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MORBIDITY AND MORTALITY WEEKLY REPORT

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Current Trends

HIV-Related Knowledge and Behaviors Among High School Students – Selected U.S. Sites, 1989

Since 1987, state, territorial, and local departments of education have periodically assessed human immunodeficiency virus (HIV)-related knowledge and behaviors among high school students (13–18 years of age) in their jurisdictions (1). This report presents selected data from surveys conducted by departments of education in 30 states, 10 cities, and two territories during February–May 1989.

A questionnaire for anonymous self-administration was developed by representatives from 71 state, territorial, and local departments of education, with technical assistance from CDC. The questionnaire contained 39 questions: five for assessing demographic characteristics of respondents, 26 for HIV-related knowledge and beliefs, and eight for intravenous (IV)-drug use and sexual behaviors. Each department of education chose which of the 39 questions to administer: all sites administered questions that assessed demographic characteristics and HIV-related knowledge and beliefs; 25 sites, questions that assessed IV-drug-use behaviors; and 19 sites, questions that assessed sexual behaviors.

Sampling schemes varied among the 42 sites. Eleven sites* drew probability samples from well-defined sampling frames of schools and students, which allowed weighted results of known precision to be computed. Ten sites† also drew probability samples of both schools and students. However, documentation necessary to weight the data or to estimate precision was not available. In general, the 21 other sites‡ drew nonprobability samples of either schools or students.

School response rates ranged from 27% to 100%; student response rates ranged from 41% to 92%. Sample sizes ranged from 303 to 10,279 students (Table 1). From 33% to 86% (median: 62%) of students from all sites reported having been taught about acquired immunodeficiency syndrome (AIDS) or HIV infection in school. The percentage of students from all sites who reported having discussed AIDS or HIV infection with their parents or other adults in their families ranged from 43% to 69% (median: 56%).

*Delaware, District of Columbia, Hawaii, Iowa, Kentucky, Massachusetts, Pennsylvania, and South Dakota; Dallas, Jersey City, and Miami.

†Alabama, Arkansas, California, Louisiana, Michigan, Missouri, Oregon, and Rhode Island; Chicago and Seattle.

‡Colorado, Georgia, Idaho, Kansas, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Puerto Rico, Tennessee, Utah, Virgin Islands, and Washington; Fort Lauderdale, Los Angeles, New York City, San Diego, and San Francisco.

TABLE 1. Size, response rates, and demographic characteristics of samples – selected U.S. sites, 1989

| Site | Sample size | School response rate (%) | Student response rate (%) | Sex (%) | | Grade (%) | | | | Race/Ethnicity (%) | | | | |
|--------------------------------------|-------------|--------------------------|---------------------------|---------|------|-----------|----|----|-----|--------------------|-------|----------|-------|-------|
| | | | | Female | Male | 9 | 10 | 11 | 12 | Black | White | Hispanic | Asian | Other |
| State/Territory | | | | | | | | | | | | | | |
| Alabama* | 6,702 | 100 | 90 [†] | 51 | 49 | 33 | 35 | 31 | 1 | 36 | 60 | 3 | 1 | 1 |
| Arkansas* | 303 | 40 | 86 | 47 | 53 | 2 | 84 | 11 | 3 | 18 | 80 | 2 | 0 | 1 |
| California [§] | 1,858 | 27 | 41 [†] | 55 | 46 | 27 | 30 | 22 | 21 | 7 | 54 | 24 | 12 | 4 |
| Colorado ^{§¶} | 1,908 | NA** | NA | 52 | 48 | 24 | 26 | 27 | 24 | 4 | 83 | 10 | 2 | 2 |
| Delaware ^{††} | 2,414 | 100 | NA | 51 | 49 | 22 | 24 | 30 | 24 | 21 | 72 | 3 | 2 | 2 |
| District of Columbia ^{††§§} | 1,077 | 100 | 66 | 56 | 45 | 1 | 94 | 4 | 0 | 84 | 3 | 7 | 2 | 4 |
| Georgia [¶] | 421 | 81 | 68 | 58 | 42 | 13 | 21 | 37 | 29 | 36 | 60 | 3 | 1 | 1 |
| Hawaii ^{††} | 4,908 | 95 | 78 | 49 | 51 | 10 | 77 | 8 | 4 | 3 | 19 | 14 | 61 | 3 |
| Idaho [¶] | 1,008 | 80 | NA | 54 | 47 | 3 | 88 | 3 | 5 | 2 | 91 | 3 | 1 | 3 |
| Iowa ^{††} | 1,463 | 53 | 90 | 48 | 52 | 30 | 19 | 42 | 10 | 1 | 96 | 1 | 1 | 1 |
| Kansas [¶] | 1,101 | 100 | 83 | 54 | 46 | 40 | 27 | 16 | 15 | 11 | 79 | 7 | 1 | 2 |
| Kentucky ^{††} | 1,458 | 63 | 84 | 49 | 51 | 97 | 1 | 1 | 1 | 8 | 85 | 4 | 2 | 2 |
| Louisiana* | 6,013 | 100 | 70 [†] | 51 | 49 | 31 | 28 | 26 | 16 | 52 | 39 | 5 | 3 | 2 |
| Massachusetts ^{§††} | 2,043 | 82 | 81 | 51 | 49 | 30 | 24 | 30 | 16 | 4 | 88 | 4 | 2 | 2 |
| Michigan* | 873 | 58 | 90 [†] | 52 | 48 | 29 | 32 | 19 | 20 | 24 | 66 | 5 | 2 | 2 |
| Missouri* | 1,201 | 96 | NA | 53 | 47 | 0 | 0 | 0 | 100 | 17 | 79 | 1 | 2 | 1 |
| New Jersey ^{§¶} | 2,153 | 75 | 88 | 48 | 52 | 23 | 19 | 28 | 30 | 23 | 53 | 18 | 4 | 3 |
| New Mexico [¶] | 770 | 76 | NA | 56 | 44 | 24 | 31 | 25 | 19 | 2 | 35 | 44 | 1 | 19 |
| New York ^{§¶} | 3,026 | 85 | NA | 51 | 49 | 25 | 28 | 25 | 22 | NA | NA | NA | NA | NA |
| North Carolina [¶] | 10,279 | 100 [†] | NA | 51 | 49 | 20 | 16 | 17 | 19 | 25 | 71 | 1 | 1 | 3 |
| North Dakota [¶] | 2,924 | 96 | NA | 50 | 50 | 25 | 26 | 27 | 21 | 1 | 94 | 2 | 0 | 3 |
| Ohio [¶] | 4,341 | NA | NA | 53 | 47 | 23 | 31 | 24 | 23 | 13 | 83 | 2 | 1 | 1 |
| Oklahoma [¶] | 2,521 | 30 | 43 | 51 | 49 | 34 | 32 | 12 | 19 | 14 | 69 | 4 | 1 | 12 |
| Oregon* | 2,895 | 41 | 74 | 50 | 50 | 23 | 30 | 25 | 22 | 1 | 86 | 6 | 2 | 5 |

| | | | | | |
|------------------------------|-------|-----|-----------------|----|----|
| Pennsylvania ^{5††} | 4,548 | 89 | 82 [†] | 52 | 48 |
| Puerto Rico [¶] | 984 | 95 | 92 | 57 | 43 |
| Rhode Island* | 7,076 | 100 | 77 | NA | NA |
| South Dakota ^{††} | 1,392 | 90 | 87 | 49 | 51 |
| Tennessee [¶] | 2,098 | 80 | NA | 55 | 45 |
| Utah [¶] | 4,174 | NA | NA | 49 | 51 |
| Virgin Islands [¶] | 1,147 | 100 | NA | 53 | 48 |
| Washington ^{5¶} | 1,176 | 49 | NA | 53 | 47 |
| City | | | | | |
| Chicago* | 1,171 | 89 | 90 [†] | 57 | 43 |
| Dallas ^{††} | 3,483 | 100 | 87 | 53 | 47 |
| Fort Lauderdale [¶] | 861 | 100 | 90 | 51 | 49 |
| Jersey City ^{††} | 493 | 100 | 70 | 45 | 56 |
| Los Angeles [¶] | 3,030 | 100 | 90 [†] | 47 | 53 |
| Miami ^{††} | 1,192 | 100 | 83 | 51 | 49 |
| New York City [¶] | 1,135 | 50 | NA | 54 | 46 |
| San Diego [¶] | 317 | 100 | 61 | 61 | 39 |
| San Francisco [¶] | 793 | 94 | NA | 54 | 46 |
| Seattle* | 1,374 | 100 | 67 | 52 | 49 |

*Probability sample, unweighted data.

[†]Estimated response rate.

⁵Surveys did not include students from the largest cities.

[¶]Nonprobability sample, unweighted data.

**NA = not available.

^{††}Probability sample, weighted data.

⁵⁵Categorized as a state for funding purposes.

