CENTERS FOR DISEASE CONTROL

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MORBIDITY AND MORTALITY WEEKLY REPORT





*Epidemiologic Notes and Reports*

# Adverse Drug Reactions Among Children Treated for Tuberculosis

Earlier this year CDC and the American Thoracic Society issued a joint statement on short-course chemotherapy of tuberculosis with the combination of isoniazid (INH) and rifampin (RIF) (*1*). Although that statement suggested that the recommended short-course regimen would be suitable for children, only limited data concerning the use of RIF in children had been published. Follow-up guidelines issued by CDC indicated that the frequency of hepatotoxic reactions to RIF or to a combination of RIF and INH in children might be 3% or more (*2*).

To define better the risk of drug-induced hepatotoxicity among children with tuberculosis treated with INH and RIF, the Tuberculosis Control Division at CDC conducted a retrospective survey. That division received 1,092 reports from centers in 22 states on children treated for tuberculosis during the past 3 years. Of these, 934 contained sufficient information on documented cases of tuberculosis to be included in the following analysis.

Initial drug regimens for patients by age and severity of disease are listed in Table 1. The initial phase of therapy, defined as the period from the initiation of therapy up to the time the drug regimen is changed, was greater than 10 months for 50% of the patients. INH-containing regimens were given to nearly all children (920, 99%), and for 155 (17%) INH was the only antituberculosis drug given. INH-RIF-containing regimens were the most commonly reported (377, 40%); there was a tendency for younger children with more severe disease to receive RIF. Among children not given RIF during the initial phase of chemotherapy, para-aminosalicylic acid (PAS) and ethambutol (EMB) were the most common drugs given with INH. Streptomycin (SM) was more likely to be added to other combinations for the treatment of severe disease than to be used with INH alone.

Total adverse reactions—that is, any adverse reaction attributed to the drug (e.g., rash, drug fever, gastrointestinal complaints such as nausea and vomiting, and hepatotoxic reactions to these drugs)—occurring during the initial phase of therapy in INH-containing regimens with and without RIF are listed in Table 2. Rates of total adverse reactions were similar for those receiving an INH-RIF regimen and those receiving an INH multidrug regimen without RIF. However, hepatotoxic reactions were 6 times more frequently reported among those receiving RIF. Of the 14 hepatotoxic reactions reported, 12 occurred among those receiving RIF and 2 among those not receiving RIF. Most hepatotoxic reactions (11/14) occurred during the first 90 days of therapy. When reported hepatotoxic reactions were examined more closely, only 8 of 14 were documented by SGOT* values >100 IU/l and/or by serum bilirubin >1.0 mg %. Of the remaining 6,

*Serum glutamic oxalopyruvic transaminase.

*Drug Reactions — Continued*

**TABLE 1. Distribution of pediatric tuberculosis patients by age, disease severity,* and initial drug regimen,† United States, January 1977 through December 1979**

| Regimens | Total patients | Age (in years) | | | | | |
|---|---|---|---|---|---|---|---|
| | | 0-2 | | 3-6 | | 7-14 | |
| | | Severe | Not severe | Severe | Not severe | Severe | Not severe |
| Total regimens | 934 | 88 | 312 | 34 | 240 | 33 | 227 |
| INH-RIF regimens | 377 | 57 | 128 | 14 | 82 | 14 | 82 |
| INH-RIF | 303 | 33 | 117 | 9 | 74 | 6 | 64 |
| INH-RIF-SM | 41 | 24 | 4 | 4 | 4 | 4 | 1 |
| INH-RIF-EMB‡ | 24 | 0 | 2 | 1 | 2 | 3 | 16 |
| INH-RIF-PAS | 9 | 0 | 5 | 0 | 2 | 1 | 1 |
| INH regimens with drugs other than RIF | 388 | 26 | 123 | 17 | 105 | 16 | 101 |
| INH-PAS | 241 | 15 | 87 | 10 | 81 | 9 | 39 |
| INH-EMB§ | 100 | 2 | 12 | 2 | 17 | 7 | 60 |
| INH-PAS-SM | 32 | 8 | 17 | 1 | 5 | 0 | 1 |
| INH-SM | 15 | 1 | 7 | 4 | 2 | 0 | 1 |
| INH alone regimen | 155 | 3 | 56 | 3 | 50 | 2 | 41 |
| Other regimens without INH | 14 | 2 | 5 | 0 | 3 | 1 | 3 |

*"Severe disease" includes progressive pulmonary, miliary, and/or meningeal tuberculosis; "not severe" includes primary pulmonary, lymphatic, and/or other types of tuberculosis.
†Drug codes: INH=isoniazid, RIF=rifampin, SM=streptomycin, EMB=ethambutol, and PAS=para-aminosalicylic acid.
‡Includes 2 patients who also received SM in addition to INH-RIF-EMB.
§Includes 2 patients who also received SM and 2 patients who received PAS in addition to INH-EMB.

**TABLE 2. Adverse drug reactions among pediatric tuberculosis patients during the initial phase of therapy,* United States, January 1977 through December 1979**

| Regimens | Suspected drug† | Patients receiving drug | Total number (percent) | Hepatoxic number (percent) |
|---|---|---|---|---|
| INH-RIF regimens | | 377 | 23 (6.1) | 12 (3.2) |
| | INH | 377 | 5 (1.3) | 1 (0.3) |
| | RIF | 377 | 15 (4.0) | 9 (2.4) |
| | INH &/ or RIF | 377 | 2 (0.5) | 2 (0.5) |
| | EMB | 24 | 1 (4.2) | 0 |
| INH regimens with drugs other than RIF | | 388 | 30 (7.7) | 2 (0.5) |
| | INH | 388 | 3 (0.8) | 1 (0.3) |
| | PAS | 275 | 16 (5.8) | 0 |
| | INH &/ or PAS | 275 | 4 (1.5) | 1 (0.4) |
| | EMB | 100 | 1 (1.0) | 0 |
| | INH &/ or EMB | 100 | 2 (2.0) | 0 |
| | SM | 49 | 4 (8.2) | 0 |
| INH alone regimen | INH | 155 | 5 (3.2) | 0 |
| Other regimens without INH | | 14 | 0 | 0 |

*Interval between initiation of therapy and change in initial drug regimen.
†Drug codes: INH=isoniazid, RIF=rifampin, SM=streptomycin, EMB=ethambutol, and PAS=para-aminosalicylic acid.

*Drug Reactions — Continued*

5 had levels of SGOT and bilirubin considered incompatible with hepatotoxicity, and one had neither value reported.

Among the 8 patients with probable hepatotoxicity, 7 received both INH and RIF. Six of these received INH >10 mg/kg and/or RIF >15 mg/kg, dosages higher than those recently recommended (*2*); another, while receiving lower than recommended dosages of INH and RIF, had a bilirubin of 2.4% and a peak SGOT of only 42 IU/l. The other patient received INH and EMB. During subsequent phases of therapy, 3 additional RIF-associated hepatotoxic reactions were reported. In the 2 cases documented by increases in SGOT, both patients were receiving higher-than-recommended dosages of INH or RIF. There was no apparent relationship between age or severity of disease and RIF-associated hepatotoxicity.

*Reported by the Tuberculosis Control Div, Bur of State Services, CDC.*

**Editorial Note:** Although these are preliminary findings, they indicate that the combination of INH-RIF is probably safe for treatment of tuberculosis in children. Furthermore, although the rate of hepatotoxicity is imprecisely ascertained in this type of study, these data do not suggest a need for a prospective study.

It might be expected that reporting bias would favor overreporting of RIF-associated hepatotoxicity. In this survey, however, the hepatotoxicity rate of 3.2% (Table 2) is similar to the rate of hepatotoxicity reported for adults treated with INH-RIF (*3*). Considering the possible reporting bias inherent in a retrospective survey and the fact that several of the hepatotoxic reactions reported in this study represented only mild liver dysfunction, it can be reasonably concluded that INH-RIF hepatotoxicity may be less frequent in children than in adults. The findings that all but one of the patients with probable hepatotoxicity received relatively high dosages of 1 or both drugs supports CDC's earlier recommendation to limit the dose of INH in children to 10 mg/kg and of RIF to 15 mg/kg (*2*).

