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*Epidemiologic Notes and Reports*

## Outbreak of Hepatitis C Associated with Intravenous Immunoglobulin Administration — United States, October 1993–June 1994

On February 21, 1994, the Food and Drug Administration (FDA) was notified of 14 possible cases from three different countries of acute hepatitis C among persons who had received Gammagard®*, an intravenous immunoglobulin (IGIV) product manufactured by Baxter Healthcare Corporation (Glendale, California). The company removed Gammagard® from the worldwide market on February 23, 1994. The American Red Cross removed Polygam® (IGIV manufactured by Baxter Healthcare from American Red Cross plasma) from the market on the same date. This report presents preliminary findings of an evaluation of transmission of hepatitis C virus (HCV) infection from these products and guidelines for monitoring patients who may have received them.†

As of July 19, 1994, CDC had received 112 reports from 24 states and Puerto Rico of possible cases of acute HCV infection in recipients of IGIV; 111 were in persons who received Gammagard®, and one was in a person who received Polygam®. Medical and epidemiologic information and serum samples for HCV serologic testing are being collected from each person. The dates of onset (defined by occurrence of symptoms or first abnormal alanine aminotransferase [ALT] value) for suspected cases were from October 1993 through June 1994 (Figure 1). Of 74 reported persons with possible HCV infection for whom risk factor data (e.g., blood transfusion or injecting-drug use) were available, 68 (92%) had receipt of IGIV as the only risk factor for infection.

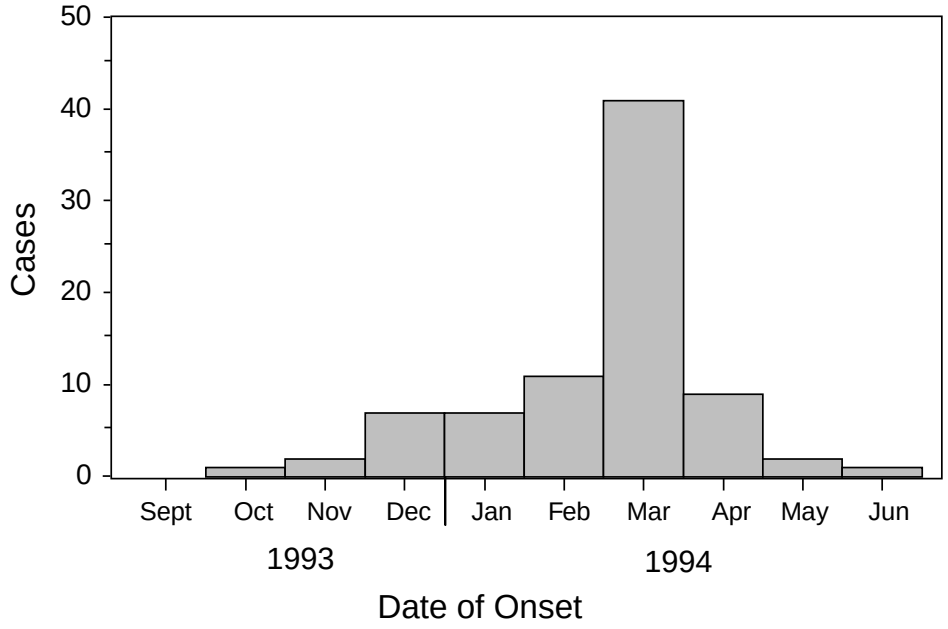
The median age of persons with reported cases was 37 years (range: 2–84 years); 52% were female, and 63% received IGIV for treatment of a primary immuno-

*Use of trade names and commercial sources is for identification only and does not imply endorsement by the Public Health Service or the U.S. Department of Health and Human Services.

†Copies of this report and the Public Health Service recommendations for medical evaluation and counseling of patients with hepatitis C (*1*) are available from CDC's Hepatitis Branch, Division of Viral and Rickettsial Diseases, National Center for Infectious Diseases, Mailstop G-37, 1600 Clifton Road, NE, Atlanta, GA 30333; or from CDC's Voice Information System, telephone (404) 332-2553.