HIV – Continued

| | | | | | | | | |
|----|-----|----|----|----|----|----|----|----|
| 29 | 23 | 26 | 22 | 11 | 80 | 6 | 1 | 2 |
| 32 | 25 | 24 | 20 | 1 | 5 | 90 | 0 | 3 |
| 0 | 100 | 0 | 0 | 4 | 82 | 7 | 3 | 4 |
| 28 | 23 | 25 | 24 | 1 | 82 | 3 | 1 | 13 |
| 21 | 30 | 26 | 24 | 12 | 84 | 3 | 1 | 1 |
| 28 | 26 | 26 | 21 | 1 | 86 | 6 | 1 | 6 |
| 42 | 38 | 13 | 4 | 83 | 2 | 12 | 1 | 3 |
| 0 | 45 | 0 | 54 | NA | NA | NA | NA | NA |
| 34 | 29 | 18 | 18 | 62 | 10 | 22 | 3 | 3 |
| 26 | 48 | 18 | 9 | 51 | 19 | 25 | 2 | 3 |
| 59 | 22 | 9 | 10 | 26 | 58 | 12 | 2 | 3 |
| 57 | 33 | 6 | 4 | 39 | 9 | 30 | 11 | 2 |
| 0 | 85 | 12 | 3 | 16 | 17 | 45 | 17 | 5 |
| 32 | 25 | 23 | 21 | 43 | 13 | 40 | 2 | 2 |
| 31 | 20 | 32 | 17 | NA | NA | NA | NA | NA |
| 1 | 95 | 4 | 1 | 13 | 35 | 24 | 22 | 5 |
| 2 | 69 | 24 | 6 | 12 | 15 | 11 | 56 | 7 |
| 51 | 13 | 9 | 27 | 23 | 45 | 7 | 22 | 5 |

HIV – Continued

Varying proportions of students knew that AIDS or HIV infection cannot be transmitted by blood donation (32%–75% [median: 58%]), mosquito or other insect bites (22%–67% [median: 48%]), use of public toilets (44%–85% [median: 73%]), or blood tests (59%–82% [median: 73%]). Most students knew that AIDS or HIV infection can be transmitted by sharing needles used to inject drugs (93%–100% [median: 98%]) or from having sexual intercourse without using a condom (74%–98% [median: 88%]) (Table 2).

Rates of reported IV-drug use varied: 2%–5% of students (median: 3%) reported ever injecting cocaine, heroin, or other illegal drugs, and 0.2%–3% (median: 0.9%) reported sharing needles used to inject any drugs. In all but one site, more male than female students reported these behaviors (Table 3, page 395).

Rates of reported sexual intercourse also varied: 27%–76% of students (median: 56%) reported having had sexual intercourse at least once. In addition, 7%–40% (median: 21%) reported ever having had four or more sex partners. At each site, more male than female students reported having had sexual intercourse at least once and ever having had four or more sex partners (Table 4, page 396).

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Editorial Note: From 1988 to 1989, the number of state, territorial, and local departments of education that conducted surveys about HIV-related knowledge and behaviors among high school students nearly tripled (from 15 to 42). This increase represents a notable step toward establishment of state, territorial, and local school-based surveillance systems for monitoring priority health-risk behaviors among high school students.

HIV-related knowledge and behaviors among high school students are cause for concern throughout the United States. Most importantly, these surveys indicate that many students are at risk for HIV infection because they use IV drugs and share needles or because they have sexual intercourse with multiple partners. Many of these findings are similar to those from surveys conducted in 1988 (1).

Although the findings in this report are based on a combination of probability and nonprobability samples and comparisons of data among sites should be made with caution, these results have assisted in planning and evaluating broad programs in

HIV – Continued

TABLE 2. Percentage of students who responded correctly to questions measuring knowledge of HIV transmission – selected U.S. sites, 1989

| Site | Correctly identified as nonrisk factor for HIV (%) | | | | Correctly identified as risk factor for HIV (%) | |
|--|---|-----------------|----------------------------|---------------------------|--|--|
| | Giving blood | Insect bites | Using public toilets | Having a blood test | Intravenous- drug use | Sexual intercourse without using a condom |
| State/Territory | | | | | | |
| Alabama* | 61.1 | 43.2 | 67.5 | 76.9 | 98.6 | 88.4 |
| Arkansas* | 63.3 | 44.0 | 68.9 | 72.5 | 99.0 | 93.7 |
| California* [†] | 55.6 | 42.3 | 72.2 | 70.8 | 97.7 | 84.7 |
| Colorado ^{†§} | 52.0 | 45.6 | 82.6 | 69.8 | 99.0 | 93.5 |
| Delaware [†] | 71.6 | 49.6 | 69.1 | 77.2 | 98.1 | 96.2 |
| District of Columbia ^{†**} | 49.0 | 44.2 | 70.9 | 68.3 | 96.7 | 86.6 |
| Georgia [§] | 57.0 | 45.3 | 73.0 | 68.5 | 99.0 | 89.1 |
| Hawaii [†] | 51.7 | 64.0 | 82.5 | 72.5 | 96.6 | 84.7 |
| Idaho [§] | 54.3 | 43.3 | 75.5 | 67.4 | 97.8 | 92.2 |
| Iowa [†] | 60.9 | 45.3 | 79.2 | 74.2 | 97.6 | 90.8 |
| Kansas [§] | 64.7 | 58.0 | 80.1 | 72.8 | 98.5 | 92.2 |
| Kentucky [†] | 62.3 | 54.8 | 71.0 | 74.6 | 96.3 | 84.3 |
| Louisiana* | 58.2 | 50.1 | 66.8 | 71.2 | 96.6 | NA ^{††} |
| Massachusetts ^{†¶} | 66.5 | 54.3 | 76.6 | 76.3 | 99.2 | 93.4 |
| Michigan* | 66.1 | 48.0 | 72.1 | 76.4 | 97.0 | 83.7 |
| Missouri [†] | 63.3 | 44.2 | 73.9 | 73.4 | 97.6 | 96.7 |
| New Jersey ^{†§} | 61.4 | 50.6 | 73.2 | 73.1 | 98.4 | 89.5 |
| New Mexico [§] | 55.9 | 50.7 | 75.2 | 72.0 | 97.2 | 80.6 |
| New York ^{†§} | 56.0 | 58.4 | 81.3 | 74.6 | 98.7 | 87.0 |
| North Carolina [§] | 52.8 | 57.6 | 75.7 | 75.3 | 98.0 | 85.2 |
| North Dakota [§] | 63.7 | 57.6 | 84.2 | 80.3 | 98.9 | 89.6 |
| Ohio [§] | 64.1 | 50.2 | 75.1 | 73.8 | 98.7 | 92.8 |
| Oklahoma [§] | 60.2 | 55.6 | 76.1 | 75.5 | 98.0 | 91.5 |
| Oregon* | 68.6 | 47.5 | 72.4 | 75.8 | 97.6 | 90.8 |
| Pennsylvania ^{†¶} | 71.9 | 54.8 | 76.4 | 77.7 | 98.4 | 94.9 |
| Puerto Rico [§] | 43.3 | 21.7 | 44.4 | 67.1 | 97.7 | 96.3 |
| Rhode Island* | 69.9 | 63.9 | NA | 80.3 | 94.6 | NA |
| South Dakota [¶] | 60.9 | 48.4 | 80.1 | 72.1 | 99.1 | 87.2 |
| Tennessee [§] | 65.3 | 43.2 | 66.6 | 74.6 | 97.9 | 87.6 |
| Utah [§] | 54.7 | 48.8 | 70.1 | 69.1 | 97.2 | 92.3 |
| Virgin Islands [§] | 39.0 | 47.0 | 61.3 | 60.1 | 95.4 | 76.1 |
| Washington ^{†§} | 74.5 | 66.5 | 84.3 | 82.4 | 98.7 | 98.3 |
| City | | | | | | |
| Chicago* | 39.9 | 41.9 | 70.5 | 64.8 | 94.9 | 79.7 |
| Dallas [†] | 54.1 | 55.5 | 76.4 | 74.1 | 97.3 | 77.6 |
| Fort Lauderdale [§] | 49.0 | 45.2 | 66.7 | 67.7 | 98.7 | 79.2 |
| Jersey City [¶] | 32.4 | 43.9 | 59.0 | 63.2 | 94.7 | 73.8 |
| Los Angeles [§] | 37.9 | 29.0 | 52.1 | 58.5 | 93.9 | 74.5 |
| Miami [†] | 42.1 | 45.6 | 70.3 | 68.6 | 97.4 | 87.6 |
| New York City [§] | 33.6 | 52.9 | 71.0 | 64.2 | 97.2 | 76.9 |
| San Diego [§] | 61.8 | 58.7 | 84.9 | 79.4 | 99.7 | 98.4 |
| San Francisco [§] | 47.7 | 41.7 | 68.8 | 63.4 | 93.0 | 86.4 |
| Seattle* | 56.4 | 48.5 | 75.7 | 70.7 | 97.9 | 86.7 |

*Probability sample, unweighted data.

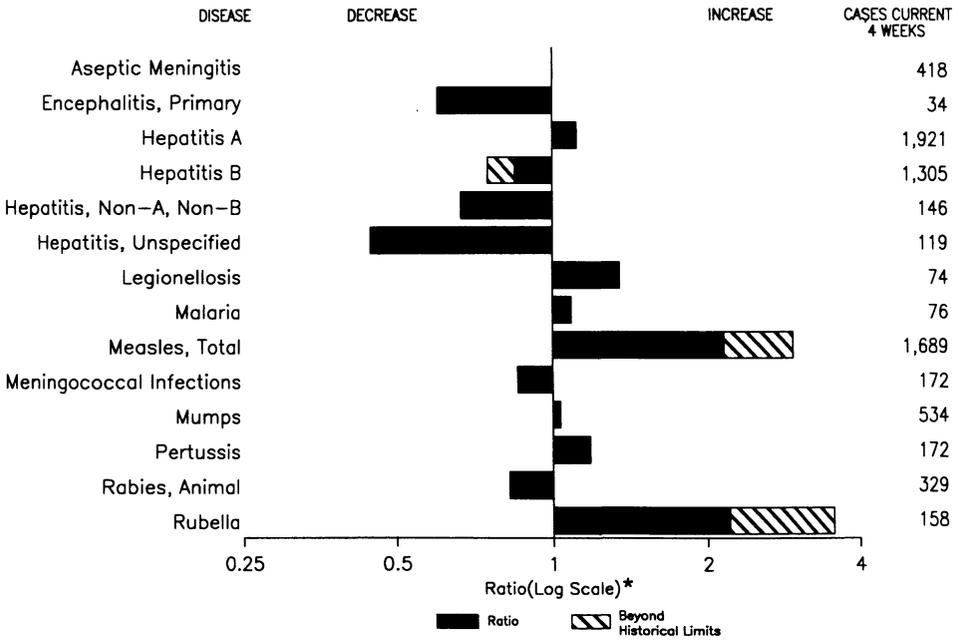
[†]Surveys did not include students from the largest cities.[§]Nonprobability sample, unweighted data.[¶]Probability sample, weighted data.

