CENTER FOR DISEASE CONTROL

# Morbidity and Mortality

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For Week Ending November 8, 1975

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE ▼ PUBLIC HEALTH SERVICE

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## RECOMMENDATION OF THE PUBLIC HEALTH SERVICE ADVISORY COMMITTEE ON IMMUNIZATION PRACTICES

# MENINGOCOCCAL POLYSACCHARIDE VACCINES

### INTRODUCTION

Polysaccharide vaccines against diseases caused by *Neisseria meningitidis* serogroups A and C meningococci are now licensed in the United States. They are prepared as monovalent and as bivalent antigens. The purpose of this statement is to summarize available information on these antigens and to offer general guidance regarding their role in the control of epidemics of meningococcal disease in the civilian population of the United States.

### MENINGOCOCCAL DISEASE

Meningococcal disease is endemic in the United States and throughout the world. It caused serious epidemics approximately every 10 years from 1900 to 1945 in this country. It also regularly caused outbreaks among military recruits, which is what stimulated the development of type-specific vaccines.

During the last decade an estimated 3,000-6,000 cases a year of meningococcal disease occurred in the United States. From 1964 to 1968 and since 1972 serogroup B has been the serogroup most often isolated from patients. In 1969 through 1971 serogroup C was most common in the civilian and military populations. Serogroup A was only rarely identified. In 1971 the Armed Forces began administering group C meningococcal polysaccharide vaccine routinely to all recruits; since then, the incidence of meningococcal disease in the military has declined sharply, and serogroup C disease has been virtually eliminated.

Sulfa-sensitive serogroup B strains currently cause the majority of U.S. cases. Highest attack rates are in infants. Serogroup C strains account for about one-third of cases. Although the highest age-specific attack rate for serogroup C is also in infants, about 70% of serogroup C cases occur in persons over 2 years old. More than two-thirds of all meningococcal disease occurs in patients less than 20 years

In recent years meningococcal disease in civilians has occurred primarily as single isolated cases or, infrequently, as small, localized clusters. Secondary cases occur more frequently in household contacts than in the general population, and appropriate antibiotic prophylaxis has been the principal means of reducing the risk for immediate contacts of cases.

### MENINGOCOCCAL POLYSACCHARIDE VACCINES

Three meningococcal polysaccharide vaccines, monovalent A, monovalent C, and bivalent A-C vaccine, are licensed for selective use in the United States. These vaccines are chemically defined antigens consisting of purified bacterial cell wall polysaccharides. The antigens are polymers of particular neuraminic acids with antigenic characteristics that induce specific serogroup immunity. Vaccine is administered parenterally as a single dose in the volume specified by the manufacturer. Adverse reactions to each vaccine are infrequent and mild, consisting principally of localized erythema lasting for 1-2 days. The duration of immunity conferred by each vaccine is unknown.

Serogroup A vaccine when evaluated in 62,000 Egyptian schoolchildren 6-15 years old appeared to be highly effective and without any serious side effects. Its protective efficacy in children younger than age 6 has not been evaluated, and antibody responses indicate that children less than 2 years old respond less well to the antigen than do older individuals.

Serogroup C vaccine has been given routinely to American military recruits since October 1971. The more than 500,000 young adults vaccinated have had no significant adverse effects. Serogroup C vaccine has been studied in infants, preschool and school-age children, and adults. It elicited antibody in all age groups, although older children and young adults had the highest levels. This vaccine does not appear to be effective in children less than 2 years of age.

### VACCINE USAGE

#### General Recommendations

Routine vaccination of civilians with meningococcal polysaccharide vaccines is not recommended because of insufficient data on their benefits. The serogroup-specific monovalent vaccines should be used, however, to control outbreaks of meningococcal disease caused by *Neisseria meningitidis* serogroup A or C.

Vaccination may have value for some travelers planning to visit countries recognized to have epidemic meningococcal disease. Although no cases have been reported among Americans in such areas, prolonged contact with the local populace may enhance the risk of infection and make vaccination a reasonable precaution.

Vaccination should be considered an adjunct to antibiotic chemoprophylaxis for household contacts of meningo-

CONTENTS

VACCINES – Continued

coccal disease cases. This is because half the secondary family cases occur more than 5 days after the primary case, long enough to yield potential benefit from vaccination if antibiotic chemoprophylaxis were not successful.

**Epidemic Control**

In an epidemic of meningococcal disease due to serogroups A or C, the population at risk should be identified. It should be delineated by neighborhood, census tract, or other reasonable boundary. If there is ample vaccine, all residents in that area should be vaccinated. If not, persons expected or known to be at highest risk of disease by virtue of age, socioeconomic status, or residence area should receive priority vaccination.

At the present time, requests for releasing meningococcal vaccines for epidemic control must be approved by the Bureau of Biologics, Food and Drug Administration, in consultation with the Center for Disease Control.

**Contraindications**

The safety of meningococcal vaccines in pregnant women has not been established. On theoretical grounds, it is prudent not to use them unless there is a substantial risk of infection.

**Selected Bibliography**

1. Artenstein MS, Winter PE, Gold R, et al: Immunoprophylaxis of meningococcal infection. Milit Med 139:91-95, 1974

2. Wahdan MH, Rizk F, el-Akkad AM, et al: A controlled field trial of a serogroup A meningococcal polysaccharide vaccine. Bull WHO 48:667-673, 1973

## EPIDEMIOLOGIC NOTES AND REPORTS

### CONTINUING DENGUE FEVER – Puerto Rico

Dengue virus transmission, which was detected in September and October in metropolitan San Juan for the first time since the 1969 epidemic (MMWR, Vol. 24, No. 43), persists in several municipalities. Four recent virus isolates (3 from Carolina and 1 from Villalba) have been identified by the complement-fixation test as dengue-2, the same serotype responsible for the epidemic in 1969.

Population indices of *Aedes aegypti* mosquitoes on the island have been relatively high (house index 8% to 35%) during the past 2 months, with apparent increases in some areas due to the heavy rainfall from tropical storm Eloise in mid-September. In Carolina collections of resting adult mosquitoes yielded an average of 3.9 female *A. aegypti* per man-hour.

As of November 9, 1975, 25 confirmed cases of dengue and 145 suspect cases had been detected since the first of September from towns throughout the island.

*(Continued on page 387)*

**TABLE I. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES**
**(Cumulative totals include revised and delayed reports through previous weeks)**

