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MORBIDITY AND MORTALITY WEEKLY REPORT

*Epidemiologic Notes and Reports***Mass Sociogenic Illness in a Day-Care Center — Florida**

On July 26, 1989, 63 (42%) of 150 children attending a summer program at a day-care center in Florida experienced a gastrointestinal illness. An epidemiologic investigation by Orange County public health officials and the Florida Department of Health and Rehabilitative Services concluded that this outbreak was the result of mass sociogenic illness (MSI).

Onset of symptoms occurred within 2–40 minutes after lunch and included abdominal cramps (77%), nausea (75%), headache (51%), dizziness (30%), malaise (30%), and sore throat (11%). Vomiting was reported in 67% of children, but no distinction could be made between actual vomiting and spitting out food. The median duration of illness was 1 hour (range: 1–8 hours). Ill children ranged in age from 4 to 14 years (median: 9 years); 47 (75%) were female. Within 1–2 hours after onset, all symptomatic children were evaluated in emergency departments at local hospitals; when the children arrived at the emergency departments, most symptoms were no longer present, and all physical examination findings were normal. More than 90% of the children returned to the center on July 27, and no further episodes occurred.

A prepackaged lunch was served in one large room to the children and consisted of a ham and cheese sandwich, diced pears, chocolate milk, and apple juice. The center's staff reported that the initial case occurred in a 12-year-old girl who complained that her food tasted bad. She subsequently had nausea and vomited. As more children developed similar symptoms, some of the staff suggested to the children that the food may have been contaminated.

On July 28, 121 children at the center were interviewed in person. After the interviews, a case was defined as vomiting or nausea with abdominal cramps during or within 1 hour after the July 26 lunch. Forty-eight (47%) of 102 children who had eaten any foods served at lunch became ill, compared with one (5%) of 19 children who had eaten none of the foods (relative risk [RR]=9.1; 95% confidence interval [CI]=1.3–50.0). Among children who had eaten any of the foods, those who had eaten the sandwich were at greater risk for illness (37 [56%] of 66 compared with 11 [32%] of 34; RR=1.7; 95% CI=1.0–2.9). The attack rate did not differ by age but was greater for girls (39 [70%] of 56) than for boys (nine [20%] of 46; RR=3.6; 95% CI=1.9–6.7). Employees and teachers at the center had not eaten any of the foods and did not become ill.

Sociogenic Illness – Continued

Meal samples collected and tested by the Food and Drug Administration did not detect pesticide contamination, staphylococcal toxin, or *Bacillus cereus*; atomic absorption screening for heavy metals, zinc, and copper was also negative. Review of the food processing, storage, and refrigeration at the manufacturing plant and the day-care center did not identify deficiencies in handling or a source of contamination. The plant that had prepared the prepackaged meal had produced 3600 similar meals served in 68 different sites in central Florida on July 26. No complaints of similar symptoms were reported from the other sites. The investigation did not identify any chemical exposure, air conditioning failure, or unusually stressful situation at the center on July 26.

MSI was the suggested diagnosis by hospital physicians after children were examined on July 26. After the epidemiologic investigation, health department officials concurred with the diagnosis.

Reported by: S Arcidiacono, JI Brand, MD, Orange County Health and Rehabilitative Svcs Public Health Unit; W Coppenger, PhD, Toxicology, Health and Rehabilitative Svcs Central Laboratory, RA Calder, MD, State Epidemiologist, Florida Dept of Health and Rehabilitative Svcs. Div of Environmental Hazards and Health Effects, Center for Environmental Health and Injury Control; Div of Field Svcs, Epidemiology Program Office, CDC.

Editorial Note: In this outbreak, the rapid onset and disappearance of symptoms, the lack of physical findings, the preponderance of cases in females, and the absence of a laboratory-confirmed etiologic agent are consistent with MSI (1,2) (Table 1). However, three features of this outbreak distinguish it from the typical presentation of MSI: the young age of patients, the absence of documented hyperventilation, and the high prevalence of vomiting reported.

Other MSI outbreaks among children have been reported (Table 2). Risk for illness was lower among the youngest children in at least two of these outbreaks (3; CDC, unpublished data); age was not a risk factor in the Florida outbreak. In some outbreaks, the prevalence of hyperventilation, a common symptom in MSI outbreaks, has been low (7,10); in the Florida outbreak, hyperventilation symptoms could have been missed during the early phase of illness. Vomiting, although reported as the

TABLE 1. Usual characteristics of mass sociogenic illness compared with one outbreak – Florida, 1989

| Usual characteristics | Florida outbreak | |
|---|------------------|--------------------------------------|
| | Documented | Unusual features |
| Absence of laboratory findings | Yes | |
| Absence of physical findings | Yes | |
| Adolescent or preadolescent group | Yes | No increased risk by age |
| Benign morbidity | Yes | |
| Hyperventilation and syncope | No | High prevalence of vomiting reported |
| Lack of illness in others sharing environment | Yes | |
| "Line of sight" transmission | Yes | |
| Preponderance in females | Yes | |
| Rapid spread and remission | Yes | |
| Relapse of illness | No | |
| Stressful situation | No | |

Sociogenic Illness – Continued

major symptom in two previous outbreaks (8,11), is not usually a principal symptom of MSI (2). Many of the children reported to have been vomiting in this outbreak may have been spitting out food because they had been told it was contaminated or because they were responding to the "line of sight" transmission that typically occurs in MSI outbreaks (1,2).

MSI outbreaks often generate substantial anxiety and concern in the community (1) and, as illustrated in this report, may present with an atypical pattern or syndrome. Early statements by local physicians and the media about the likely psychogenic origin of the illness may have contributed to the absence of recurrence in this instance (1). Timely recognition of the nature of the outbreak and prompt reassurance that the illness is self-limited and not caused by a toxic exposure are important considerations for the effective control and prevention of recurrence.

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TABLE 2. Selected previous episodes of mass sociogenic illness in schools — 1966–1986

| Age range (yrs) | Major symptoms | Setting | Attack rate | Reference |
|-----------------|---|---------------------------|-------------|-----------|
| 9–13 | Dizziness, weakness, headache, abdominal pain | School chorus | 42% | 2 |
| 7–12 | Itching, rash, headache, cough | Elementary school | 26% | 3 |
| 6–18 | Headache, dizziness, abdominal pain, blurred vision, weakness | Several schools | 6%–33% | 4 |
| 14–17 | Headache, nausea, weakness, dizziness | High school marching band | 48% | 5 |
| 11–15 | Fainting | Secondary school | 15% | 6 |
| 12–14 | Dizziness, abdominal pain, weakness | Train station | NA* | 7 |
| 11–14 | Vomiting, abdominal pain, fainting | Girls' school | NA* | 8 |
| Grades 3–6† | Itching, rash | Elementary school | 36% | 9 |

*Not available.

†Ages not available.

Sociogenic Illness – Continued

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*Progress in Chronic Disease Prevention***State-Specific Changes in Cholesterol Screening and Awareness – United States, 1987–1988**

High blood cholesterol is a major risk factor for coronary heart disease (1), which is the leading cause of death for persons of all ages and the third leading cause of years of potential life lost before age 65 in the United States (2). To reduce the prevalence of elevated blood cholesterol levels in the United States, the National Heart, Lung, and Blood Institute (NHLBI) initiated the National Cholesterol Education Program (NCEP) in November 1985. NCEP goals are for all adults ≥ 20 years of age to 1) have their blood cholesterol level measured at least once every 5 years, 2) know their cholesterol level, and 3) take steps to lower their cholesterol level if it is elevated (3).^{*} To measure state-specific progress toward these goals, questions regarding cholesterol screening and awareness were included in the Behavioral Risk Factor Surveillance System (BRFSS) during 1987 and 1988.

Health departments participating in the BRFSS conduct monthly random-digit-dialed telephone surveys of persons ≥ 18 years of age using a standardized questionnaire (5). In 1987 and 1988, respondents were asked whether they had ever had their cholesterol "checked" and, if so, how long had it been since their cholesterol level was last checked and whether they had been told their cholesterol level. Persons who reported they had been told their cholesterol level were asked to state their level; those who reported a number from 100 mg/dL through 450 mg/dL were considered to know their cholesterol level. Survey results were adjusted according to the age, sex, and race distribution of adults in each state. Prevalence estimates using combined data were adjusted according to the population size in each state and are therefore representative of the total population in these states. SESUDAAN, a computer software program for analyzing complex sample survey data (6), was used to calculate standard errors for the prevalence estimates.

In 1988, the percentage of adults who reported ever having their cholesterol checked ranged from 40% in New Mexico to 58% in Maine (median: 50%) (Table 1). From 1987 to 1988, statistically significant increases in cholesterol screening occurred in 17 (52%) of 33 states (median difference: 4%). Of the remaining 16 (48%) states, four had negligible decreases (likely the result of variability due to sampling), one had no change, and 11 had small increases in cholesterol screening.

