources for the pre-event smallpox vaccination program.

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Editorial Note: Long before the terrorist attacks of September 11, 2001, and the subsequent anthrax attacks, public health officials recognized that the U.S. public health infrastructure was not equipped to respond adequately to events of biologic terrorism and other national public health emergencies (*2*). In 2003, the number of qualified persons employed in microbial threat preparedness remains dangerously low (*3*). Since 2001, Congress has appropriated increased amounts of funding to improve the overall capacity of state public health departments for terrorism preparedness (*1*). This funding was key to increasing the number of ID epidemiologists and the surveillance and response capabilities of SHDs. However, barriers to preparedness remain, and continued public, political, and financial support are essential to removing these barriers.

The findings in this report are subject to at least two limitations. First, the surveys were conducted during a period when the responsibilities of ID epidemiologists were in rapid transition, making consistent categorizing by utilization difficult. Second, although all SHD workers described in the surveys performed duties related to epidemiology, because of broad differences in academic background and experience, the nature of their roles and abilities were highly variable.

TABLE 2. Number* and percentage increase of state health department epidemiology workers employed in infectious disease (ID) and terrorism preparedness — United States, 2001–2003

State	No. in 2001	New hires in 2002	Expected new hires 2003	Expected total 2003	% increase 2001–2003
Alabama	3	0	2	**5**	67
Alaska	3	0	1	**4**	33
Arizona	7	6	1	**14**	100
Arkansas	4	2	0	**6**	50
California	8	4	4	**16**	100
Colorado	16	0	14	**30**	88
Connecticut	1	11	6	**18**	1,700
Delaware	6	2	1	**9**	50
Florida	20	5	11	**36**	80
Georgia	30	12	2	**44**	47
Hawaii	3	2	0	**5**	66
Idaho	2	2	0	**4**	100
Illinois	45	5	4	**54**	20
Indiana	7	0	11	**18**	157
Iowa	4	0	6	**10**	150
Kansas	4	5	2	**11**	175
Kentucky	5	6	10	**21**	320
Louisiana	18	14	9	**41**	128
Maine	7	2	3	**12**	71
Maryland	1	16	4	**21**	2,000
Massachusetts	30	0	0	**30**	0
Michigan	3	7	5	**15**	400
Minnesota	4	0	7	**11**	175
Mississippi	9	3	2	**14**	55
Missouri	7	35	6	**48**	586
Montana	1	1	0	**2**	100
Nebraska	2	3	1	**6**	200
Nevada	4	0	2	**6**	50
New Hampshire	2	1	4	**7**	250
New Jersey	11	6	8	**25**	127
New Mexico	3	12	5	**20**	566
New York	14	9	4	**27**	93
North Carolina	2	1	10	**13**	400
North Dakota	2	0	0	**2**	0
Ohio	2	4	0	**6**	200
Oklahoma	4	0	4	**8**	100
Oregon	10	5	0	**15**	50
Pennsylvania	1	17	0	**18**	1,700
Rhode Island	1	0	0	**1**	0
South Carolina	4	12	5	**21**	425
South Dakota	1	1	4	**6**	500
Tennessee	3	11	3	**17**	466
Texas	7	19	4	**30**	429
Utah	10	8	6	**24**	140
Vermont	7	1	2	**10**	43
Virginia	7	23	15	**45**	543
Washington	6	4	3	**13**	117
West Virginia	6	5	1	**12**	100
Wisconsin	6	2	0	**8**	33
Wyoming	3	5	1	**9**	200
Totals	**366**	**289**	**193**	**848**	**132**

* The numbers of ID epidemiologists employed by certain states (e.g., Vermont) are disproportionately high for the states populations because no local or regional health departments exist. Other states have acquired new ID epidemiologists primarily at the regional or local level, and those hirings are not indicated.

The findings in this report reflect concerns expressed by respondents to the national Epidemiology Capacity Assessment (ECA) regarding inadequate epidemiology staff and resources to conduct the 10 essential public health services (*4*). In the ECA survey, as of November 2001, approximately 42% of epidemiology workers were reported to have had no formal training in epidemiology, underscoring the need for increased curricula and training programs to improve the capabilities of current and future state and locally based ID epidemiologists.

References

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2. Lederberg J, Shope RE, Oaks SC Jr, eds. Emerging Infections: Microbial Threats to Health in the United States. Washington, DC: Institute of Medicine, National Academy Press, 1992:137. Available at http://www.nap.edu/books/0309047412/html/index.html.
3. Smolinski MS, Hamburg MA, Lederberg J, eds. Microbial Threats to Health: Emergence, Detection and Response. Washington, DC: Institute of Medicine, National Academy Press, 2003:181. Available at http://www.nap.edu/books/030908864X/html.
4. CDC. Assessment of the epidemiologic capacity in state and territorial health departments—United States, 2001. MMWR 2003;52:1049–51.

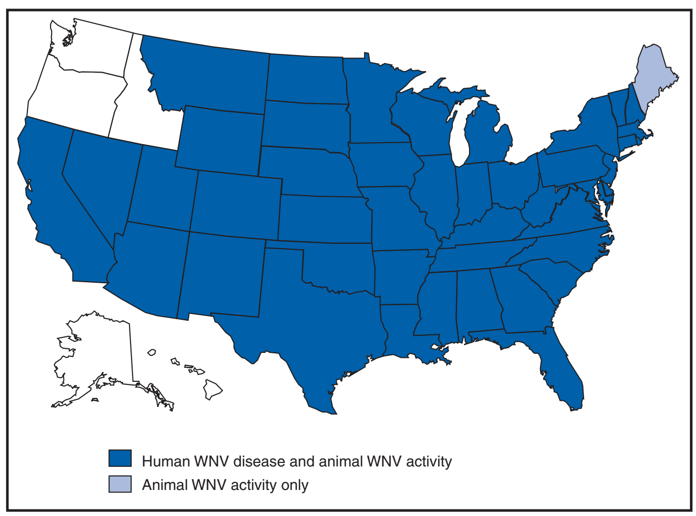
West Nile Virus Activity — United States, October 23–29, 2003

This report summarizes West Nile virus (WNV) surveillance data reported to CDC through ArboNET as of 3 a.m., Mountain Standard Time, October 29, 2003.

During the reporting week of October 23–29, a total of 332 human cases of WNV infection were reported from 22 states (Arizona, Georgia, Illinois, Iowa, Kansas, Kentucky, Massachusetts, Minnesota, Montana, Nebraska, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, South Dakota, Tennessee, Texas, Vermont, and Virginia), including 11 fatal cases from three states (Kansas, Nebraska, and South Dakota). During the same period, WNV infections were reported in 330 dead birds, 450 mosquito pools, 147 horses, and one unidentified animal species.

