CENTERS FOR DISEASE CONTROL

September 29, 1989/Vol. 38/No. 38

MMWR

MORBIDITY AND MORTALITY WEEKLY REPORT



*Epidemiologic Notes and Reports*

## Babesiosis — Connecticut

Since August 1988, six cases of babesiosis—a rare protozoan parasitic disease—have been reported to the Connecticut Department of Health Services (CDHS); only two cases thought to have been acquired in Connecticut were reported before 1988.

The first person became ill in August 1988; onset of illness in the other five persons occurred between late June and mid-August 1989. Ages ranged from 68 to 86 years; five were men. All six persons had fever, headache, and fatigue. Two of the patients were taking oral corticosteroids for chronic obstructive pulmonary disease; none were otherwise immunosuppressed, and none were asplenic. Four patients were treated with both quinine and clindamycin; one received quinine without clindamycin; the sixth received no specific therapy for babesiosis. All six are now asymptomatic, and their parasitemia has cleared.

Five of the patients (including the first case-patient) lived within 3 miles of each other; the sixth lived 22 miles away. None of the patients gave a history of recent travel to areas with known endemic babesiosis, and none had received blood transfusions before becoming ill. Gardening near the home was the principal outdoor activity of four persons; the other two walked in fields near their homes. Only one person recalled being bitten by a tick before becoming ill, and all six had observed mice in the areas around their homes.

For all six persons parasites were detected on peripheral blood smears. In addition, each had IgG antibody titers to *Babesia microti* of ≥1:1024. *B. microti* was isolated (by hamster inoculation) from the blood of two patients and from eight (73%) of 11 mice trapped near four of the patients' homes. A statewide survey conducted in 1976–77 detected *B. microti* antibodies in mice collected in four of 22 sites (*1*). Three of these four sites are within 20 miles of five of the patients' homes and within 45 miles of the other patient's home.

The CDHS has alerted Connecticut physicians to the presence of a newly recognized focus of babesiosis within the state and has advised physicians to report all suspected cases. Surveys are planned to determine the extent of the infection in humans and rodents.

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*Babesiosis — Continued*

**Editorial Note:** *Babesia* is a protozoan parasite of red blood cells. In the United States, babesiosis is most commonly caused by *B. microti.* Babesiosis was recognized in the Northeast in the 1960s and is endemic in Nantucket, Martha's Vineyard, Shelter Island, and parts of Long Island (*2*).

In humans, *B. microti* infection may be subclinical or may present as a febrile illness with constitutional symptoms and anemia. Manifestations are most severe in elderly, immunosuppressed, or asplenic persons (*3*).

The natural hosts for *B. microti* include the white-footed mouse and the meadow vole. Tick bite by *Ixodes dammini* is the usual source of human infection. In addition, infection can be transmitted by blood transfusion (*3*). Entomologic surveys have detected increases in *I. dammini* and its spread to new areas (*4*). Physicians should be aware that babesiosis could occur in areas where *Babesia* was not previously considered endemic.

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2. Golightly LM, Hirschhorn LR, Weller PF. Fever and headache in a splenectomized woman. Rev Infect Dis 1989;11:629–37.
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## *Progress in Chronic Disease Prevention*

### Chronic Disease Reports: Deaths from Cervical Cancer — United States, 1984–1986

From 1984 through 1986, cervical cancer (*International Classification of Diseases, Ninth Edition, Clinical Modification* code 180) was the underlying cause of death in a mean of 4543 women per year in the United States.* Cervical cancer accounted for <3% of U.S. cancer deaths among women and was the 11th most common cause of cancer mortality (*1*). Worldwide, however, cervical cancer follows breast cancer as the second most common cause of cancer mortality among women (*2*).

Rates of cervical cancer mortality increase with age; in 1986, 53% of deaths from cervical cancer occurred among women aged ≥60 years. When adjusted for age, the rate of cervical cancer mortality was 2.8 times higher for black than for white women (*1*). From 1984 through 1986, the highest mean annual rates of mortality (age-adjusted to the 1986 U.S. population) occurred in southeastern states and in North Dakota and Maine (Table 1, Figure 1). Utah had the lowest rate (1.8 per 100,000 females) and the District of Columbia the highest rate (6.2 per 100,000).

For 1974–1985, the National Cancer Institute reported an overall 5-year survival rate of 67% for women with cervical cancer, although rates varied by stage at diagnosis (*1*). Survival was 88% for women whose disease was diagnosed at the local

*A mean rate over a 3-year period is reported because the number of cases per year is small; however, in a year-by-year comparison, there is little variation in numbers of cases or in the rankings of states by rates of death from cervical cancer.

*Cervical Cancer Deaths — Continued*

**CHRONIC DISEASE REPORTS: CERVICAL CANCER, TABLE 1. Mean annual age-adjusted cervical cancer mortality, by area — United States, 1984–1986**

| Area | Mean annual deaths | Rate per 100,000 females | Rank by rate |
|---|---|---|---|
| Alabama | 114 | 5.4 | 4 |
| Alaska | 6 | 5.1 | 6 |
| Arizona | 51 | 3.1 | 38 |
| Arkansas | 46 | 3.6 | 28 |
| California | 417 | 3.2 | 36 |
| Colorado | 36 | 2.5 | 46 |
| Connecticut | 50 | 2.8 | 43 |
| Delaware | 14 | 4.3 | 15 |
| District of Columbia | 22 | 6.2 | 1 |
| Florida | 238 | 3.4 | 32 |
| Georgia | 131 | 4.6 | 12 |
| Hawaii | 14 | 3.4 | 33 |
| Idaho | 14 | 3.1 | 37 |
| Illinois | 238 | 4.0 | 19 |
| Indiana | 115 | 4.1 | 17 |
| Iowa | 53 | 3.4 | 30 |
| Kansas | 48 | 3.6 | 27 |
| Kentucky | 91 | 4.8 | 9 |
| Louisiana | 110 | 5.4 | 5 |
| Maine | 29 | 4.6 | 13 |
| Maryland | 77 | 3.5 | 29 |
| Massachusetts | 97 | 2.9 | 39 |
| Michigan | 150 | 3.3 | 35 |
| Minnesota | 47 | 2.2 | 49 |
| Mississippi | 61 | 4.7 | 10 |
| Missouri | 106 | 3.8 | 23 |
| Montana | 16 | 4.0 | 20 |
| Nebraska | 20 | 2.4 | 47 |
| Nevada | 12 | 2.8 | 42 |
| New Hampshire | 22 | 4.3 | 16 |
| New Jersey | 155 | 3.7 | 26 |
| New Mexico | 19 | 2.9 | 40 |
| New York | 365 | 3.7 | 25 |
| North Carolina | 149 | 4.6 | 11 |
| North Dakota | 15 | 4.9 | 8 |
| Ohio | 216 | 3.8 | 22 |
| Oklahoma | 68 | 4.1 | 18 |
| Oregon | 46 | 3.3 | 34 |
| Pennsylvania | 231 | 3.4 | 31 |
| Rhode Island | 16 | 2.8 | 44 |
| South Carolina | 90 | 5.6 | 2 |
| South Dakota | 9 | 2.4 | 48 |
| Tennessee | 124 | 4.9 | 7 |
| Texas | 275 | 3.7 | 24 |
| Utah | 11 | 1.8 | 51 |
| Vermont | 11 | 4.3 | 14 |
| Virginia | 107 | 3.9 | 21 |
| Washington | 61 | 2.8 | 41 |
| West Virginia | 57 | 5.6 | 3 |
| Wisconsin | 66 | 2.7 | 45 |
| Wyoming | 4 | 1.9 | 50 |
| **Total** | **4543** | **3.7** | |

*Cervical Cancer Deaths — Continued*

stage; 51%, at the regional stage; and 14%, at the distant stage. At local and regional stages, survival was higher for whites than for blacks (*1*).

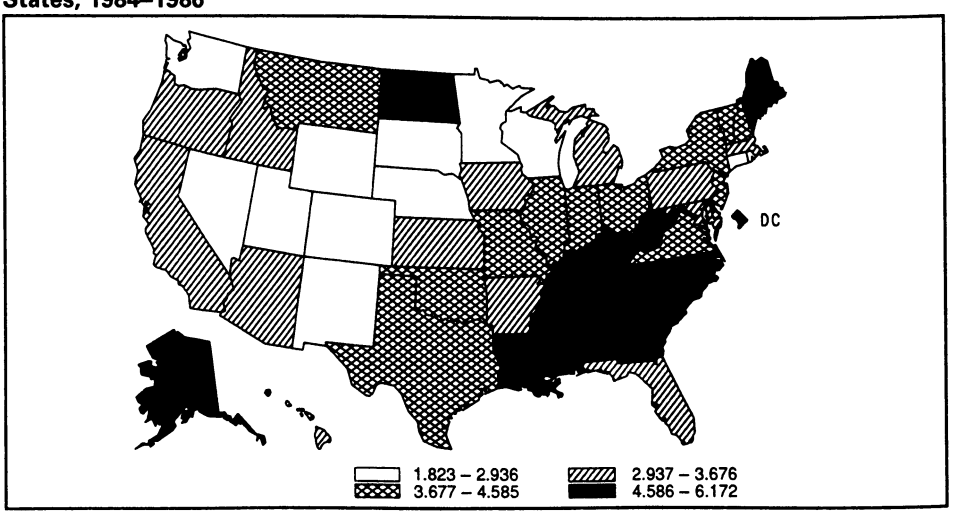
*Reported by: Div of Surveillance and Epidemiologic Studies, Epidemiology Program Office; Div of Chronic Disease Control and Community Intervention, Center for Chronic Disease Prevention and Health Promotion, CDC.*

**Editorial Note:** Sexual contact is a principal risk factor for cervical cancer. The risk varies directly with the number of sex partners and inversely with age at first intercourse. Certain serotypes of human papillomavirus are the infectious agents that may be related to risk for cervical cancer (*3,4*). Other risk factors include nonuse of barrier and spermicidal contraceptives, parity, socioeconomic status, and smoking (*2*). Nearly 29% of cervical cancer mortality is attributable to cigarette smoking among women (Table 2).