In 1988, the percentage of adults who reported ever being told their cholesterol level ranged from 18% in South Carolina and Tennessee to 40% in Wisconsin (median: 28%) (Table 2, page 311). All states had increases in the percentage of adults who were ever told their cholesterol level; these increases were statistically significant for 32 (97%) states (median difference: 8%).

^{*}A serum cholesterol level of ≥ 240 mg/dL is considered "high"; 200–239 mg/dL is considered "borderline high"; and < 200 mg/dL is considered "desirable" (4).

Cholesterol Screening — Continued

TABLE 1. Changes from 1987 to 1988 in percentage of adults who reported ever having their cholesterol level checked, by area* — Behavioral Risk Factor Surveillance System (BRFSS)[†]

| Area | 1988 Sample size | Respondents ever having their cholesterol checked, 1988 | | % Change [§] 1987 to 1988 | |
|----------------------|------------------------|--|---------------------|---------------------------------------|---------------------|
| | | (%) | 95% CI [¶] | (%) | 95% CI [¶] |
| Maine | 1283 | (58) | ±3 | (11) | ±4** |
| Florida | 1483 | (57) | ±3 | (6) | ±4** |
| Washington | 1253 | (57) | ±3 | (3) | ±4 |
| Wisconsin | 1272 | (56) | ±3 | (10) | ±4** |
| Maryland | 1107 | (55) | ±4 | (-2) | ±5 |
| New Hampshire | 1195 | (55) | ±3 | (6) | ±4** |
| California | 2452 | (54) | ±2 | (4) | ±3** |
| Arizona | 1176 | (54) | ±3 | (7) | ±5** |
| District of Columbia | 1146 | (54) | ±3 | (-2) | ±5 |
| Minnesota | 3418 | (53) | ±2 | (5) | ±3** |
| Massachusetts | 1425 | (52) | ±3 | (5) | ±4** |
| North Carolina | 1716 | (51) | ±3 | (3) | ±4 |
| Rhode Island | 1763 | (51) | ±3 | (9) | ±4** |
| Utah | 1428 | (50) | ±3 | (9) | ±4** |
| North Dakota | 1621 | (50) | ±3 | (1) | ±4 |
| New York | 1179 | (50) | ±3 | (17) | ±4** |
| Illinois | 1781 | (50) | ±3 | (5) | ±4** |
| Texas | 1173 | (50) | ±3 | (4) | ±5 |
| Tennessee | 2393 | (49) | ±2 | (3) | ±3 |
| Georgia | 1503 | (49) | ±3 | (6) | ±4** |
| Ohio | 1470 | (49) | ±3 | (2) | ±4 |
| Montana | 1185 | (49) | ±3 | (-2) | ±5 |
| West Virginia | 1728 | (48) | ±3 | (0) | ±4 |
| Indiana | 2160 | (48) | ±2 | (8) | ±3** |
| Hawaii | 1865 | (48) | ±3 | (1) | ±4 |
| South Dakota | 1179 | (48) | ±3 | (2) | ±4 |
| Nebraska | 1372 | (47) | ±3 | (4) | ±4 |
| Idaho | 1796 | (47) | ±3 | (5) | ±4** |
| Alabama | 1500 | (46) | ±3 | (4) | ±4** |
| Kentucky | 1796 | (46) | ±3 | (3) | ±4 |
| Missouri | 1356 | (46) | ±3 | (2) | ±4 |
| South Carolina | 1860 | (44) | ±2 | (-2) | ±4 |
| New Mexico | 1146 | (40) | ±3 | (11) | ±5** |
| Median | | | 50% | | 4% |
| Range | | | 41%–58% | | -2%–17% |

*Ranked in order of percentage of respondents who reported ever having their cholesterol level checked.

[†]Includes areas participating in the BRFSS during both 1987 and 1988.

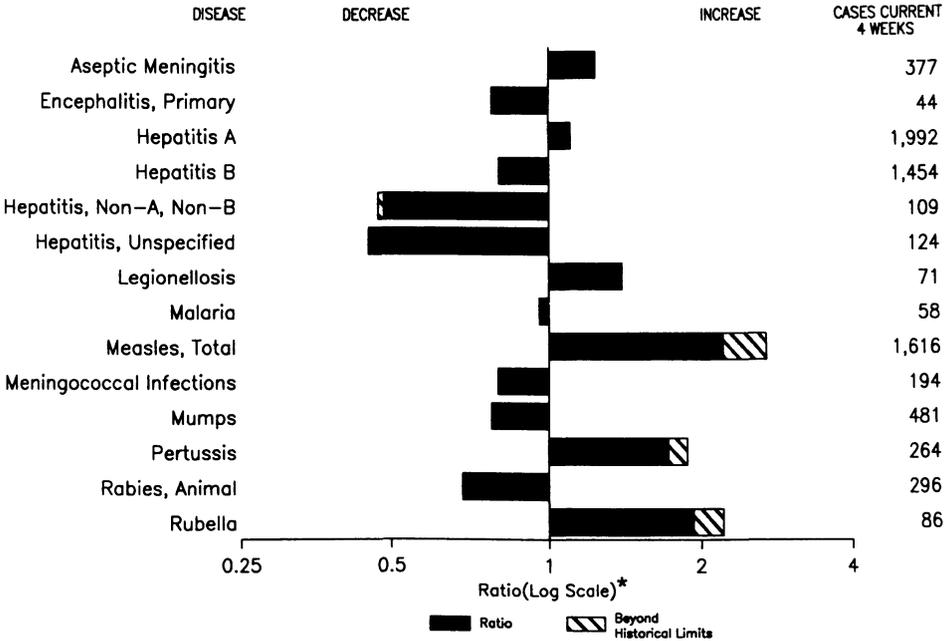
[§]1988 percentage minus 1987 percentage.

[¶]Confidence interval.

**Statistically significant change between data for 1987 and 1988; $p < 0.05$.

(Continued on page 311)

FIGURE I. Notifiable disease reports, comparison of 4-week totals ending May 5, 1990, with historical data — United States



*Ratio of current 4-week total to mean of 15 4-week totals (from comparable, previous, and subsequent 4-week periods for past 5 years).

TABLE I. Summary — cases of specified notifiable diseases, United States, cumulative, week ending May 5, 1990 (18th Week)

| | Cum. 1990 | | Cum. 1990 |
|-------------------------------|-----------|------------------------------------|-----------|
| AIDS | 14,799 | Plague | - |
| Anthrax | - | Poliomyelitis, Paralytic* | - |
| Botulism: Foodborne | 1 | Psittacosis | 50 |
| Infant | 14 | Rabies, human | - |
| Other | 2 | Syphilis: civilian | 16,498 |
| Brucellosis | 11 | military | 96 |
| Cholera | 1 | Syphilis, congenital, age < 1 year | - |
| Congenital rubella syndrome | 1 | Tetanus | 19 |
| Diphtheria | 2 | Toxic shock syndrome | 125 |
| Encephalitis, post-infectious | 34 | Trichinosis | 13 |
| Gonorrhea: civilian | 227,201 | Tuberculosis | 6,714 |
| military | 3,197 | Tularemia | 14 |
| Leprosy | 56 | Typhoid fever | 124 |
| Leptospirosis | 14 | Typhus fever, tickborne (RMSF) | 39 |
| Measles: imported | 531 | | |
| indigenous | 5,964 | | |

*Two cases of suspected poliomyelitis have been reported in 1990; none of 13 suspected cases in 1989 have been confirmed to date. Nine of 14 suspected cases in 1988 were confirmed and all were vaccine-associated.

TABLE II. Cases of specified notifiable diseases, United States, weeks ending May 5, 1990, and May 6, 1989 (18th Week)

