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MORBIDITY AND MORTALITY WEEKLY REPORT



## Surgeon General's Advisory on the Use of Salicylates and Reye Syndrome

Because the use of salicylates such as aspirin for children with influenza and chickenpox has been associated with Reye syndrome, the Surgeon General advises against use of salicylate and salicylate-containing medications for children with these diseases. The association of salicylates with Reye syndrome is based upon evidence from epidemiologic studies that are sufficiently strong to justify this warning to parents and health care personnel.

First recognized about 19 years ago, Reye syndrome is a rare, acute, life-threatening condition characterized by vomiting and lethargy that may progress to delirium and coma. Most commonly it occurs in children who are recovering from viral infections, particularly influenza and chickenpox. The Centers for Disease Control (CDC) estimates that 600-1,200 cases occur each year in the United States, most in persons between the ages of 5 and 16 years. Death occurs in 20%-30% of reported cases, and permanent brain damage has also been reported in survivors.

There have been reports for several years suggesting an association between Reye syndrome and the prior use of common medications. However, the results of recent case-control studies have made it possible to assess the association with specific drugs. These studies conducted by state health departments suggest an association between prior ingestion of aspirin and other salicylates and Reye syndrome. The studies in Arizona and Michigan have been published (*1,2*). The largest of these studies, conducted in Ohio, is expected to appear shortly in the *Journal of the American Medical Association.*

The Surgeon General notes that the matter has been reviewed recently by several groups from within and outside government.

- CDC, on the basis of its review of the available data and the recommendations of an advisory panel on February 12, 1982, stated that "until definitive information is available, CDC advises physicians and parents of the possible increased risk of Reye syndrome associated with the use of salicylates for children with chickenpox and influenza-like illness" (*3*).
- The American Academy of Pediatrics' Committee on Infectious Diseases also has reviewed the data, and in the June 1982 issue of *Pediatrics* issued a statement advising that the use of salicylates should be avoided for children suffering from influenza or chickenpox (*4*).
- A Food and Drug Administration (FDA) working group audited the raw data in February 1982 from 3 studies conducted by state health departments (2 in Michigan and 1 in Ohio) and independently analyzed the data. The FDA evaluation was discussed in an open public meeting sponsored by FDA, CDC, and the National Institutes of Health on May 24, 1982. The meeting was attended by invited experts from the academic com-

*Reye Syndrome — Continued*

munity, the drug industry, and consumer organizations. It was the consensus of the scientific working group at the completion of the meeting that the new analysis supported the earlier evidence of an association between salicylates and Reye syndrome.

As a result of this entire review process, the Surgeon General advises against the use of salicylates and salicylate-containing medications for children with influenza and chickenpox.*

*References*

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3. CDC. National surveillance of Reye syndrome 1981: Update, Reye syndrome and salicylate usage. MMWR 1982;31:53-6.
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*The Surgeon General notes that the FDA will notify health professionals through its *Drug Bulletin*, will develop lay-language information for widespread distribution, and will take the steps necessary to establish new labeling requirements for drugs containing salicylates.

## *Epidemiologic Notes and Reports*

### Neonatal Deaths Associated With Use Of Benzyl Alcohol — United States

Sixteen neonatal deaths thought to be caused by the benzyl alcohol preservative used in some intravascular solutions have been reported to the Food and Drug Administration (FDA) by 2 medical centers (*1,2*). The deaths occurred in pre-term neonates weighing <2500 gms who had central intravascular catheters flushed periodically each day with bacteriostatic normal saline containing 9 mg/ml benzyl alcohol. Ten deaths occurred in 1 institution over a 6-month period and 6 deaths occurred in the other institution over a 16-month period. Investigators in the 2 hospitals have reported that similar deaths have not occurred since flush solutions without preservatives have been substituted for those with the benzyl alcohol.

Onset of toxic illness in the infants occurred between several days and a few weeks of age with a characteristic clinical picture that included metabolic acidosis progressing to respiratory distress and gasping respirations. Many infants also had central-nervous-system dysfunction, including convulsions and intracranial hemorrhage; hypotension leading to cardiovascular collapse was a late finding usually presaging death.

Gas chromatographic analysis demonstrated benzyl alcohol or its metabolites in blood and urine samples from infants in 1 hospital. Retrospective analysis of urine samples from 5 infants in the other hospital for organic acid profile by gas-liquid chromatography showed urine benzoate levels of 4.4-16.1 mg/mg creatinine and hippurate levels of 7.4-33.3 mg/mg creatinine (normal values = 0-trace); serum benzoic acid levels were 8.4-28.7 mEq/L (normal = 0). Review of the medical records of the affected infants resulted in estimates of daily intake of benzyl alcohol ranging from 99 to 405 mg/kg/day.

Based on these reports, the FDA has recommended that intravascular flush solutions containing benzyl alcohol not be used for newborns and that diluents with this preservative not be used as medications for these infants.

Illness suspected of having been caused by use of benzyl alcohol should be reported promptly to the FDA, Division of Drug Experience, Attn: Judith K. Jones, M.D., Ph.D., Room 15-B-07, HFD-210, 5600 Fishers Lane, Rockville, Maryland 20857; telephone (301)443-4580.

*Reported by JJ Gershanik, B Beecher, W George, A Sole, M Leither, C Kapadious, Southern Baptist Hospi-*

*Neonatal Deaths — Continued*

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**Editorial Note:** Benzyl alcohol is an aromatic alcohol usually used in a concentration of 0.9% as a bacteriostatic preservative in multiple-dose vials of solutions or drugs for parenteral therapy. Bacteriostatic sodium chloride, USP, is frequently used in the management of critically ill patients to flush intravascular catheters after the addition of medications or the withdrawal of blood; and sterile bacteriostatic water for injection, USP, is used to dilute or reconstitute medications for intravenous use. In addition, medications, such as some formulations of sodium heparin, USP, that are frequently used for infants and other critically ill patients may be preserved with benzyl alcohol.

Toxic effects of benzyl alcohol, including respiratory failure, vasodilation, hypotension, convulsions, and paralysis have been known for years (*3-5*). However, little is known about the toxic effects or levels of benzyl alcohol in neonates, especially in sick premature infants. Animal toxicity studies (*6*) show an $LD_{50}$ of approximately 33 ml/kg (300 mg/kg) in rats treated by rapid intravenous infusion with 0.9% benzyl alcohol, although 40 ml/kg (360 mg/kg) by slow intravenous infusion was tolerated without mortality. Adult dogs were killed by doses of 88-113 ml/kg (830-1060 mg/kg) of 0.9% benzyl alcohol intravenously, but tolerated smaller infusions without signs of toxicity. The serum half-life of benzyl alcohol in adult dogs is estimated at 1.5 hours. On the basis of the animal studies, it has been estimated that rapid intravenous infusion of adult humans with as much as 30 ml of 0.9% benzyl alcohol (approximately 4.5 mg/kg) in saline should be safe (6).

Benzyl alcohol is normally oxidized rapidly to benzoic acid, conjugated with glycine in the liver, and excreted as hippuric acid. However, this metabolic pathway may not be well developed in premature infants. The benzyl alcohol may therefore have been metabolized to benzoic acid, which could not be conjugated by the immature liver but accumulated, causing metabolic acidosis (*2*).

These reports of neonatal toxicity from benzyl alcohol are highly noteworthy. However, caution must be exercised in attributing individual illness to benzyl alcohol since many of the described clinical features commonly occur in neonates seriously ill from other causes. Newborns most likely to receive large volumes of flush solutions, relative to body weight, are the very small, sick premature infants who already have a high risk of mortality. Thus, mortality potentially attributable to benzyl alcohol should also be assessed by a careful comparison of neonatal mortality in newborns receiving large amounts of non-bacteriostatic flush solutions and medications with comparable newborns receiving large amounts of bacteriostatic solutions and medications. Retrospective analyses of newborns who received saline flushes with benzyl alcohol and survived are also needed to establish whether a dose-response relationship exists between clinical and laboratory findings and the intensity of exposures to benzyl alcohol, and to identify more completely the pathologic and clinical features of toxicity in newborns.