| DISEASE | WEEK ENDING | | MEDIAN 1970–1974 | CUMULATIVE, FIRST 45 WEEKS | | |
|---|---|---|---|---|---|---|
| | November 8, 1975 | November 9, 1974 | | November 8, 1975 | November 9, 1974 | MEDIAN 1970–1974 |
| Aseptic meningitis | 71 | 67 | 114 | 3,466 | 2,747 | 4,210 |
| Brucellosis | 4 | 7 | 4 | 216 | 161 | 164 |
| Chickenpox | 1,515 | 1,338 | --- | 123,366 | 105,799 | --- |
| Diphtheria | 6 | 5 | 5 | 260 | 206 | 161 |
| Encephalitis, Primary | 126 | 12 | 37 | 2,093 | 897 | 1,340 |
| Encephalitis, Post-Infectious | 3 | 4 | 3 | 266 | 225 | 248 |
| Hepatitis, Viral, Type B | 198 | 218 | 172 | 10,007 | 8,494 | 7,520 |
| Hepatitis, Viral, Type A | 509 | 743 | 1,103 | 30,081 | 36,224 | 47,525 |
| Hepatitis, Viral, Type unspecified | 162 | 168 | | 6,976 | 7,161 | |
| Malaria | 6 | 8 | 10 | 367 | 229 | 778 |
| Measles (rubeola) | 264 | 110 | 359 | 22,156 | 20,799 | 28,396 |
| Meningococcal infections, total | 35 | 27 | 26 | 1,253 | 1,156 | 1,197 |
| Civilian | 35 | 27 | 25 | 1,226 | 1,128 | 1,177 |
| Military | - | - | 1 | 27 | 28 | 45 |
| Mumps | 857 | 631 | 1,070 | 50,984 | 48,370 | 61,948 |
| Pertussis | 22 | 23 | --- | 1,291 | 1,485 | --- |
| Rubella (German measles) | 80 | 143 | 209 | 15,480 | 10,962 | 26,903 |
| Tetanus | 5 | 1 | 2 | 89 | 83 | 97 |
| Tuberculosis | 565 | 605 | --- | 28,686 | 26,377 | --- |
| Tularemia | 1 | 1 | 1 | 93 | 129 | 133 |
| Typhoid fever | 3 | 9 | 9 | 303 | 372 | 369 |
| Typhus, tick-borne (Rky. Mt. spotted fever) | 2 | 1 | 2 | 789 | 742 | 510 |
| Venereal Diseases: | | | | | | |
| Gonorrhea, Civilian | 17,193 | 18,270 | --- | 857,227 | 771,057 | --- |
| Gonorrhea, Military | 572 | 585 | --- | 25,143 | 25,851 | --- |
| Syphilis, primary and secondary, Civilian | 398 | 492 | --- | 21,993 | 21,938 | --- |
| Syphilis, primary and secondary, Military | 5 | 10 | --- | 306 | 411 | --- |
| Rabies in animals | 36 | 46 | 47 | 2,091 | 2,560 | 3,004 |

**TABLE II. NOTIFIABLE DISEASES OF LOW FREQUENCY**

| | Cum. | | Cum. |
|---|---|---|---|
| Anthrax: | - | Poliomyelitis, total: Ups. N.Y. 1 | 6 |
| Botulism: | 14 | Paralytic: Ups. N.Y. 1 | 6 |
| Congenital rubella syndrome: *, Kansas 1 | 21 | Psittacosis: Kansas 1 | 41 |
| Leprosy: Conn. 1, Calif. 3 | 132 | Rabies in man: | 2 |
| Leptospirosis: NYC 1 | 50 | Trichinosis: Pa. 2, Tex. 1 | 106 |
| Plague: | 14 | Typhus, murine: | 30 |

*Delayed Report: Wash.1

## TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES FOR WEEKS ENDING NOVEMBER 8, 1975 AND NOVEMBER 9, 1974 (45th WEEK)

| AREA | ASEPTIC MENINGITIS | BRUCELLOSIS | CHICKENPOX | DIPHTHERIA | | ENCEPHALITIS | | | HEPATITIS, VIRAL | | | MALARIA | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Primary: Arthropod-borne and Unspecified | | Post Infectious | Type B | Type A | Type Unspecified | | |
| | 1975 | 1975 | 1975 | 1975 | Cum. 1975 | 1975 | 1974 | 1975 | 1975 | 1975 | 1975 | 1975 | Cum. 1975 |
| UNITED STATES | 71 | 4 | 1,515 | 6 | 260 | 126 | 12 | 3 | 198 | 509 | 162 | 6 | 367 |
| NEW ENGLAND | 4 | - | 146 | - | - | 1 | - | - | 8 | 22 | 6 | - | 20 |
| Maine* | - | - | 4 | - | - | - | - | - | - | - | - | - | 2 |
| New Hampshire* | - | - | - | - | - | - | - | - | 2 | 7 | - | - | 1 |
| Vermont | - | - | 11 | - | - | - | - | - | - | - | - | - | 3 |
| Massachusetts | 1 | - | 73 | - | - | 1 | - | - | 3 | 3 | 5 | - | 8 |
| Rhode Island | 3 | - | 19 | - | - | - | - | - | 1 | 3 | - | - | 2 |
| Connecticut | - | - | 39 | - | - | - | - | - | 2 | 9 | 1 | - | 4 |
| MIDDLE ATLANTIC | 17 | - | 96 | - | - | 8 | 1 | - | 30 | 47 | 5 | 2 | 89 |
| Upstate New York | 8 | - | 80 | - | - | 3 | - | - | 2 | 13 | - | 1 | 8 |
| New York City* | 7 | - | 4 | - | - | - | - | - | 21 | 23 | - | 1 | 26 |
| New Jersey | --- | --- | NN | --- | --- | --- | --- | --- | --- | --- | --- | --- | 12 |
| Pennsylvania | 2 | - | 12 | - | - | 5 | 1 | - | 7 | 11 | 5 | - | 43 |
| EAST NORTH CENTRAL | 23 | - | 616 | - | 5 | 13 | 7 | 2 | 25 | 91 | 4 | 1 | 15 |
| Ohio* | 2 | - | 53 | - | - | 7 | 3 | 1 | 3 | 22 | - | - | 4 |
| Indiana* | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Illinois | 4 | - | 106 | - | 4 | - | - | - | 2 | 17 | - | - | 5 |
| Michigan | 11 | - | 249 | - | 1 | 6 | 4 | 1 | 14 | 46 | 4 | 1 | 6 |
| Wisconsin | 6 | - | 208 | - | - | - | - | - | 6 | 6 | - | - | - |
| WEST NORTH CENTRAL | 3 | 1 | 307 | - | 7 | 78 | 1 | 1 | 7 | 22 | 7 | - | 16 |
| Minnesota | - | - | 5 | - | - | 68 | 1 | 1 | 3 | 2 | 1 | - | 6 |
| Iowa | 1 | - | 247 | - | - | 7 | - | - | - | 2 | 1 | - | - |
| Missouri* | 2 | - | 1 | - | - | 1 | - | - | 2 | 12 | 5 | - | 7 |
| North Dakota* | - | - | 3 | - | 6 | - | - | - | - | 4 | - | - | 1 |
| South Dakota | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Nebraska | - | - | - | - | 1 | - | - | - | - | - | - | - | 2 |
| Kansas | - | 1 | 51 | - | - | 2 | - | - | 2 | 2 | - | - | - |
| SOUTH ATLANTIC | 4 | - | 84 | - | - | 2 | 1 | - | 21 | 56 | 20 | - | 51 |
| Delaware | - | - | - | - | - | - | - | - | - | - | 1 | - | - |
| Maryland | 1 | - | 1 | - | - | - | - | - | 11 | 5 | - | - | 10 |
| District of Columbia | - | - | 9 | - | - | - | - | - | - | 1 | 2 | - | 10 |
| Virginia* | - | - | 2 | - | - | 1 | - | - | 6 | 8 | 9 | - | 7 |
| West Virginia | 1 | - | 72 | - | - | - | - | - | - | - | 1 | - | 2 |
| North Carolina | 2 | - | NN | - | - | 1 | - | - | 4 | 11 | 5 | - | 6 |
| South Carolina | - | - | - | - | - | - | - | - | - | 1 | 2 | - | 2 |
| Georgia | - | - | - | - | - | - | - | - | - | 30 | - | - | 9 |
| Florida | --- | --- | --- | --- | --- | --- | 1 | --- | --- | --- | --- | --- | 5 |
| EAST SOUTH CENTRAL | 5 | - | 30 | - | - | 17 | - | - | 17 | 58 | - | - | 11 |
| Kentucky | 1 | - | 30 | - | - | - | - | - | 6 | 21 | - | - | 3 |
| Tennessee | 3 | - | NN | - | - | 10 | - | - | 7 | 29 | - | - | - |
| Alabama | - | - | - | - | - | - | - | - | 4 | 1 | - | - | 6 |
| Mississippi* | 1 | - | - | - | - | 7 | - | - | - | 7 | - | - | 2 |
| WEST SOUTH CENTRAL | 2 | 2 | 68 | - | 6 | 4 | 1 | - | 7 | 76 | 42 | - | 21 |
| Arkansas | - | - | - | - | - | - | - | - | - | 4 | 2 | - | 1 |
| Louisiana | - | - | NN | - | - | - | - | - | - | 4 | 2 | - | - |
| Oklahoma | - | - | 21 | - | - | - | - | - | 4 | 9 | 11 | - | 2 |
| Texas* | 2 | 2 | 47 | - | 6 | 4 | 1 | - | 3 | 59 | 27 | - | 18 |
| MOUNTAIN | - | - | 19 | 3 | 26 | - | - | - | 9 | 32 | 32 | - | 14 |
| Montana | - | - | 3 | - | 4 | - | - | - | - | 3 | 1 | - | 1 |
| Idaho | - | - | 3 | - | - | - | - | - | 1 | 1 | 2 | - | - |
| Wyoming | - | - | - | - | - | - | - | - | - | 2 | - | - | - |
| Colorado | - | - | 13 | - | - | - | - | - | 2 | 8 | 7 | - | 8 |
| New Mexico | - | - | - | 3 | 8 | - | - | - | 1 | 1 | 4 | - | - |
| Arizona | - | - | - | - | 14 | - | - | - | 2 | 10 | 4 | - | 3 |
| Utah | - | - | - | - | - | - | - | - | 3 | 5 | 14 | - | 2 |
| Nevada* | - | - | - | - | - | - | - | - | - | 2 | - | - | - |
| PACIFIC | 13 | 1 | 149 | 3 | 216 | 3 | 1 | - | 74 | 105 | 46 | 3 | 130 |
| Washington* | 1 | - | 139 | 3 | 195 | 2 | 1 | - | 7 | 9 | 2 | 1 | 6 |
| Oregon | 1 | - | - | - | - | - | - | - | 11 | 5 | 2 | - | 10 |
| California* | 10 | 1 | - | - | 4 | 1 | - | - | 53 | 89 | 42 | 2 | 109 |
| Alaska | - | - | 2 | - | 17 | - | - | - | - | - | - | - | 2 |
| Hawaii | 1 | - | 8 | - | - | - | - | - | 3 | 2 | - | - | 3 |
| Guam* | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Puerto Rico | - | - | 2 | - | - | - | - | - | 2 | 4 | - | - | 1 |
| Virgin Islands | - | - | - | - | - | - | - | - | - | - | - | - | - |