*Hepatitis C — Continued*

**FIGURE 1. Possible cases* of hepatitis C virus infection reported among persons receiving Gammagard® or Polygam® — United States, October 1993–June 1994**




*Of 112 reported possible cases, the date of illness onset or date of first abnormal alanine aminotransferase level was available for 81 cases.

deficiency disorder (e.g., hypogammaglobulinemia). Of 62 persons tested at CDC for serologic markers of viral hepatitis, 42 (68%) were positive for antibody to HCV (anti-HCV), and none were positive for serologic markers of acute hepatitis A or hepatitis B virus infection. Anti-HCV was detected in 20 (53%) of 38 patients with a diagnosis of primary immunodeficiency and in 21 (95%) of 22 patients with other diagnoses. In blinded testing of serum specimens from 36 persons with suspected cases, none were positive for antibody to human immunodeficiency virus (HIV)-1 or HIV-2.

To assess the risk for HCV infection among persons who received IGIV and to identify risk factors for infection, a cohort study among persons exposed to different IGIV products at one hospital and a case-control study of persons from throughout the United States have been initiated. Lot-specific denominator data needed to complete these analyses are not yet available from the manufacturer. Preliminary analysis of the cohort study found 16 (7%) cases of HCV infection among 245 recipients of Gammagard® (three persons with HCV infection had also received other IGIV products within 6 months of onset). However, no cases of HCV infection were found among 55 recipients who had received only other IGIV products ($p<0.05$, two-tailed Fisher exact test). Additional laboratory testing for HCV will be performed on serum samples from infected persons and on samples of implicated and nonimplicated lots of IGIV. Other cohort studies will examine any association between HCV infection and receipt of other IGIV products or intramuscular immune globulin (IGIM). In one of these studies

*Hepatitis C — Continued*

involving persons who received IGIM in 1993, no anti-HCV seroconversions were found among 513 persons tested at least 6 months after IGIM administration (95% confidence interval=0–0.7%).

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**Editorial Note:** The temporal association of acute hepatitis C with Gammagard® administration and the absence of other risk factors among these patients indicate that HCV was most likely transmitted by administration of Gammagard®. The report of one possible case in a person who received only Polygam® and had no other risk factors suggests that Polygam® also may be associated with transmission of HCV. Preliminary analysis of data from epidemiologic studies suggests that HCV transmission is not related to the administration of other IGIV products or IGIM, and there is no need for change in the use of these products.

Since the 1940s, immune globulin products licensed in the United States have been safely administered; these products previously have not been known to be associated with the transmission of bloodborne agents, including HIV. Cases of non-A, non-B hepatitis (of which HCV is the primary etiologic agent) have been previously associated with an unlicensed IGIV product used in a clinical trial in the United States and with IGIV products manufactured and distributed abroad; however, reasons for these episodes of transmission (*2*) and the episodes described in this report have not been determined. Since mid-May 1994, the approved manufacturing process for both Gammagard® and Polygam® includes a solvent-detergent treatment designed to inactivate contaminating viruses. Products manufactured with this treatment should not pose a risk for HCV transmission to recipients.

Chronic hepatitis develops in more than 60% of persons infected with HCV (*3*). All patients who received Gammagard® or Polygam® since April 1, 1993 (6 months before the first reported case), should be screened for evidence of HCV infection and the results interpreted according to the algorithm established by the Public Health Service (PHS) (Table 1). Initial screening of these patients should include a test for ALT activity and an FDA-licensed enzyme immunoassay (EIA) for anti-HCV. All specimens repeatedly (two or more times) reactive for anti-HCV should be tested using an FDA-licensed supplemental anti-HCV assay to reduce the likelihood of false-positive EIA results.

Because some patients will have a prolonged interval between exposure and seroconversion to anti-HCV, patients who are anti-HCV–negative but have abnormal ALT levels should be retested for anti-HCV 3–6 months later. In most patients with normal immune status, seroconversion occurs within 6 months after infection (*3,4*). However, approximately 10% of HCV-infected patients with normal immune status will be persistently negative for anti-HCV, even after prolonged follow-up (*3*). Persons with immunodeficiency disorders may be less likely to seroconvert or may have longer intervals between infection and seroconversion than persons with normal immune function.