**Categorized as a state for funding purposes.

^{††}NA = not available.

(Continued on page 395)

FIGURE I. Notifiable disease reports, comparison of 4-week totals ending June 9, 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 June 9, 1990 (23rd Week)

| | Cum. 1990 | | Cum. 1990 |
|-------------------------------|-----------|------------------------------------|-----------|
| AIDS | 18,962 | Plague | - |
| Anthrax | - | Poliomyelitis, Paralytic* | - |
| Botulism: Foodborne | 1 | Psittacosis | 59 |
| Infant | 17 | Rabies, human | - |
| Other | 2 | Syphilis: civilian | 21,345 |
| Brucellosis | 20 | military | 123 |
| Cholera | 1 | Syphilis, congenital, age < 1 year | - |
| Congenital rubella syndrome | 1 | Tetanus | 22 |
| Diphtheria | 1 | Toxic shock syndrome | 143 |
| Encephalitis, post-infectious | 46 | Trichinosis | 12 |
| Gonorrhoea: civilian | 288,434 | Tuberculosis | 8,886 |
| military | 4,031 | Tularemia | 26 |
| Leprosy | 82 | Typhoid fever | 148 |
| Leptospirosis | 16 | Typhus fever, tickborne (RMSF) | 87 |
| Measles: imported | 576 | | |
| indigenous | 9,444 | | |

*Three cases of suspected poliomyelitis have been reported in 1990; five of the 13 suspected cases in 1989 were confirmed and all were vaccine-associated.

TABLE II. Cases of specified notifiable diseases, United States, weeks ending June 9, 1990, and June 10, 1989 (23rd Week)

| Reporting Area | AIDS | Aseptic Mening- itis | Encephalitis | | Gonorrhea (Civilian) | | Hepatitis (Viral), by type | | | | Legionel- losis | Leprosy |
|----------------|--------|----------------------------|--------------|----------------------|-------------------------|--------------|----------------------------|--------------|--------------|------------------|--------------------|---------|
| | | | Primary | Post-in- fectious | | | A | B | NA,NB | Unspeci- fied | | |
| | | | Cum. 1990 | Cum. 1990 | Cum. 1990 | Cum. 1990 | Cum. 1990 | Cum. 1989 | Cum. 1990 | Cum. 1990 | | |
| UNITED STATES | 18,962 | 2,128 | 266 | 46 | 288,434 | 291,540 | 12,899 | 8,958 | 868 | 757 | 477 | 82 |
| NEW ENGLAND | 700 | 88 | 9 | - | 7,876 | 8,462 | 263 | 452 | 28 | 33 | 21 | 5 |
| Maine | 21 | 2 | 1 | - | 97 | 118 | 5 | 18 | 3 | 1 | 1 | - |
| N.H. | 40 | 9 | - | - | 91 | 73 | 5 | 22 | 2 | 2 | 3 | - |
| Vt. | 7 | 10 | 2 | - | 28 | 29 | 3 | 26 | 3 | - | 4 | - |
| Mass. | 378 | 30 | 2 | - | 3,085 | 3,279 | 192 | 280 | 12 | 29 | 9 | 4 |
| R.I. | 34 | 24 | - | - | 461 | 588 | 27 | 25 | - | 1 | 4 | 1 |
| Conn. | 220 | 13 | 4 | - | 4,114 | 4,375 | 31 | 81 | 8 | - | - | - |
| MID. ATLANTIC | 5,965 | 256 | 21 | 3 | 39,765 | 47,425 | 1,930 | 1,425 | 99 | 57 | 129 | 16 |
| Upstate N.Y. | 824 | 113 | 19 | 1 | 5,844 | 7,186 | 419 | 307 | 15 | 17 | 53 | 1 |
| N.Y. City | 3,397 | 59 | 1 | - | 16,758 | 19,947 | 222 | 439 | 15 | 25 | 20 | 11 |
| N.J. | 1,179 | - | 1 | - | 6,125 | 6,257 | 216 | 330 | 28 | - | 19 | 3 |
| Pa. | 565 | 84 | - | 2 | 11,038 | 14,035 | 1,073 | 349 | 41 | 15 | 37 | 1 |
| E.N. CENTRAL | 1,312 | 328 | 63 | 7 | 56,017 | 50,833 | 942 | 1,143 | 57 | 54 | 113 | - |
| Ohio | 286 | 81 | 15 | 3 | 17,243 | 12,629 | 107 | 210 | 15 | 8 | 43 | - |
| Ind. | 116 | 60 | 2 | 2 | 4,685 | 3,861 | 62 | 245 | 3 | 17 | 18 | - |
| Ill. | 571 | 56 | 21 | 2 | 17,620 | 16,215 | 433 | 184 | 18 | 14 | 7 | - |
| Mich. | 219 | 113 | 23 | - | 13,429 | 13,783 | 185 | 314 | 18 | 15 | 32 | - |
| Wis. | 120 | 18 | 2 | - | 3,040 | 4,345 | 155 | 190 | 3 | - | 13 | - |
| W.N. CENTRAL | 427 | 94 | 21 | 1 | 15,529 | 13,242 | 724 | 421 | 51 | 15 | 28 | - |
| Minn. | 74 | 8 | 9 | 1 | 1,948 | 1,363 | 117 | 54 | 15 | - | - | - |
| Iowa | 20 | 11 | 2 | - | 1,164 | 1,046 | 157 | 32 | 2 | 2 | 2 | - |
| Mo. | 252 | 39 | 1 | - | 9,125 | 7,802 | 241 | 251 | 15 | 10 | 17 | - |
| N. Dak. | - | 7 | - | - | 47 | 62 | 7 | 4 | 2 | 1 | - | - |
| S. Dak. | 1 | 3 | 2 | - | 90 | 122 | 39 | 4 | 2 | - | - | - |
| Nebr. | 24 | 11 | 3 | - | 770 | 727 | 45 | 19 | 3 | - | 4 | - |
| Kans. | 56 | 15 | 4 | - | 2,385 | 2,120 | 118 | 57 | 12 | 2 | 5 | - |
| S. ATLANTIC | 3,898 | 507 | 63 | 14 | 82,200 | 79,537 | 1,576 | 1,643 | 128 | 110 | 69 | 3 |
| Del. | 40 | 17 | 3 | - | 1,337 | 1,275 | 66 | 45 | 4 | 1 | 4 | - |
| Md. | 388 | 65 | 8 | 1 | 8,486 | 8,584 | 628 | 229 | 17 | 5 | 21 | 1 |
| D.C. | 302 | 2 | - | - | 5,427 | 5,171 | 12 | 28 | 4 | - | - | - |
| Va. | 333 | 74 | 22 | 2 | 7,508 | 6,696 | 120 | 97 | 18 | 82 | 6 | - |
| W. Va. | 31 | 9 | 5 | - | 600 | 584 | 10 | 44 | 3 | 1 | 1 | - |
| N.C. | 260 | 48 | 18 | - | 13,392 | 12,407 | 316 | 483 | 56 | - | 12 | 1 |
| S.C. | 160 | 8 | - | - | 6,448 | 6,989 | 20 | 260 | 9 | 6 | 10 | - |
| Ga. | 575 | 67 | 3 | 1 | 18,309 | 15,857 | 153 | 185 | 3 | 6 | 11 | - |
| Fla. | 1,809 | 217 | 4 | 10 | 20,693 | 21,974 | 251 | 272 | 14 | 9 | 4 | 1 |
| E.S. CENTRAL | 432 | 187 | 23 | 1 | 23,686 | 23,120 | 178 | 702 | 55 | 4 | 37 | - |
| Ky. | 76 | 47 | 6 | - | 2,619 | 2,171 | 45 | 243 | 16 | 3 | 16 | - |
| Tenn. | 144 | 39 | 13 | 1 | 7,362 | 7,421 | 89 | 374 | 26 | - | 12 | - |
| Ala. | 100 | 72 | 4 | - | 7,844 | 7,484 | 43 | 81 | 11 | - | 9 | - |
| Miss. | 112 | 29 | - | - | 5,861 | 6,044 | 1 | 4 | 2 | 1 | - | - |
| W.S. CENTRAL | 1,883 | 157 | 9 | 5 | 28,941 | 30,167 | 1,277 | 742 | 69 | 114 | 31 | 20 |
| Ark. | 157 | 5 | - | - | 3,774 | 3,028 | 237 | 40 | 5 | 10 | 7 | - |
| La. | 310 | 23 | 3 | - | 5,867 | 6,409 | 72 | 134 | 1 | 4 | 10 | - |
| Okla. | 96 | 14 | 1 | 5 | 2,666 | 2,558 | 271 | 66 | 14 | 11 | 10 | - |
| Tex. | 1,320 | 115 | 5 | - | 16,634 | 18,172 | 697 | 502 | 49 | 89 | 4 | 20 |
| MOUNTAIN | 466 | 98 | 9 | - | 5,240 | 6,134 | 2,028 | 653 | 62 | 63 | 24 | - |
| Mont. | 7 | 2 | - | - | 79 | 96 | 55 | 37 | 2 | 4 | 1 | - |
| Idaho | 14 | - | - | - | 48 | 94 | 40 | 37 | 8 | - | 3 | - |
| Wyo. | 2 | 1 | 1 | - | 78 | 48 | 22 | 8 | 4 | 1 | - | - |
| Colo. | 131 | 21 | 1 | - | 1,208 | 1,391 | 121 | 79 | 16 | 21 | 3 | - |
| N. Mex. | 40 | 4 | - | - | 533 | 625 | 317 | 75 | 3 | 2 | 3 | - |
| Ariz. | 161 | 44 | 4 | - | 2,366 | 2,186 | 1,150 | 212 | 15 | 27 | 8 | - |
| Utah | 46 | 16 | - | - | 182 | 195 | 158 | 42 | 10 | 3 | 1 | - |
| Nev. | 65 | 10 | 3 | - | 746 | 1,499 | 165 | 163 | 4 | 5 | 5 | - |
| PACIFIC | 3,879 | 413 | 48 | 15 | 29,180 | 32,620 | 3,981 | 1,777 | 319 | 307 | 25 | 38 |
| Wash. | 272 | - | 3 | 1 | 2,557 | 2,767 | 681 | 282 | 61 | 10 | 7 | 2 |
| Oreg. | 147 | - | - | - | 1,127 | 1,305 | 426 | 205 | 19 | 6 | - | - |
| Calif. | 3,380 | 376 | 41 | 13 | 24,828 | 27,934 | 2,745 | 1,231 | 232 | 287 | 17 | 30 |
| Alaska | 16 | 9 | 3 | - | 466 | 389 | 85 | 31 | 3 | - | - | - |
| Hawaii | 64 | 28 | 1 | 1 | 202 | 225 | 44 | 28 | 4 | 4 | 1 | 6 |
| Guam | 1 | - | - | - | 83 | 61 | 4 | 1 | - | 5 | - | - |
| P.R. | 744 | 36 | 4 | - | 413 | 497 | 83 | 138 | 2 | 20 | - | - |
| V.I. | 4 | - | - | - | 199 | 302 | 1 | 7 | - | - | - | - |
| Amer. Samoa | - | 1 | - | - | 28 | 11 | 13 | - | - | - | - | 7 |
| C.N.M.I. | - | - | - | - | 66 | 40 | 4 | 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 June 9, 1990, and June 10, 1989 (23rd Week)