*References*

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2. Brown WJ, Buist NRM, Gipson HTC, Huston RK, Kennaway NG. Benzyl alcohol poisoning: a cause of metabolic acidosis and death in neonatal infants. Lancet (In press).
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*Perspectives in Disease Prevention and Health Promotion*

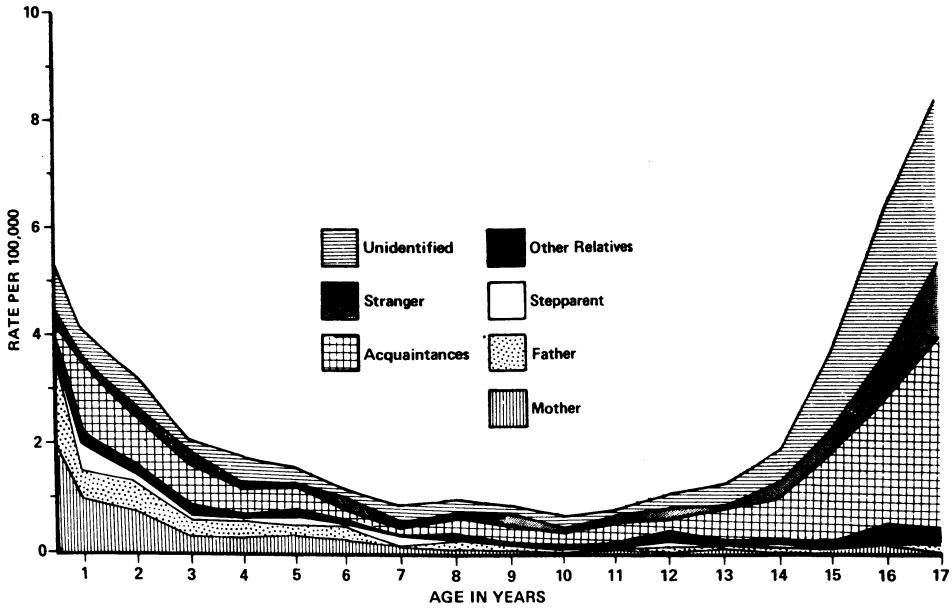
## Child Homicide — United States

Homicide is one of the 5 leading causes of death in the United States for all persons 1-17 years of age (*1*). In 1978, 5.1% of all deaths nationally among persons 1-17 years of age were due to homicide, as compared with 1.0% of all deaths of persons ≥18 years of age. Since 1925, homicide rates have risen over 6-fold for persons 1-4 years old and over 2-fold for persons 5-14 years old (*1*). In 1979, homicides of children (persons <18 years old) accounted for over 90,000 person years of potential life lost.

From 1976 through 1979, 9% of homicide victims reported to the Federal Bureau of Investigation-Uniform Crime Reporting System were <18 years old (*2*). Three percent of these child homicide victims were ≤1 week old and 9% were >1 week but <1 year of age. In 1979, child-homicide rates for males were 3.3/100,000 males and for females, 2.0/100,000 females. For children ≤12 years of age, homicide rates for males and females were similar, but for children over 12 years of age, homicide was predominantly a male victim/male offender phenomenon. Age-specific incidence rates for child homicide in 1979 are shown in Figure 1. Rates peaked for infants and teenagers.

The relationships between victims and offenders varied with the victim's age, regardless of his/her sex or race (Figure 1). Nationally, 29% of child homicides were perpetrated by the victim's parent or stepparent, 35% were perpetrated by an acquaintance, and 10% were perpetrated by strangers. The offender could not be determined in 26% of child homicides. As the age of the victim increased, the relationships shifted from being intrafamilial to extrafamil-

**FIGURE 1. Child homicide, United States, 1979 victim-specific rates*, by age of victim and by relation of offender to victim†**




*Total number of victims = 1,620.

†Based on the relationship between first-specified victim and first-specified offender for incidents in which the first-specified (listed) victim was a child.

*Child Homicide — Continued*

ial in nature. The majority of homicides of 3-year-old children were not committed by relatives, and for victims over 12 years of age, homicides by acquaintances consistently predominated.

For most child homicides, the event precipitating the homicide was poorly described, and the description varied with the relationship between the victim and the offender. The majority (78%) of intrafamilial homicides had undefined precipitating circumstances; 18% involved an argument; and the remaining were due to miscellaneous causes. Forty-four percent of homicides by an acquaintance involved an argument; 5% involved a gang fight; and 51% had undefined or miscellaneous precipitating circumstances. Twenty-two percent of homicides by a stranger involved arguments; 37% occurred during the offender's perpetration of another crime; and 41% had undefined or miscellaneous precipitating circumstances. Overall, 25% of all child homicide incidents occurred during arguments; 3% during gang fights; 4%, during sexual assualt by the offender; and 10%, during the offender's perpetration of another crime. Fifty-eight percent had undefined or miscellaneous precipitating circumstances.

As with the relationship between victim and offender, the weapon used in homicide varied with the age of the victim, . This variation was independent of the child's sex, race, or relationship to the offender. The use of bodily force or a blunt object predominated for victims ≤9 years of age. Guns or knives were used in over one-third of the homicides involving victims over 3 years of age and in over one-half of those involving victims more than 9 years of age. Overall, guns were used in 40% of child homicides; knives, in 15%; strangulation, in 6%; and other specified means, in 31%. The weapon was not specified in 7% of cases.

*Reported by the Office of the Center Director, Center for Health Promotion and Education, CDC.*

**Editorial Note:** Interest in the problem of violence toward children has grown in association with the public's increasing awareness of the issue of child abuse. Data on child abuse are limited by variations in definition and in surveillance methods; however, a recent national study estimated the incidence of child abuse at 3.4/1,000 (*3*). Although child abuse is not specifically a parent/child phenomenon, authors frequently concentrate on this aspect of the problem. Similarly, studies of child homicide have concentrated upon cases of child homicide by parents (*4-6*). The information presented in these studies indicates that homicides committed by parents constitute a minority of all child homicides and represent only one end of the child homicide spectrum. In fact, there appear to be 2 patterns of child homicide. The first predominates when victims are less than 3 years of age. This type of child homicide is characterized by familial violence, ill-defined circumstances, and the use of bodily force rather than guns or knives. It could be defined as fatal child abuse. The second type of child homicide, predominantly involving victims over 12 years of age, is characterized by extrafamilial violence, association with arguments or the offender's criminal behavior, and the use of guns or knives. This pattern may represent a child thrust into an adult environment or life-style for which he/she is not developmentally prepared and in which he/she is not properly supervised. As a major and increasing cause of death, this type of child homicide and violence is now generally ignored, but merits public health attention and might be defined as fatal parental/societal neglect. Homicides involving victims 3-12 years of age appear to be a mixture of these 2 homicide patterns. Preventive measures based upon parent education, family planning, neighborhood networking, and stress reduction may have an impact on fatal child abuse. Research is needed to determine whether such measures will also have an impact upon fatal parental/societal neglect and whether this second pattern of child homicide represents extrafamilial duplication of intrafamilial violence.

*References*

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*Child Homicide — Continued*

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## *Epidemiologic Notes and Reports*

# Update on Kaposi's Sarcoma and Opportunistic Infections in Previously Healthy Persons — United States

Between June 1, 1981, and May 28, 1982, CDC received reports of 355 cases* of Kaposi's sarcoma (KS) and/or serious opportunistic infections (OI), especially *Pneumocystis carinii*

*A case is defined as illness in a person who 1) has either biopsy-proven KS or biopsy- or culture-proven, life-threatening opportunistic infection, 2) is under age 60, and 3) has no history of either immunosuppressive underlying illness or immunosuppressive therapy.

*(Continued on page 300)*

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

| DISEASE | 22nd WEEK ENDING | | | CUMULATIVE, FIRST 22 WEEKS | | |
|---|---|---|---|---|---|---|
| | June 5 1982 | June 6 1981 | MEDIAN 1977-1981 | June 5 1982 | June 6 1981 | MEDIAN 1977-1981 |
| Aseptic meningitis | 67 | 96 | 67 | 1,622 | 1,523 | 1,090 |
| Brucellosis | 2 | 3 | 2 | 53 | 55 | 72 |
| Encephalitis: Primary (arthropod-borne & unspec.) | 12 | 16 | 16 | 309 | 295 | 260 |
| Post-infectious | – | 1 | 2 | 28 | 42 | 83 |
| Gonorrhea: Civilian | 15,219 | 17,912 | 16,850 | 376,813 | 409,471 | 395,017 |
| Military | 559 | 721 | 471 | 11,155 | 12,152 | 11,414 |
| Hepatitis: Type A | 293 | 526 | 526 | 9,238 | 10,741 | 12,007 |
| Type B | 305 | 404 | 339 | 8,505 | 8,277 | 6,870 |
| Non A, Non B | 33 | N | N | 883 | N | N |
| Unspecified | 150 | 206 | 150 | 3,778 | 4,646 | 4,214 |
| Legionellosis | 16 | N | N | 168 | N | N |
| Leprosy | 1 | 10 | 3 | 81 | 98 | 73 |
| Malaria | 28 | 26 | 16 | 349 | 546 | 228 |
| Measles (rubeola) | 34 | 238 | 617 | 711 | 1,939 | 9,659 |
| Meningococcal infections: Total | 57 | 50 | 50 | 1,517 | 1,918 | 1,389 |
| Civilian | 56 | 50 | 49 | 1,511 | 1,912 | 1,374 |
| Military | 1 | – | – | 6 | 6 | 10 |
| Mumps | 216 | 110 | 395 | 3,401 | 2,352 | 8,792 |
| Pertussis | 15 | 18 | 18 | 442 | 431 | 459 |
| Rubella(German measles) | 50 | 92 | 342 | 1,417 | 1,328 | 8,515 |
| Syphilis (Primary & Secondary): Civilian | 576 | 441 | 381 | 13,758 | 12,578 | 10,120 |
| Military | 3 | 7 | 5 | 166 | 156 | 131 |
| Tuberculosis | 483 | 587 | 508 | 10,664 | 10,945 | 11,322 |
| Tularemia | 4 | 4 | 3 | 47 | 64 | 49 |
| Typhoid fever | 11 | 6 | 10 | 151 | 191 | 175 |
| Typhus fever, tick-borne (RMSF) | 51 | 60 | 29 | 185 | 276 | 171 |
| Rabies, animal | 146 | 183 | 119 | 2,578 | 3,190 | 2,004 |