As with adults treated with INH-RIF for tuberculosis, CDC suggests that pretreatment evaluation of children include hematocrit, white blood cell and platelet counts, BUN,† SGOT, and serum bilirubin. The necessity for routine biochemical monitoring is controversial, but patients should be carefully observed for clinical signs and symptoms of adverse drug reactions.

*References*

1. MMWR 1980;29:97-100, 105.
2. MMWR 1980;29:183-4, 189.
3. Cross FS, Long MW, Banner AS, Snider DE. Rifampin-isoniazid therapy of alcoholic and nonalcoholic tuberculosis patients in a U.S. Public Health Service cooperative therapy trial. Am Rev Respir Dis 1980;122:349-53.

†Blood urea nitrogen.

## *International Notes*

# Legionellosis — Italy

In September 1980, physicians at a hospital in Como, Italy, noted that several elderly patients admitted that month with pneumonia had recently stayed at a hotel in Lido del Savio on the Adriatic Coast. Results of serologic testing performed at the Istituto Superiore di Sanità in Rome suggested that some of these patients had had legionellosis

*Legionellosis — Continued*

(Legionnaires' disease), and an epidemiologic investigation was begun in collaboration with local, provincial, and regional authorities.

Review of the hospital records in Como and in 2 cities near Lido del Savio revealed 12 persons who had stayed at the hotel in question and had been hospitalized subsequently with pneumonia from July to October 1980. Two of these patients had died. Serum specimens from 6 of the survivors revealed seroconversion to *Legionella pneumophila* serogroup 1 in 2 patients and stable or single reciprocal titers ranging from 128 to 4096 in the other 4 upon testing with the indirect-fluorescent-antibody (IFA) method.

Members of a series of tour groups from the Como area had been among the guests staying at the hotel throughout the summer before it had closed for the end of the season on September 22. All participants in the last 2 groups of 50 persons each or their relatives were sought for interviews concerning activities at Lido del Savio, health status before and after departure from the hotel, and other possible risk factors for acquiring legionellosis. Of 94 persons for whom information was obtained, 21 (22%) had had a febrile illness with onset while at the hotel or within 2 weeks of departure. At least 9 (43%) of the 21 had been hospitalized, and one had died. Serum specimens were obtained from 85 (90%) of the 94 participants surveyed. Of 19 persons who had had febrile illnesses, 11 (58%) had serogroup 1 IFA reciprocal titers ≥128, whereas titers ≥128 were found in

*(Continued on page 597)*

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

*[Cumulative totals include revised and delayed reports through previous weeks.]*

| DISEASE | 49th WEEK ENDING December 6, 1980 | 49th WEEK ENDING December 8, 1979 | MEDIAN 1975-1979 | CUMULATIVE, FIRST 49 WEEKS December 6, 1980 | CUMULATIVE, FIRST 49 WEEKS December 8, 1979 | CUMULATIVE, FIRST 49 WEEKS MEDIAN 1975-1979 |
|---|---|---|---|---|---|---|
| Aseptic meningitis | 151 | 173 | 84 | 6,982 | 8,031 | 4,446 |
| Brucellosis | 2 | 11 | 4 | 166 | 178 | 213 |
| Chickenpox | 3,577 | 3,093 | 3,093 | 172,715 | 186,357 | 171,091 |
| Diphtheria | – | – | – | 4 | 59 | 80 |
| Encephalitis: Primary (arthropod-borne & unspec.) | 18 | 26 | 25 | 1,066 | 1,042 | 1,138 |
| Post-infectious | 3 | 1 | 3 | 204 | 232 | 232 |
| Hepatitis, Viral: Type B | 386 | 338 | 338 | 17,073 | 13,940 | 14,066 |
| Type A | 553 | 663 | 663 | 26,518 | 28,036 | 28,921 |
| Type unspecified | 239 | 257 | 223 | 11,220 | 9,857 | 8,122 |
| Malaria | 51 | 35 | 9 | 1,836 | 759 | 508 |
| Measles (rubeola) | 61 | 144 | 195 | 13,321 | 13,148 | 21,651 |
| Meningococcal infections: Total | 56 | 51 | 32 | 2,488 | 2,436 | 1,671 |
| Civilian | 55 | 51 | 32 | 2,475 | 2,416 | 1,660 |
| Military | 1 | – | – | 13 | 20 | 20 |
| Mumps | 133 | 286 | 402 | 8,119 | 13,119 | 19,817 |
| Pertussis | 19 | 49 | 41 | 1,548 | 1,313 | 1,493 |
| Rubella (German measles) | 75 | 141 | 123 | 3,653 | 11,445 | 15,883 |
| Tetanus | 2 | 5 | 1 | 69 | 71 | 75 |
| Tuberculosis | 528 | 640 | 640 | 25,727 | 25,911 | 28,255 |
| Tularemia | 3 | 1 | 2 | 204 | 179 | 130 |
| Typhoid fever | 4 | 13 | 7 | 475 | 500 | 385 |
| Typhus fever, tick-borne (Rky. Mt. spotted) | 4 | 3 | 3 | 1,121 | 1,032 | 1,032 |
| Venereal diseases: | | | | | | |
| Gonorrhea: Civilian | 19,917 | 22,140 | 19,484 | 949,452 | 945,162 | 945,162 |
| Military | 508 | 672 | 672 | 25,143 | 26,182 | 26,182 |
| Syphilis, primary & secondary: Civilian | 580 | 524 | 397 | 25,739 | 23,558 | 22,536 |
| Military | 9 | 16 | 6 | 299 | 308 | 308 |
| Rabies in animals | 110 | 73 | 46 | 5,960 | 4,735 | 2,885 |

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

| | CUM. 1980 | | CUM. 1980 |
|---|---|---|---|
| Antrax | 1 | Poliomyelitis: Total | 8 |
| Botulism Oreg. 1 | 64 | Paralytic | 6 |
| Cholera | 8 | Psittacosis | 99 |
| Congenital rubella syndrome | 46 | Rabies in man | – |
| Leprosy Mich. 1, Tex. 2, Calif. 2 | 209 | Trichinosis N.J. 1, Tex. 1 | 108 |
| Leptospirosis Fla. 1 | 70 | Typhus fever, flea-borne (endemic, murine) Tex. 1 | 72 |
| Plague | 18 | | |

All delayed reports and corrections will be included in the following week's cumulative totals.

**TABLE III. Cases of specified notifiable diseases, United States, weeks ending December 6, 1980, and December 8, 1979 (49th week)**