During 2003, a total of 7,718 human cases of WNV infection have been reported from Colorado (n = 2,170), Nebraska (n = 1,540), South Dakota (n = 964), Texas (n = 470), North Dakota (n = 422), Wyoming (n = 320), Montana (n = 218), Pennsylvania (n = 212), New Mexico (n = 196), Iowa (n = 141), Minnesota (n = 137), Ohio (n = 95), Kansas (n = 85), Louisiana (n = 84), Oklahoma (n = 68), New York (n = 67), Mississippi (n = 56), Illinois (n = 48), Maryland (n = 45), Missouri (n = 43), Georgia (n = 36), Florida (n = 32), Alabama (n = 30), Indiana (n = 30), New Jersey (n = 26), North Carolina (n = 23), Arkansas (n = 21), Virginia (n = 21), Tennessee (n = 20), Massachusetts (n = 17), Kentucky (n = 14), Delaware (n = 13), Wisconsin (n = 13), Connecticut (n = 12), Michigan (n = six), Rhode Island (n = five), Arizona (n = three), District of Columbia (n = three), Vermont (n = three), California (n = two), Nevada (n = two), New Hampshire (n = two), South Carolina (n = one), Utah (n = one), and West Virginia (n = one) (Figure). Of 7,588 (98%) cases for which demographic data were available, 4,012 (53%) occurred among males; the median age was 47 years (range: 1 month–99 years), and the dates of illness onset ranged from March 28 to October 21. Of the 7,588 cases, 166 fatal cases were reported from Colorado (n = 44), Nebraska (n = 20), Texas (n = 17), South Dakota (n = 12), New York (n = eight), Wyoming (n = eight), Pennsylvania (n = six), Maryland (n = five), Georgia (n = four), Iowa (n = four), Kansas (n = four), Minnesota (n = four), New Mexico (n = four), North Dakota (n = four), Alabama (n = three), Ohio (n = three), Indiana (n = two), Missouri (n = two), Montana (n = two), New Jersey (n = two), Delaware (n = one), Illinois (n = one), Kentucky (n = one), Louisiana (n = one), Michigan (n = one), Mississippi (n = one), Tennessee (n = one), and Virginia (n = one). A total of 709 presumptive West Nile viremic blood donors have been reported to ArboNET, including 619 (87%) from the following nine western and midwestern states: Colorado, Kansas, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Texas, and Wyoming. Of the 534 donors for whom data are reported completely, six (1%) subsequently had neuroinvasive disease (median age: 45 years [range: 28–76 years]), and 79 (15%) had West Nile fever.

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



* As of 3 a.m., Mountain Standard Time, October 29, 2003.

In addition, 10,783 dead birds with WNV infection have been reported from 42 states, the District of Columbia, and New York City; 3,471 WNV infections in horses, 16 WNV infections in dogs, 14 infections in squirrels, and 25 infections in unidentified animal species have been reported from 40 states. During 2003, WNV seroconversions have been reported in 1,287 sentinel chicken flocks from 15 states. Of the 52 seropositive sentinel horses reported, Illinois reported 41, Minnesota, seven; South Dakota, three; and West Virginia, one. In addition, seropositivity was reported from one other unidentified animal species. A total of 7,117 WNV-positive mosquito pools have been reported from 38 states, the District of Columbia, 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

Epidemiology in Action: Intermediate Methods

CDC and Emory University's Rollins School of Public Health will co-sponsor a course, "Epidemiology in Action: Intermediate Methods" on February 23–27, 2004, at Emory University, Rollins School of Public Health. The course is designed for practicing public health professionals who have had training and experience in basic applied epidemiology and now would like training in additional quantitative skills related to analysis and interpretation of epidemiologic data.

The course includes a review of the fundamentals of descriptive epidemiology and biostatistics, measures of association, normal and binomial distributions, confounding, statistical tests, stratification, logistic regression, models, and computers as used in epidemiology. Prerequisite is an introductory course in epidemiology, such as Epidemiology in Action, International Course in Applied Epidemiology, or any other introductory class. Tuition will be charged.

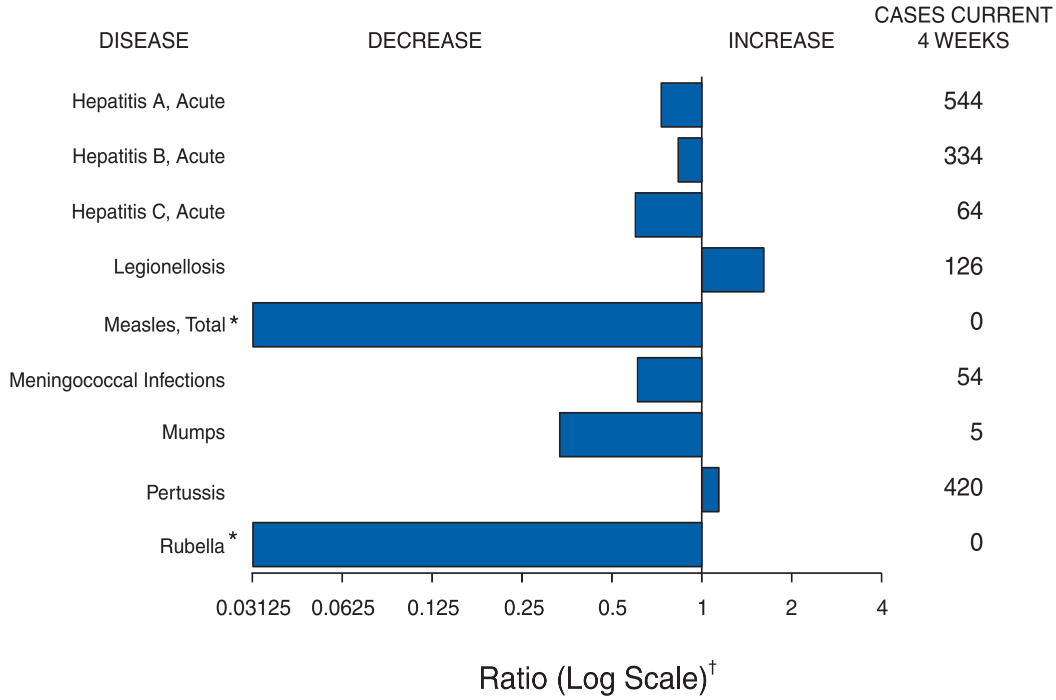
The application deadline is January 15, 2004. Additional information and applications are available from Emory University, International Health Department (Pia), 1518 Clifton Road N.E., Room 746, Atlanta, Georgia 30322; telephone, 404-727-3485; fax, 404-727-4590; or e-mail, pvaleri@sph.emory.edu.

Notice to Readers

Vaccine Delivery Technologies

The U.S. Department of Health and Human Services (DHHS) is sponsoring the Conference on Innovative Administration Systems for Vaccines, to be held December 18–19, 2003, in Rockville, Maryland. The conference will feature recent scientific and clinical developments in existing and investigational methods to administer vaccines by routes that avoid the dangers and drawbacks of needle and syringe and that facilitate rapid implementation of mass vaccination programs. Sessions will include presentations on vaccination by the transcutaneous and mucosal (nasal, oral, and pulmonary) routes and by needle-free jet injection. The conference is coordinated by the Office of the Assistant Secretary for Public Health Preparedness of DHHS and sponsored by five DHHS agencies: National Vaccine Program Office, Food and Drug Administration, National Institutes of Health, the Strategic National Stockpile, and CDC. Exhibition facilities will be available. Additional information about the conference, including registration and hotel reservations, is available from Science Applications International Corporation at telephone, 301-228-3124; e-mail, vaccine750@saic.com, and from CDC at http://www.cdc.gov/nip/dev#administration.