| Reporting Area | AIDS | Aseptic Meningitis | Encephalitis | | Gonorrhea (Civilian) | | Hepatitis (Viral), by type | | | | Legionellosis | Leprosy |
|----------------|--------|--------------------|--------------|-----------------|----------------------|-----------|----------------------------|-------|-------|-------------|---------------|---------|
| | | | Primary | Post-infectious | Cum. 1990 | Cum. 1989 | A | B | NA,NB | Unspecified | | |
| | | | | | | | | | | | | |
| UNITED STATES | 14,799 | 1,546 | 219 | 34 | 227,201 | 229,438 | 10,087 | 7,086 | 657 | 612 | 382 | 56 |
| NEW ENGLAND | 532 | 69 | 6 | - | 6,372 | 6,556 | 215 | 366 | 20 | 28 | 14 | 1 |
| Maine | 21 | 2 | 1 | - | 83 | 99 | 4 | 17 | 3 | 1 | 1 | - |
| N.H. | 34 | 6 | - | - | 80 | 65 | 4 | 20 | 1 | 2 | 2 | - |
| Vt. | 7 | 8 | - | - | 25 | 24 | 2 | 22 | 3 | - | 3 | - |
| Mass. | 292 | 22 | 1 | - | 2,502 | 2,619 | 158 | 233 | 8 | 24 | 5 | - |
| R.I. | 27 | 19 | - | - | 371 | 494 | 22 | 20 | - | 1 | 3 | 1 |
| Conn. | 151 | 12 | 4 | - | 3,311 | 3,255 | 25 | 54 | 5 | - | - | - |
| MID. ATLANTIC | 4,791 | 211 | 14 | 2 | 32,321 | 38,120 | 1,497 | 1,162 | 74 | 43 | 91 | 11 |
| Upstate N.Y. | 730 | 90 | 13 | 1 | 4,641 | 5,597 | 339 | 236 | 13 | 15 | 38 | 1 |
| N.Y. City | 2,772 | 42 | 1 | - | 14,174 | 16,586 | 177 | 392 | 12 | 15 | 9 | 7 |
| N.J. | 895 | - | - | - | 4,862 | 4,728 | 178 | 271 | 22 | - | 10 | 2 |
| Pa. | 394 | 79 | - | 1 | 8,644 | 11,209 | 803 | 263 | 27 | 13 | 34 | 1 |
| E.N. CENTRAL | 1,030 | 236 | 54 | 6 | 44,115 | 39,521 | 716 | 930 | 40 | 49 | 103 | - |
| Ohio | 198 | 67 | 14 | 2 | 13,802 | 10,228 | 86 | 186 | 12 | 7 | 39 | - |
| Ind. | 92 | 32 | 2 | 2 | 3,609 | 2,825 | 76 | 212 | 3 | 17 | 19 | - |
| Ill. | 484 | 45 | 18 | 2 | 13,520 | 12,017 | 289 | 141 | 11 | 11 | 5 | - |
| Mich. | 154 | 82 | 18 | - | 10,717 | 11,013 | 158 | 248 | 12 | 14 | 27 | - |
| Wis. | 102 | 10 | 2 | - | 2,467 | 3,438 | 107 | 143 | 2 | - | 13 | - |
| W.N. CENTRAL | 326 | 65 | 16 | 1 | 12,287 | 10,256 | 549 | 315 | 35 | 15 | 20 | - |
| Minn. | 56 | 6 | 8 | 1 | 1,492 | 1,070 | 90 | 40 | 12 | - | - | - |
| Iowa | 20 | 8 | 1 | - | 923 | 877 | 121 | 29 | 1 | 2 | 2 | - |
| Mo. | 195 | 27 | 1 | - | 7,203 | 5,974 | 206 | 185 | 10 | 11 | 14 | - |
| N. Dak. | - | 3 | - | - | 24 | 52 | 4 | 4 | 2 | 1 | - | - |
| S. Dak. | 1 | 3 | 2 | - | 70 | 96 | 20 | 4 | 1 | - | - | - |
| Nebr. | 20 | 9 | 3 | - | 617 | 606 | 33 | 15 | 2 | - | 2 | - |
| Kans. | 34 | 9 | 1 | - | 1,958 | 1,581 | 75 | 38 | 7 | 1 | 2 | - |
| S. ATLANTIC | 3,149 | 372 | 54 | 11 | 63,200 | 62,301 | 1,176 | 1,330 | 100 | 96 | 59 | 2 |
| Del. | 33 | 10 | 1 | - | 1,041 | 1,011 | 47 | 29 | 2 | - | 4 | - |
| Md. | 345 | 56 | 7 | 1 | 6,509 | 7,029 | 494 | 176 | 13 | 3 | 18 | 1 |
| D.C. | 198 | 1 | - | - | 3,148 | 3,828 | 9 | 23 | 4 | - | - | - |
| Va. | 276 | 65 | 21 | 2 | 5,918 | 5,156 | 87 | 85 | 13 | 76 | 6 | - |
| W. Va. | 23 | 4 | 5 | - | 456 | 471 | 9 | 32 | 2 | - | 1 | - |
| N.C. | 220 | 31 | 14 | - | 10,272 | 9,360 | 235 | 384 | 47 | - | 9 | - |
| S.C. | 116 | 5 | - | - | 5,182 | 5,788 | 17 | 229 | 8 | 6 | 7 | - |
| Ga. | 400 | 42 | 3 | 1 | 14,318 | 12,278 | 93 | 155 | 3 | 5 | 10 | - |
| Fla. | 1,538 | 158 | 3 | 7 | 16,356 | 17,380 | 185 | 217 | 8 | 6 | 4 | 1 |
| E.S. CENTRAL | 323 | 127 | 19 | - | 18,727 | 18,116 | 121 | 534 | 42 | 3 | 30 | - |
| Ky. | 67 | 37 | 5 | - | 2,055 | 1,712 | 35 | 172 | 15 | 2 | 13 | - |
| Tenn. | 83 | 28 | 10 | - | 6,424 | 5,590 | 50 | 289 | 16 | - | 9 | - |
| Ala. | 78 | 45 | 4 | - | 5,757 | 5,992 | 35 | 69 | 9 | - | 8 | - |
| Miss. | 95 | 17 | - | - | 4,491 | 4,822 | 1 | 4 | 2 | 1 | - | - |
| W.S. CENTRAL | 1,421 | 95 | 7 | 4 | 22,264 | 23,773 | 957 | 523 | 55 | 80 | 25 | 14 |
| Ark. | 144 | 4 | - | - | 3,052 | 2,335 | 171 | 27 | 3 | 8 | 5 | - |
| La. | 223 | 11 | 3 | - | 4,532 | 5,152 | 47 | 100 | - | 2 | 7 | - |
| Okla. | 57 | 11 | 1 | 4 | 2,091 | 2,089 | 216 | 47 | 10 | 8 | 10 | - |
| Tex. | 997 | 69 | 3 | - | 12,589 | 14,197 | 523 | 349 | 42 | 62 | 3 | 14 |
| MOUNTAIN | 390 | 69 | 6 | - | 4,345 | 4,681 | 1,681 | 531 | 50 | 54 | 23 | - |
| Mont. | 3 | 1 | - | - | 56 | 68 | 39 | 31 | 2 | 3 | 1 | - |
| Idaho | 14 | - | - | - | 34 | 79 | 30 | 31 | 8 | - | 3 | - |
| Wyo. | 1 | 1 | 1 | - | 64 | 45 | 21 | 7 | 1 | - | - | - |
| Colo. | 106 | 19 | 1 | - | 966 | 1,077 | 100 | 71 | 15 | 19 | 3 | - |
| N. Mex. | 32 | 3 | - | - | 412 | 485 | 239 | 58 | 2 | - | 2 | - |
| Ariz. | 140 | 22 | 3 | - | 1,919 | 1,702 | 1,014 | 169 | 15 | 25 | 8 | - |
| Utah | 42 | 14 | - | - | 148 | 156 | 99 | 27 | 5 | 2 | 1 | - |
| Nev. | 52 | 9 | 1 | - | 746 | 1,069 | 139 | 137 | 2 | 5 | 5 | - |
| PACIFIC | 2,837 | 302 | 43 | 10 | 23,570 | 26,114 | 3,175 | 1,395 | 241 | 244 | 17 | 28 |
| Wash. | 231 | - | 3 | 1 | 2,004 | 2,160 | 549 | 216 | 47 | 9 | 4 | 1 |
| Oreg. | 118 | - | - | - | 890 | 975 | 358 | 157 | 12 | 5 | - | - |
| Calif. | 2,425 | 274 | 36 | 8 | 20,192 | 22,510 | 2,165 | 973 | 178 | 227 | 12 | 23 |
| Alaska | 14 | 5 | 3 | - | 375 | 309 | 63 | 26 | 3 | - | - | - |
| Hawaii | 49 | 23 | 1 | 1 | 109 | 160 | 40 | 23 | 1 | 3 | 1 | 4 |
| Guam | 1 | - | - | - | 69 | 45 | 3 | 1 | - | 5 | - | - |
| P.R. | 665 | 30 | 4 | - | 347 | 357 | 56 | 65 | - | 19 | - | - |
| V.I. | 5 | - | - | - | 169 | 214 | - | 6 | - | - | - | - |
| Amer. Samoa | - | 1 | - | - | 26 | 11 | 12 | - | - | - | - | 5 |
| C.N.M.I. | - | - | - | - | 52 | 29 | 3 | 2 | - | - | - | 1 |