| REPORTING AREA | ASEPTIC MENINGITIS | BRUCELLOSIS | CHICKENPOX | DIPHTHERIA | | ENCEPHALITIS | | | HEPATITIS (VIRAL), BY TYPE | | | MALARIA | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Primary | | Post-infectious | B | A | Unspecified | | |
| | 1980 | 1980 | 1980 | 1980 | CUM. 1980 | 1980 | 1979 | 1980 | 1980 | 1980 | 1980 | 1980 | CUM. 1980 |
| UNITED STATES | 151 | 2 | 3,577 | - | 4 | 18 | 26 | 3 | 386 | 553 | 239 | 51 | 1,836 |
| NEW ENGLAND | 6 | - | 362 | - | - | - | 1 | - | 26 | 11 | 9 | 1 | 109 |
| Maine | - | - | 132 | - | - | - | - | - | 1 | 1 | 1 | - | 17 |
| N.H. | - | - | 37 | - | - | - | - | - | - | - | - | - | 7 |
| Vt. | - | - | 37 | - | - | - | - | - | - | 1 | - | - | 1 |
| Mass. | 2 | - | 48 | - | - | - | - | - | 7 | 2 | 8 | - | 56 |
| R.I. | 1 | - | 72 | - | - | - | - | - | 4 | 1 | - | 1 | 10 |
| Conn. | 3 | - | 36 | - | - | - | 1 | - | 14 | 6 | - | - | 18 |
| MID. ATLANTIC | 14 | - | 195 | - | 1 | 1 | 1 | - | 18 | 35 | 12 | 2 | 238 |
| Upstate N.Y. | 4 | - | 107 | - | - | 1 | - | - | 3 | 7 | 2 | 1 | 42 |
| N.Y. City | 4 | - | 13 | - | 1 | - | 1 | - | 2 | - | 2 | 1 | 65 |
| N.J. | 4 | - | NN | - | - | - | - | - | 13 | 28 | 8 | - | 61 |
| Pa. | 2 | - | 75 | - | - | - | - | - | NA | NA | NA | - | 70 |
| E.N. CENTRAL | 16 | 1 | 1,548 | - | 1 | 8 | - | 1 | 53 | 80 | 28 | 4 | 111 |
| Ohio | 6 | 1 | 192 | - | - | 6 | - | 1 | 7 | 12 | 6 | - | 19 |
| Ind. | - | - | 141 | - | - | 1 | - | - | 23 | 23 | 13 | - | 12 |
| Ill. | 3 | - | 393 | - | - | 1 | - | - | 6 | 19 | 2 | 4 | 45 |
| Mich. | 7 | - | 602 | - | 1 | - | - | - | 14 | 20 | 4 | - | 23 |
| Wis. | - | - | 220 | - | - | - | - | - | 3 | 6 | 3 | - | 12 |
| W.N. CENTRAL | 4 | - | 554 | - | 1 | 2 | 1 | - | 5 | 19 | 9 | 2 | 72 |
| Minn. | - | - | - | - | - | - | - | - | 1 | 5 | 1 | 1 | 28 |
| Iowa | 1 | - | 111 | - | - | 1 | 1 | - | 2 | 7 | 1 | - | 7 |
| Mo. | 2 | - | - | - | 1 | - | - | - | 1 | 4 | 7 | 1 | 14 |
| N. Dak. | - | - | 8 | - | - | - | - | - | - | - | - | - | - |
| S. Dak. | - | - | 85 | - | - | - | - | - | - | 1 | - | - | 4 |
| Nebr. | - | - | 24 | - | - | - | - | - | - | 1 | - | - | 7 |
| Kans. | 1 | - | 326 | - | - | 1 | - | - | 1 | 1 | - | - | 12 |
| S. ATLANTIC | 24 | - | 319 | - | - | 2 | 3 | 1 | 98 | 65 | 33 | 6 | 194 |
| Del. | - | - | 6 | - | - | - | - | - | - | 2 | - | - | - |
| Md. | 1 | - | - | - | - | 1 | 2 | - | 17 | 4 | 13 | - | 32 |
| D.C. | - | - | - | - | - | - | - | - | 3 | 2 | 2 | - | 4 |
| Va. | 3 | - | 3 | - | - | 1 | - | - | 14 | 6 | 4 | - | 63 |
| W. Va. | - | - | 191 | - | - | - | - | - | 2 | 2 | - | - | 4 |
| N.C. | 7 | - | NN | - | - | - | 1 | - | 5 | 2 | 3 | - | 17 |
| S.C. | 2 | - | 17 | - | - | - | - | - | 14 | 5 | 2 | 1 | 11 |
| Ga. | 1 | - | 1 | - | - | - | - | - | 26 | 20 | - | - | 19 |
| Fla. | 10 | - | 101 | - | - | - | - | 1 | 17 | 22 | 9 | 5 | 44 |
| E.S. CENTRAL | 38 | - | 134 | - | - | - | 16 | - | 16 | 34 | 9 | - | 13 |
| Ky. | 1 | - | 124 | - | - | - | - | - | 1 | 9 | - | - | 3 |
| Tenn. | 1 | - | NN | - | - | - | - | - | 12 | 12 | 8 | - | - |
| Ala. | 36 | - | 2 | - | - | - | 2 | - | 3 | 1 | 1 | - | 8 |
| Miss. | - | - | 8 | - | - | - | 14 | - | - | 12 | - | - | 2 |
| W.S. CENTRAL | 16 | 1 | 83 | - | - | 2 | 1 | - | 39 | 79 | 50 | 6 | 173 |
| Ark. | - | 1 | 3 | - | - | - | - | - | 8 | 2 | 7 | - | 9 |
| La. | 5 | - | NN | - | - | - | - | - | 3 | 12 | 8 | - | 47 |
| Okla. | 5 | - | - | - | - | - | - | - | 8 | 5 | 3 | - | 12 |
| Tex. | 6 | - | 80 | - | - | 2 | 1 | - | 20 | 60 | 32 | 6 | 105 |
| MOUNTAIN | 4 | - | 185 | - | - | - | - | - | 17 | 54 | 31 | 2 | 91 |
| Mont. | - | - | 87 | - | - | - | - | - | - | - | - | - | 1 |
| Idaho | - | - | 1 | - | - | - | - | - | 1 | 1 | - | - | 1 |
| Wyo. | - | - | - | - | - | - | - | - | - | - | - | - | 2 |
| Colo. | 1 | - | 85 | - | - | - | - | - | 2 | 19 | 4 | - | 36 |
| N. Mex. | - | - | - | - | - | - | - | - | 2 | 11 | 2 | - | 6 |
| Ariz. | 1 | - | NN | - | - | - | - | - | 1 | 11 | 12 | - | 18 |
| Utah | - | - | 7 | - | - | - | - | - | 8 | 11 | 10 | 1 | 16 |
| Nev. | 2 | - | 5 | - | - | - | - | - | 3 | 1 | 3 | 1 | 11 |
| PACIFIC | 29 | - | 197 | - | 1 | 3 | 3 | 1 | 114 | 176 | 58 | 28 | 835 |
| Wash. | - | - | 179 | - | 1 | - | - | - | 4 | 5 | 3 | - | 52 |
| Oreg. | 2 | - | 1 | - | - | - | - | - | 10 | 12 | 1 | 2 | 47 |
| Calif. | 24 | - | - | - | - | 3 | 2 | 1 | 100 | 159 | 54 | 26 | 712 |
| Alaska | - | - | 14 | - | - | - | 1 | - | - | - | - | - | 6 |
| Hawaii | 3 | - | 3 | - | - | - | - | - | - | - | - | - | 18 |
| Guam | NA | NA | NA | NA | - | NA | - | - | NA | NA | NA | NA | 3 |
| P.R. | 3 | - | 5 | - | - | - | - | - | - | 5 | 2 | 1 | 4 |
| V.I. | NA | NA | NA | NA | - | NA | - | - | NA | NA | NA | NA | - |
| Pac. Trust Terr. | NA | NA | NA | NA | - | NA | - | - | NA | NA | NA | NA | 2 |

NN: Not notifiable. NA: Not available.

All delayed reports and corrections will be included in the following week's cumulative totals.

## TABLE III (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending December 6, 1980, and December 8, 1979 (49th week)