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

| | CUM. 1982 | | CUM. 1982 |
|---|---|---|---|
| Anthrax | – | Poliomyelitis: Total | 1 |
| Botulism (Wash. 1) | 29 | Paralytic | 1 |
| Cholera | – | Psittacosis(N.J. 1, Fla. 1, Calif. 1) | 47 |
| Congenital rubella syndrome | 5 | Rabies, human | – |
| Diphtheria | – | Tetanus(Mich. 1, Calif. 1) | 29 |
| Leptospirosis (Ohio 1) | 27 | Trichinosis(NYC 1) | 49 |
| Plague | 4 | Typhus fever, flea-borne (endemic, murine) (Tex. 1) | 9 |

N: Not notifiable

## TABLE III. Cases of specified notifiable diseases, United States, weeks ending June 5, 1982 and June 6, 1981 (22nd week)

| REPORTING AREA | ASEPTIC MENINGITIS | BRUCELLOSIS | ENCEPHALITIS | | GONORRHEA (Civilian) | | HEPATITIS (Viral), by type | | | | LEGIONELLOSIS | LEPROSY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Primary | Post-infectious | | | A | B | NA,NB | Unspecified | | |
| | 1982 | CUM. 1982 | CUM. 1982 | CUM. 1982 | CUM. 1982 | CUM. 1981 | 1982 | 1982 | 1982 | 1982 | 1982 | CUM. 1982 |
| UNITED STATES | 67 | 53 | 309 | 28 | 376,813 | 409,471 | 293 | 305 | 33 | 150 | 16 | 81 |
| NEW ENGLAND | – | 3 | 15 | 4 | 9,271 | 9,973 | 3 | 21 | – | 10 | 2 | 1 |
| Maine | – | – | – | – | 416 | 496 | – | 4 | – | – | – | – |
| N.H. | – | – | – | – | 257 | 353 | – | 1 | – | – | – | – |
| Vt. | – | – | – | – | 190 | 180 | 2 | – | – | 1 | – | – |
| Mass. | – | – | 5 | – | 4,328 | 4,074 | 1 | 2 | – | 7 | – | – |
| R.I. | – | – | – | – | 627 | 501 | – | 2 | – | – | – | – |
| Conn. | – | 3 | 10 | 4 | 3,453 | 4,369 | – | 12 | – | 2 | 2 | 1 |
| MID. ATLANTIC | 6 | – | 43 | 6 | 47,322 | 47,796 | 31 | 36 | 2 | 19 | 7 | 4 |
| Upstate N.Y. | 2 | – | 16 | 1 | 7,625 | 7,923 | 16 | 13 | 1 | 6 | – | 1 |
| N.Y. City | – | – | 9 | – | 19,753 | 19,354 | 9 | 14 | – | 4 | – | 1 |
| N.J. | 2 | – | 10 | – | 8,826 | 9,419 | 6 | 9 | 1 | 9 | 4 | 1 |
| Pa. | 2 | – | 8 | 5 | 11,118 | 11,100 | U | U | U | U | 3 | 1 |
| E.N. CENTRAL | 7 | – | 61 | 6 | 51,007 | 63,683 | 40 | 34 | 3 | 10 | – | 1 |
| Ohio | 5 | – | 19 | 4 | 15,433 | 21,681 | 14 | 21 | 2 | 2 | – | – |
| Ind. | 1 | – | 15 | 2 | 6,255 | 6,065 | 19 | 5 | 1 | 6 | – | – |
| Ill. | – | – | – | – | 11,117 | 17,273 | 2 | 1 | – | – | – | 1 |
| Mich. | 1 | – | 25 | – | 13,111 | 13,178 | 5 | 7 | – | 2 | – | – |
| Wis. | – | – | 2 | – | 5,091 | 5,486 | – | – | – | – | – | – |
| W.N. CENTRAL | 3 | 4 | 17 | 3 | 18,203 | 19,227 | 15 | 18 | 1 | 6 | 4 | – |
| Minn. | 1 | – | 2 | 1 | 2,759 | 3,137 | 5 | 3 | – | – | – | – |
| Iowa | 1 | 1 | 9 | 1 | 1,994 | 1,958 | 2 | 4 | – | 2 | 3 | – |
| Mo. | – | 1 | 4 | – | 8,257 | 8,740 | 7 | 3 | 1 | 3 | 1 | – |
| N. Dak. | – | – | – | – | 251 | 265 | – | – | – | – | – | – |
| S. Dak. | – | – | – | 1 | 520 | 550 | – | 1 | – | – | – | – |
| Nebr. | 1 | – | 1 | – | 1,174 | 1,520 | – | 4 | – | 1 | – | – |
| Kans. | – | 2 | 1 | – | 3,248 | 3,057 | 1 | 3 | – | – | – | – |
| S. ATLANTIC | 8 | 13 | 45 | 5 | 90,686 | 100,769 | 41 | 61 | 4 | 19 | 1 | 5 |
| Del. | – | – | – | – | 1,541 | 1,499 | – | 1 | – | 1 | – | – |
| Md. | 1 | – | 11 | – | 12,737 | 11,130 | 3 | 9 | 1 | 3 | – | 2 |
| D.C. | – | – | – | – | 5,247 | 6,428 | 2 | 3 | – | 1 | – | – |
| Va. | – | 4 | 10 | – | 8,436 | 9,105 | 5 | 9 | 1 | 3 | – | 1 |
| W. Va. | – | – | – | – | 1,141 | 1,516 | 1 | 1 | – | – | – | – |
| N.C. | – | – | 4 | 1 | 15,900 | 15,703 | 2 | 3 | – | 2 | – | – |
| S.C. | 1 | 2 | – | – | 9,485 | 9,501 | 1 | 4 | – | – | – | – |
| Ga. | 1 | 1 | – | – | 9,483 | 20,202 | 7 | 20 | – | 2 | – | – |
| Fla. | 5 | 6 | 20 | 4 | 26,716 | 25,685 | 20 | 11 | 2 | 7 | 1 | 2 |
| E.S. CENTRAL | 1 | 7 | 17 | 1 | 32,913 | 34,038 | 10 | 14 | 1 | – | – | – |
| Ky. | – | – | – | – | 4,391 | 4,317 | 2 | 2 | – | – | – | – |
| Tenn. | 1 | 4 | 9 | – | 12,719 | 12,650 | 6 | 7 | 1 | – | – | – |
| Ala. | – | 2 | 5 | 1 | 9,898 | 10,748 | – | 3 | – | – | – | – |
| Miss. | – | 1 | 3 | – | 5,905 | 6,323 | 2 | 2 | – | – | – | – |
| W.S. CENTRAL | 9 | 14 | 33 | – | 54,576 | 53,889 | 48 | 25 | 2 | 34 | 2 | 8 |
| Ark. | – | 3 | 1 | – | 4,539 | 3,738 | 1 | 3 | 1 | 3 | – | – |
| La. | – | 2 | 4 | – | 10,039 | 8,717 | 5 | 2 | – | 2 | – | – |
| Okla. | 2 | 3 | 9 | – | 5,854 | 5,663 | 9 | 2 | 1 | – | 2 | – |
| Tex. | 7 | 6 | 19 | – | 34,144 | 35,771 | 33 | 18 | – | 29 | – | 8 |
| MOUNTAIN | 4 | – | 16 | 1 | 13,596 | 15,983 | 28 | 11 | 2 | 7 | – | 2 |
| Mont. | – | – | – | – | 565 | 548 | 1 | – | – | – | – | – |
| Idaho | – | – | – | – | 636 | 690 | 3 | 1 | 1 | – | – | 1 |
| Wyo. | – | – | – | – | 386 | 370 | 2 | 1 | – | – | – | – |
| Colo. | 4 | – | 6 | 1 | 3,582 | 4,361 | 7 | 6 | – | 4 | – | – |
| N. Mex. | – | – | – | – | 1,686 | 1,758 | 2 | – | – | – | – | – |
| Ariz. | – | – | 6 | – | 3,721 | 4,928 | – | – | – | – | – | – |
| Utah | – | – | – | – | 614 | 752 | 4 | 1 | 1 | – | – | 1 |
| Nev. | – | – | 4 | – | 2,406 | 2,576 | 9 | 2 | – | 3 | – | – |
| PACIFIC | 29 | 12 | 62 | 2 | 59,239 | 64,113 | 77 | 85 | 18 | 45 | – | 60 |
| Wash. | – | – | 6 | – | 4,882 | 5,397 | 10 | 10 | – | 3 | – | 6 |
| Oreg. | – | – | 1 | – | 3,285 | 4,192 | 9 | 1 | 1 | 2 | – | – |
| Calif. | 26 | 11 | 51 | 2 | 48,552 | 51,662 | 56 | 74 | 17 | 39 | – | 34 |
| Alaska | – | 1 | 3 | – | 1,485 | 1,618 | – | – | – | – | – | 1 |
| Hawaii | 3 | – | 1 | – | 1,035 | 1,244 | 2 | – | – | 1 | – | 19 |
| Guam | U | – | – | – | 33 | 59 | U | U | U | U | U | – |
| P.R. | – | – | 1 | – | 1,198 | 1,399 | 6 | 2 | – | 6 | – | – |
| V.I. | U | – | – | – | 66 | 61 | U | U | U | U | U | – |
| Pac. Trust Terr. | U | – | – | – | 36 | 176 | U | U | U | U | U | 1 |