N: Not notifiable

U: Unavailable

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

TABLE II. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending May 5, 1990, and May 6, 1989 (18th Week)

| Reporting Area | Malaria | Measles (Rubeola) | | | | | Meningococcal Infections | Mumps | | Pertussis | | | Rubella | | | |
|----------------|-----------|-------------------|-----------|-----------------|-----------|-------|--------------------------|-----------|-------|-----------|------|-----------|-----------|------|-----------|-----------|
| | Cum. 1990 | Indigenous | | Imported* | | Total | | Cum. 1990 | 1990 | Cum. 1990 | 1990 | Cum. 1990 | Cum. 1989 | 1990 | Cum. 1990 | Cum. 1989 |
| | | 1990 | Cum. 1990 | 1990 | Cum. 1990 | | | | | | | | | | | |
| UNITED STATES | 321 | 540 | 5,964 | 14 | 531 | 4,518 | 1,054 | 126 | 2,053 | 75 | 970 | 699 | 22 | 290 | 120 | |
| NEW ENGLAND | 36 | - | 103 | - | 13 | 187 | 63 | 2 | 18 | 17 | 128 | 56 | - | 3 | 1 | |
| Maine | - | - | 27 | - | - | - | 7 | - | - | - | 4 | 4 | - | - | - | |
| N.H. | 4 | - | - | - | 8 | 1 | 2 | - | 6 | - | 10 | 5 | - | - | - | |
| Vt. | 3 | - | - | - | 1 | 1 | 5 | - | 1 | - | 5 | 5 | - | - | 1 | |
| Mass. | 20 | - | 4 | - | 1 | 26 | 30 | 2 | 6 | 17 | 100 | 38 | - | - | - | |
| R.I. | 3 | - | 23 | - | 3 | 21 | 4 | - | 3 | - | - | 2 | - | 1 | - | |
| Conn. | 6 | - | 49 | - | - | 138 | 15 | - | 2 | - | 9 | 2 | - | 2 | - | |
| MID. ATLANTIC | 76 | 23 | 479 | - | 128 | 459 | 160 | 17 | 133 | 9 | 270 | 48 | - | 2 | 7 | |
| Upstate N.Y. | 14 | - | 155 | - | 101 | 90 | 60 | 4 | 59 | 8 | 222 | 25 | - | 1 | 2 | |
| N.Y. City | 26 | - | 43 | - | 15 | 37 | 17 | - | - | - | - | 2 | - | - | 3 | |
| N.J. | 21 | - | 13 | - | 5 | 271 | 33 | - | 26 | - | 11 | 17 | - | - | 2 | |
| Pa. | 15 | 23 | 268 | - | 7 | 61 | 50 | 13 | 48 | 1 | 37 | 4 | - | 1 | - | |
| E.N. CENTRAL | 15 | - | 1,837 | - | 132 | 827 | 143 | 8 | 222 | - | 199 | 97 | - | 14 | 16 | |
| Ohio | 3 | - | 213 | - | 2 | 363 | 50 | - | 47 | - | 54 | 1 | - | - | 2 | |
| Ind. | - | U | 153 | U | - | 17 | 13 | U | 5 | U | 31 | 8 | U | - | - | |
| Ill. | 5 | - | 765 | - | 4 | 432 | 36 | - | 68 | - | 56 | 35 | - | 14 | 13 | |
| Mich. | 4 | - | 212 | - | 125 | 2 | 30 | 8 | 73 | - | 32 | 19 | - | - | - | |
| Wis. | 3 | - | 494 | - | 1 | 13 | 14 | - | 29 | - | 26 | 34 | - | - | 1 | |
| W.N. CENTRAL | 4 | 89 | 255 | - | 11 | 350 | 36 | 4 | 67 | - | 19 | 19 | - | - | 3 | |
| Minn. | 1 | 82 | 119 | - | 3 | 2 | 8 | - | - | - | - | - | - | - | - | |
| Iowa | - | - | 21 | - | - | 1 | 1 | 1 | 9 | - | 3 | 6 | - | - | - | |
| Mo. | 3 | - | 39 | - | - | 273 | 12 | 1 | 36 | - | 10 | 11 | - | - | 2 | |
| N. Dak. | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | |
| S. Dak. | - | - | 5 | - | 7 | - | 2 | - | - | - | 1 | 1 | - | - | - | |
| Nebr. | - | - | 26 | - | 1 | 22 | 5 | - | 1 | - | 1 | - | - | - | - | |
| Kans. | - | 7 | 45 | - | - | 52 | 8 | 2 | 21 | - | 3 | 1 | - | - | 1 | |
| S. ATLANTIC | 70 | 24 | 387 | - | 72 | 251 | 199 | 46 | 740 | 14 | 88 | 63 | 1 | 12 | 4 | |
| Del. | 2 | 2 | 6 | - | 1 | 26 | 1 | - | - | - | 1 | - | - | - | - | |
| Md. | 16 | 5 | 45 | - | 11 | 12 | 21 | 29 | 430 | 4 | 23 | 5 | 1 | 1 | 2 | |
| D.C. | 6 | - | 2 | - | 6 | 9 | 9 | - | 14 | 8 | 13 | - | - | 1 | - | |
| Va. | 16 | 14 | 39 | - | 2 | 1 | 22 | 7 | 36 | 1 | 9 | 4 | - | - | - | |
| W. Va. | 1 | - | 6 | - | - | - | 7 | 1 | 37 | - | 8 | 9 | - | - | - | |
| N.C. | 5 | - | 3 | - | - | 156 | 30 | - | 53 | - | 13 | 15 | - | - | 1 | |
| S.C. | - | - | 1 | - | - | - | 15 | - | 15 | 1 | 4 | - | - | - | - | |
| Ga. | 6 | - | 6 | - | 12 | - | 40 | - | 47 | - | 11 | 6 | - | - | - | |
| Fla. | 18 | 3 | 279 | - | 40 | 47 | 54 | 9 | 108 | - | 6 | 24 | - | 10 | 1 | |
| E.S. CENTRAL | 9 | 1 | 45 | 2 | 2 | 16 | 61 | 3 | 46 | 2 | 39 | 33 | - | 1 | 1 | |
| Ky. | 2 | - | 3 | - | - | 2 | 18 | - | - | - | - | 1 | - | - | - | |
| Tenn. | 6 | - | 21 | - | - | 1 | 22 | 1 | 19 | 1 | 13 | 14 | - | 1 | 1 | |
| Ala. | 1 | 1 | 6 | 2 [§] | 2 | 13 | 19 | 2 | 8 | 1 | 24 | 15 | - | - | - | |
| Miss. | - | - | 15 | - | - | - | 2 | N | N | - | 2 | 3 | - | - | - | |
| W.S. CENTRAL | 7 | 168 | 889 | 1 | 49 | 1,759 | 69 | 17 | 423 | 2 | 18 | 22 | - | 1 | 11 | |
| Ark. | - | - | - | - | 13 | - | 6 | 1 | 100 | - | 1 | 10 | - | 1 | - | |
| La. | - | - | - | - | - | 6 | 16 | 1 | 67 | 1 | 2 | 4 | - | - | 5 | |
| Okla. | 3 | 8 | 131 | - | - | 7 | 9 | 3 | 96 | 1 | 15 | 8 | - | - | 1 | |
| Tex. | 4 | 160 | 758 | 1 [†] | 36 | 1,746 | 38 | 12 | 160 | - | - | - | - | - | 5 | |
| MOUNTAIN | 7 | 29 | 326 | 10 | 61 | 69 | 30 | 10 | 141 | 6 | 86 | 275 | 1 | 23 | 2 | |
| Mont. | - | - | - | - | 1 | 13 | 6 | - | - | 3 | 3 | - | - | 13 | 1 | |
| Idaho | 2 | - | 14 | - | 5 | 1 | 2 | 3 | 63 | 1 | 11 | 32 | - | 6 | - | |
| Wyo. | - | - | - | 2 [§] | 2 | - | - | - | 2 | - | - | - | - | - | - | |
| Colo. | - | 13 | 34 | 7 ^{†§} | 25 | 22 | 10 | 2 | 13 | - | 47 | 17 | 1 | 3 | - | |
| N. Mex. | 1 | 2 | 60 | 1 [†] | 14 | 23 | 2 | N | N | 2 | 6 | 4 | - | - | - | |
| Ariz. | 4 | - | 112 | - | 11 | 10 | 2 | 4 | 49 | - | 10 | 216 | - | - | - | |
| Utah | - | 2 | 2 | - | - | - | 4 | 1 | 4 | - | 5 | 5 | - | - | - | |
| Nev. | - | 12 | 104 | - | 3 | - | 4 | - | 10 | - | 4 | 1 | - | 1 | 1 | |
| PACIFIC | 97 | 206 | 1,643 | 1 | 63 | 600 | 293 | 19 | 263 | 25 | 123 | 86 | 20 | 234 | 75 | |
| Wash. | 6 | - | 7 | - | 38 | 32 | 32 | 1 | 20 | - | 31 | 22 | - | - | - | |
| Oreg. | 4 | - | - | - | - | - | 32 | N | N | - | 3 | 4 | - | - | 1 | |
| Calif. | 86 | 204 | 1,564 | 1 [†] | 22 | 557 | 222 | 18 | 239 | 21 | 73 | 58 | 20 | 229 | 57 | |
| Alaska | - | 1 | 70 | - | 2 | - | 6 | - | - | - | - | - | - | - | - | |
| Hawaii | 1 | 1 | 2 | - | 1 | 11 | 1 | - | 4 | 4 | 16 | 2 | - | 5 | 17 | |
| Guam | 1 | U | - | U | - | 1 | - | U | - | U | - | 1 | U | - | - | |
| P.R. | - | - | 698 | - | - | 295 | 6 | - | 3 | - | 4 | 2 | - | - | 4 | |
| V.I. | - | - | - | - | - | 4 | - | - | 5 | - | - | - | - | - | - | |
| Amer. Samoa | - | U | - | U | - | - | - | U | - | U | - | - | U | - | - | |
| C.N.M.I. | - | U | - | U | - | - | - | U | 5 | U | - | - | U | - | - | |

*For measles only, imported cases includes both out-of-state and international importations.