| REPORTING AREA | MEASLES (RUBEOLA) | | | MENINGOCOCCAL INFECTIONS TOTAL | | | MUMPS | | PERTUSSIS | RUBELLA | | TETANUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1980 | CUM. 1980 | CUM. 1979 | 1980 | CUM. 1980 | CUM. 1979 | 1980 | CUM. 1980 | 1980 | 1980 | CUM. 1980 | CUM. 1980 |
| UNITED STATES | 61 | 13,321 | 13,148 | 56 | 2,488 | 2,436 | 133 | 8,119 | 19 | 75 | 3,653 | 69 |
| NEW ENGLAND | 1 | 676 | 291 | 4 | 144 | 146 | 5 | 600 | 1 | - | 219 | 3 |
| Maine | - | 33 | 18 | - | 6 | 9 | 3 | 303 | - | - | 70 | 1 |
| N.H. | - | 331 | 33 | - | 8 | 14 | - | 22 | - | - | 39 | - |
| Vt. | - | 226 | 119 | - | 15 | 8 | - | 12 | - | - | 3 | - |
| Mass. | 1 | 59 | 15 | 2 | 51 | 58 | 2 | 131 | 1 | - | 77 | - |
| R.I. | - | 2 | 102 | - | 12 | 9 | - | 32 | - | - | 9 | 1 |
| Conn. | - | 25 | 4 | 2 | 52 | 48 | - | 100 | - | - | 21 | 1 |
| MID. ATLANTIC | 20 | 3,884 | 1,614 | 17 | 443 | 386 | 13 | 910 | 2 | 5 | 579 | 8 |
| Upstate N.Y. | 4 | 721 | 667 | 1 | 128 | 130 | 7 | 155 | 2 | - | 220 | 3 |
| N.Y. City | 5 | 1,204 | 841 | 2 | 106 | 86 | 2 | 103 | - | - | 101 | 2 |
| N.J. | - | 849 | 58 | 2 | 93 | 100 | 3 | 125 | - | 5 | 106 | - |
| Pa. | 11 | 1,110 | 48 | 12 | 116 | 70 | 1 | 527 | - | - | 152 | 3 |
| E.N. CENTRAL | 7 | 2,455 | 3,446 | 5 | 289 | 289 | 69 | 3,084 | 5 | 9 | 861 | 7 |
| Ohio | - | 380 | 294 | 1 | 95 | 118 | 34 | 1,229 | 1 | - | 8 | 2 |
| Ind. | 1 | 94 | 226 | - | 44 | 48 | 2 | 145 | - | 7 | 369 | - |
| Ill. | 6 | 353 | 1,532 | 3 | 61 | 27 | 4 | 401 | 2 | 2 | 175 | 2 |
| Mich. | - | 250 | 861 | 1 | 72 | 77 | 24 | 949 | 2 | - | 129 | 1 |
| Wis. | - | 1,378 | 533 | - | 17 | 19 | 5 | 360 | - | - | 180 | 2 |
| W.N. CENTRAL | 1 | 1,322 | 1,827 | 2 | 107 | 78 | 7 | 318 | - | - | 204 | 4 |
| Minn. | 1 | 1,106 | 1,218 | - | 35 | 18 | - | 20 | - | - | 28 | 1 |
| Iowa | - | - | 16 | 1 | 14 | 14 | - | 55 | - | - | 9 | 1 |
| Mo. | - | 65 | 422 | 1 | 39 | 34 | - | 101 | - | - | 42 | 1 |
| N. Dak. | - | 1 | 21 | - | 2 | 1 | - | 4 | - | - | 5 | - |
| S. Dak. | - | - | 2 | - | 6 | 4 | - | 4 | - | - | 2 | - |
| Nebr. | - | 83 | 73 | - | - | - | - | 9 | - | - | 1 | - |
| Kans. | - | 67 | 75 | - | 11 | 7 | 7 | 125 | - | - | 117 | 1 |
| S. ATLANTIC | 1 | 1,981 | 2,131 | 17 | 585 | 592 | 15 | 1,090 | 5 | 7 | 361 | 12 |
| Del. | - | 3 | 1 | - | 2 | 5 | - | 40 | - | - | 1 | - |
| Md. | - | 83 | 16 | - | 52 | 57 | 5 | 348 | - | 1 | 72 | 1 |
| D.C. | - | 5 | - | - | 2 | - | 1 | 5 | - | - | 1 | - |
| Va. | - | 339 | 287 | 4 | 62 | 81 | - | 74 | - | 3 | 60 | 3 |
| W. Va. | - | 18 | 65 | 3 | 24 | 15 | 3 | 125 | - | - | 27 | 1 |
| N.C. | - | 130 | 114 | - | 98 | 92 | - | 99 | - | 1 | 48 | 1 |
| S.C. | - | 159 | 182 | 1 | 65 | 65 | 1 | 211 | - | - | 55 | 3 |
| Ga. | - | 835 | 576 | 4 | 112 | 86 | - | 11 | 3 | - | - | 1 |
| Fla. | 1 | 409 | 890 | 5 | 168 | 191 | 5 | 177 | 2 | 2 | 97 | 2 |
| E.S. CENTRAL | 14 | 349 | 263 | 4 | 207 | 168 | 5 | 886 | - | - | 87 | 7 |
| Ky. | - | 57 | 39 | 1 | 64 | 35 | 3 | 759 | - | - | 43 | 2 |
| Tenn. | - | 172 | 71 | 3 | 57 | 49 | 2 | 34 | - | - | 39 | 2 |
| Ala. | - | 22 | 129 | - | 55 | 39 | - | 30 | - | - | 3 | 3 |
| Miss. | 14 | 98 | 24 | - | 31 | 45 | - | 63 | - | - | 2 | - |
| W.S. CENTRAL | 2 | 988 | 945 | 3 | 262 | 345 | 1 | 296 | 1 | 2 | 153 | 18 |
| Ark. | - | 16 | 7 | - | 19 | 28 | - | 22 | - | - | 4 | 2 |
| La. | - | 13 | 257 | - | 95 | 121 | - | 68 | - | - | 13 | 5 |
| Okla. | - | 776 | 22 | 1 | 24 | 38 | - | - | - | - | 6 | 1 |
| Tex. | 2 | 183 | 659 | 2 | 124 | 158 | 1 | 206 | 1 | 2 | 130 | 10 |
| MOUNTAIN | 1 | 505 | 330 | 1 | 104 | 97 | 1 | 224 | - | 4 | 165 | - |
| Mont. | - | 2 | 56 | - | 3 | 14 | - | 60 | - | - | 45 | - |
| Idaho | - | - | 18 | - | 6 | 10 | - | 16 | - | - | 22 | - |
| Wyo. | - | - | 36 | - | 6 | 1 | - | - | - | - | 1 | - |
| Colo. | - | 24 | 71 | - | 25 | 8 | 1 | 64 | - | - | 12 | - |
| N. Mex. | - | 14 | 38 | - | 11 | 6 | - | - | - | - | 5 | - |
| Ariz. | 1 | 408 | 80 | 1 | 19 | 36 | - | 46 | - | 4 | 45 | - |
| Utah | - | 47 | 19 | - | 5 | 9 | - | 29 | - | - | 29 | - |
| Nev. | - | 10 | 12 | - | 29 | 13 | - | 9 | - | - | 6 | - |
| PACIFIC | 14 | 1,161 | 2,301 | 3 | 347 | 335 | 17 | 711 | 5 | 48 | 1,024 | 10 |
| Wash. | - | 177 | 1,153 | - | 64 | 63 | 3 | 146 | 1 | - | 88 | - |
| Oreg. | - | 1 | 66 | - | 54 | 28 | 1 | 90 | - | - | 65 | - |
| Calif. | 14 | 971 | 997 | 3 | 218 | 228 | 13 | 442 | 4 | 48 | 854 | 10 |
| Alaska | - | 6 | 17 | - | 11 | 6 | - | 13 | - | - | 12 | - |
| Hawaii | - | 6 | 68 | - | - | 10 | - | 20 | - | - | 5 | - |
| Guam | NA | 6 | 13 | - | 1 | 1 | NA | 10 | NA | NA | 2 | - |
| P.R. | 4 | 174 | 381 | - | 11 | 7 | 1 | 153 | - | - | 28 | 12 |
| V.I. | NA | 6 | 6 | - | 1 | 3 | NA | 2 | NA | NA | - | - |
| Pac. Trust Terr. | NA | 10 | 10 | - | - | 1 | NA | 21 | NA | NA | 1 | - |

NA: Not available.

All delayed reports and corrections will be included in the following week's cumulative totals.

TABLE III (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending December 6, 1980, and December 8, 1979 (49th week)