*Hepatitis C — Continued*

**TABLE 1. Algorithm for screening and management of patients who received Gammagard®* or Polygam®* since April 1, 1993**

| Screening results | | | |
|---|---|---|---|
| **ALT†** | **Anti-HCV§** | **Interpretation** | **Patient management** |
| Abnormal | Positive¶ | Hepatitis C | Serial ALTs—if abnormal for ≥6 months, refer for evaluation of chronic liver disease. |
| Abnormal | Negative** | Possible hepatitis C | Consider other liver diagnoses; repeat anti-HCV in 3–6 months; serial ALTs—if abnormal for ≥6 months, refer for evaluation of chronic liver disease. |
| Normal | Positive¶ | Possible hepatitis C | Serial ALTs—if becomes abnormal and remains abnormal for ≥6 months, refer for evaluation of chronic liver disease. |
| Normal | Negative** | No evidence of hepatitis C | No further testing. |

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†Alanine aminotransferase.
§Antibody to hepatitis C virus.
¶Repeatedly (two or more times) reactive by enzyme immunoassay and positive by supplemental anti-HCV testing.
**Nonreactive by enzyme immunoassay or negative by supplemental anti-HCV testing.

For anti-HCV–negative persons with elevated ALT levels, the diagnosis of hepatitis C is possible with the use of polymerase chain reaction (PCR) for the detection of HCV RNA. However, PCR assays, which are difficult and expensive to perform, should be done only by experienced laboratories using specimens that have been properly collected, stored, and handled. These assays are not licensed by FDA.

Patients aged ≥18 years with chronic hepatitis C (abnormal ALT levels for more than 6 months) should be evaluated for possible therapy with alpha interferon by a physician experienced in its use (*5*). Patients should be informed that the proportion of adults with chronic hepatitis C who sustain a long-term response to alpha interferon is low (approximately 20%). Although FDA has not licensed alpha interferon for patients aged <18 years, they can be considered for therapy if entered into an approved study protocol.

All patients with hepatitis C should be considered potentially infectious. However, because of limited data on the risk of household, sexual, and perinatal transmission and because testing cannot determine infectivity, PHS does not recommend substantial changes in behavior based on knowledge of infection status (*1*). PHS recommends that household articles such as toothbrushes and razors that could become contaminated with blood should not be shared, and cuts or skin lesions should be covered to prevent the spread of infectious secretions or blood (*1*). HCV transmission by sexual contact appears to occur, but this route of transmission is much less efficient than that for other bloodborne sexually transmitted diseases (*3*). Although anti-HCV–positive persons should be informed of the potential for sexual transmis-

*Hepatitis C — Continued*

sion, there are insufficient data to recommend changes in current sex practices for persons with one steady sex partner. To prevent many sexually transmitted diseases, including hepatitis and HIV infection, persons with multiple partners should follow safer sexual practices, including reducing the number of sex partners and using barriers (e.g., latex condoms) to prevent contact with body fluids. No evidence supports advising against pregnancy based on anti-HCV status or using any special treatments or precautions for pregnant women or their offspring.

*References*

1. CDC. Public Health Service inter-agency guidelines for screening donors of blood, plasma, organs, tissues, and semen for evidence of hepatitis B and hepatitis C. MMWR 1991;40(no. RR-4):6–17.
2. Lever AML, Webster ADB, Brown D, Thomas HC. Non-A, non-B hepatitis occurring in agammaglobulinaemic patients after intravenous immunoglobulin. Lancet 1984;2:1062–4.
3. Alter MJ. The detection, transmission, and outcome of hepatitis C virus infection. Infectious Agents and Disease 1993;2:155–66.
4. Vallari DS, Jett BW, Alter HJ, Mimms LT, Holzman R, Shih JW. Serological markers of post-transfusion hepatitis C viral infection. J Clin Microbiol 1992;30:552–6.
5. Hoofnagle JH. Therapy of acute and chronic viral hepatitis. Adv Intern Med 1994;39:241–75.

## *Health Objectives for the Nation*

### Adults Taking Action to Control Their Blood Pressure — United States, 1990

Approximately 50 million persons in the United States have high blood pressure (*1*). Despite substantial increases in the awareness and treatment of hypertension, 79% of persons with hypertension do not have their blood pressure under control (*1*). A national health objective for the year 2000 is to increase to at least 90% the proportion of persons with hypertension who are "taking action" to help control their blood pressure (objective 15.5) (*2*). This report summarizes data from CDC's National Health Interview Survey (NHIS) on the proportion of persons with hypertension who are taking action to control their blood pressure and on factors associated with taking action.

In 1990, the NHIS Health Promotion and Disease Prevention Supplement included 36,610 respondents aged ≥18 years. This survey included 8697 persons who reported having been told by a physician that they had high blood pressure. Persons were asked whether a physician had advised them to take antihypertensive medication, limit their intake of dietary salt, reduce weight, and/or exercise to control their blood pressure. They were asked whether they were currently following any of these recommendations; persons who answered "yes" were defined as taking action to control their blood pressure. The results were statistically weighted for national representation. SESUDAAN (*3*) and RTILOGIT (*4*) were used to calculate standard errors for the prevalence estimates and odds ratios.