Early detection of cervical cancer using the Papanicolaou (Pap) test is effective in preventing deaths from cervical cancer (*5*). In Iceland, an upward trend in cervical cancer mortality was reversed following the introduction in 1964 of mass Pap screening for women aged 25–60 years (*6*). In 1970–1974, the risk of dying from cervical cancer was an estimated 12.5 times higher in Icelandic women not participating in screening than in screening participants.

The American Cancer Society (ACS) recommends annual Pap tests beginning with the onset of sexual activity; following three negative Pap tests, less frequent tests may be recommended by the woman's physician (*7*). In high-risk regions and high-risk populations, continued annual screening may be appropriate. In 1985, only 5% of U.S. women 20–80 years of age reported never having had a Pap test (*8*); however, an estimated 37% of cervical cancer deaths occur among these women (Table 2). Additional cervical cancer mortality can be prevented by greater compliance with recommended Pap smear guidelines (*9*). Through screening with the Pap test at least once every 3 years, cervical cancer mortality for women aged 20–70 years may be reduced by an estimated 70%–95% (*10*). Prompt, adequate follow-up of

**CHRONIC DISEASE REPORTS: CERVICAL CANCER, FIGURE 1. Mean annual age-adjusted cervical cancer mortality rates per 100,000 females, by quartile — United States, 1984–1986**



*Cervical Cancer Deaths — Continued*

**CHRONIC DISEASE REPORTS: CERVICAL CANCER, TABLE 2. Cervical cancer (ICD-9-CM 180) indices — United States**

| Index | No. | Rate per 100,000 females |
|---|---|---|
| Mortality | | |
| Underlying cause (mean, 1984–1986) | 4,543 | 3.7 |
| Multiple cause (1986)* | 5,184 | 4.2 |
| Mean annual incidence (1982–1986)† | 12,625 | 10.2 |
| Hospitalizations (1987)§ | 36,342 | 29.4 |
| Years of potential life lost before age 65 (1987)¶ | 43,500 | 35.2 |

| Risk factor | Crude prevalence (%) | Relative risk | Population-attributable risk (%; nonadditive)** | Estimated attributable deaths (nonadditive)†† |
|---|---|---|---|---|
| Smoking | | | | |
| Current | 24.0§§ | 2.1§§ | 18.8 | 975 |
| Former | 15.3§§ | 1.9§§ | 9.8 | 508 |
| Total | — | — | 28.6 | 1483 |
| Never having had a Pap test | 5.0¶¶ | 12.5*** | 36.5 | 1892 |

*NCHS. Vital statistics mortality data, multiple cause of death detail, 1986 [machine-readable public-use data tape]. Hyattsville, Maryland: US Department of Health and Human Services, Public Health Service, 1988 (ICD-9-CM 180).

†Estimated from age-specific incidence and 1986 intercensal estimates of the U.S. population. National Cancer Institute. Cancer statistics review, 1973–1986. Bethesda, Maryland: US Department of Health and Human Services, Public Health Service, 1989; NIH publication no. 89-2789. Irwin R. 1980–1986 Intercensal population estimates by race, sex, and age [machine-readable data file]. Alexandria, Virginia: Demo-Detail, 1987.

§NCHS. National Hospital Discharge Survey, 1987 [machine-readable public-use data tape]. Hyattsville, Maryland: US Department of Health and Human Services, Public Health Service, 1987 (ICD-9-CM 180).

¶CDC. Years of potential life lost before age 65—United States, 1987. MMWR 1989;38:27–9 (ICD-9-CM 180).

**Population-attributable risk (PAR) = percentage of mortality attributable to the specific risk factor in the population. Because persons may be exposed to >1 risk factor, estimated population-attributable risk from different risk factors should not be added. CDC. Chronic disease reports in the *Morbidity and Mortality Weekly Report* (*MMWR*). MMWR 1989;38(no. S-1)

††Estimated attributable deaths = PAR × multiple cause mortality. Because persons may be exposed to >1 risk factor, estimated attributable deaths from different risk factors should not be added.

§§CDC. Reducing the health consequences of smoking: 25 years of progress—a report of the Surgeon General. Rockville, Maryland: US Department of Health and Human Services, Public Health Service, 1989; DHHS publication no. (CDC)89-8411.

¶¶For U.S. women, aged 20–79 years, in 1985. Makuc DM, Freid VM, Kleinman JC. National trends in the use of preventive health care by women. Am J Public Health 1989;79:21–6.

***Risk of mortality in (Icelandic) women not using Pap screening between 1970 and 1974 compared to women using Pap screening. Recalculated from Johannesson G, Geirsson G, Day N. The effect of mass screening in Iceland, 1965–74, on the incidence and mortality of cervical carcinoma. Int J Cancer 1978;21:418–25.

*Cervical Cancer Deaths — Continued*

women with positive Pap smears and attention to laboratory quality assurance are also valuable in reducing cervical cancer mortality. Use of barrier methods or spermicides for contraception reduces exposure to infectious agents and may reduce the initial risk of developing cervical cancer (*11,12*).

From 1979 to 1986, age-adjusted mortality rates of cervical cancer declined by 18% for all women (*13*); rates declined by 23% among whites and 15% among persons of other races. However, mortality rates among women <45 years of age have remained stable during this period, and the incidence of cervical cancer diagnosed in this population appears to have increased (*14*). Continued efforts to reduce cigarette smoking and to increase Pap smear use among women not appropriately screened should lead to further declines in cervical cancer mortality.

*References*

1. National Cancer Institute. Cancer statistics review, 1973–1986. Bethesda, Maryland: US Department of Health and Human Services, Public Health Service, 1989; NIH publication no. 89-2789.

*(Continued on page 659)*

## TABLE I. Summary — cases of specified notifiable diseases, United States

| Disease | 38th Week Ending | | | Cumulative, 38th Week Ending | | |
|---|---|---|---|---|---|---|
| | Sep. 23, 1989 | Sep. 24, 1988 | Median 1984-1988 | Sep. 23, 1989 | Sep. 24, 1988 | Median 1984-1988 |
| Acquired Immunodeficiency Syndrome (AIDS) | 1,191 | U* | 183 | 25,555 | 23,032 | 9,555 |
| Aseptic meningitis | 415 | 213 | 375 | 6,044 | 4,500 | 6,504 |
| Encephalitis: Primary (arthropod-borne & unspec) | 22 | 21 | 37 | 560 | 606 | 818 |
| Post-infectious | - | 4 | 2 | 65 | 97 | 88 |
| Gonorrhea: Civilian | 10,659 | 15,697 | 17,377 | 476,784 | 502,400 | 602,607 |
| Military | 116 | 239 | 306 | 7,772 | 8,786 | 12,104 |
| Hepatitis: Type A | 642 | 627 | 482 | 24,791 | 18,259 | 16,143 |
| Type B | 345 | 424 | 502 | 16,288 | 16,398 | 18,595 |
| Non A, Non B | 29 | 39 | 61 | 1,707 | 1,914 | 2,620 |
| Unspecified | 38 | 53 | 67 | 1,685 | 1,547 | 3,262 |
| Legionellosis | 21 | 22 | 22 | 733 | 724 | 529 |
| Leprosy | 3 | - | 2 | 118 | 115 | 169 |
| Malaria | 25 | 38 | 31 | 908 | 719 | 719 |
| Measles: Total† | 156 | 42 | 15 | 11,236 | 2,279 | 2,471 |
| Indigenous | 146 | 42 | 13 | 10,711 | 2,046 | 2,054 |
| Imported | 10 | - | 2 | 525 | 233 | 282 |
| Meningococcal infections | 24 | 20 | 29 | 1,999 | 2,166 | 2,077 |
| Mumps | 50 | 61 | 49 | 4,126 | 3,566 | 3,563 |
| Pertussis | 122 | 87 | 109 | 2,361 | 2,006 | 2,006 |
| Rubella (German measles) | 2 | 7 | 7 | 304 | 167 | 439 |
| Syphilis (Primary & Secondary): Civilian | 411 | 880 | 643 | 28,445 | 29,366 | 20,262 |
| Military | 1 | 5 | 3 | 178 | 119 | 126 |
| Toxic Shock syndrome | 7 | 8 | 6 | 269 | 262 | 262 |
| Tuberculosis | 230 | 548 | 499 | 15,017 | 15,320 | 15,444 |
| Tularemia | 2 | 2 | 5 | 118 | 151 | 151 |
| Typhoid Fever | 6 | 14 | 9 | 351 | 274 | 247 |
| Typhus fever, tick-borne (RMSF) | 11 | 21 | 21 | 487 | 498 | 567 |
| Rabies, animal | 51 | 79 | 112 | 3,484 | 3,149 | 3,947 |

## TABLE II. Notifiable diseases of low frequency, United States

| | Cum. 1989 | | Cum. 1989 |
|---|---|---|---|
| Anthrax | - | Leptospirosis | 68 |
| Botulism: Foodborne | 18 | Plague | 3 |
| Infant (Md. 1) | 10 | Poliomyelitis, Paralytic | - |
| Other | 4 | Psittacosis (N.C. 1) | 77 |
| Brucellosis (N.M. 1, Calif. 1) | 61 | Rabies, human | 1 |
| Cholera | - | Tetanus | 31 |
| Congenital rubella syndrome | 3 | Trichinosis | 13 |
| Congenital syphilis, ages < 1 year | 158 | | |
| Diphtheria | 3 | | |

*Because AIDS cases are not received weekly from all reporting areas, comparison of weekly figures may be misleading.
†Three of the 156 reported cases for this week were imported from a foreign country or can be directly traceable to a known internationally imported case within two generations.