| REPORTING AREA | TUBERCULOSIS | | TULA-REMIA | TYPHOID FEVER | | TYPHUS FEVER (Tick-borne) (RMSF) | | VENEREAL DISEASES (Civilian) | | | | | | RABIES (in Animals) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | GONORRHEA | | | SYPHILIS (Pri. & Sec.) | | | |
| | 1980 | CUM. 1980 | CUM. 1980 | 1980 | CUM. 1980 | 1980 | CUM. 1980 | 1980 | CUM. 1980 | CUM. 1979 | 1980 | CUM. 1980 | CUM. 1979 | CUM. 1980 |
| UNITED STATES | 528 | 25,727 | 204 | 4 | 475 | 4 | 1,121 | 19,917 | 949,452 | 945,162 | 580 | 25,739 | 23,558 | 5,960 |
| NEW ENGLAND | 14 | 717 | 6 | - | 13 | - | 14 | 726 | 24,174 | 23,201 | 9 | 490 | 481 | 59 |
| Maine | - | 50 | - | - | 1 | - | - | 13 | 1,342 | 1,636 | - | 6 | 10 | 27 |
| N.H. | - | 17 | - | - | - | - | - | 18 | 845 | 866 | - | 6 | 19 | 7 |
| Vt. | - | 24 | - | - | - | - | - | 8 | 530 | 613 | - | 6 | 3 | - |
| Mass. | 8 | 401 | 4 | - | 8 | - | 7 | 327 | 10,201 | 9,128 | 9 | 302 | 267 | 14 |
| R.I. | 3 | 70 | 1 | - | 1 | - | 2 | 25 | 1,542 | 1,879 | - | 31 | 19 | 1 |
| Conn. | 3 | 155 | 1 | - | 3 | - | 5 | 335 | 9,714 | 9,079 | - | 139 | 163 | 10 |
| MID. ATLANTIC | 51 | 4,095 | 3 | 1 | 90 | - | 48 | 1,450 | 106,888 | 104,314 | 91 | 3,544 | 3,606 | 70 |
| Upstate N.Y. | 15 | 793 | 1 | - | 16 | - | 14 | 221 | 19,157 | 18,195 | 11 | 305 | 272 | 38 |
| N.Y. City | 23 | 1,480 | 1 | 1 | 40 | - | 3 | 550 | 42,687 | 40,899 | 56 | 2,301 | 2,456 | - |
| N.J. | - | 896 | 1 | - | 21 | - | 19 | 185 | 19,183 | 18,785 | 2 | 410 | 463 | 13 |
| Pa. | 13 | 926 | - | - | 13 | - | 12 | 494 | 25,861 | 26,435 | 22 | 528 | 415 | 19 |
| E.N. CENTRAL | 105 | 3,699 | 2 | - | 50 | - | 32 | 3,752 | 146,903 | 148,550 | 67 | 2,615 | 2,924 | 910 |
| Ohio | 32 | 690 | - | - | 14 | - | 19 | 1,662 | 39,072 | 40,862 | 14 | 358 | 575 | 54 |
| Ind. | 4 | 406 | - | - | - | - | 2 | 111 | 15,413 | 12,810 | 4 | 186 | 200 | 72 |
| Ill. | 20 | 1,273 | - | - | 18 | - | 6 | 1,133 | 45,780 | 46,792 | 26 | 1,586 | 1,641 | 500 |
| Mich. | 40 | 1,102 | 2 | - | 11 | - | 3 | 653 | 33,191 | 34,684 | 21 | 391 | 430 | 15 |
| Wis. | 9 | 228 | - | - | 7 | - | 2 | 193 | 13,447 | 13,402 | 2 | 94 | 78 | 269 |
| W.N. CENTRAL | 15 | 947 | 29 | 1 | 29 | - | 54 | 902 | 45,918 | 46,784 | 6 | 351 | 294 | 1,950 |
| Minn. | 5 | 194 | 1 | 1 | 4 | - | - | 179 | 7,509 | 7,685 | 6 | 117 | 83 | 237 |
| Iowa | 2 | 89 | 1 | - | 2 | - | 3 | 132 | 4,822 | 5,559 | - | 31 | 30 | 462 |
| Mo. | 1 | 423 | 24 | - | 19 | - | 34 | 381 | 20,568 | 20,134 | - | 156 | 133 | 366 |
| N. Dak. | 3 | 51 | - | - | 1 | - | - | 17 | 646 | 832 | - | 4 | 2 | 229 |
| S. Dak. | - | 49 | 1 | - | 1 | - | 2 | 24 | 1,308 | 1,534 | - | 6 | 2 | 414 |
| Nebr. | - | 36 | 1 | - | 1 | - | 5 | 37 | 3,470 | 3,367 | - | 12 | 7 | 93 |
| Kans. | 4 | 105 | 1 | - | 1 | - | 10 | 132 | 7,595 | 7,673 | - | 25 | 37 | 149 |
| S. ATLANTIC | 107 | 5,622 | 13 | - | 44 | 1 | 696 | 4,755 | 237,912 | 228,119 | 116 | 6,160 | 5,587 | 486 |
| Del. | - | 67 | - | - | 1 | - | 2 | 135 | 3,412 | 3,736 | - | 19 | 29 | 2 |
| Md. | 19 | 688 | 4 | - | 3 | - | 74 | 565 | 25,563 | 28,063 | 8 | 420 | 363 | 32 |
| D.C. | 7 | 349 | - | - | 4 | - | - | 269 | 16,263 | 15,208 | 7 | 454 | 436 | - |
| Va. | - | 568 | 1 | - | 8 | - | 93 | 205 | 21,733 | 21,906 | 9 | 548 | 454 | 28 |
| W. Va. | 8 | 205 | - | - | 5 | - | 5 | 41 | 3,200 | 3,099 | 1 | 17 | 50 | 26 |
| N.C. | 13 | 1,003 | 3 | - | 5 | 1 | 317 | 655 | 36,338 | 33,230 | 10 | 455 | 417 | 20 |
| S.C. | 19 | 491 | - | - | 3 | - | 141 | 605 | 22,219 | 21,344 | 7 | 364 | 294 | 62 |
| Ga. | 8 | 777 | 5 | - | - | - | 57 | 996 | 46,520 | 43,084 | 32 | 1,750 | 1,540 | 242 |
| Fla. | 33 | 1,474 | - | - | 15 | - | 7 | 1,284 | 62,664 | 58,449 | 42 | 2,133 | 2,004 | 74 |
| E.S. CENTRAL | 37 | 2,385 | 10 | - | 12 | 2 | 115 | 1,758 | 77,334 | 79,873 | 42 | 2,119 | 1,564 | 332 |
| Ky. | 9 | 536 | - | - | 3 | 1 | 20 | 218 | 11,178 | 10,818 | 2 | 125 | 151 | 141 |
| Tenn. | 8 | 775 | 7 | - | 1 | - | 61 | 622 | 28,082 | 28,754 | 26 | 896 | 633 | 138 |
| Ala. | 8 | 615 | 1 | - | 3 | - | 17 | 658 | 23,202 | 23,513 | 14 | 458 | 290 | 53 |
| Miss. | 12 | 459 | 2 | - | 5 | 1 | 17 | 260 | 14,872 | 16,788 | - | 640 | 490 | - |
| W.S. CENTRAL | 78 | 2,926 | 91 | 2 | 77 | 1 | 140 | 2,843 | 119,807 | 121,117 | 158 | 5,186 | 4,265 | 1,343 |
| Ark. | 11 | 316 | 59 | - | 8 | - | 35 | 144 | 9,634 | 9,666 | 7 | 210 | 154 | 178 |
| La. | 1 | 541 | - | - | 2 | - | 3 | 509 | 21,317 | 21,715 | 54 | 1,304 | 1,069 | 16 |
| Okla. | 11 | 317 | 21 | - | 6 | 1 | 73 | 206 | 11,921 | 12,022 | 2 | 103 | 83 | 235 |
| Tex. | 55 | 1,752 | 11 | 2 | 61 | - | 29 | 1,984 | 76,935 | 77,714 | 95 | 3,569 | 2,959 | 914 |
| MOUNTAIN | 15 | 735 | 34 | - | 26 | - | 17 | 672 | 36,244 | 37,974 | 4 | 637 | 494 | 241 |
| Mont. | - | 32 | 9 | - | 1 | - | 3 | 19 | 1,368 | 1,902 | - | 5 | 9 | 57 |
| Idaho | 2 | 27 | 1 | - | 1 | - | 2 | 55 | 1,613 | 1,668 | - | 27 | 26 | 2 |
| Wyo. | - | 22 | 4 | - | - | - | 2 | 19 | 1,041 | 1,067 | - | 12 | 8 | 17 |
| Colo. | 2 | 130 | 8 | - | 7 | - | 5 | 224 | 9,941 | 10,117 | 4 | 170 | 103 | 54 |
| N. Mex. | 5 | 132 | 2 | - | 3 | - | 4 | 105 | 4,445 | 4,664 | - | 112 | 91 | 45 |
| Ariz. | 6 | 315 | 1 | - | 7 | - | - | 95 | 9,492 | 10,593 | - | 209 | 147 | 56 |
| Utah | - | 49 | 6 | - | 7 | - | 1 | 46 | 1,846 | 1,927 | - | 18 | 5 | 9 |
| Nev. | - | 28 | 3 | - | - | - | - | 109 | 6,498 | 6,036 | - | 84 | 105 | 1 |
| PACIFIC | 106 | 4,601 | 16 | - | 134 | - | 5 | 3,059 | 154,272 | 155,230 | 87 | 4,637 | 4,343 | 569 |
| Wash. | 3 | 392 | - | - | 3 | - | - | NA | 12,736 | 13,813 | NA | 216 | 217 | - |
| Oreg. | 10 | 179 | 4 | - | 9 | - | 1 | 163 | 10,527 | 9,868 | 1 | 105 | 161 | 4 |
| Calif. | 89 | 3,875 | 11 | - | 120 | - | 4 | 2,767 | 124,192 | 123,849 | 86 | 4,168 | 3,849 | 518 |
| Alaska | - | 60 | 1 | - | - | - | - | 82 | 3,775 | 4,716 | - | 8 | 25 | 47 |
| Hawaii | 4 | 95 | - | - | 2 | - | - | 47 | 3,042 | 2,984 | - | 140 | 91 | - |
| Guam | NA | 54 | - | NA | 1 | NA | - | NA | 99 | 109 | NA | 5 | - | - |
| P.R. | - | 271 | - | - | 8 | - | - | 42 | 2,595 | 2,054 | 15 | 586 | 547 | 52 |
| V.I. | NA | - | - | NA | - | NA | - | NA | 108 | 149 | NA | 10 | 11 | - |
| Pac. Trust Terr. | NA | 35 | - | NA | - | NA | - | NA | 379 | 460 | NA | - | 1 | - |

NA: Not available.
All delayed reports and corrections will be included in the following week's cumulative totals.