---Data Not Available NN: Not Notifiable

*Delayed Reports: Asep. Men.: NYC 7, Ind. 3, Mo. 5, Va. 43, Texas delete 1, Wash. 2; Brucellosis: Va. 1; Chickenpox: Me. 16, NYC 15, Ind. 51, Va. 14, Wash. 90, Calif. 19, Guam 3; Diphtheria: Mo. 1, Wash. 6; Encephalitis: Ind. 28, Mo. 1, N.D. 1, Wash. 1; Hep. B: N.H. 1, NYC 5, Ind. 1, N.D. 1, Va. 4, Wash. 13; Hep. A: Me. 4, NYC 21, Ohio delete 1, Ind. 10, Mo. delete 7, Va. 8, Miss. delete 1, Texas delete 1, Nev. 1, Wash. 14; Hep. Unspec: Me. 1, Mo. delete 10, Va. 8, Texas delete 1, Wash. 7, Guam 1.

TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES
FOR WEEKS ENDING NOVEMBER 8, 1975 AND NOVEMBER 9, 1974 (45th WEEK) – Continued

| AREA | MEASLES (Rubeola) | | | MENINGOCOCCAL INFECTIONS, TOTAL | | | MUMPS | | PERTUSSIS | RUBELLA | | TETANUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1975 | Cumulative | | 1975 | Cumulative | | 1975 | Cum. 1975 | 1975 | 1975 | Cum. 1975 | Cum. 1975 |
| | | 1975 | 1974 | | 1975 | 1974 | | | | | | |
| UNITED STATES | 264 | 22,156 | 20,799 | 35 | 1,253 | 1,156 | 857 | 50,984 | 22 | 80 | 15,480 | 89 |
| NEW ENGLAND | – | 321 | 950 | 1 | 71 | 67 | 30 | 1,784 | – | – | 2,072 | 3 |
| Maine* | – | 14 | 44 | – | 6 | 3 | 1 | 78 | – | – | 41 | – |
| New Hampshire | – | 21 | 211 | – | 3 | 10 | – | 99 | – | – | 305 | – |
| Vermont | – | 51 | 56 | – | 2 | 12 | 1 | 18 | – | – | 71 | – |
| Massachusetts | – | 114 | 399 | 1 | 26 | 17 | 6 | 246 | – | – | 1,213 | 1 |
| Rhode Island | – | 3 | 61 | – | 3 | 9 | 7 | 652 | – | – | 28 | – |
| Connecticut | – | 118 | 179 | – | 31 | 16 | 15 | 691 | – | – | 414 | 2 |
| MIDDLE ATLANTIC | 129 | 1,980 | 8,193 | 6 | 130 | 176 | 84 | 2,800 | – | 7 | 1,758 | 13 |
| Upstate New York | 128 | 752 | 964 | 2 | 40 | 63 | 63 | 1,008 | – | 5 | 292 | 2 |
| New York City* | 1 | 162 | 615 | 2 | 32 | 40 | 9 | 822 | – | 2 | 176 | 2 |
| New Jersey* | --- | 473 | 5,646 | --- | 21 | 48 | --- | 381 | --- | --- | 1,012 | 3 |
| Pennsylvania | – | 593 | 968 | 2 | 37 | 25 | 12 | 589 | – | – | 278 | 6 |
| EAST NORTH CENTRAL | 68 | 6,621 | 8,111 | 14 | 185 | 141 | 259 | 20,912 | 10 | 35 | 4,442 | 6 |
| Ohio | – | 110 | 3,055 | 13 | 63 | 55 | 38 | 2,385 | – | 2 | 632 | 2 |
| Indiana* | --- | 426 | 265 | --- | 9 | 15 | --- | 2,125 | --- | --- | 1,007 | --- |
| Illinois | – | 1,835 | 2,083 | – | 22 | 10 | 48 | 2,490 | 1 | 5 | 324 | 3 |
| Michigan | 19 | 3,108 | 2,120 | 1 | 69 | 44 | 78 | 8,485 | 4 | 21 | 1,530 | – |
| Wisconsin* | 49 | 1,142 | 588 | – | 22 | 17 | 95 | 5,427 | 5 | 7 | 949 | 1 |
| WEST NORTH CENTRAL | 3 | 5,026 | 699 | 6 | 79 | 90 | 119 | 3,744 | – | 3 | 1,474 | 10 |
| Minnesota | – | 182 | 85 | 1 | 18 | 30 | 5 | 127 | – | – | 37 | 2 |
| Iowa* | – | 612 | 134 | 1 | 7 | 14 | 78 | 1,249 | – | – | 34 | 3 |
| Missouri* | – | 273 | 260 | 4 | 38 | 25 | 2 | 923 | – | – | 735 | 1 |
| North Dakota | 3 | 1,061 | 31 | – | 2 | 3 | 6 | 485 | – | 3 | 69 | – |
| South Dakota | – | 356 | 27 | – | 1 | 3 | – | 6 | – | – | 18 | – |
| Nebraska | – | 395 | 2 | – | 2 | 3 | – | 39 | – | – | 21 | – |
| Kansas | – | 2,147 | 160 | – | 11 | 12 | 28 | 915 | – | – | 560 | 4 |
| SOUTH ATLANTIC | 13 | 375 | 578 | – | 250 | 221 | 117 | 3,545 | – | 7 | 1,596 | 16 |
| Delaware | – | 35 | 15 | – | 7 | 5 | – | 11 | – | 1 | 21 | – |
| Maryland | 5 | 54 | 24 | – | 29 | 23 | 14 | 309 | – | – | 38 | 1 |
| District of Columbia | – | 1 | 3 | – | 5 | 1 | 4 | 152 | – | – | – | – |
| Virginia* | 1 | 39 | 36 | – | 21 | 39 | 6 | 782 | – | – | 319 | 1 |
| West Virginia | 7 | 179 | 218 | – | 5 | 7 | 91 | 1,253 | – | 5 | 228 | 1 |
| North Carolina | – | 2 | 5 | – | 45 | 45 | 2 | 107 | – | 1 | 44 | 6 |
| South Carolina | – | – | 54 | – | 36 | 18 | – | 62 | – | – | 765 | 2 |
| Georgia | – | 40 | 4 | – | 15 | 8 | – | 17 | – | – | 4 | – |
| Florida | --- | 25 | 219 | --- | 87 | 75 | --- | 852 | --- | --- | 177 | 5 |
| EAST SOUTH CENTRAL | 1 | 304 | 281 | 1 | 176 | 112 | 67 | 4,697 | 6 | 7 | 989 | 8 |
| Kentucky | 1 | 95 | 194 | 1 | 74 | 43 | 2 | 1,777 | 2 | 3 | 245 | 3 |
| Tennessee | – | 178 | 56 | – | 57 | 50 | 9 | 2,155 | 1 | 2 | 714 | 1 |
| Alabama | – | 5 | 18 | – | 31 | 11 | 5 | 406 | – | 2 | 23 | 1 |
| Mississippi | – | 26 | 13 | – | 14 | 8 | 51 | 359 | 3 | – | 7 | 3 |
| WEST SOUTH CENTRAL | 2 | 351 | 227 | 4 | 190 | 191 | 54 | 4,554 | 4 | 5 | 742 | 20 |
| Arkansas | – | – | 7 | – | 10 | 13 | 1 | 175 | 2 | – | 20 | 1 |
| Louisiana | – | 1 | 13 | 1 | 37 | 48 | – | 340 | 2 | – | 282 | 4 |
| Oklahoma | 1 | 145 | 29 | 1 | 13 | 19 | 10 | 247 | – | 2 | 91 | – |
| Texas | 1 | 205 | 178 | 2 | 130 | 111 | 43 | 3,792 | – | 3 | 349 | 15 |
| MOUNTAIN | 30 | 1,484 | 757 | – | 37 | 38 | 3 | 955 | – | 3 | 519 | – |
| Montana | – | 50 | 373 | – | 7 | 1 | – | 30 | – | – | 252 | – |
| Idaho | – | 12 | 52 | – | 5 | 2 | – | 16 | – | – | 74 | – |
| Wyoming | 1 | 3 | 1 | – | 1 | 3 | – | 2 | – | – | – | – |
| Colorado | – | 1,158 | 36 | – | 9 | 9 | 3 | 624 | – | – | 134 | – |
| New Mexico | 2 | 15 | 61 | – | 4 | 3 | – | 31 | – | 2 | 18 | – |
| Arizona | 1 | 81 | 20 | – | 3 | 7 | – | – | – | – | 2 | – |
| Utah | 26 | 138 | 15 | – | 7 | 9 | – | 153 | – | 1 | 31 | – |
| Nevada* | – | 27 | 199 | – | 1 | 4 | – | 99 | – | – | 8 | – |
| PACIFIC | 18 | 5,694 | 1,003 | 3 | 135 | 120 | 124 | 7,993 | 2 | 13 | 1,888 | 13 |
| Washington* | – | 290 | 71 | – | 17 | 15 | 107 | 3,976 | – | 5 | 293 | 1 |
| Oregon | – | 199 | – | 1 | 8 | 14 | 14 | 679 | – | 1 | 185 | – |
| California | 18 | 5,141 | 866 | 1 | 101 | 84 | – | 3,240 | 2 | 7 | 1,393 | 11 |
| Alaska | – | – | – | 1 | 7 | 4 | 1 | 49 | – | – | – | – |
| Hawaii | – | 64 | 66 | – | 2 | 3 | 2 | 49 | – | – | 17 | 1 |
| Guam* | – | 23 | 20 | – | 2 | 2 | – | 28 | – | – | 7 | – |
| Puerto Rico | 11 | 674 | 659 | – | 1 | 6 | 11 | 912 | 7 | – | 30 | 17 |
| Virgin Islands | – | 53,008 | 35 | – | – | – | – | 221 | – | – | 3 | 6 |

---Data Not Available

*Delayed Reports: Measles: Me. 1, NYC 1, Ind. 24, Wisc. delete 3, Iowa delete 6, Nev. 1, Guam 1
Meningococcal Inf.: Mo. 4. Mumps: Me. 3, NYC 12, N.J. delete 7, Va. 6, Wash. 119, Guam 2
Pertussis: Va. 17, Guam 1
Rubella: Iowa delete 4, Wash 5
Tetanus: Va. 1

TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES
FOR WEEKS ENDING NOVEMBER 8, 1975 AND NOVEMBER 9, 1974 (45th WEEK) – Continued