Of the 8697 respondents with hypertension, 7714 (89%) reported receiving some type of advice from a physician to control blood pressure (Table 1). The most commonly received advice was using antihypertensive medication (73%) and limiting salt intake (68%). Less than half of the respondents reported receiving advice to exercise (48%) or lose weight (46%).

*Hypertension — Continued*

**TABLE 1. Percentage of adults with hypertension advised and taking action to control blood pressure — United States, National Health Interview Survey, 1990**

| Physician recommendation | Advised | | Taking action | | Compliance* |
|---|---|---|---|---|---|
| | No. | (%) | No. | (%) | (%) |
| Antihypertensive medication | 6349 | (73.0) | 4862 | (55.9) | (76.6) |
| Decrease salt intake | 5905 | (67.9) | 5270 | (60.6) | (89.2) |
| Decrease weight | 3966 | (45.6) | 2670 | (30.7) | (67.3) |
| Exercise | 4166 | (47.9) | 2853 | (32.8) | (68.5) |
| Any† | 7714 | (88.7) | 6958 | (80.0) | (90.2) |

*The number of persons who are currently taking action divided by the total number of persons advised to take action, multiplied by 100.
†Defined as antihypertensive medication, decrease salt intake, decrease weight, or exercise.

Overall, 80% of persons with hypertension reported currently taking at least one action to control their blood pressure (Table 1). Most frequently reported actions were limiting salt intake (61%) and taking antihypertensive medication (56%); one third (33%) reported engaging in exercise.

Almost all respondents (90%) who were advised to take some form of action reported complying with at least one recommendation. Compliance with specific advice ranged from decreasing weight (67%) to limiting salt intake (89%).

Persons aged ≥65 years were five times more likely than persons aged 18–34 years to report having taken action (Table 2). Among men aged 18–34 years, 55% of blacks and 51% of whites reported taking some action to control blood pressure. As the length of time since a respondent's last visit to a physician increased, the likelihood of taking action decreased. Persons who had not visited a physician within the preceding 2 years were 60% less likely to take action than persons who had visited a physician within the preceding year. Persons who reported their health status as good, fair, or poor were substantially more likely to take action than were persons who reported their health status as excellent.

*Reported by: Cardiovascular Health Studies Br, Div of Chronic Disease Control and Community Intervention, National Center for Chronic Disease Prevention and Health Promotion, CDC.*

**Editorial Note:** Persons with hypertension are at increased risk for coronary artery disease, congestive heart failure, transient ischemic attacks, stroke, renal failure, and retinopathy (*1*). The findings in this report indicate that the proportion of persons taking action to control their blood pressure is lower than the national health objective.

Specific national health objectives have been established to narrow the disparities in health between the total population and certain groups at increased risk for disease, disability, and death. One health objective for the year 2000 is to increase to at least 80% the proportion of young (aged 18–34 years) white and black men* with hypertension who are taking action to control their blood pressure (objectives 15.5a and 15.5b) (*2*). The findings in this report indicate that substantial progress will be needed to achieve this objective. Health-care providers may have to make special efforts to convince younger adults of the importance of controlling hypertension. Findings from this

*Objectives for this subpopulation of young men were established only for whites and blacks because data were not available for other racial/ethnic groups.