| Reporting Area | Measles (Rubeola) | | | | | Menin- gococcal Infections | Mumps | | Pertussis | | | Rubella | | | |
|----------------|-------------------|------|--------------|------|-------|----------------------------------|-------|--------------|-----------|--------------|--------------|---------|--------------|--------------|--------------|
| | Indigenous | | Imported* | | Total | | 1990 | Cum. 1990 | 1990 | Cum. 1990 | Cum. 1989 | 1990 | Cum. 1990 | Cum. 1989 | |
| | Cum. 1990 | 1990 | Cum. 1990 | 1990 | | | | | | | | | | | Cum. 1990 |
| UNITED STATES | 431 | 473 | 9,444 | 5 | 576 | 6,966 | 1,296 | 131 | 2,791 | 67 | 1,227 | 1,014 | 28 | 489 | 186 |
| NEW ENGLAND | 40 | - | 122 | - | 13 | 272 | 84 | 2 | 22 | 3 | 155 | 205 | - | 5 | 5 |
| Maine | - | - | 27 | - | - | - | 8 | - | - | 1 | 5 | 4 | - | - | - |
| N.H. | 4 | - | - | - | 8 | 5 | 2 | - | 6 | - | 10 | 5 | - | 1 | 3 |
| Vt. | 4 | - | - | - | 1 | 1 | 6 | - | 1 | - | 6 | 5 | - | - | 1 |
| Mass. | 23 | - | 4 | - | 1 | 37 | 43 | - | 7 | 1 | 124 | 181 | - | - | 1 |
| R.I. | 3 | - | 27 | - | 3 | 37 | 5 | - | 4 | - | - | 2 | - | 1 | - |
| Conn. | 6 | - | 64 | - | - | 192 | 20 | 2 | 4 | 1 | 10 | 8 | - | 3 | - |
| MID. ATLANTIC | 93 | 26 | 572 | - | 135 | 679 | 193 | 4 | 161 | 7 | 291 | 67 | - | 2 | 11 |
| Upstate N.Y. | 19 | - | 155 | - | 101 | 130 | 74 | 2 | 71 | 6 | 235 | 32 | - | 1 | 3 |
| N.Y. City | 30 | 6 | 100 | - | 18 | 56 | 25 | - | - | - | - | 2 | - | - | 6 |
| N.J. | 29 | - | 22 | - | 9 | 372 | 40 | - | 30 | - | 13 | 20 | - | - | 2 |
| Pa. | 15 | 20 | 295 | - | 7 | 121 | 54 | 2 | 60 | 1 | 43 | 13 | - | 1 | - |
| E.N. CENTRAL | 22 | 26 | 2,324 | - | 139 | 1,552 | 174 | 21 | 302 | 13 | 239 | 117 | - | 27 | 20 |
| Ohio | 6 | - | 213 | - | 2 | 492 | 59 | 13 | 67 | 11 | 73 | 1 | - | - | 3 |
| Ind. | 1 | 15 | 275 | - | 1 | 17 | 16 | 3 | 13 | - | 34 | 8 | - | - | - |
| Ill. | 6 | - | 882 | - | 9 | 953 | 41 | - | 90 | - | 67 | 50 | - | 17 | 16 |
| Mich. | 6 | 11 | 311 | - | 125 | 6 | 38 | 5 | 101 | 2 | 35 | 20 | - | 9 | - |
| Wis. | 3 | - | 643 | - | 2 | 84 | 20 | - | 31 | - | 30 | 38 | - | 1 | 1 |
| W.N. CENTRAL | 6 | 45 | 516 | - | 12 | 500 | 44 | 2 | 79 | 1 | 40 | 26 | - | 5 | 4 |
| Minn. | 1 | - | 163 | - | 3 | 4 | 10 | - | - | - | 6 | - | - | 1 | - |
| Iowa | - | - | 23 | - | - | 5 | 1 | - | 12 | - | 4 | 9 | - | 3 | - |
| Mo. | 4 | - | 61 | - | - | 302 | 15 | 2 | 39 | 1 | 24 | 15 | - | - | 3 |
| N. Dak. | - | - | - | - | - | - | - | - | - | - | 1 | - | - | 1 | - |
| S. Dak. | - | - | 14 | - | 8 | - | 2 | - | - | - | 1 | 1 | - | - | - |
| Nebr. | - | - | 95 | - | 1 | 110 | 5 | - | 2 | - | 1 | - | - | - | - |
| Kans. | 1 | 45 | 160 | - | - | 79 | 11 | - | 26 | - | 3 | 1 | - | - | 1 |
| S. ATLANTIC | 93 | 15 | 551 | 1 | 89 | 357 | 240 | 56 | 1,118 | 15 | 123 | 80 | - | 12 | 7 |
| Del. | 2 | - | 8 | - | 3 | 35 | 1 | 1 | 3 | - | 2 | 1 | - | - | - |
| Md. | 24 | - | 95 | - | 12 | 48 | 24 | 37 | 651 | 7 | 35 | 7 | - | 1 | 2 |
| D.C. | 10 | 1 | 9 | - | 7 | 9 | 11 | - | 20 | 1 | 14 | - | - | 1 | - |
| Va. | 20 | 1 | 65 | - | 2 | 17 | 29 | 3 | 67 | 3 | 12 | 6 | - | - | - |
| W. Va. | 1 | - | 6 | - | - | 28 | 9 | - | 40 | - | 9 | 10 | - | - | - |
| N.C. | 7 | - | 3 | - | 9 | 167 | 37 | 5 | 132 | 4 | 24 | 18 | - | - | 1 |
| S.C. | - | - | 3 | - | - | - | 19 | - | 19 | - | 5 | - | - | - | - |
| Ga. | 9 | - | 6 | - | 12 | - | 48 | - | 56 | - | 14 | 9 | - | - | - |
| Fla. | 20 | 13 | 356 | 1† | 44 | 53 | 62 | 10 | 130 | - | 8 | 29 | - | 10 | 4 |
| E.S. CENTRAL | 11 | 12 | 82 | - | 2 | 85 | 77 | 1 | 61 | 5 | 67 | 40 | - | 1 | 2 |
| Ky. | 2 | 10 | 14 | - | - | 2 | 22 | - | - | - | - | 1 | - | - | - |
| Tenn. | 6 | 2 | 34 | - | - | 43 | 31 | 1 | 30 | - | 28 | 14 | - | 1 | 2 |
| Ala. | 3 | - | 8 | - | 2 | 40 | 22 | - | 9 | 5 | 35 | 21 | - | - | - |
| Miss. | - | - | 26 | - | - | - | 2 | N | N | - | 4 | 4 | - | - | - |
| W.S. CENTRAL | 19 | 299 | 1,765 | 2 | 66 | 2,514 | 87 | 27 | 503 | 2 | 25 | 27 | - | 1 | 11 |
| Ark. | 1 | - | 8 | - | 19 | 2 | 11 | 5 | 119 | - | 1 | 10 | - | 1 | - |
| La. | - | - | 10 | - | - | 6 | 25 | 1 | 82 | 1 | 5 | 4 | - | - | 5 |
| Okla. | 5 | - | 142 | - | - | 76 | 9 | - | 97 | 1 | 19 | 13 | - | - | 1 |
| Tex. | 13 | 299 | 1,605 | 2†§ | 47 | 2,430 | 42 | 21 | 205 | - | - | - | - | - | 5 |
| MOUNTAIN | 13 | 49 | 458 | 2 | 57 | 184 | 41 | 6 | 218 | 5 | 109 | 327 | 19 | 80 | 31 |
| Mont. | 1 | - | - | - | 1 | 13 | 9 | - | - | - | 5 | - | - | 13 | 1 |
| Idaho | 3 | - | 15 | - | 5 | 1 | 5 | 3 | 110 | 2 | 25 | 40 | 19 | 44 | 29 |
| Wyo. | - | - | - | - | 2 | - | - | - | 2 | - | - | - | - | - | - |
| Colo. | 1 | 2 | 46 | 2† | 31 | 58 | 12 | 1 | 16 | 2 | 49 | 20 | - | 3 | - |
| N. Mex. | 2 | - | 79 | - | 4 | 30 | 4 | N | N | - | 7 | 4 | - | - | - |