# TABLE III. Cases of specified notifiable diseases, United States, weeks ending September 23, 1989 and September 24, 1988 (38th Week)

| Reporting Area | AIDS | Aseptic Meningitis | Encephalitis | | Gonorrhea (Civilian) | | Hepatitis (Viral), by type | | | | Legionellosis | Leprosy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Primary | Post-infectious | | | A | B | NA,NB | Unspecified | | |
| | Cum. 1989 | Cum. 1989 | Cum. 1989 | Cum. 1989 | Cum. 1989 | Cum. 1988 | Cum. 1989 | Cum. 1989 | Cum. 1989 | Cum. 1989 | Cum. 1989 | Cum. 1989 |
| UNITED STATES | 25,555 | 6,044 | 560 | 65 | 476,784 | 502,400 | 24,791 | 16,288 | 1,707 | 1,685 | 733 | 118 |
| NEW ENGLAND | 1,077 | 322 | 20 | 2 | 14,565 | 15,665 | 529 | 789 | 59 | 62 | 50 | 8 |
| Maine | 46 | 14 | 5 | - | 201 | 309 | 18 | 44 | 5 | 1 | 5 | - |
| N.H. | 35 | 28 | - | - | 116 | 198 | 51 | 45 | 8 | 4 | 1 | - |
| Vt. | 11 | 34 | 4 | - | 47 | 92 | 28 | 64 | 5 | - | 1 | - |
| Mass. | 584 | 111 | 6 | 2 | 5,650 | 5,383 | 154 | 452 | 25 | 46 | 34 | 6 |
| R.I. | 57 | 56 | - | - | 1,058 | 1,374 | 29 | 52 | 4 | 4 | 9 | 1 |
| Conn. | 344 | 79 | 5 | - | 7,493 | 8,309 | 249 | 132 | 12 | 7 | - | 1 |
| MID. ATLANTIC | 7,358 | 757 | 53 | 5 | 58,323 | 81,431 | 2,913 | 2,377 | 164 | 203 | 186 | 19 |
| Upstate N.Y. | 975 | 333 | 20 | 4 | 10,956 | 10,426 | 656 | 438 | 62 | 10 | 59 | 3 |
| N.Y. City | 3,899 | 113 | 2 | 1 | 25,023 | 36,814 | 300 | 877 | 30 | 168 | 25 | 14 |
| N.J. | 1,654 | - | 31 | - | 11,131 | 11,309 | 315 | 460 | 24 | 5 | 35 | 1 |
| Pa. | 830 | 311 | - | - | 11,213 | 22,882 | 1,642 | 602 | 48 | 20 | 67 | 1 |
| E.N. CENTRAL | 1,935 | 1,099 | 193 | 6 | 90,770 | 83,371 | 1,434 | 1,987 | 194 | 77 | 201 | 3 |
| Ohio | 342 | 335 | 73 | 2 | 23,365 | 18,629 | 311 | 364 | 32 | 18 | 95 | - |
| Ind. | 277 | 171 | 34 | 3 | 6,747 | 6,386 | 167 | 330 | 24 | 28 | 40 | 1 |
| Ill. | 872 | 185 | 33 | 1 | 30,038 | 24,221 | 643 | 524 | 76 | 20 | 14 | 2 |
| Mich. | 351 | 338 | 36 | - | 23,624 | 26,841 | 200 | 479 | 40 | 11 | 33 | - |
| Wis. | 93 | 70 | 17 | - | 6,996 | 7,294 | 113 | 290 | 22 | - | 19 | - |
| W.N. CENTRAL | 624 | 280 | 24 | 3 | 22,763 | 21,037 | 925 | 706 | 78 | 24 | 28 | 1 |
| Minn. | 134 | 12 | - | 1 | 2,535 | 2,871 | 104 | 82 | 16 | 4 | 2 | - |
| Iowa | 43 | 46 | 8 | - | 1,963 | 1,596 | 82 | 26 | 13 | 5 | 5 | - |
| Mo. | 305 | 129 | 2 | - | 14,032 | 11,856 | 506 | 492 | 27 | 9 | 11 | - |
| N. Dak. | 6 | 12 | 1 | - | 104 | 132 | 4 | 19 | 4 | 2 | 1 | - |
| S. Dak. | 4 | 8 | 4 | - | 188 | 374 | 10 | 7 | 5 | - | 2 | - |
| Nebr. | 26 | 8 | 5 | - | 1,022 | 1,184 | 64 | 18 | 2 | 2 | 2 | 1 |
| Kans. | 106 | 65 | 4 | 2 | 2,919 | 3,024 | 155 | 62 | 11 | 2 | 5 | - |
| S. ATLANTIC | 5,413 | 1,176 | 112 | 23 | 135,650 | 142,460 | 2,407 | 3,168 | 259 | 265 | 90 | 1 |
| Del. | 70 | 55 | 1 | - | 2,331 | 2,158 | 35 | 109 | 5 | 8 | 8 | - |
| Md. | 476 | 157 | 15 | 2 | 15,799 | 14,789 | 663 | 558 | 23 | 27 | 23 | - |
| D.C. | 397 | 9 | - | - | 8,287 | 10,551 | 5 | 19 | 2 | - | - | - |
| Va. | 370 | 226 | 30 | 3 | 11,482 | 10,371 | 223 | 228 | 57 | 146 | 6 | - |
| W. Va. | 34 | 55 | 54 | - | 1,026 | 984 | 18 | 79 | 9 | 7 | - | - |
| N.C. | 354 | 131 | 7 | 2 | 19,984 | 19,958 | 326 | 770 | 66 | - | 24 | 1 |
| S.C. | 242 | 29 | - | - | 12,502 | 11,084 | 55 | 442 | 3 | 10 | 5 | - |
| Ga. | 831 | 92 | 1 | 1 | 26,174 | 27,301 | 270 | 305 | 10 | 8 | 15 | - |
| Fla. | 2,639 | 422 | 4 | 15 | 38,065 | 45,264 | 812 | 658 | 84 | 59 | 9 | - |
| E.S. CENTRAL | 556 | 490 | 23 | 2 | 39,946 | 39,391 | 307 | 1,177 | 115 | 7 | 38 | - |
| Ky. | 80 | 145 | 8 | 1 | 3,922 | 3,987 | 92 | 305 | 36 | 5 | 9 | - |
| Tenn. | 203 | 86 | 1 | - | 13,255 | 13,118 | 120 | 619 | 23 | - | 20 | - |
| Ala. | 163 | 182 | 13 | - | 12,827 | 12,333 | 66 | 174 | 50 | 1 | 9 | - |
| Miss. | 110 | 77 | 1 | 1 | 9,942 | 9,953 | 29 | 79 | 6 | 1 | - | - |
| W.S. CENTRAL | 2,147 | 686 | 49 | 5 | 53,048 | 54,409 | 2,750 | 1,630 | 113 | 384 | 39 | 19 |
| Ark. | 58 | 29 | 6 | - | 6,016 | 5,469 | 178 | 57 | 12 | 6 | 1 | - |
| La. | 364 | 57 | 11 | - | 11,369 | 10,911 | 200 | 282 | 14 | 1 | 6 | - |
| Okla. | 101 | 57 | 10 | 3 | 4,622 | 5,176 | 330 | 153 | 25 | 28 | 23 | - |
| Tex. | 1,624 | 543 | 22 | 2 | 31,041 | 32,853 | 2,042 | 1,138 | 62 | 349 | 9 | 19 |
| MOUNTAIN | 728 | 223 | 8 | 3 | 10,558 | 10,827 | 3,694 | 1,095 | 161 | 118 | 41 | 3 |
| Mont. | 13 | 5 | - | - | 142 | 330 | 67 | 39 | 6 | 3 | 2 | 1 |
| Idaho | 18 | 2 | - | 1 | 137 | 273 | 127 | 96 | 12 | 3 | - | - |
| Wyo. | 14 | 4 | - | - | 75 | 155 | 38 | 4 | 2 | - | - | - |
| Colo. | 227 | 108 | 1 | 1 | 2,090 | 2,362 | 397 | 130 | 43 | 48 | 4 | - |
| N. Mex. | 66 | 9 | 1 | - | 978 | 1,066 | 482 | 156 | 27 | 3 | 3 | 1 |
| Ariz. | 212 | 71 | 3 | - | 4,264 | 3,894 | 1,909 | 407 | 38 | 51 | 20 | 1 |
| Utah | 48 | 16 | 1 | 1 | 342 | 408 | 391 | 87 | 21 | 4 | 7 | - |
| Nev. | 130 | 8 | 2 | - | 2,530 | 2,339 | 283 | 176 | 12 | 6 | 5 | - |
| PACIFIC | 5,717 | 1,011 | 78 | 16 | 51,161 | 53,809 | 9,832 | 3,359 | 564 | 545 | 60 | 64 |
| Wash. | 401 | - | 2 | 1 | 4,709 | 5,219 | 2,368 | 740 | 154 | 44 | 22 | 6 |
| Oreg. | 183 | - | - | - | 2,260 | 2,342 | 1,733 | 366 | 60 | 11 | 2 | 1 |
| Calif. | 4,992 | 914 | 64 | 15 | 43,062 | 45,021 | 5,053 | 2,136 | 337 | 477 | 33 | 53 |
| Alaska | 11 | 21 | 9 | - | 725 | 749 | 532 | 46 | 5 | 3 | 1 | - |
| Hawaii | 130 | 76 | 3 | - | 405 | 478 | 146 | 71 | 8 | 10 | 2 | 4 |
| Guam | 1 | - | - | - | - | 116 | - | - | - | - | - | - |
| P.R. | 1,068 | 65 | 2 | 1 | 739 | 962 | 143 | 171 | 16 | 18 | - | 8 |
| V.I. | 26 | - | - | - | 491 | 338 | - | 6 | - | - | - | - |
| Amer. Samoa | - | - | - | - | - | 65 | - | - | - | - | - | - |
| C.N.M.I. | - | - | - | - | - | 37 | - | - | - | - | - | - |