FIGURE I. Selected notifiable disease reports, United States, comparison of provisional 4-week totals October 25, 2003, with historical data



* No measles or rubella cases were reported for the current 4-week period yielding a ratio for week 43 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 October 25, 2003 (43rd Week)*

	Cum. 2003	Cum. 2002		Cum. 2003	Cum. 2002
Anthrax	-	2	Hansen disease (leprosy)†	46	69
Botulism:	-	-	Hantavirus pulmonary syndrome†	15	16
foodborne	11	24	Hemolytic uremic syndrome, postdiarrheal†	123	169
infant	52	57	HIV infection, pediatric†§	174	129
other (wound & unspecified)	23	15	Measles, total	39¶	26**
Brucellosis†	68	99	Mumps	153	227
Chancroid	39	58	Plague	1	-
Cholera	1	1	Poliomyelitis, paralytic	-	-
Cyclosporiasis†	54	150	Psittacosis†	14	13
Diphtheria	-	1	Q fever†	60	48
Ehrlichiosis:	-	-	Rabies, human	2	3
human granulocytic (HGE)†	275	264	Rubella	6	16
human monocytic (HME)†	151	175	Rubella, congenital	-	1
other and unspecified	35	18	Streptococcal toxic-shock syndrome†	127	94
Encephalitis/Meningitis:	-	-	Tetanus	12	19
California serogroup viral†	65	133	Toxic-shock syndrome	105	87
eastern equine†	8	5	Trichinosis	1	13
Powassan†	-	1	Tularemia†	67	68
St. Louis†	20	20	Yellow fever	-	-
western equine†	2	-			

-: 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 September 28, 2003.
¶ Of 39 cases reported, 31 were indigenous, and eight 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 October 25, 2003, and October 26, 2002 (43rd Week)*

Reporting area	AIDS		Chlamydia†		Coccidiodomycosis		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	34,075	32,741	668,482	685,203	3,003	3,599	2,605	2,536	1,436	2,384
NEW ENGLAND	1,151	1,302	22,457	22,710	-	-	142	169	-	27
Maine	49	27	1,600	1,413	N	N	18	10	-	-
N.H.	25	30	1,037	1,287	-	-	11	26	-	-
Vt.	14	12	887	767	-	-	29	29	-	-
Mass.	476	693	9,303	8,929	-	-	57	69	-	18
R.I.	83	82	2,388	2,273	-	-	12	19	-	-
Conn.	504	458	7,242	8,041	N	N	15	16	-	9
MID. ATLANTIC	8,068	7,793	90,201	76,852	-	-	313	342	138	114
Upstate N.Y.	765	561	16,366	13,941	N	N	109	108	2	35
N.Y. City	4,371	4,724	27,441	25,058	-	-	69	127	-	28
N.J.	1,260	1,163	10,306	11,666	-	-	6	15	8	23
Pa.	1,672	1,345	36,088	26,187	N	N	129	92	128	28
E.N. CENTRAL	3,206	3,285	112,404	126,269	7	21	748	860	98	1,360
Ohio	641	658	27,707	31,610	-	-	129	112	93	254
Ind.	428	421	13,343	14,154	N	N	76	42	-	17
Ill.	1,484	1,553	32,588	40,117	-	2	66	112	1	554
Mich.	506	503	26,127	26,303	7	19	112	111	4	486
Wis.	147	150	12,639	14,085	-	-	365	483	-	49
W.N. CENTRAL	629	515	37,436	38,646	1	1	495	349	307	148
Minn.	123	114	8,140	8,612	N	N	128	173	45	16
Iowa	67	63	3,344	4,612	N	N	110	40	60	-
Mo.	303	228	13,790	13,207	-	-	38	34	26	80
N. Dak.	2	2	999	1,000	N	N	12	10	5	-
S. Dak.	8	4	2,171	1,800	-	-	35	28	40	14
Nebr.¶	45	44	3,269	3,841	1	1	18	48	45	31
Kans.	81	60	5,723	5,574	N	N	154	16	86	7
S. ATLANTIC	9,414	9,424	129,019	129,717	5	4	309	272	133	58
Del.	186	155	2,483	2,215	N	N	4	3	11	-
Md.	1,151	1,491	13,466	13,521	5	4	18	19	31	20
D.C.	808	454	2,625	2,706	-	-	15	4	-	-
Va.	702	609	13,970	14,667	-	-	39	19	17	-
W. Va.	72	71	2,157	2,023	N	N	4	2	1	1
N.C.	902	763	21,168	20,551	N	N	43	31	-	-
S.C.¶	622	706	13,374	12,119	-	-	8	6	1	1
Ga.	1,499	1,366	26,571	27,024	-	-	96	104	31	21
Fla.	3,472	3,809	33,205	34,891	N	N	82	84	41	15
E.S. CENTRAL	1,498	1,599	42,759	43,600	N	N	100	110	32	263
Ky.	141	252	6,727	7,307	N	N	21	7	11	41
Tenn.	650	644	16,754	13,353	N	N	34	51	11	1
Ala.	343	341	9,946	13,407	-	-	35	45	10	31
Miss.	364	362	9,332	9,533	N	N	10	7	-	190
W.S. CENTRAL	3,400	3,635	81,592	90,153	2	10	59	57	429	413
Ark.	147	205	6,302	6,205	-	-	16	8	19	11
La.	442	879	13,768	16,073	N	N	2	9	43	202
Okla.	161	166	9,365	9,264	N	N	13	15	22	-
Tex.	2,650	2,385	52,157	58,611	2	10	28	25	345	200
MOUNTAIN	1,260	1,098	36,868	42,160	1,978	2,289	120	140	295	1
Mont.	11	9	1,501	1,752	N	N	18	5	213	-
Idaho	20	26	2,065	2,066	N	N	26	28	-	1
Wyo.	6	8	793	766	1	-	4	9	77	-
Colo.	314	255	8,940	11,628	N	N	31	50	-	-
N. Mex.	100	66	5,833	6,243	5	7	10	18	2	-
Ariz.	541	433	10,562	12,329	1,929	2,234	5	14	-	-
Utah	52	52	2,744	2,410	12	11	19	12	1	-
Nev.	216	249	4,430	4,966	31	37	7	4	2	-
PACIFIC	5,449	4,090	115,746	115,096	1,009	1,273	319	237	4	-
Wash.	368	382	13,535	12,053	N	N	43	28	-	-
Oreg.	201	259	5,279	5,598	-	-	35	35	4	-
Calif.	4,783	3,336	90,755	90,661	1,009	1,273	240	171	-	-
Alaska	15	22	3,041	3,043	-	-	1	1	-	-
Hawaii	82	91	3,136	3,741	-	-	-	2	-	-
Guam	6	2	-	555	-	-	-	-	-	-
P.R.	852	913	1,475	2,118	N	N	N	N	-	-
V.I.	29	65	208	125	-	-	-	-	-	-
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 September 28, 2003.