N: Not notifiable U: Unavailable

## TABLE III (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending June 5, 1982 and June 6, 1981 (22nd week)

| REPORTING AREA | MALARIA | | MEASLES (RUBEOLA) | | | MENINGOCOCCAL INFECTIONS (Total) | | MUMPS | | PERTUSSIS | RUBELLA | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1982 | CUM. 1982 | 1982 | CUM. 1982 | CUM. 1981 | 1982 | CUM. 1982 | 1982 | CUM. 1982 | 1982 | 1982 | CUM. 1982 | CUM. 1981 |
| UNITED STATES | 28 | 349 | 34 | 711 | 1,939 | 57 | 1,517 | 216 | 3,401 | 15 | 50 | 1,417 | 1,328 |
| NEW ENGLAND | – | 21 | – | 8 | 71 | 2 | 84 | 2 | 142 | – | 2 | 12 | 100 |
| Maine | – | – | – | – | 5 | 1 | 3 | – | 32 | – | – | – | 33 |
| N.H. | – | – | – | 1 | 6 | – | 11 | – | 12 | – | – | 8 | 41 |
| Vt. | – | – | – | 2 | 2 | – | 4 | 1 | 5 | – | – | – | – |
| Mass. | – | 16 | – | 2 | 51 | – | 22 | 1 | 70 | – | 1 | 1 | 16 |
| R.I. | – | 1 | – | – | – | – | 11 | – | 11 | – | – | 1 | – |
| Conn. | – | 4 | – | 3 | 7 | 1 | 33 | – | 12 | – | 1 | 2 | 10 |
| MID. ATLANTIC | 3 | 41 | 17 | 96 | 612 | 11 | 257 | 6 | 216 | – | – | 73 | 149 |
| Upstate N.Y. | 1 | 10 | 12 | 67 | 182 | 3 | 64 | 4 | 40 | – | – | 34 | 62 |
| N.Y. City | 1 | 15 | 3 | 21 | 48 | 3 | 50 | 1 | 34 | – | – | 26 | 41 |
| N.J. | 1 | 11 | 2 | 4 | 48 | – | 53 | 1 | 31 | – | – | 13 | 42 |
| Pa. | – | 5 | – | 4 | 334 | 5 | 90 | – | 111 | – | – | – | 4 |
| E.N. CENTRAL | 1 | 24 | 1 | 33 | 70 | 7 | 184 | 100 | 1,931 | 3 | 6 | 127 | 287 |
| Ohio | 1 | 7 | – | – | 15 | 6 | 76 | 87 | 1,449 | 2 | – | – | – |
| Ind. | – | 1 | – | 2 | 7 | – | 15 | 2 | 30 | – | 1 | 20 | 97 |
| Ill. | – | 3 | – | 15 | 20 | 1 | 46 | 6 | 129 | 1 | 2 | 48 | 67 |
| Mich. | – | 11 | 1 | 16 | 27 | – | 36 | 5 | 252 | – | 3 | 42 | 31 |
| Wis. | – | 2 | – | – | 1 | – | 11 | – | 71 | – | – | 17 | 92 |
| W.N. CENTRAL | – | 9 | 12 | 31 | 6 | 4 | 65 | 83 | 393 | 1 | 2 | 54 | 71 |
| Minn. | – | – | – | – | 2 | 1 | 13 | 82 | 280 | – | – | 5 | 7 |
| Iowa | – | 3 | – | – | 1 | – | 5 | 1 | 28 | – | – | – | 3 |
| Mo. | – | 3 | – | 2 | 1 | – | 20 | – | 13 | 1 | – | 38 | 2 |
| N. Dak. | – | – | – | – | – | – | 5 | – | – | – | – | – | – |
| S. Dak. | – | – | – | – | – | – | 3 | – | 1 | – | – | 1 | – |
| Nebr. | – | 2 | – | – | 1 | 3 | 8 | – | – | – | – | – | 1 |
| Kans. | – | 1 | 12 | 29 | 1 | – | 11 | – | 71 | – | 2 | 10 | 58 |
| S. ATLANTIC | 2 | 53 | 1 | 32 | 306 | 12 | 312 | 8 | 196 | 3 | 6 | 52 | 107 |
| Del. | – | – | – | – | – | – | – | – | 5 | – | – | 1 | 1 |
| Md. | – | 7 | – | 2 | 1 | 3 | 20 | 3 | 18 | – | 4 | 26 | 1 |
| D.C. | – | 3 | – | 1 | 1 | – | 2 | – | – | – | – | – | – |
| Va. | 2 | 21 | – | 14 | 3 | 1 | 33 | 1 | 30 | 1 | – | 8 | 3 |
| W. Va. | – | 2 | – | 1 | 7 | – | 7 | 1 | 80 | – | – | 1 | 17 |
| N.C. | – | – | – | – | 3 | 4 | 59 | 1 | 8 | – | – | 1 | 4 |
| S.C. | – | 3 | – | – | – | 1 | 37 | – | 11 | – | – | 1 | 7 |
| Ga. | – | 8 | – | – | 99 | – | 65 | – | 8 | – | – | 4 | 29 |
| Fla. | – | 9 | 1 | 14 | 192 | 3 | 89 | 2 | 36 | 2 | 2 | 10 | 45 |
| E.S. CENTRAL | – | 5 | – | 6 | – | 2 | 98 | – | 27 | 1 | – | 36 | 22 |
| Ky. | – | 4 | – | 1 | – | – | 14 | – | 9 | – | – | 20 | 13 |
| Tenn. | – | – | – | 4 | – | – | 39 | – | 11 | 1 | – | – | 8 |
| Ala. | – | – | – | – | – | 1 | 39 | – | 4 | – | – | – | 1 |
| Miss. | – | 1 | – | 1 | – | 1 | 6 | – | 3 | – | – | 16 | – |
| W.S. CENTRAL | – | 27 | 1 | 21 | 607 | 6 | 188 | 3 | 125 | 3 | 1 | 75 | 105 |
| Ark. | – | 3 | – | – | – | – | 11 | – | 6 | – | – | – | 2 |
| La. | – | 3 | – | – | – | – | 34 | – | 3 | 1 | – | – | 9 |
| Okla. | – | 3 | – | – | 5 | 2 | 16 | – | – | 1 | 1 | 3 | – |
| Tex. | – | 18 | 1 | 21 | 602 | 4 | 127 | 3 | 116 | 1 | – | 72 | 94 |
| MOUNTAIN | 2 | 8 | – | – | 24 | 1 | 80 | 3 | 52 | 3 | 3 | 45 | 61 |
| Mont. | – | – | – | – | – | – | 4 | – | 3 | – | 1 | 4 | 3 |
| Idaho | – | – | – | – | 1 | – | 6 | 1 | 3 | – | – | – | 2 |
| Wyo. | – | – | – | – | – | – | 4 | – | 2 | – | – | 5 | 1 |
| Colo. | – | 4 | – | – | 5 | 1 | 31 | 1 | 8 | – | – | 4 | 29 |
| N. Mex. | 1 | 2 | – | – | 5 | – | 11 | – | – | 1 | 1 | 3 | 4 |
| Ariz. | – | 1 | – | – | 3 | – | 14 | 1 | 23 | 2 | – | 7 | 13 |
| Utah | 1 | 1 | – | – | – | – | 7 | – | 11 | – | 1 | 13 | 3 |
| Nev. | – | – | – | – | 10 | – | 3 | – | 2 | – | – | 9 | 6 |
| PACIFIC | 20 | 161 | 2 | 484 | 243 | 12 | 249 | 11 | 319 | 1 | 30 | 943 | 426 |
| Wash. | 1 | 8 | – | 24 | 1 | 3 | 27 | 7 | 55 | – | 1 | 24 | 47 |
| Oreg. | – | 5 | – | – | 3 | 3 | 51 | – | – | – | – | 3 | 48 |
| Calif. | 19 | 146 | – | 456 | 237 | 6 | 159 | 4 | 252 | 1 | 29 | 908 | 326 |
| Alaska | – | – | 1 | 1 | – | – | 9 | – | 6 | – | – | 1 | – |
| Hawaii | – | 2 | 1 | 3 | 2 | – | 3 | – | 6 | – | – | 7 | 5 |
| Guam | U | 1 | U | – | 6 | U | 1 | U | 1 | U | U | 1 | 1 |
| P.R. | – | 4 | 1 | 62 | 182 | 1 | 5 | 2 | 37 | – | – | 4 | 3 |
| V.I. | U | – | U | – | 6 | U | – | U | – | U | U | – | – |
| Pac. Trust Terr. | U | – | U | – | – | U | – | U | – | U | U | – | 1 |