## TABLE IV. Deaths in 121 U.S. cities,* week ending December 6, 1980 (49th week)

| REPORTING AREA | ALL CAUSES, BY AGE (YEARS) | | | | | P & I** TOTAL |
|---|---|---|---|---|---|---|
| | ALL AGES | ≥65 | 45-64 | 25-44 | <1 | |
| NEW ENGLAND | 815 | 565 | 176 | 31 | 23 | 74 |
| Boston, Mass. | 255 | 167 | 63 | 12 | 7 | 33 |
| Bridgeport, Conn. | 41 | 27 | 11 | 1 | 1 | 1 |
| Cambridge, Mass. | 38 | 30 | 8 | - | - | 5 |
| Fall River, Mass. | 31 | 26 | 5 | - | - | 1 |
| Hartford, Conn. | 52 | 35 | 10 | 4 | 2 | 1 |
| Lowell, Mass. | 33 | 24 | 8 | 1 | - | 3 |
| Lynn, Mass. | 32 | 24 | 8 | - | - | - |
| New Bedford, Mass. | 17 | 11 | 5 | - | - | 1 |
| New Haven, Conn. | 56 | 42 | 9 | 2 | 2 | 2 |
| Providence, R.I. | 88 | 50 | 23 | 4 | 3 | 7 |
| Somerville, Mass. | 11 | 9 | 2 | - | - | - |
| Springfield, Mass. | 53 | 31 | 12 | 2 | 7 | 5 |
| Waterbury, Conn. | 39 | 33 | 4 | 2 | - | 7 |
| Worcester, Mass. | 69 | 56 | 8 | 3 | 1 | 8 |
| MID. ATLANTIC | 2,977 | 1,984 | 628 | 204 | 82 | 126 |
| Albany, N.Y. | 55 | 34 | 13 | 3 | 4 | - |
| Allentown, Pa. | 24 | 19 | 5 | - | - | 1 |
| Buffalo, N.Y. | 153 | 88 | 47 | 7 | 8 | 3 |
| Camden, N.J. | 51 | 32 | 11 | 4 | - | 1 |
| Elizabeth, N.J. | 36 | 28 | 5 | 2 | - | - |
| Erie, Pa.† | 40 | 29 | 9 | 2 | - | 2 |
| Jersey City, N.J. | 59 | 34 | 14 | 7 | 3 | 4 |
| Newark, N.J. | 86 | 38 | 20 | 14 | 9 | 2 |
| N.Y. City, N.Y. | 1,820 | 1,238 | 370 | 130 | 33 | 73 |
| Paterson, N.J. | 25 | 16 | 4 | 4 | 1 | 1 |
| Philadelphia, Pa.† | 214 | 140 | 38 | 14 | 12 | 14 |
| Pittsburgh, Pa.† | 64 | 40 | 21 | 2 | 1 | - |
| Reading, Pa. | 40 | 29 | 8 | 1 | 1 | 2 |
| Rochester, N.Y. | 116 | 88 | 19 | 3 | 4 | 10 |
| Schenectady, N.Y. | 17 | 12 | 4 | 1 | - | - |
| Scranton, Pa.† | 31 | 27 | 3 | - | 1 | 5 |
| Syracuse, N.Y. | 57 | 32 | 18 | 3 | 2 | 1 |
| Trenton, N.J. | 41 | 24 | 10 | 5 | 2 | 3 |
| Utica, N.Y. | 29 | 23 | 4 | 1 | 1 | 3 |
| Yonkers, N.Y. | 19 | 13 | 5 | 1 | - | 1 |
| E.N. CENTRAL | 2,550 | 1,572 | 663 | 154 | 80 | 68 |
| Akron, Ohio | 72 | 42 | 20 | 3 | 3 | - |
| Canton, Ohio | 47 | 33 | 13 | - | - | 2 |
| Chicago, Ill. | 628 | 372 | 159 | 48 | 30 | 10 |
| Cincinnati, Ohio | 168 | 102 | 50 | 7 | 3 | 15 |
| Cleveland, Ohio | 184 | 110 | 50 | 11 | 5 | 1 |
| Columbus, Ohio | 91 | 52 | 24 | 9 | 2 | 5 |
| Dayton, Ohio | 122 | 73 | 38 | 7 | 2 | 1 |
| Detroit, Mich. | 294 | 168 | 88 | 24 | 5 | 1 |
| Evansville, Ind. | 52 | 39 | 9 | 1 | 3 | 1 |
| Fort Wayne, Ind. | 79 | 49 | 16 | 10 | - | 1 |
| Gary, Ind. | 12 | 5 | 4 | - | 1 | 1 |
| Grand Rapids, Mich. | 87 | 68 | 10 | 2 | 4 | 4 |
| Indianapolis, Ind. | 181 | 106 | 58 | 8 | 4 | 4 |
| Madison, Wis. | 45 | 28 | 10 | 1 | 4 | 2 |
| Milwaukee, Wis. | 181 | 123 | 39 | 8 | 8 | - |
| Peoria, Ill. | 53 | 34 | 13 | 3 | 2 | 11 |
| Rockford, Ill. | 61 | 39 | 14 | 4 | 1 | 3 |
| South Bend, Ind. | 58 | 46 | 10 | 1 | 1 | 3 |
| Toledo, Ohio | 66 | 32 | 24 | 6 | 1 | 2 |
| Youngstown, Ohio | 69 | 51 | 14 | 1 | 1 | 1 |
| W.N. CENTRAL | 829 | 555 | 178 | 38 | 29 | 25 |
| Des Moines, Iowa | 69 | 48 | 15 | 4 | - | 1 |
| Duluth, Minn. | 20 | 14 | 2 | 1 | 1 | 2 |
| Kansas City, Kans. | 50 | 37 | 7 | 2 | 2 | 1 |
| Kansas City, Mo. | 143 | 87 | 37 | 10 | 4 | 3 |
| Lincoln, Nebr. | 35 | 25 | 8 | 1 | 1 | 3 |
| Minneapolis, Minn. | 79 | 52 | 15 | 4 | 4 | 3 |
| Omaha, Nebr. | 104 | 66 | 26 | 3 | 6 | 1 |
| St. Louis, Mo. | 188 | 127 | 42 | 7 | 5 | 2 |
| St. Paul, Minn. | 88 | 65 | 13 | 5 | 3 | 4 |
| Wichita, Kans. | 53 | 34 | 13 | 1 | 3 | 5 |
| S. ATLANTIC | 1,494 | 907 | 367 | 104 | 56 | 47 |
| Atlanta, Ga. | 184 | 111 | 41 | 10 | 9 | 3 |
| Baltimore, Md. | 295 | 190 | 70 | 15 | 10 | 3 |
| Charlotte, N.C. | 77 | 46 | 23 | 4 | 1 | 9 |
| Jacksonville, Fla. | 134 | 78 | 35 | 9 | 5 | 8 |
| Miami, Fla. | 150 | 85 | 38 | 13 | 4 | 4 |
| Norfolk, Va. | 72 | 40 | 19 | 6 | 3 | 4 |
| Richmond, Va. | 82 | 51 | 23 | 2 | 5 | 2 |
| Savannah, Ga. | 49 | 28 | 16 | 2 | 1 | 3 |
| St. Petersburg, Fla. | 93 | 77 | 13 | 2 | 1 | 3 |
| Tampa, Fla. | 94 | 65 | 17 | 4 | 5 | 4 |
| Washington, D.C. | 210 | 104 | 60 | 33 | 7 | 4 |
| Wilmington, Del. | 54 | 32 | 12 | 4 | 5 | - |
| E.S. CENTRAL | 673 | 405 | 172 | 46 | 29 | 38 |
| Birmingham, Ala. | 81 | 45 | 24 | 9 | 2 | 1 |
| Chattanooga, Tenn. | 55 | 32 | 12 | 4 | 3 | 5 |
| Knoxville, Tenn. | 47 | 29 | 12 | 3 | 2 | - |
| Louisville, Ky. | 131 | 84 | 22 | 11 | 10 | 8 |
| Memphis, Tenn. | 151 | 100 | 40 | 7 | 1 | 11 |
| Mobile, Ala. | 43 | 18 | 20 | 3 | 1 | 1 |
| Montgomery, Ala. | 48 | 30 | 11 | 4 | 2 | 3 |
| Nashville, Tenn. | 117 | 66 | 31 | 5 | 8 | 9 |
| W.S. CENTRAL | 1,352 | 809 | 337 | 88 | 54 | 45 |
| Austin, Tex. | 69 | 47 | 11 | 5 | 4 | 4 |
| Baton Rouge, La. | 30 | 19 | 6 | 3 | 1 | 3 |
| Corpus Christi, Tex. | 26 | 17 | 4 | 2 | 1 | 1 |
| Dallas, Tex. | 196 | 116 | 46 | 15 | 9 | - |
| El Paso, Tex. | 77 | 41 | 17 | 8 | 5 | 4 |
| Fort Worth, Tex. | 102 | 70 | 20 | 4 | 5 | 3 |
| Houston, Tex. | 190 | 95 | 52 | 20 | 10 | 5 |
| Little Rock, Ark. | 84 | 40 | 33 | 5 | 3 | 4 |
| New Orleans, La. | 178 | 114 | 52 | 3 | 3 | - |
| San Antonio, Tex. | 203 | 131 | 47 | 9 | 5 | 12 |
| Shreveport, La. | 62 | 41 | 16 | - | 3 | 2 |
| Tulsa, Okla. | 135 | 78 | 33 | 14 | 5 | 7 |
| MOUNTAIN | 833 | 464 | 194 | 88 | 45 | 31 |
| Albuquerque, N.Mex. | 75 | 35 | 21 | 10 | 5 | - |
| Colo. Springs, Colo. | 40 | 25 | 10 | 1 | 1 | 3 |
| Denver, Colo. | 167 | 91 | 39 | 14 | 18 | 5 |
| Las Vegas, Nev. | 164 | 63 | 45 | 40 | 3 | 3 |
| Ogden, Utah | 16 | 11 | 3 | 1 | - | 4 |
| Phoenix, Ariz. | 175 | 114 | 36 | 9 | 10 | 1 |
| Pueblo, Colo. | 31 | 17 | 10 | - | - | 4 |
| Salt Lake City, Utah | 63 | 39 | 7 | 5 | 6 | 4 |
| Tucson, Ariz. | 102 | 69 | 23 | 8 | 2 | 7 |
| PACIFIC | 1,984 | 1,297 | 430 | 137 | 62 | 69 |
| Berkeley, Calif. | 28 | 22 | 3 | 1 | 1 | 1 |
| Fresno, Calif. | 97 | 65 | 17 | 10 | 5 | 5 |
| Glendale, Calif. | 21 | 13 | 6 | 1 | 1 | - |
| Honolulu, Hawaii | 68 | 39 | 16 | 9 | 2 | 3 |
| Long Beach, Calif. | 76 | 47 | 20 | 6 | 1 | 3 |
| Los Angeles, Calif. | 609 | 402 | 121 | 48 | 15 | 16 |
| Oakland, Calif. | 73 | 48 | 15 | 7 | 3 | 5 |
| Pasadena, Calif. | 47 | 33 | 9 | 1 | 2 | 3 |
| Portland, Oreg. | 97 | 64 | 20 | 5 | 5 | 1 |
| Sacramento, Calif. | 66 | 42 | 14 | 3 | 5 | 3 |
| San Diego, Calif. | 199 | 126 | 47 | 16 | 5 | - |
| San Francisco, Calif. | 183 | 115 | 45 | 11 | 6 | 2 |
| San Jose, Calif. | 188 | 119 | 50 | 9 | 1 | 12 |
| Seattle, Wash. | 125 | 80 | 31 | 7 | 5 | 5 |
| Spokane, Wash. | 62 | 47 | 12 | 1 | 2 | 6 |
| Tacoma, Wash. | 45 | 35 | 4 | 2 | 3 | 4 |
| TOTAL | 13,507 | 8,558 | 3,145 | 890 | 460 | 523 |