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

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending October 25, 2003, and October 26, 2002 (43rd Week)*

	Escherichia coli, Enterohemorrhagic (EHEC)						Giardiasis		Gonorrhea	
	O157:H7		Shiga toxin positive, serogroup non-O157		Shiga toxin positive, not serogrouped					
Reporting area	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002
UNITED STATES	2,080	3,116	213	165	123	40	14,637	17,050	254,879	291,915
NEW ENGLAND	138	238	46	45	14	5	1,077	1,521	5,941	6,414
Maine	10	32	1	8	1	-	154	174	162	110
N.H.	12	30	2	-	-	-	22	38	76	106
Vt.	15	12	-	1	-	1	104	119	67	81
Mass.	55	110	7	19	13	4	515	818	2,489	2,709
R.I.	1	11	-	1	-	-	90	129	793	745
Conn.	45	43	36	16	-	-	192	243	2,354	2,663
MID. ATLANTIC	202	343	14	1	36	7	2,850	3,501	34,541	35,213
Upstate N.Y.	82	146	9	-	19	-	843	1,011	6,375	7,188
N.Y. City	5	14	-	-	-	-	936	1,235	10,856	10,509
N.J.	14	56	-	-	-	1	268	401	6,031	6,429
Pa.	101	127	5	1	17	6	803	854	11,279	11,087
E.N. CENTRAL	458	757	22	30	21	4	2,441	2,997	50,756	61,634
Ohio	93	135	16	10	20	3	756	766	15,243	18,125
Ind.	75	59	-	1	-	-	-	-	5,254	6,120
Ill.	101	172	-	6	-	-	625	848	14,722	20,252
Mich.	74	128	-	3	-	1	610	792	11,322	12,016
Wis.	115	263	6	10	1	-	450	591	4,215	5,121
W.N. CENTRAL	378	446	43	28	20	4	1,639	1,692	13,014	14,893
Minn.	118	146	18	23	1	-	600	632	2,281	2,611
Iowa	90	109	-	-	-	-	231	269	775	1,078
Mo.	79	66	12	-	1	-	423	414	6,557	7,430
N. Dak.	10	4	4	-	8	-	28	14	45	62
S. Dak.	25	37	4	2	-	-	70	64	188	219
Nebr.	29	55	4	3	-	-	105	140	1,083	1,228
Kans.	27	29	1	-	10	4	182	159	2,085	2,265
S. ATLANTIC	128	246	59	30	8	1	2,252	2,437	64,066	74,278
Del.	8	8	N	N	N	N	38	47	951	1,337
Md.	10	26	-	-	-	-	97	102	6,452	7,583
D.C.	1	-	-	-	-	-	41	33	2,065	2,216
Va.	33	59	9	9	-	-	288	254	6,481	8,597
W. Va.	4	8	-	-	-	1	35	48	726	799
N.C.	4	41	25	-	-	-	N	N	12,123	13,307
S.C.	2	5	-	-	-	-	123	114	7,276	7,731
Ga.	25	40	3	7	-	-	751	776	13,332	14,861
Fla.	41	59	22	14	8	-	879	1,063	14,660	17,847
E.S. CENTRAL	73	97	2	-	7	9	283	316	20,970	25,263
Ky.	24	30	2	-	7	9	N	N	3,002	3,125
Tenn.	30	40	-	-	-	-	147	148	6,975	7,849
Ala.	13	17	-	-	-	-	136	168	6,285	8,595
Miss.	6	10	-	-	-	-	-	-	4,708	5,694
W.S. CENTRAL	80	101	2	1	12	6	247	208	33,770	40,465
Ark.	9	10	-	-	-	-	124	143	3,223	3,916
La.	3	4	-	-	-	-	9	4	8,368	9,898
Okla.	25	21	-	-	-	-	114	59	3,845	3,981
Tex.	43	66	2	1	12	6	-	2	18,334	22,670
MOUNTAIN	276	306	22	23	5	4	1,322	1,366	8,052	9,221
Mont.	16	27	-	-	-	-	94	77	81	77
Idaho	68	41	15	13	-	-	167	104	62	76
Wyo.	2	13	-	2	-	-	20	27	35	54
Colo.	65	91	3	5	5	4	373	449	2,169	2,874
N. Mex.	12	10	3	3	-	-	41	130	945	1,260
Ariz.	28	32	N	N	N	N	212	176	2,881	3,034
Utah	63	66	-	-	-	-	300	272	280	245
Nev.	22	26	1	-	-	-	115	131	1,599	1,601
PACIFIC	347	582	3	7	-	-	2,526	3,012	23,769	24,534
Wash.	94	127	1	-	-	-	288	357	2,242	2,378
Oreg.	90	196	2	7	-	-	335	369	715	712
Calif.	150	218	-	-	-	-	1,761	2,111	19,627	20,340
Alaska	4	7	-	-	-	-	73	98	440	513
Hawaii	9	34	-	-	-	-	69	77	745	591
Guam	N	N	-	-	-	-	-	7	-	40
P.R.	-	1	-	-	-	-	36	78	156	302
V.I.	-	-	-	-	-	-	-	-	55	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 October 25, 2003, and October 26, 2002 (43rd Week)*