| AREA | TUBERCULOSIS | | TULAREMIA | TYPHOID FEVER | | TYPHUS FEVER TICK-BORNE (RMSF) | | VENEREAL DISEASES (Civilian Cases Only) | | | | | | RABIES IN ANIMALS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | GONORRHEA | | | SYPHILIS (Pri. & Sec.) | | | |
| | 1975 | Cum. 1975 | Cum. 1975 | 1975 | Cum. 975 | 1975 | Cum. 1975 | 1975 | Cumulative 1975 | Cumulative 1974 | 1975 | Cumulative 1975 | Cumulative 1974 | Cum. 1975 |
| UNITED STATES | 565 | 28,686 | 93 | 3 | 303 | 2 | 789 | 17,193 | 857,227 | 771,057 | 398 | 21,993 | 21,938 | 2,091 |
| NEW ENGLAND | 22 | 1,111 | – | – | 12 | – | 6 | 688 | 23,782 | 20,946 | 11 | 790 | 776 | 64 |
| Maine | 2 | 68 | – | – | – | – | – | 56 | 1,817 | 1,748 | – | 30 | 39 | 40 |
| New Hampshire* | – | 28 | – | – | – | – | – | 11 | 615 | 681 | – | 15 | 11 | 2 |
| Vermont | 2 | 26 | – | – | – | – | – | – | 573 | 554 | – | 7 | 2 | – |
| Massachusetts | 14 | 629 | – | – | 8 | – | 2 | 291 | 11,084 | 9,600 | 9 | 521 | 548 | 12 |
| Rhode Island | 2 | 125 | – | – | – | – | 3 | 19 | 1,866 | 1,789 | – | 20 | 15 | 2 |
| Connecticut | 2 | 235 | – | – | 4 | – | 1 | 311 | 7,827 | 6,574 | 2 | 197 | 161 | 8 |
| MIDDLE ATLANTIC | 62 | 5,198 | 4 | – | 56 | – | 80 | 829 | 96,643 | 95,540 | 11 | 3,874 | 4,719 | 85 |
| Upstate New York | 19 | 779 | 3 | – | 9 | – | 33 | 379 | 17,810 | 17,727 | 4 | 360 | 461 | 67 |
| New York City* | 28 | 2,025 | – | – | 26 | – | 1 | --- | 40,157 | 41,356 | --- | 2,214 | 2,728 | – |
| New Jersey | --- | 1,020 | 1 | --- | 10 | --- | 9 | --- | 13,962 | 13,491 | --- | 629 | 740 | --- |
| Pennsylvania | 15 | 1,374 | – | – | 11 | – | 37 | 450 | 24,714 | 22,966 | 7 | 671 | 790 | 18 |
| EAST NORTH CENTRAL | 82 | 4,015 | 5 | – | 35 | – | 19 | 3,133 | 141,790 | 123,637 | 54 | 1,809 | 1,875 | 106 |
| Ohio | 23 | 1,132 | – | – | 11 | – | 16 | 756 | 39,298 | 32,065 | 14 | 442 | 275 | 5 |
| Indiana* | --- | 489 | --- | --- | --- | --- | 1 | --- | 11,693 | 11,974 | --- | 129 | 168 | 8 |
| Illinois | 19 | 1,140 | – | – | 14 | – | 1 | 1,320 | 49,675 | 40,892 | 30 | 867 | 965 | 23 |
| Michigan | 35 | 1,105 | 1 | – | 9 | – | 1 | 730 | 27,355 | 27,567 | 7 | 302 | 376 | 9 |
| Wisconsin | 5 | 149 | 4 | – | 1 | – | – | 327 | 13,769 | 11,139 | 3 | 69 | 91 | 61 |
| WEST NORTH CENTRAL | 24 | 1,019 | 16 | – | 15 | – | 27 | 1,088 | 43,477 | 40,438 | 14 | 529 | 566 | 452 |
| Minnesota | 2 | 150 | – | – | 3 | – | – | 101 | 8,671 | 8,299 | 4 | 102 | 74 | 123 |
| Iowa | 3 | 112 | 1 | – | 1 | – | – | 152 | 6,171 | 5,339 | 7 | 46 | 36 | 91 |
| Missouri* | 10 | 475 | 11 | – | 7 | – | 14 | 568 | 15,909 | 13,704 | 1 | 239 | 368 | 47 |
| North Dakota | 1 | 14 | – | – | – | – | – | 8 | 665 | 635 | – | 5 | 6 | 86 |
| South Dakota | – | 57 | – | – | – | – | – | 21 | 1,676 | 1,847 | – | 5 | 3 | 48 |
| Nebraska | 1 | 35 | 1 | – | 3 | – | 2 | 67 | 3,869 | 3,445 | 1 | 17 | 10 | 4 |
| Kansas | 7 | 176 | 3 | – | 1 | – | 11 | 171 | 6,516 | 7,169 | 1 | 115 | 69 | 53 |
| SOUTH ATLANTIC | 91 | 6,285 | 17 | 2 | 45 | 1 | 399 | 3,799 | 210,123 | 198,141 | 87 | 6,785 | 6,853 | 310 |
| Delaware | – | 115 | – | – | – | – | 4 | 66 | 3,048 | 2,747 | 5 | 79 | 72 | 5 |
| Maryland | 23 | 1,025 | 1 | 1 | 9 | – | 29 | 573 | 26,097 | 20,829 | 20 | 501 | 671 | 7 |
| District of Columbia | 5 | 331 | 1 | – | 4 | – | – | 344 | 12,168 | 16,790 | 13 | 603 | 566 | – |
| Virginia* | 11 | 749 | 6 | 1 | 7 | – | 109 | 419 | 20,227 | 18,274 | 16 | 524 | 642 | 91 |
| West Virginia | 6 | 228 | – | – | 4 | – | 4 | 67 | 2,716 | 2,326 | 1 | 53 | 17 | 3 |
| North Carolina | 17 | 1,019 | – | – | 2 | 1 | 128 | 775 | 30,430 | 26,932 | 11 | 886 | 790 | 11 |
| South Carolina | 9 | 395 | 3 | – | 7 | – | 84 | 420 | 19,825 | 18,516 | 10 | 486 | 607 | 11 |
| Georgia | 20 | 906 | 5 | – | 3 | – | 35 | 1,135 | 39,751 | 38,631 | 11 | 945 | 1,008 | 151 |
| Florida | --- | 1,517 | 1 | --- | 9 | --- | 6 | --- | 55,861 | 53,096 | --- | 2,708 | 2,480 | 31 |
| EAST SOUTH CENTRAL | 65 | 2,499 | 10 | 1 | 26 | – | 107 | 1,921 | 73,259 | 65,220 | 28 | 1,018 | 1,087 | 137 |
| Kentucky | 8 | 493 | 1 | – | 7 | – | 12 | 263 | 9,570 | 8,122 | 5 | 153 | 242 | 89 |
| Tennessee | 29 | 936 | 9 | 1 | 12 | – | 70 | 625 | 28,943 | 25,883 | 6 | 381 | 405 | 21 |
| Alabama | 14 | 706 | – | – | 2 | – | 8 | 620 | 20,333 | 18,092 | 13 | 230 | 216 | 27 |
| Mississippi | 14 | 364 | – | – | 5 | – | 17 | 413 | 14,413 | 13,123 | 4 | 254 | 224 | – |
| WEST SOUTH CENTRAL | 70 | 3,282 | 37 | – | 18 | 1 | 142 | 2,246 | 105,913 | 100,182 | 65 | 1,975 | 1,931 | 451 |
| Arkansas | 10 | 434 | 14 | – | 1 | – | 20 | 120 | 11,148 | 10,299 | 1 | 61 | 85 | 76 |
| Louisiana | 7 | 414 | 2 | – | 10 | – | – | 186 | 18,734 | 20,553 | 9 | 468 | 512 | 8 |
| Oklahoma | – | 262 | 9 | – | 1 | – | 91 | – | 10,099 | 8,747 | – | 77 | 119 | 97 |
| Texas | 53 | 2,172 | 12 | – | 6 | 1 | 31 | 1,940 | 65,932 | 60,583 | 55 | 1,369 | 1,215 | 270 |
| MOUNTAIN | 35 | 862 | 2 | – | 7 | – | 8 | 886 | 34,895 | 29,948 | 4 | 507 | 506 | 218 |
| Montana | – | 51 | 1 | – | – | – | 5 | 29 | 1,821 | 1,667 | – | 5 | 3 | 150 |
| Idaho | – | 30 | – | – | – | – | 2 | 54 | 1,796 | 1,522 | – | 13 | 11 | 1 |
| Wyoming | 2 | 26 | 1 | – | 1 | – | – | 31 | 835 | 685 | – | 10 | 2 | 5 |
| Colorado | 1 | 177 | – | – | 1 | – | 1 | 254 | 9,370 | 8,252 | 1 | 90 | 123 | – |
| New Mexico* | 3 | 113 | – | – | 2 | – | – | 151 | 6,132 | 4,316 | – | 135 | 78 | 37 |
| Arizona | 23 | 376 | – | – | 3 | – | – | 249 | 9,251 | 8,516 | 2 | 189 | 222 | 22 |
| Utah | 6 | 42 | – | – | – | – | – | 42 | 2,163 | 1,794 | – | 15 | 12 | 3 |
| Nevada* | – | 47 | – | – | – | – | – | 76 | 3,527 | 3,196 | 1 | 50 | 55 | – |
| PACIFIC | 114 | 4,415 | 2 | – | 89 | – | 1 | 2,603 | 127,345 | 97,005 | 124 | 4,706 | 3,625 | 268 |
| Washington* | 15 | 359 | 1 | – | 5 | – | 1 | 275 | 11,380 | 10,575 | 12 | 164 | 115 | 4 |
| Oregon | 3 | 165 | – | – | – | – | – | 151 | 9,738 | 9,895 | 1 | 125 | 93 | 7 |
| California | 81 | 3,328 | 1 | – | 82 | – | – | 2,078 | 100,930 | 72,031 | 108 | 4,360 | 3,383 | 252 |
| Alaska | 9 | 57 | – | – | 1 | – | – | 64 | 3,181 | 2,489 | – | 6 | 7 | 5 |
| Hawaii | 6 | 506 | – | – | 1 | – | – | 35 | 2,116 | 2,015 | 3 | 51 | 27 | – |
| Guam* | – | 51 | – | – | – | – | – | – | 319 | – | – | 12 | – | – |
| Puerto Rico | 9 | 426 | 18 | – | 7 | – | – | 58 | 2,558 | 2,702 | 15 | 627 | 786 | 37 |
| Virgin Islands | – | 3 | – | – | 2 | – | – | 4 | 187 | 666 | 1 | 38 | 50 | – |