*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 4 Pennsylvania cities, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

*Legionellosis — Continued*

only 4 (6%) of the 66 non-ill members of the cohort (chi square = 23.8, $p<0.0001$). Nine of the 10 hotel employees had a single serum titer of ≤128. One employee had a titer of 256.

Environmental sampling was performed at the hotel and in the immediate vicinity. The hotel is not air-conditioned, and no cooling towers are located nearby. The potable water supply to the rooms is chlorinated and comes from a municipal aqueduct, although an older system supplied by a nearby well is unchlorinated and still in use for watering plants in the hotel garden. Water obtained from several showers and sinks in guest rooms as well as from a stagnant pool of surface water adjacent to a drainage canal near the hotel contained fluorescent bacilliform structures upon examination with the direct-fluorescent-antibody (DFA) technique, using a polyvalent fluorescent conjugate of antiserum to serogroups 1 through 4 of *L. pneumophila*. One seawater sample was negative by the DFA technique. Attempts to culture *L. pneumophila* from selected environmental sites is now in progress.

No association was demonstrated between either febrile illness or antibody titers and frequency of showering at the hotel or visiting the area of the drainage canal.

*Reported by Prof. G Giannatasio, Sant'Anna Hospital, Como; Prof. S Ranieri, Prof. C Morgagni, Dr. A Zappi, Santa Maria delle Croci Hospital, Ravenna; Prof. W Telò, San Giorgio Hospital, Cervia; Prof. F Berganini; Prof. ML Profeta, Institute of Virology, University of Milan, Milano; Prof. M La Placa, Institute of Microbiology, Sant'Orsola Hospital, University of Bologna, Bologna; Dr. A Gavavvoni, Province Medical Office, Como; Dr. MG Lippi, Dr. A Ancisi, Dr. N Montanari, Dr. E Tartagni, Ravenna Social-Health Consortium, Ravenna; Dr. A Sacchetti, Dr. R Parisi, Office of the Emilia Romagna Health Assessor, Bologna; Dr. V Carreri, Dr. C Porro, Office of the Lombardy Health Assessor, Milano; Prof. L Giannico, Director General of Public Health Services, Ministry of Health, Dr. M Mazzotti, Dr. M Castellani-Pastoris, Laboratory of Bacterial and Viral Diseases; Prof. A Zampieri, Dr. D Greco, Dr. F Rosmini, Dr. F Forastiere, Laboratory of Epidemiology and Biostatistics, Istituto Superiore di Sanità, Roma, Italy; Office of the Director, and Special Pathogens Br, Bur of Epidemiology, CDC.*

**Editorial Note:** Outbreaks of legionellosis have occurred in several European countries including Great Britain, Portugal, and Spain (*1,2*). Sporadic cases have been reported from several other countries. Although cases with onset as early as 1973 have been associated with Italy (*1,3,4*), this is the first well-documented outbreak there. Of particular interest is the association with a resort hotel on the seacoast; outbreaks of legionellosis in Spain and Portugal also occurred in this setting. *L. pneumophila* has been isolated from potable water sources in association with other outbreaks of legionellosis, although firm epidemiologic data have not conclusively demonstrated potable water as the vehicle of spread (*5,6*). The source of the bacterium and the means of contamination have been elusive, although transient breakdowns in water systems were documented around the time of possible exposure in 1 instance (*6*).