Reporting area	*Haemophilus influenzae*, invasive[†] All ages, All serotypes Cum. 2003	All ages, All serotypes Cum. 2002	Age <5 years, Serotype b Cum. 2003	Serotype b Cum. 2002	Non-serotype b Cum. 2003	Non-serotype b Cum. 2002	Unknown serotype Cum. 2003	Unknown serotype Cum. 2002	Hepatitis (viral, acute), by type A Cum. 2003	Hepatitis A Cum. 2002
UNITED STATES	1,400	1,356	17	26	77	104	161	126	5,263	7,550
NEW ENGLAND	104	88	1	-	6	8	5	2	264	263
Maine	4	1	-	-	-	-	1	-	12	8
N.H.	11	8	1	-	-	-	-	-	11	11
Vt.	8	7	-	-	-	-	-	-	6	1
Mass.	46	41	-	-	6	4	3	2	159	125
R.I.	6	10	-	-	-	-	1	-	12	30
Conn.	29	21	-	-	-	4	-	-	64	88
MID. ATLANTIC	313	255	-	2	1	14	44	21	997	966
Upstate N.Y.	118	98	-	2	1	4	12	7	117	158
N.Y. City	51	58	-	-	-	-	10	9	362	382
N.J.	54	50	-	-	-	-	7	5	111	163
Pa.	90	49	-	-	-	10	15	-	407	263
E.N. CENTRAL	201	268	4	3	8	10	31	38	546	929
Ohio	62	69	-	-	-	1	11	8	100	260
Ind.	40	36	1	1	4	7	-	-	60	40
Ill.	62	106	-	-	-	-	15	19	169	243
Mich.	21	12	3	2	4	2	1	-	176	206
Wis.	16	45	-	-	-	-	4	11	41	180
W.N. CENTRAL	102	59	2	1	7	2	14	5	156	256
Minn.	40	39	2	1	7	2	2	3	37	37
Iowa	-	1	-	-	-	-	-	-	25	58
Mo.	40	11	-	-	-	-	12	2	56	75
N. Dak.	1	4	-	-	-	-	-	-	1	1
S. Dak.	1	1	-	-	-	-	-	-	-	3
Nebr.	3	-	-	-	-	-	-	-	11	16
Kans.	17	3	-	-	-	-	-	-	26	66
S. ATLANTIC	324	303	1	5	12	15	20	23	1,377	2,072
Del.	-	-	-	-	-	-	-	-	7	13
Md.	73	76	-	2	5	3	2	1	140	269
D.C.	-	-	-	-	-	-	-	-	33	67
Va.	45	27	-	-	-	-	5	4	86	121
W. Va.	14	17	-	-	-	1	-	1	14	17
N.C.	36	30	-	-	3	3	2	-	81	192
S.C.	4	12	-	-	-	-	1	2	35	54
Ga.	56	65	-	-	-	-	5	10	610	404
Fla.	96	76	1	3	4	8	5	5	371	935
E.S. CENTRAL	69	60	1	1	1	4	10	11	196	235
Ky.	5	5	-	-	1	1	-	1	28	41
Tenn.	42	30	-	-	-	-	6	7	140	106
Ala.	20	16	1	1	-	3	3	1	14	32
Miss.	2	9	-	-	-	-	1	2	14	56
W.S. CENTRAL	63	51	1	2	8	8	5	2	306	905
Ark.	7	1	-	-	1	-	-	-	19	51
La.	12	7	-	-	-	-	5	2	51	76
Okla.	41	41	-	-	7	8	-	-	17	46
Tex.	3	2	1	2	-	-	-	-	219	732
MOUNTAIN	139	146	4	4	19	25	21	13	395	475
Mont.	-	-	-	-	-	-	-	-	8	13
Idaho	4	2	-	-	-	-	1	1	-	25
Wyo.	1	2	-	-	-	-	-	-	1	3
Colo.	33	29	-	-	-	-	7	2	63	71
N. Mex.	14	24	-	-	4	6	1	1	17	27
Ariz.	64	62	4	2	6	14	8	6	222	249
Utah	13	15	-	1	5	3	4	-	39	41
Nev.	10	12	-	1	4	2	-	3	45	46
PACIFIC	85	126	3	8	15	18	11	11	1,026	1,449
Wash.	11	3	-	2	7	1	3	-	51	139
Oreg.	39	47	-	-	-	-	3	3	48	54
Calif.	20	42	3	6	8	17	4	4	910	1,224
Alaska	-	1	-	-	-	-	-	1	8	9
Hawaii	15	33	-	-	-	-	1	3	9	23
Guam	-	-	-	-	-	-	-	-	-	1
P.R.	-	1	-	-	-	-	-	-	26	197
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).

† 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 October 25, 2003, and October 26, 2002 (43rd Week)*

	Hepatitis (viral, acute), by type									
	B		C		Legionellosis		Listeriosis		Lyme disease	
Reporting area	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002
UNITED STATES	5,069	6,053	1,492	1,528	1,623	1,001	517	530	14,580	18,342
NEW ENGLAND	216	247	6	18	77	95	39	57	2,688	5,750
Maine	1	9	-	-	2	2	6	5	185	49
N.H.	11	19	-	-	6	4	3	4	95	222
Vt.	2	5	6	12	5	35	1	3	39	32
Mass.	168	128	-	6	30	41	13	32	851	1,739
R.I.	12	24	-	-	13	2	-	1	466	306
Conn.	22	62	U	U	21	11	16	12	1,052	3,402
MID. ATLANTIC	773	1,297	133	90	465	289	97	163	9,627	9,628
Upstate N.Y.	104	96	38	40	133	80	29	51	3,953	4,208
N.Y. City	258	651	-	-	42	58	14	33	5	56
N.J.	181	265	-	4	41	31	12	33	1,551	2,122
Pa.	230	285	95	46	249	120	42	46	4,118	3,242
E.N. CENTRAL	353	572	140	95	318	241	61	68	731	1,195
Ohio	118	77	8	1	186	95	22	19	72	57
Ind.	33	42	8	-	22	16	6	7	18	20
Ill.	1	133	16	19	3	23	7	16	33	46
Mich.	170	277	108	71	92	72	18	18	7	26
Wis.	31	43	-	4	15	35	8	8	601	1,046
W.N. CENTRAL	270	187	201	616	57	48	19	15	328	240
Minn.	31	25	8	2	3	11	10	1	224	152
Iowa	10	16	1	1	9	11	-	2	44	37
Mo.	186	96	191	600	28	13	5	8	48	38
N. Dak.	2	4	-	-	1	-	-	1	-	-
S. Dak.	2	2	-	1	2	2	-	1	1	1
Nebr.	21	23	1	12	4	11	4	1	2	6
Kans.	18	21	-	-	10	-	-	1	9	6
S. ATLANTIC	1,550	1,425	137	169	445	170	115	68	976	1,208
Del.	5	13	-	-	24	7	N	N	164	167
Md.	108	106	15	9	112	40	24	16	542	669
D.C.	10	17	-	-	14	5	-	-	9	20
Va.	150	162	7	10	82	20	8	7	80	134
W. Va.	25	18	2	3	16	-	6	-	20	17
N.C.	133	201	11	23	36	11	16	6	91	117
S.C.	142	101	24	4	7	7	4	8	8	20
Ga.	436	371	3	62	28	16	31	11	14	2
Fla.	541	436	75	58	126	64	26	20	48	62
E.S. CENTRAL	352	304	69	112	84	34	26	16	52	63
Ky.	54	48	12	4	36	14	6	2	13	21
Tenn.	167	116	19	23	32	13	7	9	15	21
Ala.	47	65	6	6	13	7	11	4	5	11
Miss.	84	75	32	79	3	-	2	1	19	10
W.S. CENTRAL	328	806	661	285	51	28	34	28	64	130
Ark.	58	101	3	10	2	-	1	-	-	3
La.	100	114	97	85	1	4	2	2	6	4
Okla.	41	61	2	5	7	3	3	7	-	-
Tex.	129	530	559	185	41	21	28	19	58	123
MOUNTAIN	508	519	46	47	58	38	29	27	17	15
Mont.	14	9	2	1	4	3	2	-	-	-
Idaho	-	6	-	-	3	1	2	2	3	4
Wyo.	28	17	-	5	2	2	-	-	2	1
Colo.	71	67	14	6	12	7	10	6	4	1
N. Mex.	29	144	-	2	2	2	2	3	1	1
Ariz.	240	183	7	4	9	7	9	12	1	3
Utah	53	40	-	4	20	11	-	3	3	4
Nev.	73	53	23	25	6	5	4	1	3	1
PACIFIC	719	696	99	96	68	58	97	88	97	113
Wash.	58	59	14	18	8	5	5	8	3	10
Oreg.	90	111	11	11	N	N	4	9	15	12
Calif.	544	510	71	66	60	52	83	63	76	88
Alaska	9	8	1	-	-	-	-	-	3	3
Hawaii	18	8	2	1	-	1	5	8	N	N
Guam	-	1	-	-	-	-	-	-	-	-
P.R.	41	154	-	-	-	-	-	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 October 25, 2003, and October 26, 2002 (43rd 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	915	1,206	1,338	1,498	5,877	6,807	4,845	6,513	686	921
NEW ENGLAND	39	68	62	81	715	637	489	789	-	6
Maine	3	5	6	4	12	12	59	53	-	-
N.H.	4	7	3	11	60	18	13	41	-	-
Vt.	2	4	3	4	60	120	30	86	-	-
Mass.	10	29	38	43	554	447	180	253	-	3
R.I.	2	5	2	5	16	13	54	68	-	3
Conn.	18	18	10	14	13	27	153	288	-	-
MID. ATLANTIC	221	328	152	180	643	418	827	1,105	33	51
Upstate N.Y.	49	38	39	42	381	284	358	610	2	-
N.Y. City	106	210	29	32	-	17	6	13	11	9
N.J.	33	39	19	27	42	-	62	157	10	16
Pa.	33	41	65	79	220	117	401	325	10	26
E.N. CENTRAL	77	150	187	226	498	793	147	156	15	29
Ohio	17	21	51	70	229	370	50	36	9	10
Ind.	2	12	40	29	56	104	26	31	1	4
Ill.	25	60	41	47	-	142	23	31	-	12
Mich.	23	44	38	38	89	47	41	44	5	3
Wis.	10	13	17	42	124	130	7	14	-	-
W.N. CENTRAL	43	55	131	126	347	623	502	411	65	103
Minn.	21	16	25	31	141	319	31	37	1	-
Iowa	5	4	23	19	86	109	95	67	2	3
Mo.	5	14	63	43	73	124	50	49	49	95
N. Dak.	1	1	1	-	5	5	48	34	-	-
S. Dak.	2	2	1	2	3	6	67	81	5	1
Nebr.	-	5	7	23	5	8	58	-	3	4
Kans.	9	13	11	8	34	52	153	143	5	-
S. ATLANTIC	263	288	232	247	520	369	2,186	2,275	423	427
Del.	3	5	8	7	1	3	43	24	1	1
Md.	62	99	24	8	68	59	246	345	95	36
D.C.	13	18	-	-	2	2	-	-	1	1
Va.	34	29	23	37	86	124	443	504	27	32
W. Va.	4	3	5	4	16	31	77	157	5	2
N.C.	20	20	30	30	109	38	676	610	207	260
S.C.	3	7	20	27	107	41	206	123	32	65
Ga.	52	47	30	28	30	25	334	355	45	19
Fla.	72	60	92	106	101	46	161	157	10	11
E.S. CENTRAL	18	19	71	82	122	223	156	202	89	118
Ky.	7	7	16	13	41	87	33	24	1	5
Tenn.	5	3	21	33	60	95	96	108	58	72
Ala.	3	4	15	19	15	32	26	66	12	14
Miss.	3	5	19	17	6	9	1	4	18	27
W.S. CENTRAL	53	66	167	185	502	1,480	198	1,014	49	170
Ark.	4	2	12	23	37	483	25	3	-	96
La.	4	4	32	38	6	7	-	-	-	-
Okla.	4	8	14	19	14	35	173	104	42	61
Tex.	41	52	109	105	445	955	-	907	7	13
MOUNTAIN	42	42	64	79	801	824	155	291	10	14
Mont.	-	2	4	2	5	5	20	18	1	1
Idaho	1	-	6	3	68	62	15	37	2	-
Wyo.	1	-	2	-	123	11	6	18	2	5
Colo.	21	22	20	23	275	330	38	59	2	2
N. Mex.	2	3	7	4	57	172	5	10	-	1
Ariz.	12	7	15	23	126	109	54	129	1	-
Utah	4	5	2	4	114	89	14	12	2	-
Nev.	1	3	8	20	33	46	3	8	-	5
PACIFIC	159	190	272	292	1,729	1,440	185	270	2	3
Wash.	23	22	27	54	588	381	-	-	-	-
Oreg.	10	9	49	42	392	168	6	14	-	2
Calif.	118	150	183	185	735	859	172	230	2	1
Alaska	1	2	3	4	5	4	7	26	-	-
Hawaii	7	7	10	7	9	28	-	-	-	-
Guam	-	-	-	1	-	2	-	-	-	-
P.R.	1	1	2	7	-	2	62	75	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.