| Ariz. | 6 | - | 123 | - | 11 | 45 | 3 | 1 | 74 | - | 13 | 257 | - | 18 | - |
| Utah | - | 40 | 44 | - | - | 36 | 4 | - | 4 | 1 | 6 | 5 | - | 1 | - |
| Nev. | - | 7 | 151 | - | 3 | 1 | 4 | 1 | 12 | - | 4 | 1 | - | 1 | 1 |
| PACIFIC | 134 | 1 | 3,054 | - | 63 | 823 | 356 | 12 | 327 | 16 | 178 | 125 | 9 | 356 | 95 |
| Wash. | 13 | - | 7 | - | 38 | 33 | 41 | 3 | 34 | 11 | 54 | 25 | - | - | - |
| Oreg. | 6 | - | - | - | - | 7 | 38 | N | N | - | 3 | 5 | - | - | 1 |
| Calif. | 112 | - | 2,966 | - | 22 | 765 | 268 | 8 | 288 | 4 | 103 | 93 | 9 | 349 | 74 |
| Alaska | 1 | 1 | 78 | - | 2 | - | 6 | - | - | - | - | - | - | - | - |
| Hawaii | 2 | - | 3 | - | 1 | 18 | 3 | 1 | 5 | 1 | 18 | 2 | - | 7 | 20 |
| Guam | 1 | U | - | U | 1 | 1 | - | U | - | U | - | 1 | U | - | - |
| P.R. | 1 | - | 808 | - | - | 386 | 8 | - | 7 | - | 5 | 3 | - | - | 5 |
| V.I. | - | - | - | - | - | 4 | - | - | 5 | - | - | - | - | - | - |
| Amer. Samoa | - | U | 1 | U | - | - | - | U | 2 | 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 June 9, 1990, and June 10, 1989 (23rd 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 | 21,345 | 18,289 | 143 | 8,886 | 8,794 | 26 | 148 | 87 | 1,736 |
| NEW ENGLAND | 840 | 727 | 11 | 205 | 223 | - | 11 | - | 3 |
| Maine | 5 | 5 | 3 | - | 3 | - | - | - | - |
| N.H. | 39 | 3 | 1 | 3 | 14 | - | - | - | 2 |
| Vt. | 1 | - | - | 2 | 4 | - | - | - | - |
| Mass. | 313 | 221 | 6 | 106 | 114 | - | 10 | - | - |
| R.I. | 6 | 14 | - | 31 | 29 | - | - | - | - |
| Conn. | 476 | 484 | 1 | 63 | 59 | - | 1 | - | 1 |
| MID. ATLANTIC | 4,715 | 3,772 | 13 | 2,276 | 1,702 | 1 | 46 | 4 | 375 |
| Upstate N.Y. | 344 | 383 | 4 | 201 | 144 | - | 8 | - | 18 |
| N.Y. City | 2,033 | 1,550 | 4 | 1,354 | 986 | - | 25 | - | - |
| N.J. | 757 | 603 | - | 391 | 253 | 1 | 11 | 4 | 115 |
| Pa. | 1,581 | 1,236 | 5 | 330 | 319 | - | 2 | - | 242 |
| E.N. CENTRAL | 1,383 | 692 | 38 | 896 | 936 | - | 19 | 6 | 44 |
| Ohio | 236 | 51 | 15 | 129 | 181 | - | 4 | 4 | 3 |
| Ind. | 23 | 30 | 2 | 63 | 79 | - | - | - | - |
| Ill. | 513 | 305 | 5 | 453 | 414 | - | 11 | - | 15 |
| Mich. | 459 | 266 | 16 | 216 | 210 | - | 3 | 2 | 5 |
| Wis. | 152 | 40 | - | 35 | 52 | - | 1 | - | 21 |
| W.N. CENTRAL | 186 | 147 | 17 | 238 | 244 | 8 | - | 11 | 269 |
| Minn. | 43 | 11 | - | 40 | 51 | - | - | - | 97 |
| Iowa | 26 | 17 | 2 | 31 | 28 | - | - | - | 10 |
| Mo. | 93 | 73 | 11 | 115 | 104 | 7 | - | 9 | 10 |
| N. Dak. | 1 | 1 | - | 10 | 9 | - | - | - | 31 |
| S. Dak. | 1 | - | - | 6 | 12 | - | - | - | 90 |
| Nebr. | 6 | 17 | 2 | 12 | 10 | 1 | - | - | 3 |
| Kans. | 16 | 28 | 2 | 24 | 30 | - | - | 2 | 28 |
| S. ATLANTIC | 6,772 | 6,673 | 7 | 1,750 | 1,822 | 3 | 12 | 32 | 503 |
| Del. | 85 | 77 | 1 | 19 | 21 | - | - | 1 | 7 |
| Md. | 512 | 335 | - | 152 | 166 | - | 6 | 2 | 198 |
| D.C. | 412 | 408 | 1 | 68 | 74 | - | - | - | - |
| Va. | 375 | 248 | - | 152 | 158 | 1 | - | 2 | 87 |
| W. Va. | 7 | 7 | - | 33 | 38 | - | - | - | 14 |
| N.C. | 797 | 401 | 3 | 203 | 203 | 1 | - | 18 | 3 |
| S.C. | 413 | 346 | 1 | 208 | 199 | 1 | - | 8 | 58 |
| Ga. | 1,686 | 1,469 | - | 274 | 266 | - | 1 | 1 | 90 |
| Fla. | 2,485 | 3,382 | 1 | 641 | 697 | - | 5 | - | 46 |
| E.S. CENTRAL | 1,835 | 1,127 | 6 | 715 | 764 | 2 | 1 | 12 | 86 |
| Ky. | 30 | 24 | 1 | 185 | 169 | - | 1 | 1 | 24 |
| Tenn. | 721 | 464 | 3 | 178 | 228 | 2 | - | 9 | 22 |
| Ala. | 595 | 385 | 2 | 231 | 215 | - | - | 2 | 40 |
| Miss. | 489 | 254 | - | 121 | 152 | - | - | - | - |
| W.S. CENTRAL | 3,369 | 2,370 | 7 | 1,105 | 1,042 | 10 | 3 | 19 | 236 |
| Ark. | 205 | 149 | - | 114 | 111 | 6 | - | 1 | 22 |
| La. | 1,056 | 531 | 1 | 115 | 137 | - | - | 1 | - |
| Okla. | 102 | 36 | 6 | 90 | 87 | 4 | 1 | 15 | 68 |
| Tex. | 2,006 | 1,654 | - | 786 | 707 | - | 2 | 2 | 146 |
| MOUNTAIN | 403 | 329 | 18 | 197 | 212 | 1 | 7 | 2 | 79 |
| Mont. | - | 1 | - | 10 | 7 | - | - | - | 22 |
| Idaho | 6 | - | 1 | 6 | 8 | - | - | - | - |
| Wyo. | - | 3 | 1 | 1 | - | - | - | - | 28 |
| Colo. | 20 | 51 | 6 | 6 | 18 | - | - | - | - |
| N. Mex. | 20 | 12 | 3 | 43 | 36 | 1 | - | 2 | 5 |
| Ariz. | 289 | 88 | 5 | 96 | 102 | - | 5 | - | 21 |
| Utah | 4 | 11 | 2 | 12 | 19 | - | - | - | 1 |
| Nev. | 64 | 163 | - | 23 | 22 | - | 2 | - | 2 |
| PACIFIC | 1,842 | 2,452 | 26 | 1,504 | 1,849 | 1 | 49 | 1 | 141 |
| Wash. | 146 | 188 | 3 | 121 | 89 | 1 | 1 | - | - |
| Oreg. | 63 | 125 | - | 57 | 57 | - | 1 | - | - |
| Calif. | 1,619 | 2,131 | 22 | 1,240 | 1,604 | - | 44 | 1 | 119 |
| Alaska | 6 | 2 | - | 19 | 29 | - | - | - | 22 |
| Hawaii | 8 | 6 | 1 | 67 | 70 | - | 3 | - | - |
| Guam | 1 | 3 | - | 14 | 30 | - | - | - | - |
| P.R. | 168 | 232 | - | 51 | 151 | - | - | - | 19 |
| V.I. | 1 | 2 | - | 4 | 3 | - | - | - | - |
| Amer. Samoa | - | - | - | 6 | 2 | - | - | - | - |
| C.N.M.I. | 1 | 7 | - | 13 | 7 | - | 4 | - | - |