N: Not notifiable U: Unavailable [†]International [§]Out-of-state

TABLE II. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending May 5, 1990, and May 6, 1989 (18th Week)

| Reporting Area | Syphilis (Civilian) (Primary & Secondary) | | Toxic- shock Syndrome | Tuberculosis | | Tula- remia | Typhoid Fever | Typhus Fever (Tick-borne) (RMSF) | Rabies, Animal |
|----------------|--|--------------|-----------------------------|--------------|--------------|----------------|------------------|--|-------------------|
| | Cum. 1990 | Cum. 1989 | Cum. 1990 | Cum. 1990 | Cum. 1989 | Cum. 1990 | Cum. 1990 | Cum. 1990 | Cum. 1990 |
| UNITED STATES | 16,498 | 14,210 | 125 | 6,714 | 6,601 | 14 | 124 | 39 | 1,231 |
| NEW ENGLAND | 664 | 561 | 10 | 156 | 147 | - | 9 | - | 1 |
| Maine | 5 | 3 | 2 | - | 3 | - | - | - | - |
| N.H. | 32 | 2 | 1 | 3 | 10 | - | - | - | 1 |
| Vt. | 1 | - | - | 2 | 2 | - | - | - | - |
| Mass. | 242 | 165 | 6 | 77 | 78 | - | 8 | - | - |
| R.I. | 2 | 14 | - | 28 | 18 | - | - | - | - |
| Conn. | 382 | 377 | 1 | 46 | 36 | - | 1 | - | - |
| MID. ATLANTIC | 3,584 | 2,973 | 12 | 1,684 | 1,339 | 1 | 34 | 3 | 278 |
| Upstate N.Y. | 259 | 297 | 4 | 24 | 117 | - | 8 | - | 8 |
| N.Y. City | 1,714 | 1,185 | 4 | 1,091 | 779 | - | 17 | - | - |
| N.J. | 557 | 477 | - | 304 | 207 | 1 | 8 | 3 | 85 |
| Pa. | 1,054 | 1,014 | 4 | 265 | 236 | - | 1 | - | 185 |
| E.N. CENTRAL | 1,136 | 553 | 35 | 699 | 713 | - | 19 | 3 | 23 |
| Ohio | 176 | 38 | 17 | 91 | 136 | - | 5 | 1 | 2 |
| Ind. | 11 | 22 | 2 | 34 | 62 | - | - | - | - |
| Ill. | 430 | 249 | 3 | 355 | 320 | - | 10 | - | 7 |
| Mich. | 393 | 217 | 13 | 191 | 159 | - | 3 | 2 | 2 |
| Wis. | 126 | 27 | - | 28 | 36 | - | 1 | - | 12 |
| W.N. CENTRAL | 139 | 111 | 16 | 172 | 182 | 5 | - | 4 | 190 |
| Minn. | 36 | 8 | - | 28 | 43 | - | - | - | 73 |
| Iowa | 14 | 14 | 2 | 21 | 25 | - | - | - | 10 |
| Mo. | 67 | 59 | 11 | 83 | 65 | 4 | - | 3 | 7 |
| N. Dak. | 1 | 1 | - | 7 | 9 | - | - | - | 23 |
| S. Dak. | 1 | - | - | 4 | 12 | - | - | - | 55 |
| Nebr. | 4 | 15 | 2 | 10 | 6 | 1 | - | - | - |
| Kans. | 16 | 14 | 1 | 19 | 22 | - | - | 1 | 22 |
| S. ATLANTIC | 5,108 | 5,105 | 3 | 1,286 | 1,374 | 3 | 9 | 10 | 351 |
| Del. | 67 | 54 | - | 13 | 18 | - | - | - | 4 |
| Md. | 415 | 268 | - | 110 | 118 | - | 4 | - | 127 |
| D.C. | 274 | 300 | - | 37 | 57 | - | - | - | - |
| Va. | 263 | 186 | - | 111 | 129 | 1 | - | - | 62 |
| W. Va. | 6 | 4 | - | 25 | 30 | - | - | - | 10 |
| N.C. | 598 | 314 | 2 | 163 | 134 | 1 | - | 7 | 2 |
| S.C. | 297 | 265 | - | 157 | 142 | 1 | - | 2 | 44 |
| Ga. | 1,184 | 1,077 | - | 172 | 192 | - | 1 | 1 | 76 |
| Fla. | 2,004 | 2,637 | 1 | 498 | 554 | - | 4 | - | 26 |
| E.S. CENTRAL | 1,438 | 886 | 5 | 576 | 569 | 1 | - | 5 | 56 |
| Ky. | 25 | 19 | - | 146 | 141 | - | - | - | 23 |
| Tenn. | 623 | 370 | 3 | 178 | 148 | 1 | - | 5 | 6 |
| Ala. | 409 | 304 | 2 | 164 | 166 | - | - | - | 27 |
| Miss. | 381 | 193 | - | 88 | 114 | - | - | - | - |
| W.S. CENTRAL | 2,663 | 1,827 | 6 | 801 | 741 | 3 | 3 | 12 | 170 |
| Ark. | 149 | 110 | - | 81 | 83 | 1 | - | 1 | 8 |
| La. | 819 | 424 | 1 | 78 | 95 | - | - | - | - |
| Okla. | 76 | 28 | 5 | 70 | 61 | 2 | 1 | 10 | 50 |
| Tex. | 1,619 | 1,265 | - | 572 | 502 | - | 2 | 1 | 112 |
| MOUNTAIN | 317 | 264 | 16 | 141 | 161 | 1 | 7 | 1 | 54 |
| Mont. | - | - | - | 10 | 5 | - | - | - | 17 |
| Idaho | 5 | - | 1 | 3 | 6 | - | - | - | - |
| Wyo. | - | - | 1 | - | - | - | - | - | 26 |
| Colo. | 16 | 46 | 5 | 6 | 7 | - | - | - | - |
| N. Mex. | 18 | 11 | 4 | 34 | 27 | 1 | - | 1 | 3 |
| Ariz. | 211 | 70 | 5 | 67 | 77 | - | 5 | - | 6 |
| Utah | 3 | 9 | - | 3 | 19 | - | - | - | - |
| Nev. | 64 | 128 | - | 18 | 20 | - | 2 | - | 2 |
| PACIFIC | 1,449 | 1,930 | 22 | 1,199 | 1,375 | - | 43 | 1 | 108 |
| Wash. | 100 | 142 | 3 | 102 | 68 | - | 1 | - | - |
| Oreg. | 45 | 100 | - | 42 | 48 | - | - | - | - |
| Calif. | 1,295 | 1,681 | 18 | 988 | 1,180 | - | 40 | 1 | 92 |
| Alaska | 3 | 2 | - | 16 | 24 | - | - | - | 16 |
| Hawaii | 6 | 5 | 1 | 51 | 55 | - | 2 | - | - |
| Guam | 1 | 3 | - | 14 | 30 | - | - | - | - |
| P.R. | 263 | 182 | - | 29 | 91 | - | - | - | 16 |
| V.I. | 1 | 1 | - | 3 | 3 | - | - | - | - |
| Amer. Samoa | - | - | - | 6 | 2 | - | - | - | - |
| C.N.M.I. | - | 1 | - | 11 | 6 | - | 4 | - | - |

U: Unavailable

TABLE III. Deaths in 121 U.S. cities,* week ending May 5, 1990 (18th Week)