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TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending October 25, 2003, and October 26, 2002 (43rd Week)*

Reporting area	Salmonellosis		Shigellosis		Streptococcal disease, invasive, group A		*Streptococcus pneumoniae*, invasive: Drug resistant, all ages		*Streptococcus pneumoniae*, invasive: Age <5 years	
	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002
UNITED STATES	33,883	36,014	17,953	16,981	4,441	3,902	1,730	2,049	354	286
NEW ENGLAND	1,772	1,908	262	288	341	283	40	94	8	3
Maine	113	126	6	8	23	20	-	-	-	-
N.H.	100	119	5	11	21	33	-	-	N	N
Vt.	62	68	7	1	19	9	6	5	4	2
Mass.	1,043	1,082	170	180	165	96	N	N	N	N
R.I.	112	135	14	16	11	15	10	12	4	1
Conn.	342	378	60	72	102	110	24	77	U	U
MID. ATLANTIC	3,775	4,846	1,866	1,477	788	614	104	92	82	65
Upstate N.Y.	967	1,263	389	243	315	245	56	77	64	54
N.Y. City	1,066	1,201	324	415	106	138	U	U	U	U
N.J.	426	919	228	522	131	133	N	N	N	N
Pa.	1,316	1,463	925	297	236	98	48	15	18	11
E.N. CENTRAL	4,509	4,796	1,448	1,829	923	831	366	186	141	112
Ohio	1,182	1,168	265	537	264	182	236	49	79	13
Ind.	486	473	132	93	95	46	130	135	39	51
Ill.	1,442	1,594	729	879	182	238	-	2	-	-
Mich.	668	774	217	154	315	261	N	N	N	N
Wis.	731	787	105	166	67	104	N	N	23	48
W.N. CENTRAL	2,175	2,212	696	899	290	212	138	413	48	50
Minn.	473	476	89	185	143	108	-	292	41	46
Iowa	325	426	65	111	N	N	N	N	N	N
Mo.	871	722	333	157	65	41	11	5	2	1
N. Dak.	31	24	3	16	13	-	3	1	5	3
S. Dak.	100	105	16	151	20	12	1	1	-	-
Nebr.	131	150	100	199	23	19	-	25	N	N
Kans.	244	309	90	80	26	32	123	89	N	N
S. ATLANTIC	8,924	9,213	6,163	5,527	774	645	885	937	18	30
Del.	85	79	154	227	6	2	1	3	N	N
Md.	723	793	531	957	230	102	-	-	-	21
D.C.	38	66	64	51	13	7	2	-	7	3
Va.	915	1,011	384	809	91	68	N	N	N	N
W. Va.	113	124	-	9	31	19	59	37	11	6
N.C.	1,126	1,252	837	368	93	111	N	N	U	U
S.C.	646	683	412	102	35	35	124	165	N	N
Ga.	1,722	1,683	1,435	1,350	104	118	209	234	N	N
Fla.	3,556	3,522	2,346	1,654	171	183	490	498	N	N
E.S. CENTRAL	2,216	2,743	732	1,218	175	100	119	117	-	-
Ky.	343	317	114	144	40	19	16	15	N	N
Tenn.	638	677	268	96	135	81	103	102	N	N
Ala.	406	713	198	661	-	-	-	-	N	N
Miss.	829	1,036	152	317	-	-	-	-	-	-
W.S. CENTRAL	4,368	3,978	3,695	2,615	256	255	53	165	52	22
Ark.	682	915	91	164	5	6	8	6	-	-
La.	420	674	226	409	1	1	45	159	8	7
Okla.	413	432	716	497	75	39	N	N	29	3
Tex.	2,853	1,957	2,662	1,545	175	209	N	N	15	12
MOUNTAIN	1,860	1,836	1,002	741	379	467	22	45	5	4
Mont.	93	77	2	3	2	-	-	-	-	-
Idaho	155	118	28	12	18	9	N	N	N	N
Wyo.	71	60	6	8	2	7	5	13	-	-
Colo.	416	513	252	166	115	104	-	-	-	-
N. Mex.	217	259	197	183	95	94	17	32	-	-
Ariz.	560	469	416	300	136	223	-	-	N	N
Utah	192	154	43	24	9	30	-	-	5	4
Nev.	156	186	58	45	2	-	-	-	-	-
PACIFIC	4,284	4,482	2,089	2,387	515	495	3	-	-	-
Wash.	466	441	135	140	53	56	-	-	N	N
Oreg.	354	303	199	89	N	N	N	N	N	N
Calif.	3,223	3,438	1,709	2,099	366	360	N	N	N	N
Alaska	61	71	8	5	-	-	-	-	N	N
Hawaii	180	229	38	54	96	79	3	-	-	-
Guam	-	38	-	30	-	-	-	4	-	-
P.R.	183	447	3	29	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 October 25, 2003, and October 26, 2002 (43rd Week)*