*Hypertension — Continued*

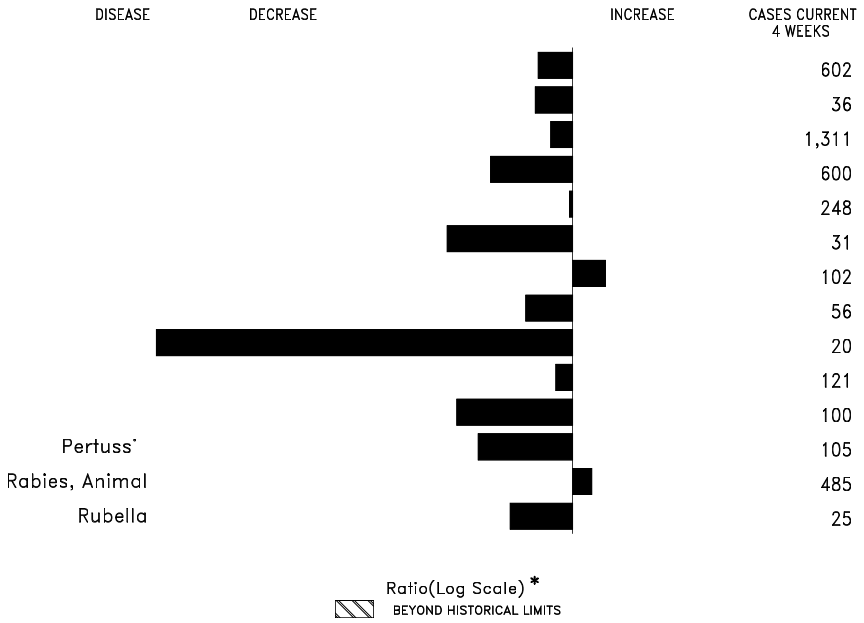
**TABLE 2. Factors associated with taking action* to control blood pressure — United States, National Health Interview Survey, 1990**

| Category | Sample size | Prevalence | OR† | 95% CI§ |
|---|---|---|---|---|
| **Age group (yrs)** | | | | |
| 18–34 | 1127 | 56.0% | 1.0 | Referent |
| 35–49 | 1848 | 72.6% | 1.8 | (1.5–2.2) |
| 50–64 | 2363 | 86.4% | 3.9 | (3.2–4.8) |
| ≥65 | 3359 | 89.7% | 5.0 | (4.1–6.1) |
| **Sex** | | | | |
| Women | 5179 | 83.2% | 1.0 | Referent |
| Men | 3518 | 76.5% | 0.9 | (0.8–1.0) |
| **Race¶** | | | | |
| White | 7030 | 79.6% | 1.0 | Referent |
| Black | 1667 | 82.5% | 1.4 | (1.2–1.7) |
| **Education (yrs)** | | | | |
| <12 | 2673 | 83.7% | 1.0 | Referent |
| 12 | 3258 | 79.6% | 1.1 | (0.9–1.4) |
| >12 | 2766 | 77.3% | 1.1 | (0.9–1.4) |
| **Region**** | | | | |
| Northeast | 1744 | 82.2% | 1.0 | Referent |
| Midwest | 2375 | 78.6% | 0.8 | (0.7–1.0) |
| South | 3141 | 80.0% | 0.9 | (0.7–1.0) |
| West | 1437 | 79.5% | 0.9 | (0.7–1.2) |
| **Have regular source of medical care** | | | | |
| No | 904 | 68.4% | 1.0 | Referent |
| Yes | 7793 | 82.7% | 1.9 | (1.5–2.3) |
| **Last physician visit (yrs)** | | | | |
| <1 | 7713 | 83.0% | 1.0 | Referent |
| 1–2 | 441 | 66.3% | 0.6 | (0.5–0.8) |
| >2 | 543 | 54.2% | 0.4 | (0.3–0.5) |
| **Self-reported health status** | | | | |
| Excellent | 1601 | 68.3% | 1.0 | Referent |
| Very good | 2199 | 77.2% | 1.3 | (1.1–1.5) |
| Good | 2789 | 84.1% | 1.8 | (1.4–2.1) |
| Fair | 1460 | 86.2% | 1.7 | (1.4–2.2) |
| Poor | 648 | 89.4% | 2.1 | (1.5–3.0) |
| **Total** | **8697** | **80.0%** | — | — |

*Action is defined as currently taking antihypertensive medication, limiting salt intake, reducing weight, and/or exercising as a means to control blood pressure.
†Odds ratio. Model is adjusted for age, sex, race, education, region, regular source of medical care, last physician visit, and self-reported health status.
§Confidence interval.
¶Numbers for other racial/ethnic groups were too small for meaningful analysis.
**Northeast=Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont; Midwest=Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin; South=Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia; West=Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

*(Continued on page 517)*

**FIGURE I. Notifiable disease reports, comparison of 4-week totals ending July 16, 1994, with historical data — United States**




*Ratio of current 4-week total to mean of 15 4-week totals (from previous, comparable, and subsequent 4-week periods for the past 5 years). The point where the hatched area begins is based on the mean and two standard deviations of these 4-week totals.