N: Not notifiable U: Unavailable C.N.M.I.: Commonwealth of the Northern Mariana Islands

## TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending September 23, 1989 and Septemer 24, 1988 (38th Week)

| Reporting Area | Malaria | Measles (Rubeola) | | | | | Menin-gococcal Infections | Mumps | | Pertussis | | | Rubella | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Indigenous | | Imported* | | Total | | | | | | | | | |
| | Cum. 1989 | 1989 | Cum. 1989 | 1989 | Cum. 1989 | Cum. 1988 | Cum. 1989 | 1989 | Cum. 1989 | 1989 | Cum. 1989 | Cum. 1988 | 1989 | Cum. 1989 | Cum. 1988 |
| UNITED STATES | 908 | 146 | 10,711 | 10 | 525 | 2,279 | 1,999 | 50 | 4,126 | 122 | 2,361 | 2,006 | 2 | 304 | 167 |
| NEW ENGLAND | 59 | - | 286 | - | 35 | 108 | 145 | - | 72 | 9 | 290 | 221 | - | 6 | 7 |
| Maine | - | - | - | - | 1 | 7 | 13 | - | - | 1 | 17 | 11 | - | - | - |
| N.H. | 2 | - | 11 | - | 4 | 87 | 15 | - | 13 | 1 | 6 | 34 | - | 4 | 3 |
| Vt. | 2 | - | 1 | - | 2 | - | 6 | - | 3 | - | 6 | 3 | - | 1 | - |
| Mass. | 34 | - | 28 | - | 21 | 3 | 79 | - | 48 | 6 | 234 | 145 | - | 1 | 3 |
| R.I. | 10 | - | 38 | - | 3 | - | 1 | - | - | - | 11 | 10 | - | - | 1 |
| Conn. | 11 | - | 208 | - | 4 | 11 | 31 | - | 8 | 1 | 16 | 18 | - | - | - |
| MID. ATLANTIC | 171 | 2 | 647 | - | 170 | 863 | 272 | 4 | 379 | 40 | 170 | 121 | 1 | 26 | 12 |
| Upstate N.Y. | 26 | - | 42 | - | 98 | 37 | 91 | 2 | 137 | 32 | 77 | 73 | 1 | 11 | 2 |
| N.Y. City | 61 | - | 82 | - | 14 | 48 | 34 | - | 18 | - | 3 | 4 | - | 15 | 7 |
| N.J. | 49 | - | 318 | - | - | 241 | 61 | - | 167 | - | 24 | 4 | - | - | 1 |
| Pa. | 35 | 2 | 205 | - | 58 | 537 | 86 | 2 | 57 | 8 | 66 | 40 | - | - | 2 |
| E.N. CENTRAL | 70 | 123 | 3,030 | - | 94 | 180 | 252 | 1 | 441 | - | 251 | 231 | - | 24 | 26 |
| Ohio | 12 | 119 | 1,098 | - | 35 | 25 | 94 | - | 118 | - | 45 | 40 | - | 3 | 1 |
| Ind. | 10 | - | 78 | - | - | 57 | 28 | - | 40 | - | 19 | 58 | - | - | - |
| Ill. | 28 | - | 1,384 | - | 1 | 71 | 66 | - | 140 | - | 83 | 39 | - | 19 | 21 |
| Mich. | 13 | 4 | 306 | - | 15 | 23 | 48 | 1 | 110 | - | 35 | 33 | - | 1 | 4 |
| Wis. | 7 | - | 164 | - | 43 | 4 | 16 | - | 33 | - | 69 | 61 | - | 1 | - |
| W.N. CENTRAL | 27 | - | 634 | - | 11 | 13 | 66 | 4 | 380 | 1 | 152 | 108 | - | 6 | 2 |
| Minn. | 8 | - | 17 | - | - | 11 | 13 | - | 2 | - | 35 | 48 | - | - | - |
| Iowa | 3 | - | 8 | - | 1 | - | 2 | 3 | 37 | 1 | 14 | 21 | - | 1 | - |
| Mo. | 9 | - | 369 | - | - | 2 | 16 | - | 54 | - | 92 | 17 | - | 4 | - |
| N. Dak. | 1 | - | - | - | - | - | - | - | - | - | 2 | 11 | - | - | - |
| S. Dak. | 1 | - | - | - | - | - | 7 | - | - | - | 1 | 5 | - | - | - |
| Nebr. | 2 | - | 108 | - | 2 | - | 17 | - | 5 | - | 5 | - | - | - | - |
| Kans. | 3 | - | 132 | - | 8 | - | 11 | 1 | 282 | - | 3 | 6 | - | 1 | 2 |
| S. ATLANTIC | 154 | 15 | 550 | 1 | 51 | 347 | 350 | 19 | 716 | 11 | 229 | 201 | - | 9 | 17 |
| Del. | 7 | 1 | 67 | - | 1 | - | 2 | - | 1 | - | 1 | 7 | - | - | - |
| Md. | 25 | 6 | 55 | 1§ | 34 | 14 | 60 | 4 | 365 | - | 37 | 32 | - | 2 | 1 |
| D.C. | 8 | - | 32 | - | 4 | - | 15 | - | 118 | - | - | 1 | - | - | - |
| Va. | 28 | - | 20 | - | 3 | 166 | 40 | 4 | 102 | - | 28 | 21 | - | - | 11 |
| W. Va. | 2 | - | 51 | - | - | 6 | 12 | 1 | 12 | - | 24 | 8 | - | - | - |
| N.C. | 19 | 3 | 171 | - | - | 4 | 48 | 1 | 28 | 8 | 48 | 58 | - | 1 | - |
| S.C. | 7 | - | 3 | - | - | - | 24 | 4 | 27 | - | - | 1 | - | - | - |
| Ga. | 9 | - | 1 | - | 1 | - | 60 | 2 | 29 | 2 | 33 | 31 | - | - | 2 |
| Fla. | 49 | 5 | 150 | - | 8 | 157 | 89 | 3 | 34 | 1 | 58 | 42 | - | 6 | 3 |
| E.S. CENTRAL | 10 | 1 | 235 | - | 3 | 69 | 66 | 7 | 193 | 2 | 105 | 83 | - | 3 | 2 |
| Ky. | - | - | 37 | - | 3 | 35 | 39 | - | 9 | - | 1 | 12 | - | - | - |
| Tenn. | 3 | U | 147 | U | - | - | 5 | U | 51 | U | 42 | 25 | U | 2 | 2 |
| Ala. | 5 | 1 | 50 | - | - | - | 18 | 7 | 27 | 2 | 59 | 42 | - | 1 | - |
| Miss. | 2 | - | 1 | - | - | 34 | 4 | N | N | - | 3 | 4 | - | - | - |
| W.S. CENTRAL | 48 | 5 | 3,102 | 5 | 60 | 17 | 143 | 6 | 1,328 | 19 | 264 | 104 | - | 36 | 9 |
| Ark. | - | - | - | - | 15 | 1 | 9 | - | 128 | - | 21 | 19 | - | - | 2 |
| La. | 2 | - | 11 | - | - | - | 37 | 4 | 572 | - | 15 | 16 | - | 5 | - |
| Okla. | 6 | - | 122 | - | - | 8 | 22 | - | 187 | - | 46 | 42 | - | 1 | 1 |
| Tex. | 40 | 5 | 2,969 | 5†§ | 45 | 8 | 75 | 2 | 441 | 19 | 182 | 27 | - | 30 | 6 |
| MOUNTAIN | 22 | - | 352 | 4 | 40 | 140 | 62 | 8 | 167 | 23 | 526 | 579 | - | 35 | 6 |
| Mont. | 1 | - | 12 | - | 1 | 24 | 1 | 2 | 4 | - | 33 | 2 | - | 1 | - |
| Idaho | 2 | - | - | - | 2 | 1 | 2 | - | 15 | 1 | 58 | 300 | - | 32 | - |
| Wyo. | 1 | - | - | - | - | - | - | - | 8 | - | - | 1 | - | 1 | - |
| Colo. | 5 | - | 64 | - | 15 | 115 | 19 | - | 26 | - | 33 | 20 | - | - | 2 |
| N. Mex. | 3 | - | 16 | - | 15 | - | 2 | N | N | - | 24 | 45 | - | - | - |
| Ariz. | 7 | - | 141 | 4§ | 4 | - | 25 | 6 | 98 | 16 | 357 | 183 | - | - | - |
| Utah | - | - | 118 | - | - | - | 5 | - | 10 | 6 | 20 | 27 | - | - | 3 |
| Nev. | 3 | - | 1 | - | 3 | - | 8 | - | 6 | - | 1 | 1 | - | 1 | 1 |
| PACIFIC | 347 | - | 1,875 | - | 61 | 542 | 643 | 1 | 450 | 17 | 374 | 358 | 1 | 159 | 86 |
| Wash. | 26 | - | 28 | - | 13 | 2 | 68 | - | 36 | 4 | 151 | 84 | - | - | - |
| Oreg. | 18 | - | 9 | - | 19 | 4 | 44 | N | N | 3 | 10 | 29 | - | 3 | - |
| Calif. | 293 | - | 1,819 | - | 20 | 524 | 524 | - | 397 | 9 | 195 | 183 | - | 132 | 59 |
| Alaska | 4 | - | 1 | - | - | - | 5 | - | 2 | - | 1 | 7 | - | - | - |
| Hawaii | 6 | - | 18 | - | 9 | 12 | 2 | 1 | 15 | 1 | 17 | 55 | 1 | 24 | 27 |
| Guam | - | U | - | U | - | 1 | - | U | - | U | - | - | U | - | 1 |
| P.R. | 1 | U | 490 | U | - | 190 | 4 | U | 8 | U | 4 | 14 | U | 8 | 2 |
| V.I. | - | U | 4 | U | - | - | - | U | 15 | U | - | - | U | - | - |
| Amer. Samoa | - | U | - | U | - | - | - | U | - | U | - | - | U | - | - |
| C.N.M.I. | - | U | - | U | - | - | - | U | - | 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 III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending September 23, 1989 and September 24, 1988 (38th Week)