U: Unavailable

**TABLE III. Deaths in 121 U.S. cities,* week ending
June 9, 1990 (23rd 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 | 637 | 438 | 111 | 54 | 13 | 21 | 61 | S. ATLANTIC | 1,320 | 804 | 279 | 143 | 45 | 46 | 66 |
| Boston, Mass. | 191 | 115 | 38 | 17 | 6 | 15 | 24 | Atlanta, Ga. | 192 | 94 | 57 | 20 | 6 | 15 | 6 |
| Bridgeport, Conn. | 43 | 31 | 5 | 4 | 3 | - | 2 | Baltimore, Md. | 105 | 61 | 24 | 9 | 4 | 7 | 7 |
| Cambridge, Mass. | 28 | 23 | 3 | 2 | - | - | 3 | Charlotte, N.C. | 90 | 57 | 15 | 11 | 3 | 4 | 8 |
| Fall River, Mass. | 26 | 21 | 5 | - | - | - | 3 | Jacksonville, Fla. | 85 | 54 | 15 | 14 | 1 | 1 | 14 |
| Hartford, Conn. | 58 | 39 | 11 | 6 | 1 | 1 | 6 | Miami, Fla. | 130 | 77 | 31 | 17 | 3 | 2 | 2 |
| Lowell, Mass. | 18 | 13 | 2 | 3 | - | - | 2 | Norfolk, Va. | 66 | 40 | 11 | 11 | 3 | 1 | 5 |
| Lynn, Mass. | 13 | 9 | 1 | 3 | - | - | 2 | Richmond, Va. | 97 | 69 | 11 | 10 | 5 | 2 | 8 |
| New Bedford, Mass. | 21 | 20 | 1 | - | - | - | 3 | Savannah, Ga. | 55 | 41 | 9 | 2 | 1 | 2 | 3 |
| New Haven, Conn. | 34 | 22 | 6 | 4 | - | 2 | 2 | St. Petersburg, Fla. | 77 | 61 | 10 | 4 | 1 | 1 | 4 |
| Providence, R.I. | 52 | 41 | 5 | 4 | 2 | - | 1 | Tampa, Fla. | 58 | 40 | 11 | 3 | 3 | 1 | 1 |
| Somerville, Mass. | 7 | 6 | - | 1 | - | - | 2 | Washington, D.C. | 339 | 193 | 80 | 39 | 15 | 10 | 8 |
| Springfield, Mass. | 48 | 33 | 9 | 5 | - | 1 | 7 | Wilmington, Del. | 26 | 17 | 5 | 3 | - | - | - |
| Waterbury, Conn. | 36 | 24 | 7 | 4 | - | 1 | 4 | E.S. CENTRAL | 777 | 499 | 157 | 72 | 22 | 27 | 47 |
| Worcester, Mass. | 62 | 41 | 18 | 1 | 1 | 1 | 5 | Birmingham, Ala. | 92 | 64 | 22 | 4 | - | 2 | 1 |
| MID. ATLANTIC | 2,594 | 1,645 | 503 | 294 | 80 | 72 | 143 | Chattanooga, Tenn. | 56 | 39 | 10 | 6 | 1 | - | 3 |
| Albany, N.Y. | 47 | 36 | 5 | 3 | 3 | - | 2 | Knoxville, Tenn. | 88 | 56 | 17 | 8 | 5 | 2 | 9 |
| Allentown, Pa. | 19 | 15 | 4 | - | - | - | 1 | Louisville, Ky. | 91 | 53 | 24 | 10 | 2 | 2 | 2 |
| Buffalo, N.Y. | 106 | 75 | 20 | 5 | 2 | 4 | 4 | Memphis, Tenn. | 172 | 98 | 33 | 21 | 4 | 16 | 19 |
| Camden, N.J. | 24 | 16 | 2 | 2 | 1 | 3 | 1 | Mobile, Ala. | 58 | 37 | 8 | 8 | 3 | 2 | - |
| Elizabeth, N.J. | 26 | 20 | 2 | 3 | 1 | - | 1 | Montgomery, Ala.§ | 51 | 39 | 9 | 3 | - | - | 4 |
| Erie, Pa.† | 45 | 33 | 10 | 2 | - | - | 4 | Nashville, Tenn. | 169 | 113 | 34 | 12 | 7 | 3 | 9 |
| Jersey City, N.J. | 58 | 38 | 7 | 5 | 2 | 6 | 4 | W.S. CENTRAL | 1,949 | 1,179 | 429 | 206 | 82 | 53 | 64 |
| N.Y. City, N.Y. | 1,406 | 867 | 260 | 202 | 43 | 34 | 57 | Austin, Tex. | 56 | 37 | 8 | 10 | - | 1 | 7 |
| Newark, N.J. | 86 | 38 | 24 | 13 | 6 | 5 | 9 | Baton Rouge, La. | 40 | 24 | 10 | 5 | - | 1 | 2 |
| Paterson, N.J. | 25 | 17 | 4 | 4 | - | - | 1 | Corpus Christi, Tex. | 41 | 21 | 13 | 1 | 4 | 2 | - |
| Philadelphia, Pa. | 308 | 171 | 77 | 31 | 17 | 12 | 21 | Dallas, Tex. | 215 | 111 | 56 | 23 | 18 | 7 | 2 |
| Pittsburgh, Pa.† | 54 | 31 | 18 | 3 | 1 | 1 | 3 | El Paso, Tex. | 79 | 45 | 21 | 8 | 4 | 1 | 5 |
| Reading, Pa. | 37 | 26 | 4 | 7 | - | - | 7 | Fort Worth, Tex | 115 | 70 | 15 | 18 | 5 | 7 | 4 |
| Rochester, N.Y. | 105 | 78 | 18 | 4 | 1 | 4 | 13 | Houston, Tex.§ | 734 | 436 | 169 | 89 | 24 | 16 | 18 |
| Schenectady, N.Y. | 21 | 17 | 4 | - | - | - | 1 | Little Rock, Ark. | 86 | 53 | 24 | 5 | 3 | 1 | 4 |
| Scranton, Pa.† | 32 | 24 | 5 | 1 | 2 | - | 1 | New Orleans, La. | 203 | 123 | 39 | 20 | 16 | 5 | - |
| Syracuse, N.Y. | 112 | 79 | 24 | 5 | 1 | 3 | 7 | San Antonio, Tex. | 221 | 147 | 42 | 16 | 6 | 10 | 9 |
| Trenton, N.J. | 30 | 23 | 6 | 1 | - | - | 1 | Shreveport, La. | 42 | 29 | 9 | 4 | - | - | 4 |
| Utica, N.Y. | 17 | 13 | 3 | 1 | - | - | 4 | Tulsa, Okla. | 117 | 83 | 23 | 7 | 2 | 2 | 9 |
| Yonkers, N.Y. | 36 | 28 | 6 | 2 | - | - | 4 | MOUNTAIN | 710 | 441 | 158 | 57 | 21 | 33 | 36 |
| E.N. CENTRAL | 2,397 | 1,575 | 490 | 192 | 57 | 83 | 130 | Albuquerque, N. Mex. | 64 | 38 | 16 | 5 | 4 | 1 | 7 |
| Akron, Ohio | 68 | 47 | 10 | 6 | - | 5 | 4 | Colo. Springs, Colo. | 47 | 30 | 12 | 3 | 1 | 1 | 4 |
| Canton, Ohio | 37 | 28 | 7 | 2 | - | - | 5 | Denver, Colo. | 104 | 62 | 17 | 10 | 3 | 12 | 2 |
| Chicago, Ill.§ | 564 | 362 | 125 | 45 | 10 | 22 | 16 | Las Vegas, Nev. | 131 | 85 | 30 | 14 | 1 | 1 | 5 |
| Cincinnati, Ohio | 141 | 94 | 30 | 6 | 4 | 7 | 13 | Ogden, Utah | 20 | 11 | 8 | - | 1 | - | 1 |
| Cleveland, Ohio | 172 | 103 | 41 | 21 | 3 | 4 | 9 | Phoenix, Ariz. | 162 | 91 | 43 | 11 | 8 | 9 | 7 |
| Columbus, Ohio | 200 | 124 | 43 | 16 | 8 | 9 | 6 | Pueblo, Colo. | 21 | 13 | 5 | 2 | 1 | - | 2 |
| Dayton, Ohio | 108 | 72 | 25 | 8 | 2 | 1 | 5 | Salt Lake City, Utah | 48 | 27 | 8 | 5 | - | 8 | - |
| Detroit, Mich. | 248 | 147 | 52 | 32 | 10 | 7 | 12 | Tucson, Ariz. | 113 | 84 | 19 | 7 | 2 | 1 | 8 |
| Evansville, Ind. | 40 | 31 | 5 | 3 | 1 | - | 4 | PACIFIC | 2,008 | 1,307 | 353 | 217 | 79 | 48 | 133 |
| Fort Wayne, Ind. | 55 | 35 | 12 | 2 | 3 | 3 | 5 | Berkeley, Calif. | 18 | 13 | 3 | 1 | 1 | - | - |
| Gary, Ind. | 22 | 9 | 8 | 4 | - | 1 | 4 | Fresno, Calif. | 93 | 50 | 14 | 17 | 7 | 5 | 10 |
| Grand Rapids, Mich. | 59 | 38 | 10 | 4 | 2 | 5 | 4 | Glendale, Calif. | 31 | 25 | 4 | 2 | - | - | 2 |
| Indianapolis, Ind. | 189 | 134 | 30 | 10 | 6 | 9 | 4 | Honolulu, Hawaii | 84 | 59 | 13 | 6 | 4 | 2 | 13 |
| Madison, Wis. | 43 | 33 | 5 | 2 | 3 | - | 6 | Long Beach, Calif. | 86 | 54 | 19 | 10 | 2 | 1 | 13 |
| Millwaukee, Wis. | 119 | 88 | 21 | 4 | 3 | 3 | 9 | Los Angeles Calif. | 580 | 366 | 110 | 61 | 36 | 3 | 25 |
| Peoria, Ill. | 57 | 38 | 14 | 4 | - | 1 | 9 | Oakland, Calif. | 77 | 47 | 14 | 6 | 7 | 3 | 8 |
| Rockford, Ill. | 56 | 39 | 11 | 6 | - | - | 6 | Pasadena, Calif. | 31 | 22 | 6 | 1 | - | 2 | 1 |
| South Bend, Ind. | 45 | 31 | 11 | - | 2 | 1 | 3 | Portland, Ore. | 132 | 95 | 15 | 15 | 3 | 4 | 1 |
| Toledo, Ohio | 110 | 76 | 20 | 12 | - | 2 | 7 | Sacramento, Calif. | 169 | 114 | 27 | 19 | 4 | 5 | 14 |
| Youngstown, Ohio | 64 | 46 | 10 | 5 | - | 3 | 3 | San Diego, Calif. | 159 | 102 | 26 | 22 | 3 | 6 | 17 |
| W.N. CENTRAL | 787 | 573 | 124 | 49 | 19 | 22 | 39 | San Francisco, Calif. | 155 | 91 | 28 | 29 | 2 | 5 | 8 |
| Des Moines, Iowa | 66 | 47 | 12 | 5 | 1 | 1 | 4 | San Jose, Calif. | 163 | 113 | 33 | 11 | 1 | 5 | 9 |
| Duluth, Minn. | 16 | 9 | 3 | 3 | - | 1 | - | Seattle, Wash. | 129 | 88 | 19 | 11 | 8 | 3 | 2 |
| Kansas City, Kans. | 23 | 18 | 3 | 2 | - | - | 1 | Spokane, Wash. | 64 | 44 | 15 | 2 | - | 3 | 7 |
| Kansas City, Mo. | 93 | 67 | 16 | 4 | 2 | 4 | 10 | Tacoma, Wash. | 37 | 24 | 7 | 4 | 1 | 1 | 3 |
| Lincoln, Nebr. | 53 | 44 | 5 | 3 | 1 | - | 3 | TOTAL | 13,179 ^{††} | 8,461 | 2,604 | 1,284 | 418 | 405 | 719 |
| Minneapolis, Minn. | 195 | 146 | 28 | 9 | 4 | 8 | 13 | | | | | | | | |
| Omaha, Nebr. | 80 | 52 | 16 | 8 | 3 | 1 | 7 | | | | | | | | |
| St. Louis, Mo. | 156 | 118 | 21 | 8 | 5 | 4 | - | | | | | | | | |
| St. Paul, Minn. | 49 | 30 | 10 | 5 | 2 | 2 | - | | | | | | | | |
| Wichita, Kans. | 56 | 42 | 10 | 2 | 1 | 1 | 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.