Reporting area	Syphilis: Primary & secondary Cum. 2003	Syphilis: Primary & secondary Cum. 2002	Syphilis: Congenital Cum. 2003	Syphilis: Congenital Cum. 2002	Tuberculosis Cum. 2003	Tuberculosis Cum. 2002	Typhoid fever Cum. 2003	Typhoid fever Cum. 2002	Varicella (Chickenpox) Cum. 2003
UNITED STATES	5,489	5,539	299	350	9,135	10,501	250	268	10,346
NEW ENGLAND	167	119	1	1	272	340	23	13	1,500
Maine	7	2	1	-	5	20	-	-	753
N.H.	14	6	-	-	7	12	2	-	-
Vt.	1	1	-	-	7	4	-	-	595
Mass.	111	81	-	1	178	176	12	7	147
R.I.	16	6	-	-	28	44	2	-	5
Conn.	18	23	-	-	47	84	7	6	-
MID. ATLANTIC	688	596	51	55	1,730	1,812	42	69	32
Upstate N.Y.	36	27	9	3	229	258	10	7	N
N.Y. City	394	348	31	23	943	869	16	37	-
N.J.	128	133	11	28	317	417	13	17	-
Pa.	130	88	-	1	241	268	3	8	32
E.N. CENTRAL	713	1,018	58	53	914	1,060	17	30	4,403
Ohio	177	130	3	3	167	173	2	6	1,007
Ind.	40	51	10	3	109	102	4	2	-
Ill.	268	398	17	34	437	505	1	14	-
Mich.	217	416	28	13	161	224	10	4	2,761
Wis.	11	23	-	-	40	56	-	4	635
W.N. CENTRAL	110	100	4	2	381	438	4	9	45
Minn.	34	49	-	1	155	189	-	3	N
Iowa	7	2	-	-	17	24	2	-	N
Mo.	39	27	4	1	99	115	1	2	-
N. Dak.	2	-	-	-	-	4	-	-	45
S. Dak.	2	-	-	-	16	10	-	-	-
Nebr.	4	5	-	-	10	23	1	4	-
Kans.	22	17	-	-	84	73	-	-	-
S. ATLANTIC	1,465	1,415	55	78	1,874	2,194	43	34	1,799
Del.	6	10	-	-	23	13	-	-	25
Md.	245	165	10	15	197	238	8	7	-
D.C.	47	48	-	1	-	-	-	-	26
Va.	65	59	1	1	218	219	12	4	473
W. Va.	2	2	-	-	19	28	-	-	1,061
N.C.	128	241	16	18	258	284	7	1	N
S.C.	83	114	4	10	144	140	-	-	214
Ga.	365	308	6	13	299	436	7	5	-
Fla.	524	468	18	20	716	836	9	17	N
E.S. CENTRAL	258	411	10	25	545	625	4	4	1
Ky.	31	83	1	3	97	106	-	4	N
Tenn.	112	150	3	7	179	245	2	-	N
Ala.	96	137	4	9	185	171	2	-	-
Miss.	19	41	2	6	84	103	-	-	1
W.S. CENTRAL	774	692	55	76	1,226	1,556	25	27	2,075
Ark.	42	30	-	8	74	109	-	-	-
La.	133	129	-	-	-	-	-	-	11
Okla.	54	51	1	2	119	136	1	1	N
Tex.	545	482	54	66	1,033	1,311	24	26	2,064
MOUNTAIN	251	262	22	13	311	339	5	9	491
Mont.	-	-	-	-	5	6	-	-	N
Idaho	11	1	-	-	8	13	-	-	N
Wyo.	-	-	-	-	4	3	-	-	43
Colo.	23	55	3	2	62	73	3	4	-
N. Mex.	52	30	1	-	6	31	-	1	2
Ariz.	152	161	18	11	174	174	2	-	4
Utah	3	5	-	-	30	25	-	2	442
Nev.	10	10	-	-	22	14	-	2	-
PACIFIC	1,063	926	43	47	1,882	2,137	87	73	-
Wash.	64	51	-	1	199	197	3	4	-
Oreg.	34	17	-	-	88	97	4	2	-
Calif.	963	850	43	45	1,494	1,682	79	63	-
Alaska	-	-	-	-	46	40	-	-	-
Hawaii	2	8	-	1	55	121	1	4	-
Guam	-	6	-	-	-	61	-	-	-
P.R.	156	236	1	21	75	90	-	-	288
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 October 25, 2003 (43rd Week)