| Reporting Area | All Causes, By Age (Years) | | | | | | P&I** | Reporting Area | All Causes, By Age (Years) | | | | | | P&I** |
|---------------------|----------------------------|-------|-------|-------|------|----|-------|-----------------------|----------------------------|----------|-------|-------|-------|------|-------|
| | All Ages | ≥65 | 45-64 | 25-44 | 1-24 | <1 | | | Total | All Ages | ≥65 | 45-64 | 25-44 | 1-24 | |
| NEW ENGLAND | 580 | 407 | 93 | 43 | 14 | 23 | 50 | S. ATLANTIC | 1,407 | 860 | 287 | 151 | 58 | 49 | 69 |
| Boston, Mass. | 160 | 99 | 33 | 14 | 5 | 9 | 21 | Atlanta, Ga. | 177 | 91 | 42 | 24 | 6 | 14 | 6 |
| Bridgeport, Conn. | 47 | 31 | 8 | 5 | 2 | 1 | 2 | Baltimore, Md. | 418 | 266 | 81 | 44 | 15 | 12 | 22 |
| Cambridge, Mass. | 23 | 20 | 3 | - | - | - | 1 | Charlotte, N.C. | 84 | 53 | 20 | 9 | 1 | 1 | 5 |
| Fall River, Mass. | 39 | 31 | 6 | 2 | - | - | - | Jacksonville, Fla. | 109 | 55 | 26 | 21 | 7 | - | 5 |
| Hartford, Conn. | 39 | 25 | 10 | 2 | - | 2 | 4 | Miami, Fla. | 101 | 51 | 29 | 19 | 1 | 1 | 1 |
| Lowell, Mass. | 23 | 18 | 3 | 2 | - | - | 3 | Norfolk, Va. | 59 | 35 | 10 | 3 | 6 | 5 | 5 |
| Lynn, Mass. | 16 | 14 | 1 | 1 | - | - | - | Richmond, Va. | 88 | 54 | 18 | 5 | 6 | 5 | 7 |
| New Bedford, Mass. | 26 | 24 | 2 | - | - | - | 1 | Savannah, Ga. | 44 | 34 | 3 | 3 | 2 | 2 | 2 |
| New Haven, Conn. | 39 | 23 | 5 | 5 | 2 | 4 | 4 | St. Petersburg, Fla. | 90 | 75 | 9 | 4 | - | 2 | 3 |
| Providence, R.I. | 39 | 32 | 4 | 3 | - | - | 4 | Tampa, Fla. | 72 | 48 | 15 | 3 | 5 | - | 4 |
| Somerville, Mass. | 9 | 8 | - | 1 | - | - | 2 | Washington, D.C. | 139 | 77 | 31 | 15 | 8 | 7 | 7 |
| Springfield, Mass. | 40 | 27 | 4 | 2 | 1 | 6 | 2 | Wilmington, Del. | 26 | 21 | 3 | 1 | 1 | - | 2 |
| Waterbury, Conn. | 18 | 12 | 2 | 3 | - | 1 | - | E.S. CENTRAL | 878 | 581 | 171 | 69 | 21 | 36 | 40 |
| Worcester, Mass. | 62 | 43 | 12 | 3 | 4 | - | 6 | Birmingham, Ala. | 75 | 46 | 22 | 3 | 1 | 3 | 4 |
| MID. ATLANTIC | 2,582 | 1,677 | 496 | 260 | 80 | 68 | 152 | Chattanooga, Tenn. | 61 | 31 | 16 | 11 | 1 | 2 | 5 |
| Albany, N.Y. | 41 | 28 | 7 | 3 | 1 | 2 | - | Knoxville, Tenn. | 113 | 73 | 26 | 6 | 4 | 4 | 8 |
| Allentown, Pa. | 19 | 11 | 5 | 3 | - | - | - | Louisville, Ky. | 134 | 94 | 23 | 8 | 2 | 7 | 6 |
| Buffalo, N.Y. | 110 | 69 | 29 | 4 | 6 | 2 | 4 | Memphis, Tenn. | 191 | 116 | 41 | 19 | 8 | 7 | - |
| Camden, N.J. | 32 | 23 | 6 | 1 | 1 | 1 | - | Mobile, Ala. | 124 | 91 | 15 | 8 | 3 | 7 | 2 |
| Elizabeth, N.J. | 22 | 18 | 4 | - | - | - | - | Montgomery, Ala. | 53 | 40 | 5 | 5 | - | 3 | 6 |
| Erie, Pa.† | 29 | 24 | 3 | 2 | - | - | 1 | Nashville, Tenn. | 127 | 90 | 23 | 9 | 2 | 3 | 9 |
| Jersey City, N.J. | 43 | 24 | 7 | 7 | - | 5 | - | W.S. CENTRAL | 1,832 | 1,107 | 432 | 185 | 54 | 54 | 89 |
| N.Y. City, N.Y. | 1,348 | 841 | 267 | 162 | 45 | 33 | 66 | Austin, Tex. | 71 | 47 | 8 | 8 | 5 | 3 | 9 |
| Newark, N.J. | 88 | 34 | 24 | 22 | 3 | 4 | 10 | Baton Rouge, La. | 35 | 24 | 7 | 4 | - | - | - |
| Paterson, N.J. | 30 | 15 | 6 | 4 | 3 | 2 | - | Corpus Christi, Tex. | 42 | 28 | 10 | 2 | - | 2 | 2 |
| Philadelphia, Pa. | 388 | 258 | 77 | 24 | 15 | 14 | 36 | Dallas, Tex. | 231 | 129 | 57 | 27 | 10 | 8 | 7 |
| Pittsburgh, Pa.† | 66 | 47 | 9 | 7 | 2 | 1 | 5 | El Paso, Tex. | 67 | 50 | 7 | 5 | 3 | 2 | 4 |
| Reading, Pa. | 32 | 27 | 4 | 1 | - | - | 7 | Fort Worth, Tex | 104 | 55 | 32 | 8 | 2 | 7 | 11 |
| Rochester, N.Y. | 121 | 90 | 20 | 6 | 3 | 2 | 15 | Houston, Tex.§ | 734 | 436 | 169 | 89 | 24 | 16 | 18 |
| Schenectady, N.Y. | 22 | 20 | 1 | 1 | - | - | 1 | Little Rock, Ark. | 85 | 52 | 25 | 5 | 1 | 2 | 8 |
| Scranton, Pa.† | 24 | 20 | 3 | 1 | - | - | 1 | New Orleans, La.§ | 96 | 58 | 23 | 10 | 2 | 3 | - |
| Syracuse, N.Y. | 85 | 67 | 11 | 4 | 1 | 2 | 2 | San Antonio, Tex. | 246 | 147 | 69 | 20 | 6 | 4 | 18 |
| Trenton, N.J. | 35 | 23 | 6 | 6 | - | - | 3 | Shreveport, La. | 38 | 24 | 11 | - | - | 3 | 3 |
| Utica, N.Y. | 20 | 15 | 4 | 1 | - | - | - | Tulsa, Okla. | 83 | 57 | 14 | 7 | 1 | 4 | 9 |
| Yonkers, N.Y. | 27 | 23 | 3 | 1 | - | - | 1 | MOUNTAIN | 658 | 433 | 124 | 56 | 16 | 28 | 40 |
| E.N. CENTRAL | 2,367 | 1,586 | 450 | 176 | 69 | 86 | 107 | Albuquerque, N. Mex. | 74 | 54 | 12 | 4 | 3 | 1 | 8 |
| Akron, Ohio | 73 | 45 | 17 | 3 | 1 | 7 | - | Colo. Springs, Colo. | 39 | 24 | 6 | 6 | 2 | 1 | 8 |
| Canton, Ohio | 40 | 29 | 9 | 2 | - | - | 3 | Denver, Colo. | 118 | 79 | 18 | 11 | 2 | 8 | 7 |
| Chicago, Ill.§ | 564 | 362 | 125 | 45 | 10 | 22 | 16 | Las Vegas, Nev. | 105 | 60 | 27 | 12 | 2 | 4 | 6 |
| Cincinnati, Ohio | 134 | 90 | 25 | 10 | 6 | 3 | 18 | Ogden, Utah | 20 | 13 | 6 | 1 | - | - | 2 |
| Cleveland, Ohio | 152 | 111 | 20 | 7 | 8 | 6 | 4 | Phoenix, Ariz. | 142 | 96 | 27 | 11 | 3 | 5 | 1 |
| Columbus, Ohio | 172 | 112 | 31 | 10 | 10 | 9 | 2 | Pueblo, Colo. | 25 | 16 | 4 | 3 | 1 | 1 | 1 |
| Dayton, Ohio | 123 | 85 | 22 | 9 | 3 | 4 | 7 | Salt Lake City, Utah | 41 | 22 | 9 | 2 | 2 | 5 | - |
| Detroit, Mich. | 227 | 136 | 47 | 24 | 10 | 10 | 7 | Tucson, Ariz. | 94 | 69 | 15 | 6 | 1 | 3 | 7 |
| Evansville, Ind. | 50 | 41 | 6 | 3 | - | - | 3 | PACIFIC | 1,989 | 1,306 | 377 | 193 | 70 | 39 | 116 |
| Fort Wayne, Ind. | 68 | 52 | 9 | 4 | 3 | - | 4 | Berkeley, Calif. | 21 | 17 | 2 | 1 | - | 1 | 2 |
| Gary, Ind. | 28 | 13 | 7 | 7 | 1 | - | - | Fresno, Calif. | 94 | 69 | 13 | 6 | 2 | 2 | 12 |
| Grand Rapids, Mich. | 72 | 52 | 10 | 4 | 3 | 3 | 9 | Glendale, Calif. | 25 | 20 | 2 | 2 | 1 | - | 3 |
| Indianapolis, Ind. | 167 | 110 | 36 | 11 | 2 | 8 | 3 | Honolulu, Hawaii | 90 | 58 | 19 | 7 | 4 | 2 | 15 |
| Madison, Wis. | 42 | 33 | 4 | 1 | 4 | - | 5 | Long Beach, Calif. | 80 | 49 | 15 | 8 | 6 | 2 | 9 |
| Milwaukee, Wis. | 144 | 97 | 25 | 17 | 1 | 4 | 5 | Los Angeles Calif. | 635 | 391 | 139 | 74 | 26 | 5 | 26 |
| Peoria, Ill. | 49 | 34 | 7 | 2 | 1 | 5 | 5 | Oakland, Calif. | 70 | 42 | 19 | 5 | 1 | 3 | - |
| Rockford, Ill. | 42 | 30 | 7 | 3 | 2 | - | 2 | Pasadena, Calif. | 23 | 16 | 4 | - | 1 | 2 | 4 |
| South Bend, Ind. | 44 | 30 | 5 | 5 | 2 | 2 | 3 | Portland, Ore. | 119 | 93 | 13 | 8 | 2 | 2 | 8 |
| Toledo, Ohio | 103 | 65 | 26 | 7 | 2 | 3 | 7 | Sacramento, Calif. | 155 | 102 | 32 | 13 | 6 | 2 | 15 |
| Youngstown, Ohio | 73 | 59 | 12 | 2 | - | - | 6 | San Diego, Calif. | 145 | 97 | 26 | 12 | 6 | 4 | 10 |
| W.N. CENTRAL | 776 | 549 | 137 | 50 | 24 | 16 | 47 | San Francisco, Calif. | 159 | 99 | 28 | 24 | 3 | 4 | 3 |
| Des Moines, Iowa | 63 | 41 | 15 | 4 | 3 | - | 4 | San Jose, Calif. | 148 | 101 | 25 | 15 | 5 | 2 | 7 |
| Duluth, Minn. | 16 | 16 | - | - | - | - | 2 | Seattle, Wash. | 142 | 91 | 26 | 15 | 5 | 5 | - |
| Kansas City, Kans. | 18 | 13 | 3 | 1 | - | 1 | 1 | Spokane, Wash. | 47 | 36 | 9 | - | - | 2 | 1 |
| Kansas City, Mo. | 111 | 81 | 14 | 7 | 6 | 3 | 6 | Tacoma, Wash. | 36 | 25 | 5 | 3 | 2 | 1 | 1 |
| Lincoln, Nebr. | 38 | 30 | 3 | 4 | 1 | - | 9 | TOTAL | 13,069 ^{††} | 8,506 | 2,567 | 1,183 | 406 | 399 | 710 |
| Minneapolis, Minn. | 219 | 145 | 39 | 21 | 9 | 5 | 14 | | | | | | | | |
| Omaha, Nebr. | 97 | 71 | 17 | 4 | 2 | 3 | 6 | | | | | | | | |
| St. Louis, Mo. | 98 | 67 | 25 | 4 | 1 | 1 | 5 | | | | | | | | |
| St. Paul, Minn. | 51 | 38 | 7 | 4 | - | 2 | - | | | | | | | | |
| Wichita, Kans. | 65 | 47 | 14 | 1 | 2 | 1 | - | | | | | | | | |