U: Unavailable

## TABLE III (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending June 5, 1982 and June 6, 1981 (22nd week)

| REPORTING AREA | SYPHILIS (Civilian) (Primary & Secondary) | | TUBERCULOSIS | | TULAREMIA | TYPHOID FEVER | | TYPHUS FEVER (Tick-borne) (RMSF) | | RABIES, Animal |
|---|---|---|---|---|---|---|---|---|---|---|
| | CUM. 1982 | CUM. 1981 | 1982 | CUM. 1982 | CUM. 1982 | 1982 | CUM. 1982 | 1982 | CUM. 1982 | CUM. 1982 |
| UNITED STATES | 18,758 | 12,578 | 483 | 10,664 | 47 | 11 | 151 | 51 | 185 | 2,578 |
| NEW ENGLAND | 247 | 273 | 9 | 288 | – | – | 11 | – | 1 | 20 |
| Maine | 1 | 1 | 1 | 23 | – | – | – | – | – | 19 |
| N.H. | – | 12 | – | 10 | – | – | – | – | – | – |
| Vt. | 1 | 13 | 1 | 7 | – | – | 2 | – | – | – |
| Mass. | 172 | 175 | 4 | 191 | – | – | 8 | – | – | – |
| R.I. | 12 | 16 | 1 | 11 | – | – | – | – | 1 | – |
| Conn. | 61 | 56 | 2 | 46 | – | – | 1 | – | – | 1 |
| MID. ATLANTIC | 1,874 | 1,898 | 81 | 1,792 | 3 | 4 | 24 | 3 | 3 | 55 |
| Upstate N.Y. | 198 | 175 | 13 | 318 | 3 | – | 2 | – | – | 30 |
| N.Y. City | 1,133 | 1,146 | 31 | 668 | – | 4 | 17 | – | – | – |
| N.J. | 237 | 251 | 37 | 361 | – | – | 3 | 2 | 2 | 1 |
| Pa. | 306 | 326 | – | 445 | – | – | 2 | 1 | 1 | 24 |
| E.N. CENTRAL | 721 | 875 | 60 | 1,620 | – | – | 13 | 10 | 18 | 294 |
| Ohio | 135 | 114 | 9 | 272 | – | – | 6 | 10 | 17 | 45 |
| Ind. | 93 | 86 | 6 | 205 | – | – | – | – | – | 43 |
| Ill. | 317 | 471 | 20 | 642 | – | – | 3 | – | 1 | 137 |
| Mich. | 128 | 159 | 19 | 411 | – | – | 4 | – | – | 2 |
| Wis. | 48 | 45 | 6 | 90 | – | – | – | – | – | 67 |
| W.N. CENTRAL | 270 | 248 | 9 | 326 | 8 | 1 | 4 | 1 | 4 | 571 |
| Minn. | 48 | 90 | 1 | 53 | – | 1 | 1 | – | – | 91 |
| Iowa | 14 | 13 | – | 43 | 1 | – | 1 | – | – | 177 |
| Mo. | 164 | 120 | – | 149 | 5 | – | 1 | 1 | 2 | 59 |
| N. Dak. | 4 | 6 | – | 6 | – | – | – | – | – | 54 |
| S. Dak. | – | 2 | 3 | 13 | – | – | – | – | – | 47 |
| Nebr. | 8 | 3 | 1 | 15 | – | – | – | – | – | 67 |
| Kans. | 32 | 14 | 4 | 47 | 2 | – | 1 | – | 2 | 76 |
| S. ATLANTIC | 3,811 | 3,302 | 137 | 2,168 | 7 | 2 | 22 | 30 | 103 | 409 |
| Del. | 8 | 7 | 4 | 25 | – | – | – | – | – | – |
| Md. | 218 | 259 | 6 | 259 | 1 | – | 6 | 4 | 15 | 19 |
| D.C. | 233 | 276 | 2 | 83 | – | – | – | – | – | – |
| Va. | 260 | 307 | 22 | 242 | 1 | – | 2 | 4 | 11 | 208 |
| W. Va. | 13 | 9 | 7 | 67 | – | – | 2 | 2 | 3 | 20 |
| N.C. | 266 | 249 | 10 | 339 | – | – | – | 15 | 47 | 18 |
| S.C. | 191 | 227 | 18 | 217 | 4 | – | 2 | 5 | 24 | 23 |
| Ga. | 785 | 848 | 33 | 327 | – | – | – | – | 3 | 91 |
| Fla. | 1,837 | 1,120 | 35 | 609 | 1 | 2 | 10 | – | – | 30 |
| E.S. CENTRAL | 960 | 834 | 48 | 968 | 6 | – | 11 | 1 | 11 | 319 |
| Ky. | 53 | 39 | 4 | 257 | – | – | – | – | – | 59 |
| Tenn. | 260 | 335 | 14 | 323 | 4 | – | 2 | 1 | 6 | 215 |
| Ala. | 344 | 219 | 2 | 272 | – | – | 7 | – | 3 | 45 |
| Miss. | 303 | 241 | 28 | 116 | 2 | – | 2 | – | 2 | – |
| W.S. CENTRAL | 3,490 | 3,018 | 64 | 1,228 | 16 | 3 | 12 | 6 | 41 | 540 |
| Ark. | 89 | 60 | 7 | 117 | 9 | 1 | 1 | 2 | 7 | 73 |
| La. | 743 | 671 | 4 | 223 | 1 | – | – | – | – | 15 |
| Okla. | 74 | 78 | 14 | 172 | 6 | – | 2 | 2 | 19 | 106 |
| Tex. | 2,584 | 2,209 | 39 | 716 | – | 2 | 9 | 2 | 15 | 346 |
| MOUNTAIN | 351 | 310 | 12 | 316 | 4 | – | 6 | – | 3 | 82 |
| Mont. | 2 | 8 | 1 | 25 | – | – | – | – | – | 34 |
| Idaho | 17 | 7 | – | 13 | 1 | – | – | – | 1 | 1 |
| Wyo. | 10 | 4 | – | 2 | 1 | – | – | – | 1 | 5 |
| Colo. | 101 | 99 | 4 | 39 | – | – | 2 | – | – | 5 |
| N. Mex. | 76 | 67 | 4 | 60 | – | – | – | – | 1 | 8 |
| Ariz. | 80 | 69 | 2 | 127 | – | – | 3 | – | – | 26 |
| Utah | 11 | 8 | – | 15 | 2 | – | 1 | – | – | 1 |
| Nev. | 54 | 48 | 1 | 35 | – | – | – | – | – | 2 |
| PACIFIC | 2,034 | 1,820 | 63 | 1,958 | 3 | 1 | 48 | – | 1 | 288 |
| Wash. | 53 | 66 | – | 112 | 1 | – | 2 | – | – | – |
| Oreg. | 56 | 40 | 6 | 75 | – | – | 1 | – | – | – |
| Calif. | 1,864 | 1,673 | 48 | 1,593 | 2 | 1 | 44 | – | 1 | 219 |
| Alaska | 7 | 6 | – | 24 | – | – | – | – | – | 69 |
| Hawaii | 54 | 35 | 9 | 154 | – | – | 1 | – | – | – |
| Guam | 1 | – | U | 2 | – | U | – | U | – | – |
| P.R. | 256 | 300 | – | 140 | – | – | 1 | – | – | 24 |
| V.I. | 1 | 4 | U | 1 | – | U | – | U | – | – |
| Pac. Trust Terr. | – | – | U | 19 | – | U | – | U | – | – |