---Data Not Available *Delayed Reports: TB: NYC 35, Ind. 9, Mo. delete 1, Va. 9, Wash. 3.
RMSF: Mo. 4.
Gonorrhea: N.H. 3 mil., NYC 845, Ind. 221, Va. 627 civ. 5. mil., Nev. 21, Wash. 336, Guam 4
Syphilis: N.H. 1 mil., NYC 75, Ind. 2, Va. 12, N.M. 1.
Rabies in Animals: Va. 4

Week No. 45

## TABLE IV. DEATHS IN 121 UNITED STATES CITIES FOR WEEK ENDING NOVEMBER 8, 1975

(By place of occurrence and week of filing certificate. Excludes fetal deaths)

| Area | All Causes | | | | | Pneumonia and Influenza All Ages |
|---|---|---|---|---|---|---|
| | All Ages | 65 years and over | 45-64 years | 25-44 years | Under 1 year | |
| NEW ENGLAND | 705 | 437 | 188 | 31 | 30 | 30 |
| Boston, Mass. | 203 | 111 | 55 | 13 | 14 | 7 |
| Bridgeport, Conn. | 40 | 27 | 10 | — | 2 | 1 |
| Cambridge, Mass. | 29 | 19 | 9 | 1 | — | 5 |
| Fall River, Mass. | 32 | 20 | 10 | 2 | — | 1 |
| Hartford, Conn. | 62 | 30 | 19 | 5 | 6 | 1 |
| Lowell, Mass. | 26 | 16 | 10 | — | — | 2 |
| Lynn, Mass. | 20 | 17 | 2 | — | — | — |
| New Bedford, Mass. | 24 | 17 | 6 | — | — | 1 |
| New Haven, Conn. | 53 | 40 | 11 | 1 | 1 | — |
| Providence, R. I. | 58 | 36 | 15 | 2 | 4 | 6 |
| Somerville, Mass. | 16 | 9 | 5 | 1 | — | 2 |
| Springfield, Mass. | 52 | 35 | 12 | 1 | 3 | 3 |
| Waterbury, Conn. | 30 | 17 | 12 | 1 | — | — |
| Worcester, Mass. | 60 | 43 | 12 | 4 | — | 1 |
| MIDDLE ATLANTIC | 2,808 | 1,734 | 704 | 196 | 91 | 103 |
| Albany, N. Y. | 44 | 24 | 11 | 3 | 3 | 1 |
| Allentown, Pa. | 21 | 17 | 4 | — | — | 1 |
| Buffalo, N. Y. | 134 | 79 | 37 | 10 | 2 | 9 |
| Camden, N. J. | 31 | 21 | 8 | 1 | 1 | — |
| Elizabeth, N. J. | 31 | 19 | 9 | 1 | 1 | 2 |
| Erie, Pa. | 28 | 17 | 9 | 1 | — | 2 |
| Jersey City, N. J. | 67 | 43 | 16 | 3 | 1 | 1 |
| Newark, N. J. | 55 | 24 | 19 | 5 | 2 | 3 |
| New York City, N. Y. † | 1,383 | 887 | 319 | 106 | 44 | 45 |
| Paterson, N. J. | 30 | 18 | 4 | 4 | 2 | 3 |
| Philadelphia, Pa. | 406 | 231 | 111 | 31 | 20 | 5 |
| Pittsburgh, Pa. | 175 | 104 | 54 | 7 | 4 | 14 |
| Reading, Pa. | 36 | 26 | 9 | — | 1 | 3 |
| Rochester, N. Y. | 118 | 77 | 28 | 6 | 2 | 3 |
| Schenectady, N. Y. | 20 | 13 | 5 | 1 | — | 1 |
| Scranton, Pa. | 36 | 25 | 9 | 2 | — | 2 |
| Syracuse, N. Y. | 101 | 51 | 31 | 7 | 5 | 4 |
| Trenton, N. J. | 47 | 26 | 13 | 5 | 3 | — |
| Utica, N. Y. | 18 | 15 | 1 | 1 | — | 3 |
| Yonkers, N. Y. | 27 | 17 | 7 | 2 | — | 1 |
| EAST NORTH CENTRAL | 2,342 | 1,339 | 634 | 173 | 78 | 62 |
| Akron, Ohio | 62 | 35 | 19 | 3 | 4 | — |
| Canton, Ohio | 33 | 25 | 5 | 1 | 1 | 3 |
| Chicago, Ill. | 575 | 307 | 159 | 64 | 20 | 11 |
| Cincinnati, Ohio | 188 | 116 | 46 | 10 | 5 | 4 |
| Cleveland, Ohio * | 185 | 99 | 57 | 14 | 6 | 3 |
| Columbus, Ohio | 134 | 79 | 32 | 9 | 5 | 2 |
| Dayton, Ohio | 101 | 55 | 31 | 5 | 5 | 2 |
| Detroit, Mich. | 280 | 152 | 79 | 27 | 6 | 9 |
| Evansville, Ind. | 45 | 30 | 10 | 2 | 1 | 3 |
| Fort Wayne, Ind. | 46 | 33 | 11 | — | — | 4 |
| Gary, Ind. | 14 | 6 | 6 | — | — | 2 |
| Grand Rapids, Mich. | 76 | 46 | 19 | 2 | 6 | 3 |
| Indianapolis, Ind. | 158 | 72 | 55 | 14 | 7 | 2 |
| Madison, Wis. | 55 | 33 | 13 | 4 | 2 | 7 |
| Milwaukee, Wis. | 136 | 83 | 36 | 6 | 2 | 1 |
| Peoria, Ill. | 40 | 21 | 13 | 3 | 2 | — |
| Rockford, Ill. | 38 | 28 | 4 | 3 | — | — |
| South Bend, Ind. | 32 | 23 | 6 | — | 1 | 4 |
| Toledo, Ohio | 99 | 66 | 21 | 4 | 4 | 1 |
| Youngstown, Ohio | 45 | 30 | 12 | 2 | 1 | 1 |
| WEST NORTH CENTRAL | 767 | 446 | 208 | 45 | 43 | 33 |
| Des Moines, Iowa * | 54 | 33 | 14 | 3 | 3 | 2 |
| Duluth, Minn. | 40 | 23 | 12 | 5 | — | 4 |