| Reporting Area | Syphilis (Civilian) (Primary & Secondary) | | Toxic-shock Syndrome | Tuberculosis | | Tula-remia | Typhoid Fever | Typhus Fever (Tick-borne) (RMSF) | Rabies, Animal |
|---|---|---|---|---|---|---|---|---|---|
| | Cum. 1989 | Cum. 1988 | Cum. 1989 | Cum. 1989 | Cum. 1988 | Cum. 1989 | Cum. 1989 | Cum. 1989 | Cum. 1989 |
| UNITED STATES | 28,445 | 29,366 | 269 | 15,017 | 15,320 | 118 | 351 | 487 | 3,484 |
| NEW ENGLAND | 1,233 | 819 | 13 | 422 | 381 | 2 | 29 | 7 | 8 |
| Maine | 9 | 12 | 3 | 12 | 17 | - | - | - | 2 |
| N.H. | 10 | 6 | 1 | 19 | 8 | - | - | - | 1 |
| Vt. | 1 | 3 | - | 8 | 4 | - | - | - | - |
| Mass. | 378 | 313 | 4 | 219 | 216 | 2 | 19 | 4 | 2 |
| R.I. | 25 | 26 | 2 | 47 | 32 | - | 5 | 1 | - |
| Conn. | 810 | 459 | 3 | 117 | 104 | - | 5 | 2 | 3 |
| MID. ATLANTIC | 5,078 | 7,326 | 41 | 2,918 | 3,008 | 2 | 108 | 56 | 574 |
| Upstate N.Y. | 623 | 386 | 8 | 237 | 399 | 1 | 27 | 13 | 47 |
| N.Y. City | 2,630 | 5,302 | 2 | 1,588 | 1,638 | - | 49 | 3 | - |
| N.J. | 1,011 | 679 | 9 | 597 | 493 | - | 24 | 21 | 18 |
| Pa. | 814 | 959 | 22 | 496 | 478 | 1 | 8 | 19 | 509 |
| E.N. CENTRAL | 1,293 | 805 | 43 | 1,563 | 1,681 | 3 | 40 | 57 | 95 |
| Ohio | 105 | 76 | 13 | 279 | 322 | - | 8 | 30 | 9 |
| Ind. | 47 | 42 | 7 | 114 | 175 | 1 | 3 | 19 | 2 |
| Ill. | 584 | 365 | 9 | 708 | 717 | - | 19 | 6 | 24 |
| Mich. | 446 | 281 | 14 | 373 | 391 | 1 | 6 | 2 | 18 |
| Wis. | 111 | 41 | - | 89 | 76 | 1 | 4 | - | 42 |
| W.N. CENTRAL | 244 | 174 | 34 | 377 | 399 | 46 | 6 | 75 | 448 |
| Minn. | 37 | 17 | 8 | 72 | 63 | - | 1 | - | 98 |
| Iowa | 29 | 17 | 5 | 28 | 43 | - | 2 | 2 | 110 |
| Mo. | 126 | 107 | 9 | 178 | 201 | 33 | 2 | 58 | 46 |
| N. Dak. | 2 | 2 | - | 12 | 13 | - | - | 1 | 44 |
| S. Dak. | 1 | - | 4 | 21 | 26 | 6 | - | 4 | 71 |
| Nebr. | 21 | 25 | 5 | 18 | 11 | 3 | - | - | 39 |
| Kans. | 28 | 6 | 3 | 48 | 42 | 4 | 1 | 10 | 40 |
| S. ATLANTIC | 10,306 | 10,294 | 23 | 3,240 | 3,301 | 6 | 31 | 162 | 1,053 |
| Del. | 140 | 81 | 1 | 30 | 29 | - | 2 | 1 | 27 |
| Md. | 576 | 553 | 1 | 279 | 317 | 2 | 7 | 11 | 292 |
| D.C. | 608 | 487 | 1 | 138 | 143 | - | 2 | - | 2 |
| Va. | 392 | 307 | 4 | 265 | 300 | 4 | 6 | 11 | 196 |
| W. Va. | 13 | 34 | - | 54 | 58 | - | - | 2 | 44 |
| N.C. | 742 | 581 | 6 | 411 | 348 | - | 2 | 93 | 7 |
| S.C. | 622 | 526 | 4 | 363 | 359 | - | 2 | 26 | 167 |
| Ga. | 1,955 | 1,799 | 3 | 510 | 547 | - | 3 | 15 | 178 |
| Fla. | 5,258 | 5,926 | 3 | 1,190 | 1,200 | - | 7 | 3 | 140 |
| E.S. CENTRAL | 2,019 | 1,481 | 6 | 1,210 | 1,264 | 6 | 2 | 51 | 285 |
| Ky. | 40 | 48 | 2 | 301 | 287 | 1 | 1 | 14 | 115 |
| Tenn. | 824 | 651 | 3 | 361 | 374 | 4 | - | 27 | 72 |
| Ala. | 655 | 438 | 1 | 344 | 387 | - | 1 | 6 | 95 |
| Miss. | 500 | 344 | - | 204 | 216 | 1 | - | 4 | 3 |
| W.S. CENTRAL | 4,274 | 3,121 | 22 | 1,818 | 1,919 | 34 | 13 | 54 | 478 |
| Ark. | 264 | 183 | 1 | 189 | 214 | 24 | - | 15 | 62 |
| La. | 1,032 | 604 | - | 249 | 209 | - | 1 | - | 7 |
| Okla. | 83 | 111 | 12 | 155 | 174 | 10 | 1 | 32 | 79 |
| Tex. | 2,895 | 2,223 | 9 | 1,225 | 1,322 | - | 11 | 7 | 330 |
| MOUNTAIN | 571 | 552 | 39 | 324 | 440 | 13 | 7 | 21 | 211 |
| Mont. | 1 | 3 | - | 11 | 15 | 1 | - | 14 | 68 |
| Idaho | 1 | 2 | 3 | 22 | 18 | - | - | 2 | 9 |
| Wyo. | 6 | 1 | 2 | - | 5 | 2 | - | 2 | 65 |
| Colo. | 55 | 81 | 6 | 19 | 73 | 2 | 2 | 3 | 20 |
| N. Mex. | 21 | 39 | 5 | 62 | 79 | 2 | - | - | 20 |
| Ariz. | 205 | 123 | 10 | 148 | 186 | - | 4 | - | 22 |
| Utah | 13 | 14 | 9 | 27 | 18 | 5 | 1 | - | 2 |
| Nev. | 269 | 289 | 4 | 35 | 46 | 1 | - | - | 5 |
| PACIFIC | 3,427 | 4,794 | 48 | 3,145 | 2,927 | 6 | 115 | 4 | 332 |
| Wash. | 252 | 171 | 3 | 176 | 162 | - | 7 | - | - |
| Oreg. | 178 | 214 | - | 104 | 114 | 4 | 5 | 1 | - |
| Calif. | 2,983 | 4,375 | 44 | 2,696 | 2,511 | 2 | 94 | 3 | 268 |
| Alaska | 5 | 10 | - | 37 | 30 | - | - | - | 64 |
| Hawaii | 9 | 24 | 1 | 132 | 110 | - | 9 | - | - |
| Guam | - | 3 | - | - | 20 | - | - | - | - |
| P.R. | 385 | 468 | - | 210 | 181 | - | 4 | - | 50 |
| V.I. | 8 | 1 | - | 4 | 6 | - | - | - | - |
| Amer. Samoa | - | - | - | - | 3 | - | - | - | - |
| C.N.M.I. | - | 1 | - | - | 17 | - | - | - | - |