U: Unavailable

## TABLE IV. Deaths in 121 U.S. cities,* week ending June 5, 1982 (22nd week)

| REPORTING AREA | ALL CAUSES, BY AGE (YEARS) | | | | | | P&I** TOTAL |
|---|---|---|---|---|---|---|---|
| | ALL AGES | ≥65 | 45-64 | 25-44 | 1-24 | <1 | |
| NEW ENGLAND | 612 | 413 | 146 | 21 | 17 | 15 | 52 |
| Boston, Mass. | 164 | 102 | 37 | 12 | 9 | 4 | 23 |
| Bridgeport, Conn. | 47 | 27 | 14 | 4 | 1 | 1 | 2 |
| Cambridge, Mass. | 23 | 17 | 6 | – | – | – | 5 |
| Fall River, Mass. | 25 | 20 | 4 | 1 | – | – | – |
| Hartford, Conn. | 57 | 32 | 18 | 1 | 2 | 4 | 2 |
| Lowell, Mass. | 19 | 15 | 4 | – | – | – | – |
| Lynn, Mass. | 15 | 12 | 3 | – | – | – | 1 |
| New Bedford, Mass. | 27 | 20 | 7 | – | – | – | 1 |
| New Haven, Conn. | 40 | 26 | 13 | – | 1 | – | – |
| Providence, R.I. | 64 | 41 | 16 | 1 | 1 | 5 | 3 |
| Somerville, Mass. | 8 | 6 | 2 | – | – | – | – |
| Springfield, Mass. | 35 | 21 | 12 | 2 | – | – | 5 |
| Waterbury, Conn. | 32 | 27 | 5 | – | – | – | 3 |
| Worcester, Mass. | 56 | 47 | 5 | – | 3 | 1 | 7 |
| MID. ATLANTIC | 2,474 | 1,604 | 545 | 166 | 61 | 55 | 82 |
| Albany, N.Y. | 45 | 31 | 7 | 5 | – | 2 | – |
| Allentown, Pa. | 21 | 19 | 2 | – | – | – | – |
| Buffalo, N.Y. | 108 | 75 | 25 | 6 | 2 | – | 8 |
| Camden, N.J. | 27 | 17 | 8 | 1 | 1 | – | – |
| Elizabeth, N.J. | 29 | 20 | 8 | 1 | – | – | – |
| Erie, Pa.† | 46 | 30 | 12 | 4 | – | – | 1 |
| Jersey City, N.J. | 48 | 34 | 11 | 2 | – | 1 | 1 |
| N.Y. City, N.Y. | 1,284 | 834 | 274 | 102 | 35 | 39 | 37 |
| Newark, N.J. | 72 | 32 | 21 | 10 | 3 | 6 | 8 |
| Paterson, N.J. § | 31 | 25 | – | 2 | 1 | 2 | 1 |
| Philadelphia, Pa.† | 339 | 189 | 88 | 20 | 6 | 36 | 13 |
| Pittsburgh, Pa.† | 55 | 40 | 13 | – | 1 | 1 | – |
| Reading, Pa. | 37 | 31 | 5 | – | 1 | – | – |
| Rochester, N.Y. | 124 | 82 | 27 | 5 | 8 | 2 | 8 |
| Schenectady, N.Y. | 30 | 20 | 6 | 4 | – | – | 1 |
| Scranton, Pa.† | 32 | 24 | 5 | 2 | 1 | – | 2 |
| Syracuse, N.Y. | 70 | 46 | 17 | 1 | 2 | 4 | 1 |
| Trenton, N.J. | 31 | 21 | 5 | 1 | – | – | – |
| Utica, N.Y. | 26 | 19 | 6 | 1 | – | – | – |
| Yonkers, N.Y. | 19 | 15 | 1 | 1 | – | 2 | 1 |
| E.N. CENTRAL | 1,947 | 1,237 | 447 | 137 | 63 | 63 | 53 |
| Akron, Ohio | 54 | 36 | 13 | – | 2 | 3 | – |
| Canton, Ohio | 35 | 23 | 7 | 4 | – | 1 | 1 |
| Chicago, Ill. | 490 | 304 | 113 | 37 | 14 | 22 | 10 |
| Cincinnati, Ohio | 137 | 87 | 37 | 4 | 5 | 4 | 7 |
| Cleveland, Ohio | 132 | 74 | 34 | 14 | 7 | 3 | 1 |
| Columbus, Ohio | 96 | 53 | 24 | 5 | 7 | 7 | 1 |
| Dayton, Ohio | 84 | 56 | 18 | 6 | 4 | – | 1 |
| Detroit, Mich. | 217 | 134 | 49 | 20 | 7 | 7 | 14 |
| Evansville, Ind. | 43 | 32 | 6 | 3 | 1 | 1 | – |
| Fort Wayne, Ind. | 32 | 20 | 10 | – | 1 | 1 | 2 |
| Gary, Ind. | 8 | 4 | 4 | – | – | – | 2 |
| Grand Rapids, Mich. | 56 | 33 | 18 | 2 | – | 3 | – |
| Indianapolis, Ind. | 120 | 73 | 30 | 11 | 3 | 3 | – |
| Madison, Wis. | 38 | 21 | 5 | 5 | 2 | 1 | 4 |
| Milwaukee, Wis. | 126 | 84 | 25 | 8 | 4 | 1 | 1 |
| Peoria, Ill. | 41 | 24 | 8 | 5 | 1 | 3 | 3 |
| Rockford, Ill. | 38 | 29 | 4 | 4 | 1 | – | 3 |
| South Bend, Ind. | 44 | 35 | 8 | – | 1 | – | 2 |
| Toledo, Ohio | 91 | 68 | 15 | 4 | 2 | 2 | 1 |
| Youngstown, Ohio | 65 | 47 | 11 | 5 | 1 | 1 | – |
| W.N. CENTRAL | 586 | 380 | 124 | 38 | 17 | 27 | 33 |
| Des Moines, Iowa | 53 | 39 | 11 | 1 | 2 | – | 1 |
| Duluth, Minn. | 25 | 20 | 3 | – | 1 | 1 | 1 |
| Kansas City, Kans. | 20 | 10 | 6 | 2 | – | 2 | – |
| Kansas City, Mo. | 102 | 64 | 21 | 6 | 4 | 7 | 6 |
| Lincoln, Nebr. | 23 | 17 | 5 | – | – | 1 | 3 |
| Minneapolis, Minn. | 82 | 52 | 20 | 4 | 2 | 4 | 2 |
| Omaha, Nebr. | 58 | 34 | 13 | 7 | 1 | 3 | 2 |
| St. Louis, Mo. | 127 | 79 | 27 | 11 | 4 | 6 | 12 |
| St. Paul, Minn. | 39 | 27 | 7 | 2 | 1 | 2 | 2 |
| Wichita, Kans. | 57 | 38 | 11 | 5 | 2 | 1 | 4 |

| REPORTING AREA | ALL CAUSES, BY AGE (YEARS) | | | | | | P&I** TOTAL |
|---|---|---|---|---|---|---|---|
| | ALL AGES | ≥65 | 45-64 | 25-44 | 1-24 | <1 | |
| S. ATLANTIC | 982 | 584 | 247 | 76 | 35 | 40 | 41 |
| Atlanta, Ga. | 118 | 75 | 27 | 12 | 3 | 1 | 7 |
| Baltimore, Md. | 97 | 65 | 18 | 8 | 4 | 2 | 2 |
| Charlotte, N.C. | 61 | 36 | 17 | 3 | 3 | 2 | 4 |
| Jacksonville, Fla. | 85 | 57 | 17 | 5 | 2 | 4 | 2 |
| Miami, Fla. | 102 | 54 | 32 | 12 | 3 | 1 | 3 |
| Norfolk, Va. | 47 | 25 | 11 | 4 | 1 | 6 | 5 |
| Richmond, Va. | 70 | 35 | 23 | 5 | 2 | 5 | 5 |
| Savannah, Ga. | 39 | 16 | 15 | 2 | 1 | 5 | – |
| St. Petersburg, Fla. | 72 | 60 | 11 | – | – | 1 | 3 |
| Tampa, Fla. | 62 | 35 | 12 | 8 | 3 | 4 | 5 |
| Washington, D.C. | 192 | 100 | 56 | 14 | 13 | 9 | 4 |
| Wilmington, Del. | 37 | 26 | 8 | 3 | – | – | 1 |
| E.S. CENTRAL | 707 | 414 | 186 | 45 | 37 | 25 | 32 |
| Birmingham, Ala. | 124 | 66 | 35 | 8 | 6 | 5 | 8 |
| Chattanooga, Tenn. | 32 | 18 | 10 | 1 | 1 | 2 | 1 |
| Knoxville, Tenn. | 33 | 22 | 8 | 2 | 1 | – | – |
| Louisville, Ky. | 116 | 73 | 31 | 8 | 4 | – | 9 |
| Memphis, Tenn. | 205 | 113 | 48 | 14 | 19 | 11 | 6 |
| Mobile, Ala. | 56 | 31 | 17 | 1 | 3 | 4 | 1 |
| Montgomery, Ala. | 29 | 22 | 3 | 2 | 2 | – | 1 |
| Nashville, Tenn. | 112 | 69 | 30 | 9 | 1 | 3 | 6 |
| W.S. CENTRAL | 1,059 | 571 | 263 | 119 | 66 | 40 | 24 |
| Austin, Tex. | 65 | 41 | 13 | 5 | 5 | 1 | 3 |
| Baton Rouge, La. | 28 | 16 | 9 | 3 | – | – | – |
| Corpus Christi, Tex. | 31 | 17 | 7 | 3 | 4 | – | – |
| Dallas, Tex. | 164 | 76 | 43 | 21 | 14 | 10 | – |
| El Paso, Tex. | 56 | 29 | 19 | 5 | 2 | 1 | 3 |
| Fort Worth, Tex. | 47 | 26 | 12 | 4 | 3 | 2 | 5 |
| Houston, Tex. | 287 | 127 | 87 | 40 | 17 | 16 | 6 |
| Little Rock, Ark. | 47 | 31 | 13 | 1 | 1 | 1 | – |
| New Orleans, La. | 99 | 60 | 18 | 11 | 6 | 4 | 1 |
| San Antonio, Tex. | 109 | 65 | 24 | 13 | 4 | 3 | 2 |
| Shreveport, La. | 54 | 36 | 8 | 6 | 4 | – | 3 |
| Tulsa, Okla. | 72 | 47 | 10 | 7 | 6 | 2 | 1 |
| MOUNTAIN | 492 | 288 | 124 | 37 | 24 | 18 | 14 |
| Albuquerque, N. Mex. | 26 | 19 | 5 | 1 | 1 | – | 1 |
| Colo. Springs, Colo. | 36 | 20 | 12 | 2 | 1 | 1 | 2 |
| Denver, Colo. | 101 | 58 | 28 | 9 | 3 | 3 | 1 |
| Las Vegas, Nev. | 85 | 36 | 26 | 13 | 7 | 3 | – |
| Ogden, Utah | 21 | 18 | 3 | – | – | – | 3 |
| Phoenix, Ariz. | 99 | 65 | 20 | 5 | 4 | 4 | – |
| Pueblo, Colo. | 19 | 12 | 6 | – | 1 | – | – |
| Salt Lake City, Utah | 45 | 24 | 10 | 4 | 3 | 4 | 1 |
| Tucson, Ariz. | 60 | 36 | 14 | 3 | 4 | 3 | 6 |
| PACIFIC | 1,318 | 867 | 272 | 86 | 45 | 48 | 82 |
| Berkeley, Calif. | 30 | 21 | 5 | 2 | – | 2 | 1 |
| Fresno, Calif. | 57 | 42 | 6 | 2 | 4 | 3 | 5 |
| Glendale, Calif. | 6 | 5 | 1 | – | – | – | – |
| Honolulu, Hawaii | 56 | 34 | 14 | 6 | 2 | – | 6 |
| Long Beach, Calif. | 84 | 55 | 18 | 6 | – | 5 | 3 |
| Los Angeles, Calif. | 254 | 156 | 58 | 19 | 11 | 10 | 9 |
| Oakland, Calif. | 65 | 41 | 10 | 7 | 2 | 5 | 3 |
| Pasadena, Calif. | 25 | 16 | 8 | – | – | 1 | 1 |
| Portland, Oreg. | 112 | 82 | 21 | 5 | 3 | 1 | 10 |
| Sacramento, Calif. | 67 | 39 | 17 | 4 | 3 | 4 | 7 |
| San Diego, Calif. | 94 | 58 | 20 | 3 | 6 | 7 | 7 |
| San Francisco, Calif. | 134 | 99 | 27 | 7 | – | 1 | 2 |
| San Jose, Calif. | 167 | 103 | 34 | 17 | 10 | 3 | 21 |
| Seattle, Wash. | 94 | 63 | 20 | 7 | 2 | 2 | 4 |
| Spokane, Wash. | 49 | 32 | 11 | – | 2 | 4 | 2 |
| Tacoma, Wash. | 24 | 21 | 2 | 1 | – | – | 1 |
| TOTAL | 10,177†† | 6,358 | 2,354 | 727 | 365 | 371 | 413 |