| Kansas City, Kans. | 33 | 19 | 9 | 1 | 2 | — |
| Kansas City, Mo. | 99 | 52 | 32 | 8 | 7 | 1 |
| Lincoln, Nebr. | 25 | 21 | 3 | 1 | — | 2 |
| Minneapolis, Minn. | 107 | 68 | 26 | 7 | 4 | 1 |
| Omaha, Nebr. | 98 | 53 | 31 | 4 | 7 | 6 |
| St. Louis, Mo. | 188 | 101 | 52 | 13 | 14 | 9 |
| St. Paul, Minn. | 74 | 48 | 14 | 1 | 4 | 2 |
| Wichita, Kans. | 49 | 28 | 15 | 2 | 2 | 6 |
| SOUTH ATLANTIC | 1,199 | 668 | 340 | 94 | 55 | 46 |
| Atlanta, Ga. | 128 | 67 | 23 | 16 | 15 | 1 |
| Baltimore, Md. | 202 | 102 | 63 | 21 | 7 | 2 |
| Charlotte, N. C. | 52 | 27 | 18 | 5 | 2 | — |
| Jacksonville, Fla. | 96 | 59 | 23 | 5 | 8 | 2 |
| Miami, Fla. | 96 | 54 | 29 | 9 | 2 | 2 |
| Norfolk, Va. | 64 | 30 | 22 | 4 | 7 | 4 |
| Richmond, Va. | 85 | 52 | 25 | 5 | 1 | 12 |
| Savannah, Ga.* | 39 | 22 | 12 | 2 | 1 | 3 |
| St. Petersburg, Fla. | 81 | 67 | 13 | — | — | 2 |
| Tampa, Fla. | 71 | 34 | 25 | 3 | 5 | 6 |
| Washington, D. C. | 237 | 131 | 73 | 20 | 5 | 10 |
| Wilmington, Del.* | 48 | 27 | 14 | 4 | 2 | 2 |
| EAST SOUTH CENTRAL | 672 | 412 | 171 | 34 | 25 | 29 |
| Birmingham, Ala. | 95 | 63 | 20 | 6 | 1 | 2 |
| Chattanooga, Tenn. | 43 | 29 | 7 | 2 | 3 | 5 |
| Knoxville, Tenn. | 40 | 30 | 8 | 1 | — | 1 |
| Louisville, Ky. | 121 | 76 | 35 | 5 | 3 | 10 |
| Memphis, Tenn. | 155 | 95 | 38 | 7 | 7 | — |
| Mobile, Ala. | 58 | 31 | 18 | 1 | 6 | 4 |
| Montgomery, Ala. | 45 | 22 | 18 | 1 | — | 3 |
| Nashville, Tenn. | 115 | 66 | 27 | 11 | 5 | 4 |
| WEST SOUTH CENTRAL | 1,222 | 664 | 338 | 110 | 54 | 30 |
| Austin, Tex. | 54 | 34 | 9 | 7 | 3 | 2 |
| Baton Rouge, La. | 60 | 38 | 17 | 3 | — | 4 |
| Corpus Christi, Tex. | 29 | 13 | 12 | 1 | 3 | — |
| Dallas, Tex. | 168 | 90 | 48 | 11 | 9 | 1 |
| El Paso, Tex. | 46 | 26 | 9 | 2 | 4 | 4 |
| Fort Worth, Tex. | 71 | 42 | 18 | 5 | 4 | 1 |
| Houston, Tex. | 353 | 168 | 107 | 43 | 16 | 7 |
| Little Rock, Ark.* | 62 | 35 | 16 | 5 | 3 | 2 |
| New Orleans, La. | 122 | 75 | 29 | 16 | 2 | — |
| San Antonio, Tex. | 126 | 69 | 33 | 11 | 4 | 4 |
| Shreveport, La. | 59 | 34 | 17 | 2 | 3 | 4 |
| Tulsa, Okla. | 72 | 40 | 23 | 4 | 3 | 1 |
| MOUNTAIN | 531 | 292 | 144 | 39 | 29 | 20 |
| Albuquerque, N. Mex. | 62 | 32 | 20 | 7 | 1 | 5 |
| Colorado Springs, Colo. | 47 | 21 | 17 | 4 | 5 | 4 |
| Denver, Colo. | 105 | 60 | 26 | 10 | 4 | 3 |
| Las Vegas, Nev. | 29 | 11 | 8 | 3 | 2 | — |
| Ogden, Utah | 18 | 11 | 5 | 2 | — | 2 |
| Phoenix, Ariz. | 115 | 60 | 32 | 7 | 7 | — |
| Pueblo, Colo. | 20 | 15 | 4 | — | 1 | 4 |
| Salt Lake City, Utah | 71 | 47 | 14 | 2 | 6 | 2 |
| Tucson, Ariz. | 64 | 35 | 18 | 4 | 3 | — |
| PACIFIC | 1,547 | 952 | 397 | 104 | 33 | 29 |
| Berkeley, Calif. | 14 | 10 | 1 | 1 | — | — |
| Fresno, Calif.* | 54 | 31 | 14 | 4 | 2 | 1 |
| Glendale, Calif. | 21 | 14 | 3 | — | 1 | — |
| Honolulu, Hawaii | 63 | 33 | 21 | 4 | 3 | — |
| Long Beach, Calif. | 104 | 60 | 35 | 7 | 2 | 1 |
| Los Angeles, Calif. | 414 | 261 | 103 | 32 | 6 | 9 |
| Oakland, Calif. | 85 | 51 | 13 | 14 | 1 | 1 |
| Pasadena, Calif. | 33 | 16 | 12 | 3 | 1 | — |
| Portland, Oreg. | 123 | 86 | 23 | 5 | 3 | 6 |
| Sacramento, Calif. | 71 | 46 | 15 | 6 | 2 | — |
| San Diego, Calif. | 129 | 74 | 36 | 7 | 5 | 2 |
| San Francisco, Calif. | 175 | 106 | 49 | 12 | 2 | 4 |
| San Jose, Calif. | 48 | 33 | 10 | 1 | — | — |
| Seattle, Wash. | 125 | 68 | 46 | 5 | 4 | 1 |
| Spokane, Wash. | 54 | 39 | 9 | 2 | 1 | 4 |
| Tacoma, Wash. | 34 | 24 | 7 | 1 | — | — |
| Total | 11,793 | 6,944 | 3,124 | 826 | 438 | 382 |
| Expected Number | 11,942 | 7,176 | 3,145 | 775 | 402 | 387 |