U: Unavailable

# TABLE IV. Deaths in 121 U.S. cities,* week ending September 23, 1989 (38th Week)

| Reporting Area | All Causes, By Age (Years) | | | | | | P&I** |
|---|---|---|---|---|---|---|---|
| | All Ages | ≥65 | 45-64 | 25-44 | 1-24 | <1 | Total |
| NEW ENGLAND | 591 | 400 | 111 | 44 | 17 | 19 | 49 |
| Boston, Mass. | 169 | 97 | 38 | 18 | 6 | 10 | 23 |
| Bridgeport, Conn. | 51 | 37 | 8 | 2 | 3 | 1 | 5 |
| Cambridge, Mass. | 22 | 16 | 5 | 1 | - | - | 1 |
| Fall River, Mass. | 23 | 18 | 4 | - | 1 | - | 1 |
| Hartford, Conn.§ | 58 | 39 | 12 | 5 | 1 | 1 | 2 |
| Lowell, Mass. | 19 | 14 | 2 | 2 | - | 1 | 2 |
| Lynn, Mass. | 9 | 5 | 3 | 1 | - | - | - |
| New Bedford, Mass. | 24 | 19 | 4 | 1 | - | - | - |
| New Haven, Conn. | 46 | 30 | 11 | 2 | 1 | 2 | 3 |
| Providence, R.I. | 39 | 27 | 5 | 5 | 2 | - | - |
| Somerville, Mass. | 4 | 3 | - | 1 | - | - | - |
| Springfield, Mass. | 44 | 32 | 5 | 3 | 1 | 3 | 5 |
| Waterbury, Conn. | 33 | 24 | 7 | 1 | 1 | - | 4 |
| Worcester, Mass. | 50 | 39 | 7 | 2 | 1 | 1 | 3 |
| MID. ATLANTIC | 2,713 | 1,650 | 567 | 299 | 74 | 123 | 142 |
| Albany, N.Y. | 54 | 31 | 14 | 5 | 1 | 3 | 1 |
| Allentown, Pa. | 20 | 18 | 2 | - | - | - | 1 |
| Buffalo, N.Y. | 106 | 75 | 20 | 5 | 2 | 4 | 5 |
| Camden, N.J. | 26 | 12 | 8 | 3 | 2 | 1 | - |
| Elizabeth, N.J. | 21 | 15 | 1 | 5 | - | - | 3 |
| Erie, Pa.† | 56 | 40 | 14 | 2 | - | - | 8 |
| Jersey City, N.J. | 43 | 24 | 10 | 6 | 2 | 1 | 2 |
| N.Y. City, N.Y. | 1,362 | 819 | 299 | 183 | 30 | 31 | 66 |
| Newark, N.J. | 74 | 22 | 16 | 22 | 3 | 11 | 6 |
| Paterson, N.J. | 20 | 10 | 5 | 3 | 1 | 1 | 1 |
| Philadelphia, Pa. | 547 | 300 | 106 | 48 | 28 | 65 | 23 |
| Pittsburgh, Pa.† | 57 | 36 | 17 | 3 | - | 1 | 5 |
| Reading, Pa. | 32 | 27 | 5 | - | - | - | 6 |
| Rochester, N.Y. | 113 | 87 | 19 | 5 | 1 | 1 | 7 |
| Schenectady, N.Y.§ | 25 | 21 | 3 | 1 | - | - | - |
| Scranton, Pa.† | 30 | 24 | 3 | 2 | - | 1 | 2 |
| Syracuse, N.Y. | 46 | 35 | 4 | 4 | 2 | 1 | 2 |
| Trenton, N.J. | 31 | 20 | 10 | - | 1 | - | - |
| Utica, N.Y. | 22 | 13 | 7 | - | - | 2 | 2 |
| Yonkers, N.Y. | 28 | 21 | 4 | 2 | 1 | - | 2 |
| E.N. CENTRAL | 2,401 | 1,596 | 484 | 181 | 57 | 83 | 106 |
| Akron, Ohio | 45 | 30 | 11 | 1 | - | 3 | - |
| Canton, Ohio | 32 | 24 | 7 | - | - | 1 | 2 |
| Chicago, Ill.§ | 564 | 362 | 125 | 45 | 10 | 22 | 16 |
| Cincinnati, Ohio | 167 | 118 | 29 | 13 | 4 | 3 | 20 |
| Cleveland, Ohio | 193 | 119 | 40 | 17 | 8 | 9 | 3 |
| Columbus, Ohio | 220 | 135 | 51 | 19 | 6 | 9 | 1 |
| Dayton, Ohio | 117 | 79 | 25 | 3 | 5 | 5 | 3 |
| Detroit, Mich. | 231 | 135 | 39 | 39 | 7 | 11 | 7 |
| Evansville, Ind. | 62 | 42 | 12 | 5 | 1 | 2 | 7 |
| Fort Wayne, Ind. | 51 | 34 | 9 | 5 | 2 | 1 | 2 |
| Gary, Ind. | 22 | 13 | 4 | 4 | 1 | - | 2 |
| Grand Rapids, Mich. | 90 | 65 | 17 | 7 | - | 1 | 7 |
| Indianapolis, Ind. | 137 | 97 | 25 | 4 | 6 | 5 | 6 |
| Madison, Wis. | 39 | 27 | 6 | 4 | 1 | 1 | 6 |
| Milwaukee, Wis. | 134 | 97 | 28 | 5 | 1 | 3 | 5 |
| Peoria, Ill. | 43 | 33 | 7 | - | 1 | 2 | 4 |
| Rockford, Ill. | 48 | 35 | 10 | - | - | 3 | 2 |
| South Bend, Ind. | 44 | 32 | 6 | 5 | - | 1 | 3 |
| Toledo, Ohio | 111 | 78 | 24 | 4 | 4 | 1 | 8 |
| Youngstown, Ohio§ | 51 | 41 | 9 | 1 | - | - | 2 |
| W.N. CENTRAL | 922 | 675 | 136 | 57 | 30 | 24 | 44 |
| Des Moines, Iowa§ | 69 | 43 | 11 | 6 | 7 | 2 | 3 |
| Duluth, Minn. | 26 | 20 | 4 | 1 | - | 1 | 1 |
| Kansas City, Kans.§ | 66 | 51 | 10 | 4 | 1 | - | 2 |
| Kansas City, Mo.§ | 104 | 74 | 21 | 7 | 1 | 1 | 5 |
| Lincoln, Nebr. | 48 | 36 | 7 | 1 | 4 | - | 4 |
| Minneapolis, Minn. | 289 | 208 | 41 | 23 | 11 | 6 | 15 |
| Omaha, Nebr. | 90 | 67 | 10 | 4 | 2 | 7 | 5 |
| St. Louis, Mo. | 124 | 90 | 19 | 7 | 1 | 7 | 5 |
| St. Paul, Minn. | 66 | 56 | 6 | 2 | 2 | - | 2 |
| Wichita, Kans. | 40 | 30 | 7 | 2 | 1 | - | 2 |