HIV — Continued

individual cities and states. For example, the Michigan Department of Education used results from its 1988 and 1989 surveys to assist the State Board of Education in supporting school-based HIV education programs that help students avoid behaviors that result in HIV infection.

TABLE 3. Percentage of students who reported ever having used intravenous (IV) drugs or ever having shared needles for injecting drugs, by sex — selected U.S. sites, 1989

| Site | IV-drug use (%) | | | Sharing needles (%) | | |
|----------------------------|-----------------|--------|------|---------------------|--------|------|
| | Total | Sex | | Total | Sex | |
| | | Female | Male | | Female | Male |
| State/Territory | | | | | | |
| California*† | 2.3 | 1.1 | 3.9 | 1.0 | 0.3 | 1.8 |
| Colorado*§ | 3.0 | 2.3 | 3.9 | 0.9 | 0.8 | 0.9 |
| Delaware¶ | 3.8 | 2.8 | 4.9 | 1.7 | 1.3 | 2.0 |
| District of Columbia¶** | 2.6 | 1.5 | 3.9 | 0.9 | 0.2 | 1.7 |
| Hawaii¶ | 4.9 | 2.9 | 6.7 | 2.0 | 1.0 | 3.0 |
| Iowa¶ | 3.7 | 2.2 | 5.3 | 1.8 | 1.4 | 2.2 |
| Massachusetts*¶ | 1.6 | 0.9 | 2.3 | 0.5 | 0.1 | 0.9 |
| Michigan† | 4.0 | 1.8 | 6.2 | 1.3 | 0.2 | 2.3 |
| Missouri† | 2.4 | 0.7 | 4.3 | 1.3 | 0.3 | 2.1 |
| New Jersey*§ | 2.9 | 1.5 | 4.1 | 0.7 | 0.0 | 1.3 |
| New Mexico§ | 2.8 | 1.4 | 4.6 | 0.5 | 0.2 | 1.2 |
| North Carolina§ | 2.4 | 1.7 | 3.2 | 1.3 | 0.9 | 1.6 |
| Ohio§ | 2.2 | 1.5 | 3.0 | 0.6 | 0.3 | 0.9 |
| Oklahoma§ | 5.1 | 3.5 | 6.7 | 1.7 | 1.1 | 2.2 |
| Oregon† | 5.4 | 3.6 | 7.1 | 2.8 | 1.5 | 4.0 |
| Pennsylvania*¶ | 3.8 | 2.6 | 5.0 | 0.8 | 0.4 | 1.3 |
| Puerto Rico§ | 1.5 | 1.1 | 1.9 | 0.2 | 0.0 | 0.5 |
| Tennessee§ | 3.2 | 2.1 | 4.6 | 0.9 | 0.4 | 1.4 |
| Virgin Islands§ | 4.1 | 2.7 | 5.6 | 2.4 | 1.5 | 3.3 |
| City | | | | | | |
| Dallas¶ | 3.0 | 2.0 | 4.0 | 0.7 | 0.3 | 1.1 |
| Jersey City¶ | 3.6 | 4.9 | 2.3 | 0.7 | 0.5 | 0.8 |
| Miami¶ | 2.2 | 1.1 | 3.2 | 0.7 | 0.5 | 0.9 |
| San Diego§ | 3.5 | 2.1 | 5.9 | 1.9 | 1.6 | 2.5 |
| San Francisco§ | 2.7 | 2.2 | 3.2 | 1.3 | 0.5 | 2.3 |
| Seattle† | 2.9 | 2.2 | 3.6 | 0.9 | 0.9 | 1.0 |

*Surveys did not include students from the largest cities.

†Probability sample, unweighted data.

§Nonprobability sample, unweighted data.

¶Probability sample, weighted data.

**Categorized as a state for funding purposes.

HIV – Continued

In addition to determining the prevalence of HIV-related risk behaviors among high school students, surveys of this type should be used to measure the prevalence of other priority health-risk behaviors, such as drug, alcohol, and tobacco use; imprudent dietary patterns; inadequate physical activity; behaviors that result in intentional and unintentional injuries; and sexual intercourse that can result in sexually transmitted diseases or unintended pregnancies. State, territorial, and local departments of education have worked with CDC and other federal agencies to develop the Youth Risk Behavior Surveillance System. This system, implemented in 1990, will be used to periodically measure changes in these priority health-risk behaviors. To increase the number of sites with probability samples of ninth- through 12th-grade students and the comparability of data among sites, CDC is providing intensive technical assistance to interested departments of education. Departments of education can use the results

TABLE 4. Percentage of students who reported ever having had sexual intercourse or ever having had four or more sex partners, by sex – selected U.S. sites, 1989

| Site | Sexual intercourse (%) | | | ≥4 Sex partners (%) | | |
|-----------------------------|------------------------|--------|------|---------------------|--------|------|
| | Total | Sex | | Total | Sex | |
| | | Female | Male | | Female | Male |
| State/Territory | | | | | | |
| California*† | 48.1 | 42.9 | 54.8 | 15.1 | 9.9 | 21.7 |
| Colorado*§ | 58.4 | 54.0 | 63.5 | 22.9 | 18.4 | 28.0 |
| Delaware† | 63.8 | 65.7 | 72.6 | 28.8 | 19.6 | 38.3 |
| District of Columbia* ** | 75.5 | 63.9 | 89.5 | 40.0 | 17.9 | 66.6 |
| Iowa† | 55.5 | 49.4 | 59.5 | 20.3 | 14.7 | 24.5 |
| Massachusetts*† | 52.3 | 46.7 | 58.5 | 15.6 | 10.3 | 21.4 |
| Michigan† | 62.8 | 56.6 | 69.3 | 23.7 | 14.2 | 33.9 |
| New Mexico§ | 54.6 | 48.6 | 62.2 | 20.8 | 12.2 | 31.7 |
| Oklahoma§ | 59.6 | 54.4 | 65.4 | 26.3 | 18.1 | 35.3 |
| Pennsylvania*† | 56.2 | 54.4 | 58.1 | 20.5 | 16.2 | 24.9 |
| Puerto Rico§ | 26.5 | 11.2 | 47.6 | 6.5 | 0.7 | 14.6 |
| Tennessee§ | 58.7 | 53.8 | 64.9 | 21.9 | 13.3 | 32.7 |
| Virgin Islands§ | 54.3 | 34.9 | 78.1 | 24.9 | 5.4 | 49.1 |
| City | | | | | | |
| Dallas† | 62.4 | 50.5 | 75.8 | 29.5 | 14.9 | 46.0 |
| Jersey City† | 55.2 | 41.6 | 68.3 | 21.0 | 3.7 | 37.6 |
| Miami† | 58.6 | 42.6 | 76.3 | 24.1 | 9.0 | 40.4 |
| San Diego§ | 39.1 | 34.6 | 45.7 | 13.9 | 8.7 | 21.6 |
| San Francisco§ | 30.0 | 24.7 | 36.1 | 9.9 | 5.7 | 15.4 |
| Seattle† | 48.5 | 40.3 | 57.2 | 19.9 | 10.7 | 30.0 |

*Surveys did not include students from the largest cities.

†Probability sample, unweighted data.

§Nonprobability sample, unweighted data.

†Probability sample, weighted data.

**Categorized as a state for funding purposes.

HIV – Continued

from these surveys to plan and evaluate comprehensive school health education programs that help students avoid these priority health-risk behaviors.

Reference

1. CDC. HIV-related beliefs, knowledge, and behaviors among high school students. *MMWR* 1988;37:717–21.

Tickborne Diseases – Georgia, 1989

The Office of Epidemiology, Georgia Department of Human Resources (GDHR), maintains surveillance for three tickborne diseases—Lyme disease (LD), Rocky Mountain spotted fever (RMSF), and human ehrlichiosis. This report summarizes data on the occurrence of these three diseases in Georgia during 1989.