†Delayed Report for Week Ending November 1, 1975
*Estimate based on average percent of divisional total

DENGUE FEVER – Continued

Mild hemorrhagic manifestations (petechiae and positive tourniquet tests) have been noted in 2 young children with dengue-like illness, but neither had depressed platelet counts. Dengue has been confirmed serologically in one of these children. A 35-year-old man with serologically confirmed dengue experienced gross hematuria.

The Puerto Rico Health Department has begun *A. aegypti* control measures in residential areas with confirmed transmission, and increased adulticide measures will be instituted shortly with truck-mounted ultra-low volume (ULV) equipment.

*(Reported by Victor Gonzalez, MD, Assistant Secretary for Environmental Health and Preventive Medicine, Commonwealth of Puerto Rico; Rodolfo Caballero, MD, Medical Director, Elpidia Diaz, RN, Villalba Health Center; Ulpiano Santa, MD, Medical Director, Carolina Health Center; Margarita Alicea, RN, Preventive Medicine Section, Caguas Subregional Hospital; San Juan Laboratories, Bureau of Laboratories, CDC; and an EIS Officer.)*

## FALSE-POSITIVE BLOOD CULTURES RELATED TO THE USE OF EVACUATED NONSTERILE BLOOD-COLLECTION TUBES – Georgia, Massachusetts

Georgia

Blood cultures obtained from 36 patients in an Atlanta hospital between May 21 and August 12, 1975, grew *Serratia marcescens* organisms with the same antibiogram: sensitive to chloramphenicol, gentamicin, kanamycin, streptomycin, sulfathiazole, nalidixic acid, and carbenicillin; resistant to ampicillin, cephalosporins, colistin, and nitrofurans; and resistant or intermediately sensitive to tetracycline. These isolates represented a substantial increase over the 1-2 serratia isolates usually recovered each month, and the sensitivity pattern was different from the one normally observed. Thirty-four of the patients were on the pediatric service (age range 6 days to 16 years; median 1 year), and 32 had been treated in the pediatric emergency clinic (PEC). All of the patients had community-acquired illnesses, and although only three-fourths were febrile, sepsis was considered a possible diagnosis in each. Most of the patients were reexamined after the report of the positive blood culture and were found to be greatly improved after being treated for the underlying illness diagnosed in the PEC. None had been given an antibiotic to which the epidemic serratia strain was susceptible. Since their clinical illnesses were not characteristic of serratia bacteremia, and since the bacteremia seemed to resolve without specific therapy, hospital staff suspected that the blood cultures had been contaminated and began searching for a source of serratia that could result in false-positive cultures.