| Reporting Area | All Causes, By Age (Years) | | | | | | P&I** |
|---|---|---|---|---|---|---|---|
| | All Ages | ≥65 | 45-64 | 25-44 | 1-24 | <1 | Total |
| S. ATLANTIC | 1,161 | 680 | 243 | 139 | 46 | 53 | 60 |
| Atlanta, Ga. | 179 | 100 | 37 | 31 | 5 | 6 | 5 |
| Baltimore, Md. | 160 | 95 | 32 | 15 | 7 | 11 | 4 |
| Charlotte, N.C.§ | 80 | 47 | 20 | 9 | 2 | 2 | 6 |
| Jacksonville, Fla. | 104 | 60 | 18 | 12 | 5 | 9 | 4 |
| Miami, Fla. | 100 | 46 | 32 | 14 | 6 | 2 | - |
| Norfolk, Va. | 79 | 46 | 17 | 9 | 2 | 5 | 4 |
| Richmond, Va. | 79 | 48 | 15 | 10 | 1 | 5 | 13 |
| Savannah, Ga. | 49 | 36 | 9 | 1 | 1 | 2 | 8 |
| St. Petersburg, Fla. | 76 | 55 | 11 | 6 | 2 | 2 | 3 |
| Tampa, Fla. | 77 | 45 | 17 | 5 | 5 | 5 | 10 |
| Washington, D.C. | 159 | 85 | 34 | 27 | 9 | 4 | 3 |
| Wilmington, Del. | 19 | 17 | 1 | - | 1 | - | - |
| E.S. CENTRAL | 644 | 416 | 136 | 55 | 13 | 24 | 39 |
| Birmingham, Ala. | 94 | 61 | 23 | 6 | - | 4 | 4 |
| Chattanooga, Tenn. | 64 | 42 | 9 | 8 | 1 | 4 | 5 |
| Knoxville, Tenn. | 76 | 42 | 22 | 4 | 3 | 5 | 7 |
| Louisville, Ky. | 38 | 19 | 11 | 5 | - | 3 | 1 |
| Memphis, Tenn. | 144 | 98 | 27 | 14 | 4 | 1 | 11 |
| Mobile, Ala. | 25 | 17 | 2 | 5 | 1 | - | - |
| Montgomery, Ala. | 61 | 46 | 9 | 4 | 1 | 1 | 2 |
| Nashville, Tenn. | 142 | 91 | 33 | 9 | 3 | 6 | 9 |
| W.S. CENTRAL | 1,754 | 1,077 | 358 | 196 | 61 | 59 | 70 |
| Austin, Tex. | 62 | 43 | 11 | 6 | 2 | - | 5 |
| Baton Rouge, La. | 46 | 32 | 7 | 3 | 1 | 3 | 3 |
| Corpus Christi, Tex.§ | 45 | 33 | 9 | 3 | - | - | 1 |
| Dallas, Tex.§ | 188 | 101 | 40 | 26 | 11 | 10 | 4 |
| El Paso, Tex. | 90 | 53 | 20 | 7 | 4 | 5 | 5 |
| Fort Worth, Tex | 88 | 53 | 15 | 8 | 3 | 8 | 5 |
| Houston, Tex.§ | 734 | 436 | 169 | 89 | 24 | 16 | 18 |
| Little Rock, Ark. | 63 | 43 | 12 | 5 | 2 | 1 | 6 |
| New Orleans, La. | 136 | 85 | 20 | 20 | 3 | 8 | - |
| San Antonio, Tex. | 175 | 116 | 28 | 18 | 8 | 4 | 14 |
| Shreveport, La. | 50 | 32 | 11 | 5 | - | 2 | 2 |
| Tulsa, Okla. | 77 | 50 | 16 | 6 | 3 | 2 | 7 |
| MOUNTAIN | 697 | 463 | 133 | 64 | 19 | 18 | 22 |
| Albuquerque, N. Mex. | 89 | 54 | 18 | 9 | 7 | 1 | 2 |
| Colo. Springs, Colo. | 34 | 24 | 6 | 1 | - | 3 | 2 |
| Denver, Colo. | 119 | 77 | 24 | 13 | 2 | 3 | 3 |
| Las Vegas, Nev. | 106 | 70 | 27 | 7 | 2 | - | 3 |
| Ogden, Utah | 29 | 24 | 2 | 1 | 1 | 1 | 1 |
| Phoenix, Ariz. | 131 | 80 | 25 | 18 | 1 | 7 | 3 |
| Pueblo, Colo. | 37 | 26 | 8 | 2 | 1 | - | 5 |
| Salt Lake City, Utah | 43 | 29 | 5 | 8 | 1 | - | - |
| Tucson, Ariz. | 109 | 79 | 18 | 5 | 4 | 3 | 3 |
| PACIFIC | 1,954 | 1,247 | 408 | 179 | 70 | 44 | 122 |
| Berkeley, Calif. | 10 | 7 | 1 | 2 | - | - | - |
| Fresno, Calif. | 75 | 45 | 23 | 1 | 3 | 3 | 4 |
| Glendale, Calif. | 34 | 24 | 7 | 2 | - | - | 4 |
| Honolulu, Hawaii | 73 | 44 | 17 | 3 | 5 | 4 | 5 |
| Long Beach, Calif.§ | 88 | 51 | 16 | 13 | 5 | 3 | 11 |
| Los Angeles Calif. | 584 | 368 | 118 | 62 | 25 | 6 | 25 |
| Oakland, Calif.§ | 80 | 48 | 18 | 8 | 4 | 2 | 4 |
| Pasadena, Calif. | 26 | 17 | 6 | 2 | 1 | - | - |
| Portland, Oreg. | 133 | 94 | 20 | 10 | 3 | 6 | 7 |
| Sacramento, Calif. | 154 | 106 | 28 | 14 | 3 | 3 | 13 |
| San Diego, Calif. | 128 | 69 | 37 | 14 | 4 | 4 | 12 |
| San Francisco, Calif. | 128 | 69 | 37 | 14 | 4 | 4 | 12 |
| San Jose, Calif. | 171 | 114 | 33 | 14 | 4 | 6 | 14 |
| Seattle, Wash. | 164 | 110 | 33 | 16 | 4 | 1 | 6 |
| Spokane, Wash. | 62 | 47 | 10 | 1 | 2 | 2 | 2 |
| Tacoma, Wash. | 44 | 34 | 4 | 3 | 3 | - | 3 |
| TOTAL | 12,837†† | 8,204 | 2,576 | 1,214 | 387 | 447 | 654 |

*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.

*Cervical Cancer Deaths — Continued*

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3. Koutsky LA, Galloway DA, Holmes KK. Epidemiology of genital human papillomavirus infection. Epidemiol Rev 1988;10:122–63.
4. Reeves WC, Rawls WE, Brinton LA. Epidemiology of genital papillomaviruses and cervical cancer. Rev Infect Dis 1989;11:426–39.
5. Day NE. Screening for cancer of the cervix. J Epidemiol Community Health 1989;43:103–6.
6. Johannesson G, Geirsson G, Day N. The effect of mass screening in Iceland, 1965–74, on the incidence and mortality of cervical carcinoma. Int J Cancer 1978;21:418–25.
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8. Makuc DM, Freid VM, Kleinman JC. National trends in the use of preventive health care by women. Am J Public Health 1989;79:21–6.
9. Hakama M, Miller AB, Day NE, eds. Screening for cancer of the uterine cervix. Lyon, France: International Agency for Research on Cancer, 1986. (IARC scientific publication no. 76).
10. National Cancer Institute. Cancer control objectives for the nation: 1985–2000. Bethesda, Maryland: US Department of Health and Human Services, Public Health Service, 1986; NIH publication no. 86-2880. (NCI monographs, no. 2).
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## Cervical Cancer Control — Rhode Island

In 1987, 49 cases of invasive cervical cancer and 14 deaths from cervical cancer were reported in Rhode Island (*1*). Because progression to invasive disease and death from cervical cancer are regarded as preventable (*2*), in 1988, the Rhode Island Department of Health (RIDH) examined data from two recent surveys and from hospital records to assess the contributions of various circumstances to invasive cervical cancer.

Five circumstances* can lead to invasive cervical cancer: 1) the woman is not screened, 2) too long an interval elapses between screening tests, 3) the disease develops rapidly between a negative screening and a subsequent screening, 4) a test is interpreted as false-negative, or 5) the woman with a true-positive test result is not treated (*3*). To assess the importance of each of these circumstances, the RIDH used data from two 1987 cross-sectional surveys of Rhode Island women and from inpatient chart reviews of women diagnosed with cervical cancer from 1980 through 1986. To be consistent with the National Cancer Institute's (NCI) cancer-control objectives for cervical cancer screening (*4*), women aged 20–39 and 40–69 years were assessed separately. In Rhode Island, as elsewhere (*5*), more than half the invasive cervical cancers occurred in the older group (*1*).

*Based on a model developed in Connecticut that describes four circumstances leading to invasive cervical cancer (*3*).

*Cervical Cancer Control — Continued*

The first cross-sectional survey, part of CDC's Behavioral Risk Factor Surveillance System (random-digit-dialed telephone interviews of persons aged ≥18 years), was administered from September through November 1987. Women were asked if they had received a Papanicolaou (Pap) test within the last 3 years—a screening interval that conforms with NCI's cancer-control objectives for cervical cancer screening (*4*). The response rate for this survey was 83% (n=259). The second survey, conducted statewide during September and October 1987, focused on the use of cancer screening tests, including the Pap test, among women aged ≥40 (*6*). The response rate for this survey was 78% (n=852).

Medical records were reviewed for 153 women treated for newly diagnosed invasive cervical cancer from 1980 through 1986 at two major hospitals in Rhode Island. These women represented approximately two thirds of all Rhode Island women aged 20–69 years who were diagnosed with invasive cervical cancer during this period. RIDH collected information on sociodemographic characteristics and medical history. Screening histories were available in 81 (53%) of the medical records reviewed and were used to quantify the relative importance of the five circumstances.

The survey data indicate that more women aged 20–39 (87%) than aged 40–69 (76%) had been screened within the last 3 years (Table 1). Among the younger women, 13% had never been screened or had last been screened >3 years previously. Among the older women, 4% had never been screened, and 20% had last been screened >3 years previously.

Data from the medical record review corroborated the age differences in screening history observed in the survey data and suggested other problem areas for cervical cancer control (Figure 1). Each of these age groups—most notably women aged 40–69—included women who had never been screened or women who had been screened beyond the 3-year interval. However, among women aged 20–39, 22 (67%) had been negative on Pap smear screening within 3 years of diagnosis, and six (18%) had been screened positive within 3 years but had had a delay in treatment.

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**TABLE 1. Pap test screening status, by age group — Rhode Island**

| | Age group (yrs) | | | |
|---|---|---|---|---|
| | 20–39* | | 40–69† | |
| **Screening status** | **%** | **(CI)§** | **%** | **(CI)§** |
| Not screened in past 3 years | 13 | (6%–20%) | 24 | (21%–27%) |
| Never screened | NA¶ | | 4 | (2%–6%) |
| Screened, >3 years | NA | | 20 | (17%–23%) |
| Screened in past 3 years | 87 | (80%–94%) | 76 | (73%–79%) |
| **Total** | **100** | | **100** | |

*Data from the Behavioral Risk Factor Surveillance System.
†Data from a separate cross-sectional survey of women aged ≥40 years, which allow determination of both the proportion of women who have never been screened and the proportion who have been screened >3 years previously.
§Two standard errors confidence interval.
¶Not available.