*Mortality data in this table are voluntarily reported from 121 cities in the United States, most of which have populations of 100,000 or more. 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 these 3 Pennsylvania cities, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

††Total includes unknown ages.

§Data not available. Figures are estimates based on average of past available 4 weeks.

Cholesterol Screening – Continued

TABLE 2. Changes from 1987 to 1988 in percentage of adults who reported ever being told their cholesterol level, by area* – Behavioral Risk Factor Surveillance System (BRFSS)[†]

| Area | 1988 Sample size | Respondents ever told their cholesterol level, 1988 | | % Change [‡] 1987 to 1988 | |
|----------------------|------------------------|--|---------------------|---------------------------------------|---------------------|
| | | (%) | 95% CI [¶] | (%) | 95% CI [¶] |
| Wisconsin | 1272 | (40) | ±3 | (18) | ±4** |
| Washington | 1253 | (39) | ±3 | (10) | ±4** |
| Maine | 1283 | (38) | ±3 | (18) | ±4** |
| Minnesota | 3418 | (36) | ±2 | (13) | ±2** |
| New Hampshire | 1195 | (33) | ±3 | (12) | ±4** |
| South Dakota | 1179 | (32) | ±3 | (13) | ±4** |
| Montana | 1185 | (32) | ±3 | (8) | ±4** |
| Arizona | 1176 | (31) | ±3 | (12) | ±4** |
| Maryland | 1107 | (31) | ±3 | (7) | ±4** |
| Nebraska | 1372 | (31) | ±3 | (10) | ±4** |
| North Dakota | 1621 | (31) | ±3 | (11) | ±3** |
| Florida | 1483 | (31) | ±3 | (8) | ±4** |
| Massachusetts | 1425 | (29) | ±3 | (8) | ±4** |
| Idaho | 1796 | (29) | ±2 | (11) | ±3** |
| Hawaii | 1865 | (29) | ±3 | (7) | ±4** |
| Texas | 1173 | (28) | ±3 | (8) | ±4** |
| Georgia | 1503 | (28) | ±3 | (11) | ±4** |
| California | 2452 | (28) | ±2 | (6) | ±3** |
| North Carolina | 1716 | (25) | ±2 | (8) | ±3** |
| Illinois | 1781 | (25) | ±2 | (10) | ±3** |
| Utah | 1428 | (24) | ±3 | (4) | ±3** |
| Rhode Island | 1763 | (24) | ±2 | (10) | ±3** |
| Missouri | 1356 | (24) | ±2 | (7) | ±3** |
| District of Columbia | 1146 | (23) | ±3 | (1) | ±4 |
| Ohio | 1470 | (23) | ±2 | (7) | ±3** |
| Indiana | 2160 | (23) | ±2 | (9) | ±3** |
| West Virginia | 1728 | (22) | ±2 | (5) | ±3** |
| Kentucky | 1796 | (21) | ±2 | (7) | ±3** |
| Alabama | 1500 | (19) | ±2 | (4) | ±3** |
| New York | 1179 | (19) | ±3 | (10) | ±3** |
| New Mexico | 1146 | (19) | ±3 | (15) | ±3** |
| Tennessee | 2393 | (18) | ±2 | (3) | ±2** |
| South Carolina | 1860 | (18) | ±2 | (7) | ±2** |
| Median | | | 28% | | 8% |
| Range | | | 18%–40% | | 1%–18% |

*Ranked in order of percentage of respondents who reported ever being told their cholesterol level.

[†]Includes areas participating in the BRFSS during both 1987 and 1988.

[‡]1988 percentage minus 1987 percentage.

[¶]Confidence interval.

**Statistically significant change between data for 1987 and 1988; $p < 0.05$.

Cholesterol Screening – Continued

In 1988, the percentage of adults who reported knowing their cholesterol level ranged from 6% in the District of Columbia to 21% in Maine, Washington, and Wisconsin (median: 13%) (Table 3). In all states, the percentage of adults who reported knowing their cholesterol level increased (median difference: 7%); for 32 (97%) states, this increase was statistically significant.

When the data for all states were combined, 54% of persons surveyed in 1988 who reported having their cholesterol level checked during the previous year were told their cholesterol level; in contrast, 40% of those surveyed in 1987 had been told their cholesterol level during the previous year. Similarly, 54% of those surveyed in 1988 who were told their level reported knowing their level, compared with 36% of those surveyed in 1987. As a result, the proportion of persons who knew their cholesterol level among those who reported having their cholesterol checked during the previous year increased from 15% in 1987 to 29% in 1988.

Reported by: The following state BRFSS coordinators: L Eldrige, Alabama; J Contreras, Arizona; P Sanchiotti, California; S Hoecherl, Florida; JD Smith, Georgia; A Villafuerte, Hawaii; J Mitten, Idaho; B Steiner, Illinois; S Joseph, Indiana; K Bramblett, Kentucky; R Schwartz, Maine; A Weinstein, Maryland; L Koumijian Yandel, Massachusetts; N Salem, Minnesota; J Jackson-Thompson, Missouri; M McFarland, Montana; R Thurber, Nebraska; K Zaso, New Hampshire; L Pendley, New Mexico; J Marin, New York; C Washington, North Carolina; M Maetzold, North Dakota; E Capwell, Ohio; R Cabrel, Rhode Island; M Mace, South Carolina; S Moritz, South Dakota; D Riding, Tennessee; J Fellows, Texas; B Neiger, Utah; K Tollestrup, Washington; A Peruga, Washington, DC; J Criniti, West Virginia; M Soref, Wisconsin. R Stark, MD, C Mastrantuono, American Heart Association. C Haines, MPH, National Heart, Lung, and Blood Institute, National Institutes of Health. A Levy, PhD, Div of Consumer Studies, Food and Drug Administration. Behavioral Surveillance Br, Office of Surveillance and Analysis and Div of Chronic Disease Control and Community Intervention, Center for Chronic Disease Prevention and Health Promotion, CDC.

Editorial Note: The proposed health objectives for the nation state that by the year 2000 at least 90% of persons aged ≥ 18 years should have had their cholesterol checked within the previous 5 years and at least 75% should be able to report their cholesterol level (7). Data from the BRFSS indicate that substantial progress was made in most states toward meeting these objectives from 1987 to 1988. National surveys conducted by the NHLBI and the Food and Drug Administration (FDA) have also demonstrated substantial increases in cholesterol screening and awareness. In these surveys, the proportion of persons who reported ever having their blood cholesterol checked rose from 35% in 1983 to 58% in 1988, and the proportion who reported knowing their cholesterol level rose from 3% in 1983 to 17% in 1988 (8; NHLBI and FDA, unpublished data).