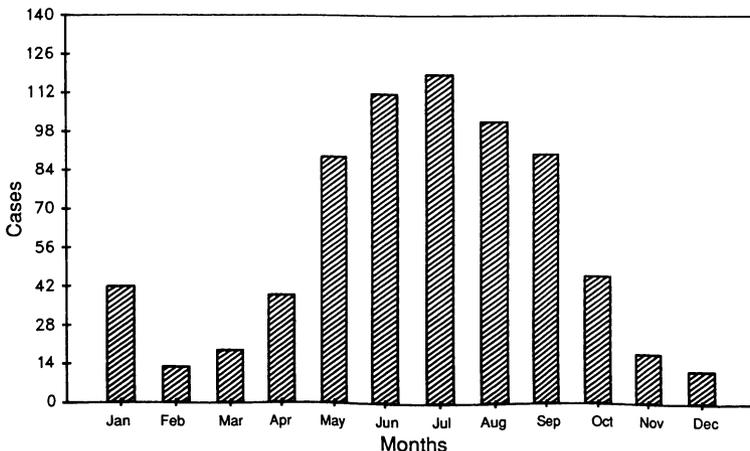
Lyme Disease

During 1989, 715 LD cases* were reported to the GDHR—a >12-fold increase from the 59 cases reported in 1988. Cases peaked during the summer, when ticks are most active (Figure 1). Onset for at least 84 (12%) patients occurred during previous years. Each of the 19 health districts in Georgia reported one or more cases of LD.

Of the 715 patients, 365 (51%) were female; 596 (84%) were white, 36 (5%) were black, and 82 (11%) were of unrecorded race. Median age of patients was 40 years (range: 1–85 years). Cases were reported from 114 (72%) of the 159 counties in Georgia. A band of counties across the midsection of Georgia accounted for most of the cases and for the highest rates (Figure 2). This area of the state also has the

*The case definition used by GDHR is 1) presence of an erythema migrans (EM) lesion and a history of tick exposure within 30 days of onset or, in the absence of known tick exposure, an EM lesion and a positive serologic test (immunofluorescence antibody [IFA] titer ≥ 128) or involvement of at least one body system (musculoskeletal, cardiovascular, or nervous); or 2) in the absence of EM, a positive serologic test (IFA ≥ 128) and involvement of one or more body systems (musculoskeletal, cardiovascular, or nervous).

FIGURE 1. Lyme disease cases* by month of onset – Georgia, 1989



*Onset dates were unknown for 14 persons.

Tickborne Diseases – Continued

highest density of white-tailed deer, which appear to play a major role in maintaining the life cycle of *Ixodes scapularis*, the vector of LD in Georgia.

Rocky Mountain Spotted Fever

During 1989, 23 RMSF cases (0.4 cases per 100,000 population) were reported to the GDHR. Six (26%) patients were <10 years of age, and 10 (43%) were <20 years of age (range: 4–71 years; median: 33 years). Seventeen patients (74%) were male; all were white. Ten (43%) were hospitalized, and RMSF was laboratory confirmed for 20 (87%). For 15 (65%) patients, a history of tick attachment or exposure to a tick-infested area was reported. Fever and/or headache were present in 20 (87%) of patients, and rash, in 13 (57%). Three counties reported multiple cases: Clarke (four cases), Cobb (three), and DeKalb (two). Onsets of illness ranged from March 31 to November 17.

Ehrlichiosis

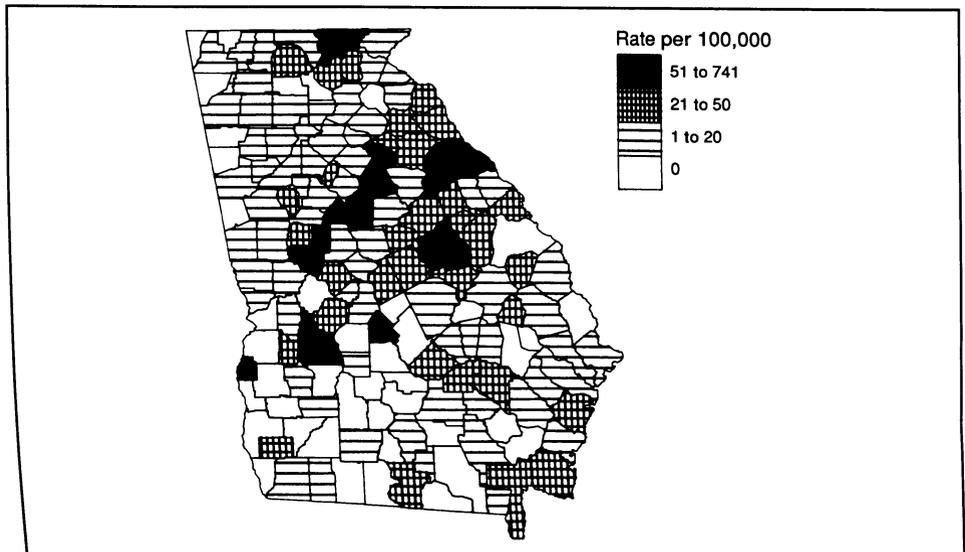
During 1989, one case of human ehrlichiosis was reported in Georgia. A 25-year-old man from Richmond County had onset November 7 and was hospitalized for a fever of unclear etiology. Serologic tests confirmed the diagnosis of ehrlichiosis.

Reported by: T McKinley, MPH, D Smith, Office of Epidemiology, RK Sikes, DVM, State Epidemiologist, Georgia Dept of Human Resources. Div of Vector-Borne Infectious Diseases, Center for Infectious Diseases, CDC.

Editorial Note: LD is the most commonly reported vectorborne disease in the United States (1). The approximately 7400 cases provisionally reported for 1989 represent a 62% increase over those reported for 1988 (2) and a 15-fold increase from 1982, when national surveillance was established. As a result of surveillance efforts, the epidemiology of LD, RMSF, and ehrlichiosis is now more clearly defined, and preventive measures have been identified (1–3). These measures include avoidance of sites suspected to be infested with ticks; use of repellents and acaricides, wearing of protective clothing, and frequent inspection for and prompt removal of attached ticks.

The 12-fold increase in the number of LD cases reported by the GDHR from 1988 to 1989 is one of the largest reported by any state for a similar period; the Georgia

FIGURE 2. Rates of Lyme disease, by county – Georgia, 1989



Tickborne Diseases — Continued

rate in 1989 is among the 10 highest in the United States and is 10- to 20-fold greater than the rates reported in surrounding states. Laboratory-confirmed LD has consistently been concentrated geographically in the northeastern, mid-Atlantic, north central, and northern Pacific coastal areas (1,2). The high rate in Georgia in 1989 may reflect a fundamental change in the local epidemiology of the disease, an alteration in reporting resulting from a major change in physician and public awareness, and/or a change in availability or sensitivity of diagnostic tests.

During 1988 and 1989, the GDHR conducted extensive education programs for both physicians and the public about LD and made laboratory testing available. During this period, the GDHR public health laboratory was the only laboratory in the state doing serologic testing for LD. These factors also may have contributed to increased reporting.

The diagnosis of LD may be difficult to make in some cases and requires a careful assessment of clinical, epidemiologic, and laboratory features. Signs and symptoms are often nonspecific, and a history of tick exposure may be absent. Laboratory diagnosis is problematic and cannot be relied on as the sole determinant in evaluation of an individual case (4). *Borrelia burgdorferi* is difficult to isolate by culture, even when present in a clinical specimen. Serologic tests, especially in the early phase of illness, are inadequately sensitive. In addition, these tests are nonspecific, and crossreactions with other closely related spirochetes can occur; some positive antibody reactions in both humans and nonhuman hosts may be due to that crossreactivity. Monoclonal antibodies are now being used to identify *B. burgdorferi* in ticks (5); however, these tests are difficult to perform and must be carefully interpreted.

References

1. CDC. Lyme disease—United States, 1987 and 1988. MMWR 1989;38:68–72.
2. Miller GL, Craven RB, Bailey RE, Tsai TF. The epidemiology of Lyme disease in the United States, 1987–1988. Laboratory Med 1990;21:285–9.
3. Steere AC. Lyme disease. N Engl J Med 1989;321:586–96.
4. Barbour AG. The diagnosis of Lyme disease; rewards and perils. Ann Intern Med 1989; 110:502–2.
5. Magnarelli LA, Anderson JF. Ticks and biting insects infected with the etiologic agent of Lyme disease, *Borrelia burgdorferi*. J Clin Microbiol 1988;26:1482–6.

Notice to Readers**International Travelers' Hotline**

CDC's Travelers' Health Section, Division of Quarantine, Center for Prevention Services, now has a 24-hour-a-day automated telephone system that provides information for international travelers on vaccine requirements and recommendations by geographic area. Menu options include information on malaria, food and water precautions, travelers' diarrhea, immunizations for children <2 years of age, pregnant travelers, and disease outbreaks. To access this information, dial (404) 332-4559.

The *Morbidity and Mortality Weekly Report* is prepared by the Centers for Disease Control, Atlanta, Georgia, and available on a paid subscription basis from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, (202) 783-3238.

The data in this report are provisional, based on weekly reports to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the succeeding Friday. The editor welcomes accounts of interesting cases, outbreaks, environmental hazards, or other public health problems of current interest to health officials. Such reports and any other matters pertaining to editorial or other textual considerations should be addressed to: Editor, *Morbidity and Mortality Weekly Report*, Centers for Disease Control, Atlanta, Georgia 30333; telephone (404) 332-4555.

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