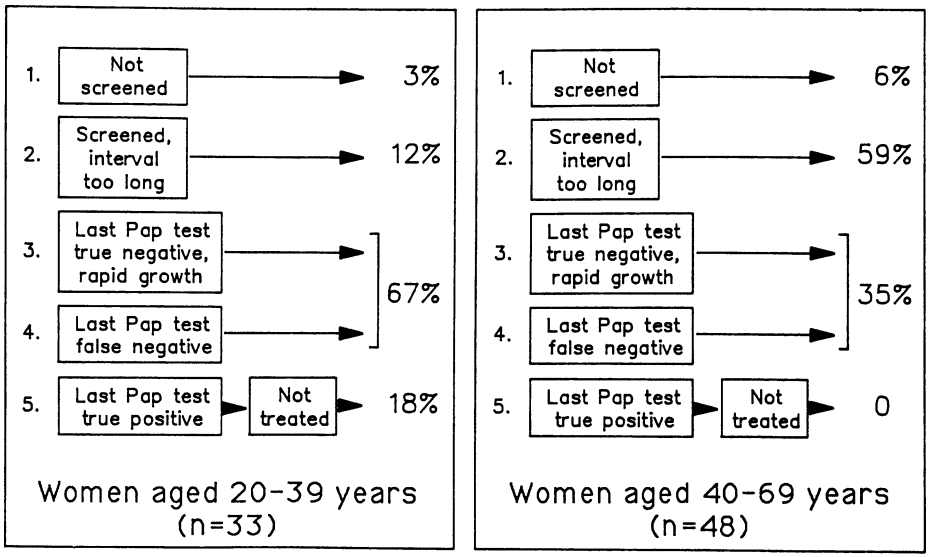
*Cervical Cancer Control — Continued*

**Editorial Note:** Screening with the Pap smear is widely accepted as the most effective way to detect cervical intraepithelial neoplasia at an early stage and prevent the morbidity and death associated with progression to late-stage cervical cancer. In the Rhode Island analysis, however, many women had not had a recent Pap test. Although younger women were more likely to have been recently screened, both groups included women who had never been screened with the Pap test (circumstance 1) and who had not been screened within the recommended interval (circumstance 2). Shorter screening intervals would not ensure that all cases of invasive cervical cancer would have been detected at an earlier stage of disease; nonetheless, findings in Rhode Island suggest opportunities for earlier detection, especially among women aged 40–69 years.

A large proportion of the invasive cases of both age groups occurred among women who had had a negative Pap test within 3 years of diagnosis (circumstances 3 and 4). False-negative tests, which can be caused by inadequacies in cell collection, smear preparation, or smear interpretation, probably are the primary circumstance leading to invasive cervical cancer among women whose medical records indicate a normal test result within the appropriate interval. Because of concerns about the variability in cytologic interpretation and the variability in clinical responses to abnormal results, NCI sponsored a workshop in December 1988. The outcome of this workshop—the Bethesda system for reporting cervical/vaginal cytological diagnoses (*7*)—addresses problems of variability among several reporting systems and their variable terminology.

Eighteen percent of younger women with invasive cervical cancer had a previous positive Pap test but were not treated (circumstance 5). Some women with a positive Pap smear test may not have received appropriate follow-up care because they were

**FIGURE 1. Percentage of women with invasive cervical cancer, by age group and probable circumstance — Rhode Island, 1980–1986***




*Source: Inpatient chart reviews, Rhode Island Department of Health.

*Cervical Cancer Control — Continued*

not notified of their results, refused to return for treatment, or failed to receive follow-up care for other reasons. Because younger and less educated women are less likely to receive appropriate follow-up care after being notified of an abnormal Pap test (*8*), public health efforts should be strengthened to ensure these women are contacted, making further evaluation and treatment possible.

The RIDH, in cooperation with CDC, has developed a quality-assurance program in cervical cancer screening for the state. Results from this examination of cytologic quality assistance and screening outcomes will help shape a cervical cancer-control program for Rhode Island.

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## *Current Trends*

### Abortion Surveillance: Preliminary Analysis — United States, 1986 and 1987

In 1986 and 1987, 1,328,112 and 1,353,671 legal abortions, respectively, were reported to CDC from the 50 states and the District of Columbia (Table 1). From 1985 to 1986, the number of legal abortions decreased <1%; from 1986 to 1987, the number increased by 1.9%.

In 1986, the national abortion ratio was 354.2 legal abortions per 1000 live births (Table 1); in 1987, the ratio was 356.1. The national abortion rate (number of legal abortions per 1000 women 15–44 years of age) was 23 for 1986 and 24 for 1987. In both years, 92% of women who had legal abortions were residents of the state in which the procedure was performed (Table 1).

Women obtaining legal abortions in 1986 and 1987 were predominantly <25 years of age, white, and unmarried and had had no live births (Table 1). Curettage (suction and sharp) remained the primary method of abortion and accounted for 97% of all legal abortion procedures in 1986 and 1987, respectively. In both years, as in previous years, slightly more than half the legal abortions were performed in the first 8 weeks of gestation, and nearly 90%, in the first 12 weeks (Table 1).

*Reported by: Pregnancy Epidemiology Br and Research and Statistics Br, Div of Reproductive Health, Center for Chronic Disease Prevention and Health Promotion, CDC.*

*Abortion — Continued*

**TABLE 1. Characteristics of women who obtained legal abortions — United States, selected years, 1972–1987**

| Characteristic | 1972 | 1976 | 1980 | 1984 | 1985 | 1986 | 1987 |
|---|---|---|---|---|---|---|---|
| **Reported no. legal abortions** | 586,760 | 988,267 | 1,297,606 | 1,333,521 | 1,328,570 | 1,328,112 | 1,353,671 |
| **Abortion ratio*** | 180.1 | 312.0 | 359.2 | 364.1 | 353.8 | 354.2 | 356.1 |
| **Abortion rate†** | 13 | 21 | 25 | 24 | 24 | 23 | 24 |
| | **Percentage distribution§** | | | | | | |
| **Residence** | | | | | | | |
| Abortion in-state | 56.2 | 90.0 | 92.6 | 92.0 | 92.4 | 92.3 | 92.0 |
| Abortion out-of-state | 43.8 | 10.0 | 7.4 | 8.0 | 7.6 | 7.7 | 8.0 |
| **Age (yrs)** | | | | | | | |
| ≤19 | 32.6 | 32.1 | 29.2 | 26.4 | 26.3 | 25.3 | 25.8 |
| 20–24 | 32.5 | 33.3 | 35.5 | 35.3 | 34.7 | 34.0 | 33.4 |
| ≥25 | 34.9 | 34.6 | 35.3 | 38.3 | 39.0 | 40.7 | 40.8 |
| **Race** | | | | | | | |
| White | 77.0 | 66.6 | 69.9 | 67.4 | 66.6 | 67.0 | 66.4 |
| Black and other | 23.0 | 33.4 | 30.1 | 32.6 | 33.4 | 33.0 | 33.6 |
| **Marital status** | | | | | | | |
| Married | 29.7 | 24.6 | 23.1 | 20.5 | 19.3 | 23.5 | 27.2 |
| Unmarried | 70.3 | 75.4 | 76.9 | 79.5 | 80.7 | 76.5 | 72.8 |
| **No. live births¶** | | | | | | | |
| 0 | 49.4 | 47.7 | 58.4 | 57.0 | 56.3 | 55.1 | 53.6 |
| 1 | 18.2 | 20.7 | 19.5 | 20.9 | 21.6 | 22.1 | 22.8 |
| 2 | 13.3 | 15.4 | 13.7 | 14.4 | 14.5 | 14.9 | 15.5 |
| 3 | 8.7 | 8.3 | 5.3 | 5.1 | 5.1 | 5.3 | 5.5 |
| ≥4 | 10.4 | 7.9 | 3.2 | 2.6 | 2.5 | 2.6 | 2.6 |
| **Type of procedure** | | | | | | | |
| Curettage | 88.6 | 92.8 | 95.5 | 96.8 | 97.5 | 97.0 | 97.2 |
| Suction | 65.2 | 82.6 | 89.8 | 93.1 | 94.6 | 94.5 | 93.3 |
| Sharp | 23.4 | 10.2 | 5.7 | 3.7 | 2.9 | 2.5 | 3.7 |
| Intrauterine instillation | 10.4 | 6.0 | 3.1 | 1.9 | 1.7 | 1.4 | 1.3 |
| Hysterotomy/ hysterectomy | 0.6 | 0.2 | 0.1 | 0.0** | 0.0** | 0.0** | 0.0** |
| Other | 0.5 | 0.9 | 1.3 | 1.3 | 0.8 | 1.6 | 1.5 |
| **Gestation (wks)** | | | | | | | |
| ≤8 | 34.0 | 47.0 | 51.7 | 50.5 | 50.3 | 51.0 | 50.4 |
| 9–10 | 30.7 | 28.0 | 26.2 | 26.4 | 26.6 | 25.8 | 26.0 |
| 11–12 | 17.5 | 14.4 | 12.2 | 12.6 | 12.5 | 12.2 | 12.4 |
| 13–15 | 8.4 | 4.5 | 5.2 | 5.8 | 5.9 | 6.1 | 6.2 |
| 16–20 | 8.2 | 5.1 | 3.9 | 3.9 | 3.9 | 4.1 | 4.2 |
| ≥21 | 1.3 | 0.9 | 0.9 | 0.8 | 0.8 | 0.8 | 0.8 |

*Number of abortions per 1000 live births.
†Number of abortions per 1000 women 15–44 years of age.
§Excludes unknown values. Since the number of states reporting each characteristic varies from year to year, temporal comparisons should be made with caution.
¶For 1972 and 1976, data indicate number of living children.
**<0.05%.

## Errata: Vol. 38, No. 37

In "Surveillance for Occupational Lead Exposure—United States, 1987," a word was omitted from the second sentence of the article (page 642). The second sentence should read, "Although the details of these systems vary, each state requires any laboratory that performs blood-lead assays to report all elevated blood-lead levels (BLLs) to the state health department (SHD) (Table 1)."

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On page 32 of the *MMWR Recommendations and Reports,* "1989 Sexually Transmitted Diseases Treatment Guidelines," the dosing schedule under Recommended Regimen B for the post-hospitalization use of oral clindamycin for pelvic inflammatory disease (5 times daily) is incorrect. The correct treatment schedule is clindamycin, 450 mg orally, 4 times daily.

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**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.**



☆U.S. Government Printing Office: 1989-631-108/02030 Region IV



HHS Publication No. (CDC) 89-8017