Cholesterol screening and awareness varied substantially by state. Factors that account for this variation may include state-specific differences in 1) times of implementation and intensity of cholesterol education and screening programs, 2) the availability and quality of clinical preventive services, and 3) age, race/ethnicity, and socioeconomic status of residents.

Potential explanations for the increase in the percentage of adults who reported ever having their blood cholesterol checked include greater public interest in cholesterol (8), increased quantity and quality of screening services offered by health-care providers, and more extensive efforts by health-care providers to educate patients regarding cholesterol (9). Greater public and health-care-provider awareness regarding cholesterol is reflected by increases in the proportion of persons who

Cholesterol Screening – Continued

TABLE 3. Changes from 1987 to 1988 in percentage of adults who reported knowing their cholesterol level, by area* – Behavioral Risk Factor Surveillance System (BRFSS)[†]

| Area | 1988 Sample size | Respondents knowing their cholesterol level, 1988 | | % Change [§] 1987 to 1988 | |
|----------------------|------------------------|--|---------------------|---------------------------------------|---------------------|
| | | (%) | 95% CI [¶] | (%) | 95% CI [¶] |
| Washington | 1253 | (21) | ±2 | (12) | ±3** |
| Wisconsin | 1272 | (21) | ±3 | (13) | ±3** |
| Maine | 1283 | (21) | ±2 | (12) | ±3** |
| Minnesota | 3418 | (19) | ±2 | (11) | ±1** |
| Arizona | 1176 | (16) | ±2 | (10) | ±3** |
| Montana | 1185 | (16) | ±2 | (8) | ±3** |
| North Dakota | 1621 | (16) | ±2 | (10) | ±2** |
| South Dakota | 1179 | (15) | ±2 | (11) | ±2** |
| Rhode Island | 1763 | (15) | ±2 | (10) | ±2** |
| Massachusetts | 1425 | (15) | ±2 | (8) | ±2** |
| New Hampshire | 1195 | (15) | ±2 | (6) | ±3** |
| California | 2452 | (14) | ±2 | (8) | ±2** |
| North Carolina | 1716 | (14) | ±2 | (8) | ±2** |
| Idaho | 1796 | (13) | ±2 | (8) | ±2** |
| Hawaii | 1865 | (13) | ±2 | (7) | ±2** |
| Utah | 1428 | (13) | ±2 | (8) | ±2** |
| Maryland | 1107 | (13) | ±2 | (4) | ±3** |
| Nebraska | 1372 | (13) | ±2 | (7) | ±2** |
| Illinois | 1781 | (12) | ±2 | (8) | ±2** |
| Indiana | 2160 | (12) | ±2 | (7) | ±2** |
| Florida | 1483 | (12) | ±2 | (6) | ±2** |
| Ohio | 1470 | (12) | ±2 | (7) | ±2** |
| New York | 1179 | (12) | ±2 | (8) | ±2** |
| Kentucky | 1796 | (11) | ±2 | (7) | ±2** |
| Texas | 1173 | (11) | ±2 | (5) | ±2** |
| South Carolina | 1860 | (10) | ±2 | (6) | ±2** |
| Georgia | 1503 | (10) | ±2 | (7) | ±2** |
| Missouri | 1356 | (10) | ±2 | (6) | ±2** |
| West Virginia | 1728 | (9) | ±1 | (4) | ±2** |
| Alabama | 1500 | (9) | ±2 | (7) | ±2** |
| Tennessee | 2393 | (8) | ±1 | (4) | ±1** |
| New Mexico | 1146 | (7) | ±2 | (6) | ±2** |
| District of Columbia | 1146 | (6) | ±2 | (2) | ±2 |
| Median | | | 13% | | 7% |
| Range | | | 6%–21% | | 2%–13% |

*Ranked in order of percentage of respondents who reported knowing their cholesterol level.

[†]Includes areas participating in the BRFSS during both 1987 and 1988.[§]1988 percentage minus 1987 percentage.[¶]Confidence interval.

**Statistically significant change between data for 1987 and 1988; p<0.05.

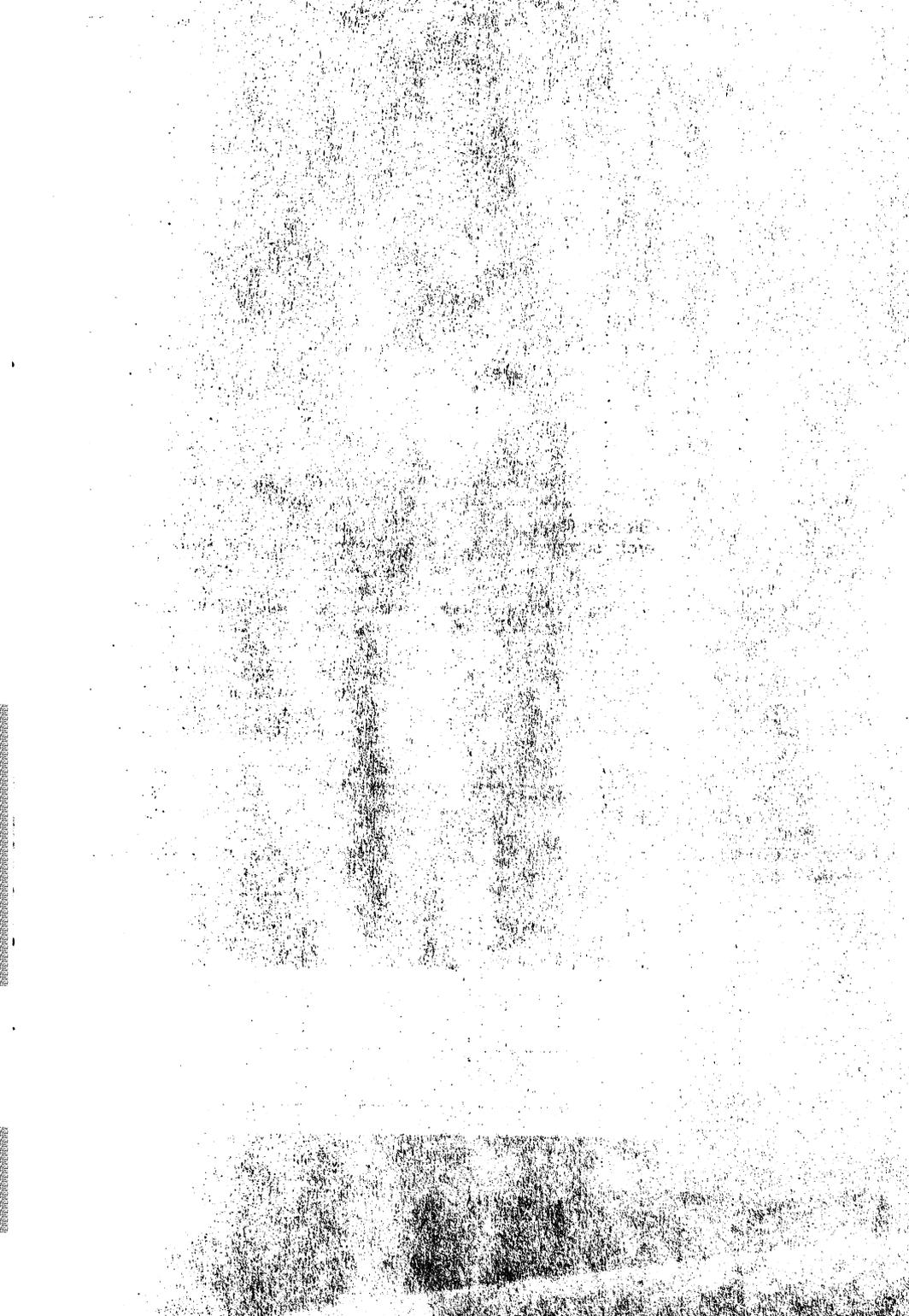
Cholesterol Screening – Continued

were told their cholesterol level after they were screened and by increases in the proportion who could remember their cholesterol level after they were told.

Educational efforts of the NCEP, the American Heart Association (AHA), and state and local public health agencies have likely contributed to increased cholesterol testing and awareness in the United States. In October 1987, guidelines for the detection, evaluation, and treatment of high blood cholesterol were announced by the Adult Treatment Panel of the NCEP and were subsequently distributed to more than 200,000 physicians in the United States. After the release of the Adult Treatment Panel guidelines, the AHA initiated a national campaign to educate physicians about cholesterol. Other NCEP and AHA efforts have included national media campaigns and the distribution of patient-education brochures and cholesterol fact sheets. Many state and local public health agencies have also developed cholesterol screening and education programs.

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Director, Centers for Disease Control
William L. Roper, M.D., M.P.H.
Director, Epidemiology Program Office
Stephen B. Thacker, M.D., M.Sc.

Editor, *MMWR* Series
Richard A. Goodman, M.D., M.P.H.
Managing Editor
Karen L. Foster, M.A.

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