*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.

††Total includes unknown ages.

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

## TABLE V. Years of potential life lost, deaths, and death rates, by cause of death, and estimated number of physician contacts, by principal diagnosis, United States

| Cause of morbidity or mortality (Ninth Revision ICD, 1975) | Years of potential life lost before age 65 by persons dying in 1980[1] | Estimated mortality January 1982 | | Estimated number of physician contacts January 1982[4] |
|---|---|---|---|---|
| | | Number[2] | Annual Rate/100,000[3] | |
| ALL CAUSES (TOTAL) | 10,006,060 | 174,450 | 891.1 | 102,095,000 |
| Accidents and adverse effects (E800-E807, E810-E825, E826-E949) | 2,684,850 | 7,770 | 39.7 | 5,032,000 |
| Malignant neoplasms (140-208) | 1,804,120 | 35,430 | 181.0 | 2,991,000 |
| Diseases of heart (390-398, 402, 404-429) | 1,636,510 | 69,380 | 354.4 | 6,127,000 |
| Suicides, homicides (E950-E978) | 1,401,880 | 3,900 | 19.9 | — |
| Chronic liver disease and cirrhosis (571) | 301,070 | 2,330 | 11.9 | 174,000 |
| Cerebrovascular diseases (430-438) | 280,430 | 15,370 | 78.5 | 728,000 |
| Pneumonia and influenza (480-487) | 124,830 | 4,660 | 23.8 | 1,166,000 |
| Diabetes mellitus (250) | 117,340 | 2,800 | 14.3 | 2,749,000 |
| Chronic obstructive pulmonary diseases and allied conditions (490-496) | 110,530 | 4,740 | 24.2 | 1,805,000 |
| Prenatal care[5] | | | | 2,220,000 |
| Infant mortality[5] | | 3,600 | 11.6 /1,000 live births | |

[1]Years of potential life lost for persons between 1 year and 65 years old at the time of death are derived from the number of deaths in each age category as reported by the National Center for Health Statistics, *Monthly Vital Statistics Report* (MVSR), Vol. 29, No. 13, September 17, 1981, multiplied by the difference between 65 years and the age at the midpoint of each category. As a measure of mortality, "Years of potential life lost" underestimates the importance of diseases that contribute to death without being the underlying cause of death.

[2]The number of deaths is estimated by CDC by multiplying the estimated annual mortality rates (MVSR Vol. 31, No. 2, May 12, 1982, pp. 8-9) and the provisional U.S. population in that month (MVSR Vol. 31, No. 1, April 16, 1982, p.1) and dividing by the days in the month as a proportion of the days in the year.

[3]Annual mortality rates are estimated by NCHS (MVSR Vol. 31, No. 2, May 12, 1982, pp. 8-9), using the underlying cause of death from a systematic sample of 10% of death certificates received in state vital statistics offices during the month and the provisional population of those states included in the sample for that month.

[4]IMS America *National Disease and Therapeutic Index* (NDTI), Monthly Report, January 1982, Section III. This estimate comprises the number of office, hospital, and nursing home visits and telephone calls prompted by each medical condition based on a stratified random sample of office-based physicians (2,100) who record all private patient contacts for 2 consecutive days each quarter.

[5]"Prenatal care" (NDTI) and "Infant mortality" (MVSR Vol. 31, No. 1, April 16, 1982, p.1) are included in the table because "Years of potential life lost" does not reflect deaths of children $<1$ year.

*Kaposi's Sarcoma — Continued*

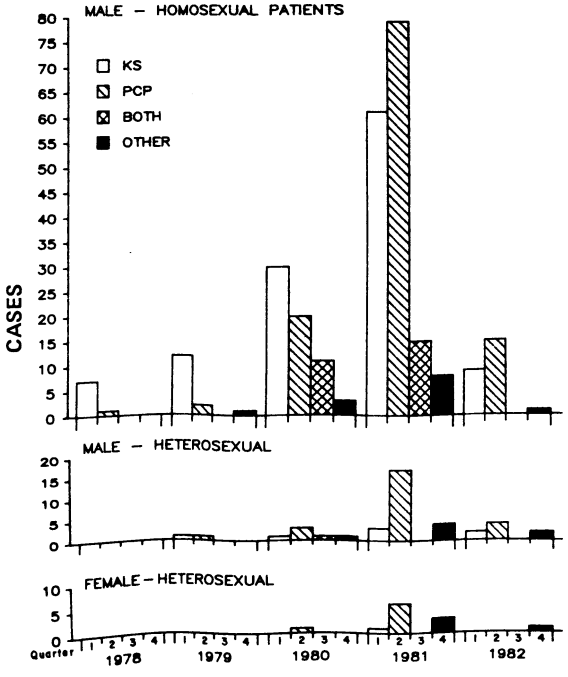
pneumonia (PCP), occurring in previously healthy persons between 15 and 60 years of age. Of the 355, 281 (79%) were homosexual (or bisexual) men, 41 (12%) were heterosexual men, 20 (6%) were men of unknown sexual orientation, and 13 (4%) were heterosexual women. This proportion of heterosexuals (16%) is higher than previously described (*1*).

Five states—California, Florida, New Jersey, New York, and Texas—accounted for 86% of the reported cases. The rest were reported by 15 other states. New York was reported as the state of residence for 51% of homosexual male patients, 49% of the heterosexual males, and 46% of the females. The median age at onset of symptoms was 36.0 years for homosexual men, 31.5 years for heterosexual men, and 29.0 years for women. The distribution of homosexual and heterosexual KSOI cases by date of onset is shown in Figure 2. Overall, 69% of all reported cases have had onset after January 1, 1981.

PCP accounted for a significantly higher proportion of the diagnoses for both male (63%) and female (73%) heterosexual patients than for homosexual patients (42%) ($p<0.05$). The ratio of homosexual to heterosexual males with PCP only, by year of onset of symptoms, was 5:1 in 1980, 3:1 in 1981 and 4:1 thus far in 1982. Reported case-fatality ratios for PCP cases with onset in 1980 and 1981 were 85% and 47%, respectively, for homosexual men and 67% and 41% for heterosexual men. The distribution of PCP cases by diagnosis, sexual orientation, race, and overall case-fatality ratio is shown in Table 1.

Both male and female heterosexual PCP patients were more likely than homosexual patients to be black or Hispanic ($p=0.0001$). Of patients with PCP for whom drug-use information was known, 14% of homosexual men had used intravenous drugs at some time compared with 63% of heterosexual men ($p=0.001$) and 57% of heterosexual women ($p=0.001$)(Table 1).

**FIGURE 2. Cases of KSOI by specific diagnosis, year of onset, sex, and sexual orientation, United States, 1978-1982**



*Kaposi's Sarcoma — Continued*

*Reported by Task Force on Kaposi's Sarcoma and Opportunistic Infections, Field Svcs Div, Epidemiology Program Office, CDC.*

**Editorial Note:** Sexual orientation information was obtained from patients by their physicians, and the accuracy of reporting cannot be determined; therefore, comparisons between KSOI cases made on the basis of sexual orientation must be interpreted cautiously. Similarities between homosexual and heterosexual cases in diagnoses and geographic and temporal distribution suggest that all are part of the same epidemic. Masur et al (*2*) also reported that lymphocyte dysfunction and lymphopenia were similar in heterosexual and homosexual cases of PCP. However, differences in race, proportion of PCP cases, and intravenous drug use suggest that risk factors may be different for these groups. A laboratory and interview study of heterosexual patients with diagnosed KS, PCP, or other OI is in progress to determine whether their cellular immune function, results of virologic studies, medical history, sexual practices, drug use, and life-style are similar to those of homosexual patients.