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*Current Trends*

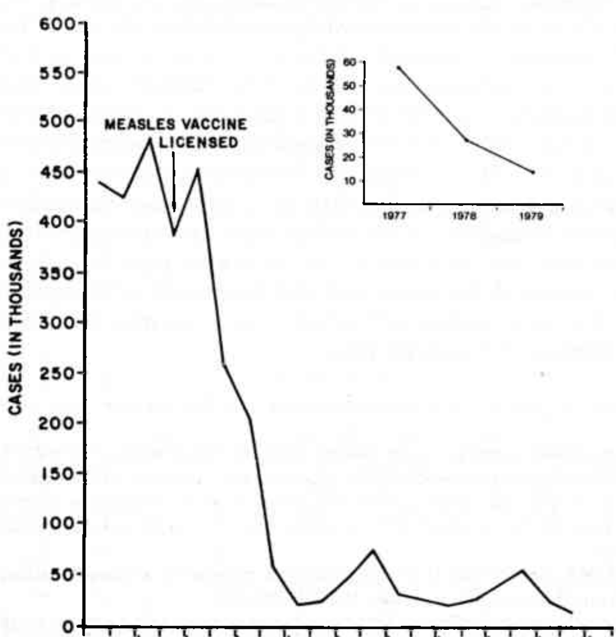
# Measles — United States, 1977-1980

The number of measles cases reported weekly in 1980 has been lower than in 1979 for 26 of the 47 weeks,* including 15 of the last 17 weeks. During the first 47 weeks of 1980, 714 of the nation's 3,144 (22.7%) counties reported measles. During all of 1979, 910 counties reported measles. Thus far, 45 states and the District of Columbia have had at least 1 consecutive 4-week period in 1980 free of reported measles cases.

However, during the first 47 weeks of 1980, 13,198 cases of measles were reported in the United States, an increase of 2.4% over the number reported for the comparable period in 1979. The 13,597 cases reported during all of 1979 represented the lowest number ever reported, a 49.4% decrease from 1978 and a 76.3% decrease from 1977 (Figure 1). In 1979, only 2 states, Washington and Minnesota, reported a measles incidence ≥100 cases/100,000 population ≤18 years of age. In contrast, 6 states in 1978 and 14 states in 1977 reported similarly high incidence rates.

The estimated age-specific incidence of measles in each age group declined 60%-80% from 1977 to 1979 (Table 3). The greatest decline occurred in 10- to 14- and 15- to 19-year-olds. Despite the marked reductions in measles incidence, persons 10 years of age and older still accounted for more than 55% of the reported cases with known age. The highest estimated measles incidence rate was reported in 10- to 14-year-olds in all 3 years; however, the differences in the incidence of measles among all age groups from 0 to 19 years diminished between 1977 and 1979.

**FIGURE 1. Reported measles cases, United States, 1960-1979**




*The 47th reporting week ended November 22.

*Measles – Continued*

**TABLE 3. Percent distribution of reported measles cases and estimated incidence* by age group, United States, 1977-1979**

| Age (years) | 1977 Total cases | 1977 Percent distribution | 1977 Estimated cases per 100,000 | 1978 Total cases | 1978 Percent distribution | 1978 Estimated cases per 100,000 | 1979 Total | 1979 Percent distribution | 1979 Estimated cases per 100,000 | Percent changes 1977-1979 Percent | Percent changes 1977-1979 Cases per 100,000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| <5 | 5,843 | 14.1 | 53.0 | 2,772 | 18.4 | 32.3 | 2,331 | 20.7 | 18.0 | −60.1 | −66.0 |
| 5-9 | 10,498 | 25.2 | 84.2 | 3,601 | 23.9 | 38.0 | 2,473 | 21.9 | 18.1 | −76.4 | −78.5 |
| 10-14 | 14,231 | 34.2 | 102.1 | 4,723 | 31.4 | 45.4 | 3,054 | 27.1 | 20.4 | −78.5 | −80.0 |
| 15-19 | 9,447 | 22.7 | 61.7 | 3,273 | 21.8 | 27.9 | 2,633 | 23.3 | 15.2 | −72.1 | −75.4 |
| 20+ | 1,559 | 3.8 | 1.5 | 668 | 4.4 | 0.8 | 786 | 7.0 | 0.6 | −49.6 | −60.0 |
| Total with known age | 41,578 | 72.5 | | 15,037 | 56.0 | | 11,277 | 82.9 | | | |
| Unknown age | 15,767 | 27.5 | | 11,834 | 44.0 | | 2,320 | 17.1 | | | |
| TOTAL | 57,345 | 100.0 | 26.5 | 26,871 | 100.0 | 12.3 | 13,597 | 100.0 | | | |

*Estimated incidence per 100,000 population is calculated by extrapolating the percent age distribution of cases with known age to the total cases.

*Reported by the Surveillance and Assessment Br, Immunization Div, Bur of State Services, CDC.*

**Editorial Note:** Reported measles incidence in 1980 is higher than in 1979 because of increased reports of measles cases during the spring and early summer months (*1*). Recent reported measles activity has been at record low levels, indicating interruption of transmission in most areas of the country.

The estimated age-specific data on the incidence of measles indicate a dramatic decline in incidence in all age groups from 1977 to 1979. The risk of disease in 1979 was similar in all age groups from 0 to 19 years. The trend towards increasing incidence of measles in 10- to 14- and 15- to 19-year-olds, observed between 1973 and 1977, has been reversed (*2*). This reduction in the incidence of measles follows the national childhood immunization initiative of 1977-1979 and the announcement of the goal to eliminate measles from the United States by October 1, 1982 (*3*).

*References*

1. MMWR 1980;40:501-2.
2. Orenstein WA, Halsey NA, Hayden GF, et al. Current status of measles in the United States 1973-1977. J Infect Dis 1978;137:847-53.
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## Influenza – United States

The first reported outbreak of influenza this season in the contiguous states occurred in October in a San Francisco nursing home (*1*); it was caused by influenza A(H3N2). Since that time, 10 states—Arizona, California, Colorado, Connecticut, Massachusetts, Nevada, New Jersey, New Mexico, New York, and Pennsylvania—and the District of Columbia have isolated influenza viruses; all of these isolates have been similar to A/Bangkok/79(H3N2). Isolations have been made from nursing home patients, college students, and hospital staff, and from hospitalized preschool children, primary school children, and adults. In Colorado and Massachusetts, increased school absenteeism was reported concurrent with the isolation of virus.

Some areas are reporting only sporadic cases. One isolate was obtained from a 68-year-

*Influenza — Continued*

old man in Nevada with chronic heart and lung disease; he had onset of illness November 27 and died 4 days later.

An outbreak in a nursing home in Los Angeles County, California, began in mid-November with most cases having onset between the 18th and 24th. Thirty-seven of 77 (48%) residents had upper respiratory infection noted; 25 (68%) of these had elevated temperature. Four of 6 specimens collected on November 21 yielded A(H3N2) influenza virus. Three patients (a 82-year-old female, a 78-year-old male, and a 87-year-old male) died during the course of the outbreak. None of the patients had received vaccine this year.

Outbreaks of influenza-like illness also occurred in 2 New York City nursing homes in November. One, in which 14 of 16 patients showed a ≥4-fold rise to influenza A virus and 3 of 8 cultures grew influenza A(H3N2) virus, occurred in Queens in the period November 5-21. Clinical illness was noted in 168 of 304 (55%) residents, and 2 deaths due to pneumonia were reported. The second outbreak, in Brooklyn, involved 74 of 189 (39%) patients, who had onset of illness from November 23 to December 5; cultures and serologic results are pending. Vaccination programs were in progress in each institution when the outbreaks occurred.

Two small hospital outbreaks have been reported: one in Pennsylvania involving 35 employees, and one in Boston involving 7 staff members and patients. In each outbreak, influenza A(H3N2) virus was isolated.

*Reported by Service of Virology, Nausau County Medical Center, East Meadow, New York; NE Miranda, MD, MPH, S Friedman, MD, MPH, Chief Epidemiologist, New York City Dept of Health; S Fannin, MD, Los Angeles County Dept of Health Services; P Reichelderfer, PhD, Southern Nevada Memorial Hospital, Las Vegas, Nevada; Virology Laboratory, Children's Hospital, Washington, DC; E Abrutyn, MD, B Goldstein, RN, B Serota, MD, Philadelphia VA Hospital; H Friedman, MD, University of Pennsylvania Medical School, Philadelphia; RG Sharrar, MD, Philadelphia Dept of Health; B Kleger, PhD, Pennsylvania State Dept of Health; P Gross, MD, Hackensack Hospital, Hackensack, New Jersey; participating State Epidemiologists and Laboratory Directors; Immunization Div, Bur of State Services, Virology Div, Bur of Laboratories, Field Services Div, Bur of Epidemiology, CDC.*

*Reference*

1. MMWR 1980;29:530.

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