Several of the 10 physicians who drew the positive blood cultures said that to avoid blood clotting and repeat venipunctures, they used the following technique: they first drew 8-10 ml of blood using a scalp-vein needle and syringe and then sequentially inoculated several evacuated blood collection tubes, replaced the scalp-vein needle with a sterile needle on the syringe, and inoculated a blood culture bottle. Therefore, they often inoculated a 2-ml EDTA-containing vacuum tube before inoculating the blood culture medium.

A review of charts for 29 of the 34 patients showed that all had had a hemogram drawn at the same time as the blood culture; by contrast, in a selected sample of 21 PEC patients whose blood specimens were negative for serratia during the epidemic period, only 15 had had hemograms drawn at the same time (p=.00341, Fisher's 2-tail test).

Ninety-seven 2-ml EDTA-containing tubes (Becton-Dickinson Company) were obtained from the PEC and other pediatric floors and cultured; 37 (38%) grew *S. marcescens* with the epidemic antibiogram. No other organisms were isolated from any of the tubes. In contrast, 29 7-ml EDTA-containing tubes (adult-size) from 1 lot were cultured and were sterile.

Investigators observed a simulated venipuncture technique and noted that when the physician exerted force on the syringe plunger to hasten filling of the EDTA tube, positive pressure was created within the tube; this caused fluid and air bubbles to reflux into the scalp-vein tubing and syringe when the plunger was released, thereby contaminating the blood remaining in the syringe. In the 4 of 12 test observations where the EDTA tube was positive for serratia, the needles, tubing, syringe, and blood culture bottles were also positive. After hospital personnel had been informed of this means of blood culture contamination, the number of serratia isolates from blood dropped sharply. Nevertheless, 2 subsequent cases of false-positive serratia cultures in the PEC were traced to the same mechanism of contamination.

Massachusetts

Cultures of blood drawn from 5 patients in the pediatric emergency clinic of a Boston hospital between October 6 and 12, 1975, grew *S. marcescens* organisms with an antibiogram similar to that of the isolates recovered in Atlanta: sensitive to chloramphenicol, gentamicin, kanamycin, streptomycin, sulfisoxazole, and carbenicillin, and resistant to ampicillin, cephalothin, colistin, and tetracycline. Four of the 5 were less than 1 year old, and the other was 3 years 11 months. All 5 patients were febrile when first seen; 1 patient was hospitalized for bronchiolitis; the other 4 were followed as outpatients. Blood cultures positive for serratia were reported approximately 24-72 hours later, and 3 patients were recalled to the hospital, admitted, and started on antibiotic therapy because of their positive blood cultures. Repeat cultures obtained from them on admission were subsequently negative. The fifth patient was not admitted or given antibiotics because he was by then asymptomatic and contamination of his blood culture was suspected.

Further investigation showed that all 5 patients had had blood drawn for both culture and a hemogram on their clinic visits. Three different pediatricians obtained the blood specimens from these 5 patients, and all used similar technique. They drew blood into a syringe using a butterfly needle and tubing and inoculated the hemogram tube with the butterfly needle. They then put a new needle on the syringe and inoculated a blood culture bottle. Hemogram tubes were inoculated first to prevent specimen clotting.

Pediatric-size 2-ml EDTA-containing vacuum tubes (Becton-Dickinson Company) were used to draw blood for these patients' hemograms. Six tubes from the pediatric emergency clinic were cultured, and 4 grew *S. marcescens* with the epidemic antibiogram. Eight 2-ml tubes used on pediatric wards were also cultured, and 1 was positive.

*(Reported by John E McGowan, Jr, MD, Hospital Epidemiologist, Patricia L Parrott, RN, Senior Infection Control*

BLOOD CULTURES – Continued

*Nurse, Albert Rauber, MD, Chief, Pediatric Emergency Clinic, Grady Memorial Hospital, Atlanta; Donald A Goldmann, MD, Hospital Epidemiologist and Director, Bacteriology Laboratory, Sylvia Breton, RN, Infection Control Officer, Children's Hospital Medical Center, Boston; and Bacterial Diseases Division, Bureau of Epidemiology, CDC.)*

**Editorial Note**

False-positive blood cultures can lead to unnecessary treatment of patients with potentially toxic antibiotics and may cause delay in pursuing alternative diagnoses. These 2 instances of false-positive cultures demonstrate a previously unrecognized source of contamination–evacuated blood collection tubes. Hospital personnel should be aware that current regulations do not require that these tubes be sterilized and that they therefore may contain microorganisms. While the technique used led to the contamination, it did not affect only 1 individual or hospital. Other pediatricians probably have used a similar technique to obtain blood for hemogram and culture because of its convenience.

Using nonsterile vacuum tubes may cause real bacteremia. McLeish et al reported 5 cases of serratia bacteremia associated with the use of nonsterile 7-ml EDTA tubes manufactured by Becton-Dickinson Company in Canada (*1*). They postulated that reflux of organisms into the circulation occurred when blood was drawn using these tubes. Katz et al, demonstrated that reflux does occur when the stopper is not kept uppermost, when blood is permitted to come in contact with the stopper, when pressure on the end of the tube compresses the stopper, and when the tourniquet is released after blood has ceased to flow actively (*2*). Admonitions against each of these blood collection techniques are outlined in the package insert accompanying the evacuated blood collection tubes, but they are not widely known or adhered to. Steps to disseminate the recommended techniques for using the tubes to physicians and laboratory personnel have been undertaken.

To avoid potential reflux, personnel should follow the blood-drawing techniques recommended in the package insert accompanying the tubes. To prevent false-positive cultures, specimen tubes should never be inoculated before blood culture bottles with blood from the same syringe. This may be particularly important in pediatric outpatient facilities where blood for multiple specimens is often drawn via a single venipuncture.

Discussions with the company corroborated that serratia was introduced into the tubes during the manufacturing process. Steps have been taken to reduce the microbial load in these tubes, and methods of eliminating the backflow hazard are being pursued.

**References**

1. McLeish WA, Corrigan EN, Elder RH, Westwood JCN: Contaminated vacuum tubes (letter). Can Med Assoc J 112:682, 1975

2. Katz L, Johnson DL, Neufeld PD, Gupta KG: Evacuated blood-collection tubes–the backflow hazard. Can Med Assoc J 113:208-212, 1975

ERRATA: Vol. 24, No. 44

The following changes should be made in the regular tables of the MMWR:

Table III – page 375: In Upstate New York replace all triple dashes (———) with a single dash (–).

In New York City replace all single dashes (–) with triple dashes (———).

Table III – page 377: In New York City, Indiana, and Virginia replace all single dashes (–) with triple dashes (———).

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Director, Bureau of Epidemiology, CDC — Philip S. Brachman, M.D.
Editor, MMWR — Michael B. Gregg, M.D.

The data in this report are provisional, based on weekly telegraphs 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.

In addition to the established procedures for reporting morbidity and mortality, the editor welcomes accounts of interesting cases, outbreaks, environmental hazards, or other public health problems of current interest to health officials.

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