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1. CDC. Follow-up on Kaposi's sarcoma and *Pneumocystis* pneumonia. MMWR 1981;30:409-10.
2. Masur H, Michelis M, Greene JB, *et al.* An outbreak of community-acquired *Pneumocystis carinii* pneumonia: initial manifestations of cellular immune dysfunction. N Engl J Med 1981;305:1431-8.

**TABLE 1. Reported cases of *Pneumocystis carinii* pneumonia in previously healthy persons, June 1, 1981-May 28, 1982, United States**

| | Race | | | | | |
|---|---|---|---|---|---|---|
| | Total | White | Black | Hispanic | Case-fatality ratio | IV-Drug Use† |
| Homosexual men* | 118 | 80 | 22 | 15 | 51% | 11/80 (14%) |
| Heterosexual men* | 26 | 8 | 11 | 6 | 35% | 17/26 (65%) |
| Heterosexual women* | 8 | 1 | 4 | 2 | 50% | 4/7 (57%) |

*Race data lacking for 1 case
†Data not available on all cases

## *Recommendation of the Immunization Practices Advisory Committee (ACIP)*

## Plague Vaccine

*These revised ACIP recommendations on plague vaccine represent an update of the previous recommendations (MMWR 1978;27:255-8) to include current information and practices.*

### INTRODUCTION

Plague is a natural infection of rodents and their ectoparasites and occurs in many parts of the world, including the western United States. In this country, a few human cases develop each year following exposure to infected wild rodents or their fleas and, less commonly, to other infected wild animals (bobcats, coyotes, rabbits) and domestic animals (cats, dogs). Epidemic plague may result when domestic rat populations and their fleas become infected. Recently, the areas of the most intensive epidemic and epizootic infection have been some countries in Africa, Asia, and South America.

*Plague Vaccine — Continued*

**General Recommendations**

Because human plague is rare in most parts of the world, there is no need to vaccinate persons other than those at particularly high risk of exposure. Routine vaccination is not necessary for persons living in areas with enzootic plague such as the western United States. It is not indicated for most travelers to countries reporting cases,* particularly if their travel is limited to urban areas with modern hotel accommodations.

Many plague patients in the western United States are infected as a direct result of wild-rodent plague in the immediate vicinity of their homes. Recommended risk-reduction measures include eliminating wild-rodent harborage and food sources near homes, ridding pet dogs and cats of fleas at least weekly, and avoiding direct contact with sick or dead rodents.

In most countries of Africa, Asia, and South America where plague is reported, the risk of exposure exists primarily in rural mountainous or upland areas. Following natural disasters and at times when regular sanitary practices are interrupted, plague can extend from its usual areas of endemicity into urban centers. Rarely, pneumonic plague has been reported in conjunction with outbreaks of bubonic plague, and tourist travel to areas with reported cases of plague should be avoided.

Routine bacteriologic precautions, including the use of a biological safety cabinet to isolate procedures that may produce aerosols, are sufficient to prevent accidental infection with plague among clinical laboratory workers. Few laboratory-associated cases have ever been reported, and these almost exclusively occurred at plague research laboratories or involved unusual exposures. Vaccination of clinical laboratory workers is not indicated.

Ecologists and other field workers who might come in contact with wild animals and their ectoparasites in areas where plague has been known to occur should be made aware of the potential risks of plague and told how to minimize direct contact with potentially infective animals and their tissues or parasites. These precautionary measures are generally sufficient to prevent infection.

## PLAGUE VACCINE

Plague vaccines† have been used since the late 19th century, but their effectiveness has never been measured precisely. Field experience indicates that vaccination with plague vaccine reduces the incidence and severity of disease resulting from the bite of infected fleas. The degree of protection afforded against primary pneumonic infection is not known. Persons exposed to plague patients who have pneumonia or to *Yersinia pestis*‡ aerosols in the laboratory should be given a 7- to 10-day course of antimicrobic therapy regardless of vaccination history. Recommended antimicrobials include tetracyclines, chloramphenicol, or streptomycin.

The plague vaccine licensed for use in the United States is prepared from *Y. pestis* organisms grown in artificial media, inactivated with formaldehyde, and preserved in 0.5% phenol. The vaccine contains trace amounts of beef-heart extract, yeast extract, agar, and peptones and peptides of soya and casein.

Serum antibody to Fraction I capsular antigen, as measured by the passive hemagglutination (PHA) test, is correlated with resistance to *Y. pestis* infection in experimental animals. A comparable correlation between PHA titer and immunity probably occurs in humans.

Following the primary series of 3 injections, about 7% of individuals do not produce PHA

*For a current listing, consult the most recent issue of the World Health Organization's *Weekly Epidemiological Record*; current information is also available from the Quarantine Division, Center for Prevention Services, Centers for Disease Control, Atlanta, Georgia 30333.

†Official name: Plague Vaccine

‡The designation *Yersinia pestis* is used advisedly since there is reportedly a recommendation by the International Committee on Systematic Bacteriology to reclassify this organism as *Yersinia pseudotuberculosis* ssp. *pestis* (WHO. Weekly Epidemiological Record 1981;56:399).

*Plague Vaccine – Continued*

antibody, and a few fail to develop a titer of 128, the level correlated with immunity in experimental animals. PHA titers should be determined for individuals who have an unusually high risk of infection or who have a history of serious reactions to the vaccine in order to govern the frequency of booster doses. Such testing can be arranged through state health departments. Since plague vaccination may only ameliorate illness, whenever a vaccinated person has a definite exposure, prophylactic antibiotics may be indicated whether or not an antibody response has been demonstrated.

**Vaccine Recipients**

Vaccination is recommended for:

1) All laboratory and field personnel who are working with *Y. pestis* organisms resistant to antimicrobics, 2) Persons engaged in aerosol experiments with *Y. pestis* and 3) Persons engaged in field operations in areas with enzootic plague where preventing exposure is not possible (such as some disaster areas).

Selective plague vaccination should be considered for:

1) Laboratory personnel regularly working with *Y. pestis* or plague-infected rodents, 2) Workers (for example, Peace Corps volunteers and agricultural advisors) who reside in rural areas with enzootic or epidemic plague where avoidance of rodents and fleas is impossible, and 3) Persons whose vocation brings them into regular contact with wild rodents or rabbits in areas with enzootic plague.

**Primary Vaccination**

All injections should be given intramuscularly.

**Adults and children ≥11 years old:** The primary series consists of 3 doses of vaccine. The first dose, 1.0 ml, is followed by the second dose, 0.2 ml, 4 weeks later. The third dose, 0.2 ml, is administered 6 months after the first dose. If an accelerated schedule is essential, 3 doses of 0.5 ml each, administered at least 1 week apart, may be given. The efficacy of this schedule has not been determined.

**Children ≥10 years old:** The primary series is also 3 doses of vaccine, but the doses are smaller (Table 1). The intervals between injections are the same as for adults.

**Booster Doses**

When needed because of continuing exposure, 3 booster doses should be given at approximately 6-month intervals. Thereafter, antibody levels decline slowly and booster doses at 1- to 2-year intervals, depending on the degree of continuing exposure, should provide good protection.

The recommended booster dosages for children and adults are the same as the second and third doses in the primary series. However, if serious side effects to the vaccine occur, their severity may be reduced by using half the usual dose. The primary series need never be repeated for booster doses to be effective (Table 2).

## SIDE EFFECTS OF VACCINE

Primary vaccination may result in general malaise, headache, fever, mild lymphadenopathy, and erythema and induration at the injection site in about 10% of recipients. These reactions occur more commonly with repeated injections. Sterile abscesses occur rarely. Rare cases of sensitivity reactions manifested by urticarial and asthmatic phenomena have been reported.

## PRECAUTIONS AND CONTRAINDICATIONS

Plague vaccine should not be administered to anyone with a known hypersensitivity to any of the constituents, such as beef protein, soya, casein, and phenol. Patients who have had severe local or systemic reactions to plague vaccine should not be revaccinated.

The safety or efficacy of vaccination with plague vaccine during pregnancy has not been determined, and therefore it should not be used unless there is a substantial risk of infection.

*Plague Vaccine — Continued*

**TABLE 2. Plague vaccine doses (in milliliters), by age group (in years), for primary and booster vaccinations***

| Dose number | <1 | 1-4 | 5-10 | >11 |
|---|---|---|---|---|
| 1 | 0.2 | 0.4 | 0.6 | 1.0 |
| 2 & 3 | 0.04 | 0.08 | 0.12 | 0.2 |
| Boosters† | 0.02-0.04 | 0.04-0.08 | 0.06-0.12 | 0.1-0.2 |

*Important details are in the text.
†Smaller dose volume may be used if severe side effects are expected.

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## *International Notes*

### Poliomyelitis — Jamaica

An outbreak of poliomyelitis has been reported to the Pan American Health Organization by the Ministry of Health, Jamaica, occurring in the Cornwall Region. A total of 35 suspected cases and 1 death have been identified to date. All cases have been reported from a single referral hospital in Montego Bay, St. James Parish. Age data were available for 27 of the 35 patients. The age range for these 27 patients is 8 months to 24 years. Twenty-three of the 27 cases involved persons <7 years of age. Poliovirus Type I has been isolated from 8 of these cases. Epidemiologic investigation and large scale control efforts are underway, including mass vaccination beginning with the school-age population.

*Reported by Pan American Health Organization; Viral Diseases Div, Center for Infectious Diseases, Immunization Div, Center for Prevention Svcs, CDC.*

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