Reporting Area	All causes, by age (years)						P&I†
	All Ages	≥65	45-64	25-44	1-24	<1	Total
NEW ENGLAND	413	289	87	19	11	7	39
Boston, Mass.	111	70	27	7	5	2	5
Bridgeport, Conn.	33	24	5	1	3	-	5
Cambridge, Mass.	20	15	5	-	-	-	2
Fall River, Mass.	17	13	2	1	-	1	1
Hartford, Conn.	U	U	U	U	U	U	U
Lowell, Mass.	37	26	9	2	-	-	3
Lynn, Mass.	6	5	1	-	-	-	-
New Bedford, Mass.	21	16	4	1	-	-	1
New Haven, Conn.	U	U	U	U	U	U	U
Providence, R.I.	57	41	10	3	2	1	8
Somerville, Mass.	U	U	U	U	U	U	U
Springfield, Mass.	31	21	6	1	1	2	3
Waterbury, Conn.	21	17	4	-	-	-	-
Worcester, Mass.	59	41	14	3	-	1	11
MID. ATLANTIC	2,043	1,416	444	123	28	32	98
Albany, N.Y.	36	23	7	3	-	3	1
Allentown, Pa.	15	14	1	-	-	-	1
Buffalo, N.Y.	92	66	22	2	2	-	8
Camden, N.J.	23	13	9	-	1	-	2
Elizabeth, N.J.	24	14	8	2	-	-	1
Erie, Pa.	37	30	5	1	1	-	-
Jersey City, N.J.	50	35	13	2	-	-	-
New York City, N.Y.	982	688	212	55	12	15	38
Newark, N.J.	51	20	21	6	1	3	3
Paterson, N.J.	15	6	4	4	-	1	1
Philadelphia, Pa.	264	164	59	27	11	3	10
Pittsburgh, Pa.§	35	26	6	3	-	-	3
Reading, Pa.	20	17	3	-	-	-	-
Rochester, N.Y.	135	100	28	3	-	4	7
Schenectady, N.Y.	27	19	6	1	-	1	-
Scranton, Pa.	51	44	4	3	-	-	1
Syracuse, N.Y.	114	91	15	6	-	2	14
Trenton, N.J.	27	18	7	2	-	-	-
Utica, N.Y.	18	12	5	1	-	-	3
Yonkers, N.Y.	27	16	9	2	-	-	5
E.N. CENTRAL	2,104	1,387	451	153	54	56	139
Akron, Ohio	65	44	13	3	2	3	8
Canton, Ohio	54	38	11	5	-	-	6
Chicago, Ill.	374	220	82	41	11	17	15
Cincinnati, Ohio	69	42	19	5	1	2	6
Cleveland, Ohio	153	94	41	7	3	8	12
Columbus, Ohio	217	141	49	17	5	5	21
Dayton, Ohio	140	102	26	6	4	2	9
Detroit, Mich.	158	88	52	10	4	4	6
Evansville, Ind.	57	44	11	2	-	-	4
Fort Wayne, Ind.	62	48	12	1	-	1	6
Gary, Ind.	23	15	5	2	-	1	1
Grand Rapids, Mich.	63	44	11	2	1	5	5
Indianapolis, Ind.	176	114	36	14	7	5	15
Lansing, Mich.	66	50	10	3	2	1	1
Milwaukee, Wis.	98	52	16	22	8	-	7
Peoria, Ill.	56	35	14	2	4	1	3
Rockford, Ill.	38	31	5	1	1	-	2
South Bend, Ind.	59	45	11	2	1	-	2
Toledo, Ohio	118	90	21	7	-	-	9
Youngstown, Ohio	58	50	6	1	-	1	1
W.N. CENTRAL	633	426	106	50	41	10	42
Des Moines, Iowa	76	57	9	6	3	1	5
Duluth, Minn.	28	22	4	2	-	-	2
Kansas City, Kans.	53	27	11	7	7	1	4
Kansas City, Mo.	95	64	14	9	6	2	4
Lincoln, Nebr.	39	30	6	1	2	-	7
Minneapolis, Minn.	68	46	8	7	5	2	3
Omaha, Nebr.	88	59	17	4	7	1	7
St. Louis, Mo.	U	U	U	U	U	U	U
St. Paul, Minn.	83	61	16	5	1	-	4
Wichita, Kans.	103	60	21	9	10	3	6

Reporting Area	All causes, by age (years)						P&I†
	All Ages	≥65	45-64	25-44	1-24	<1	Total
S. ATLANTIC	1,145	697	292	93	36	27	65
Atlanta, Ga.	180	103	48	20	6	3	5
Baltimore, Md.	180	95	62	16	6	1	15
Charlotte, N.C.	99	67	18	6	3	5	11
Jacksonville, Fla.	91	60	22	5	2	2	5
Miami, Fla.	59	41	11	4	2	1	2
Norfolk, Va.	64	46	11	3	1	3	6
Richmond, Va.	71	38	18	6	7	2	3
Savannah, Ga.	66	43	12	3	1	7	3
St. Petersburg, Fla.	38	30	5	2	1	-	2
Tampa, Fla.	178	108	46	18	4	2	9
Washington, D.C.	104	58	36	6	3	1	2
Wilmington, Del.	15	8	3	4	-	-	2
E.S. CENTRAL	873	599	188	50	20	13	59
Birmingham, Ala.	182	122	42	9	2	4	17
Chattanooga, Tenn.	82	56	17	6	2	1	8
Knoxville, Tenn.	113	83	24	4	1	1	8
Lexington, Ky.	90	61	23	3	2	1	7
Memphis, Tenn.	129	85	27	12	5	-	3
Mobile, Ala.	59	47	9	3	-	-	-
Montgomery, Ala.	65	44	15	4	1	1	10
Nashville, Tenn.	153	101	31	9	7	5	6
W.S. CENTRAL	1,396	898	315	118	38	26	76
Austin, Tex.	80	49	21	8	1	1	5
Baton Rouge, La.	68	41	17	5	4	1	1
Corpus Christi, Tex.	39	25	10	2	2	-	2
Dallas, Tex.	164	104	33	20	2	5	9
El Paso, Tex.	77	54	17	3	1	2	3
Ft. Worth, Tex.	112	81	17	7	5	2	5
Houston, Tex.	326	195	80	36	6	9	26
Little Rock, Ark.	74	51	14	4	3	2	1
New Orleans, La.	32	19	10	3	-	-	-
San Antonio, Tex.	249	164	56	19	6	3	11
Shreveport, La.	34	22	9	2	1	-	1
Tulsa, Okla.	141	93	31	9	7	1	12
MOUNTAIN	1,070	653	201	69	30	22	63
Albuquerque, N.M.	117	86	24	5	1	1	7
Boise, Idaho	38	30	5	-	-	3	1
Colo. Springs, Colo.	76	57	13	3	-	3	6
Denver, Colo.	103	58	23	10	5	7	5
Las Vegas, Nev.	287	180	72	27	4	4	12
Ogden, Utah	38	26	7	-	4	1	1
Phoenix, Ariz.	100	-	2	2	1	-	6
Pueblo, Colo.	44	36	4	4	-	-	4
Salt Lake City, Utah	124	79	24	9	9	3	8
Tucson, Ariz.	143	101	27	9	6	-	13
PACIFIC	1,577	1,086	320	113	38	20	103
Berkeley, Calif.	19	13	4	1	-	1	3
Fresno, Calif.	140	98	27	12	3	-	6
Glendale, Calif.	11	8	3	-	-	-	1
Honolulu, Hawaii	72	54	10	5	3	-	4
Long Beach, Calif.	62	45	12	5	-	-	8
Los Angeles, Calif.	276	178	57	28	11	2	9
Pasadena, Calif.	U	U	U	U	U	U	U
Portland, Oreg.	162	113	35	10	3	1	9
Sacramento, Calif.	195	133	44	9	6	3	14
San Diego, Calif.	168	111	37	12	3	5	10
San Francisco, Calif.	U	U	U	U	U	U	U
San Jose, Calif.	156	109	30	10	4	3	17
Santa Cruz, Calif.	24	16	4	3	1	-	-
Seattle, Wash.	113	79	18	11	2	3	7
Spokane, Wash.	76	52	17	5	1	1	8
Tacoma, Wash.	103	77	22	2	1	1	7
TOTAL	11,254¶	7,451	2,404	788	296	213	684

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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