**TABLE I. Summary — cases of specified notifiable diseases, United States, cumulative, week ending July 16, 1994 (28th Week)**

| | Cum. 1994 | | Cum. 1994 |
|---|---|---|---|
| AIDS* | 37,529 | Measles: imported | 143 |
| Anthrax | - | indigenous | 581 |
| Botulism: Foodborne | 35 | Plague | 7 |
| Infant | 39 | Poliomyelitis, Paralytic[§] | - |
| Other | 7 | Psittacosis | 20 |
| Brucellosis | 46 | Rabies, human | - |
| Cholera | 9 | Syphilis, primary & secondary | 11,503 |
| Congenital rubella syndrome | 3 | Syphilis, congenital, age < 1 year | - |
| Diphtheria | - | Tetanus | 19 |
| Encephalitis, post-infectious | 62 | Toxic shock syndrome | 114 |
| Gonorrhea | 198,054 | Trichinosis | 26 |
| *Haemophilus influenzae* (invasive disease)[†] | 644 | Tuberculosis | 11,207 |
| Hansen Disease | 56 | Tularemia | 33 |
| Leptospirosis | 14 | Typhoid fever | 197 |
| Lyme Disease | 3,038 | Typhus fever, tickborne (RMSF) | 161 |

*Updated monthly; last update June 28, 1994.
[†]Of 604 cases of known age, 169 (28%) were reported among children less than 5 years of age.
[§]No cases of suspected poliomyelitis have been reported in 1994; 3 cases of suspected poliomyelitis have been reported in 1993; 4 of the 5 suspected cases with onset in 1992 were confirmed; the confirmed cases were vaccine associated.

## TABLE II. Cases of selected notifiable diseases, United States, weeks ending July 16, 1994, and July 17, 1993 (28th Week)

| Reporting Area | AIDS* | Aseptic Meningitis | Encephalitis | | Gonorrhea | | Hepatitis (Viral), by type | | | | Legionellosis | Lyme Disease |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Primary | Post-infectious | | | A | B | NA,NB | Unspecified | | |
| | Cum. 1994 | Cum. 1994 | Cum. 1994 | Cum. 1994 | Cum. 1994 | Cum. 1993 | Cum. 1994 | Cum. 1994 | Cum. 1994 | Cum. 1994 | Cum. 1994 | Cum. 1994 |
| UNITED STATES | 37,529 | 3,190 | 295 | 62 | 198,054 | 210,307 | 10,920 | 5,982 | 2,292 | 241 | 788 | 3,038 |
| NEW ENGLAND | 1,590 | 103 | 9 | 4 | 4,260 | 3,774 | 166 | 196 | 77 | 15 | 20 | 826 |
| Maine | 49 | 14 | 1 | - | 49 | 44 | 16 | 9 | - | - | - | 2 |
| N.H. | 32 | 8 | - | 2 | 48 | 33 | 8 | 18 | 6 | - | - | 11 |
| Vt. | 21 | 9 | - | - | 14 | 14 | 2 | - | - | - | - | 2 |
| Mass. | 812 | 36 | 6 | 1 | 1,564 | 1,547 | 71 | 143 | 59 | 14 | 14 | 104 |
| R.I. | 122 | 36 | 2 | 1 | 248 | 202 | 14 | 5 | 12 | 1 | 6 | 107 |
| Conn. | 554 | - | - | - | 2,337 | 1,934 | 55 | 21 | - | - | - | 600 |
| MID. ATLANTIC | 8,992 | 225 | 25 | 8 | 21,385 | 24,217 | 630 | 589 | 264 | 4 | 111 | 1,680 |
| Upstate N.Y. | 1,052 | 113 | 14 | 1 | 5,156 | 4,461 | 321 | 224 | 128 | 2 | 27 | 1,067 |
| N.Y. City | 4,639 | 20 | 1 | - | 6,997 | 7,880 | 79 | 45 | - | - | - | 3 |
| N.J. | 2,357 | - | - | - | 2,637 | 3,041 | 160 | 201 | 112 | - | 15 | 326 |
| Pa. | 944 | 92 | 10 | 7 | 6,595 | 8,835 | 70 | 119 | 24 | 2 | 69 | 284 |
| E.N. CENTRAL | 3,249 | 469 | 75 | 13 | 38,811 | 42,399 | 1,061 | 640 | 181 | 5 | 228 | 43 |
| Ohio | 580 | 117 | 20 | 1 | 12,748 | 11,255 | 384 | 98 | 13 | - | 106 | 29 |
| Ind. | 360 | 76 | 2 | 1 | 4,450 | 4,291 | 200 | 109 | 7 | - | 58 | 6 |
| Ill. | 1,602 | 85 | 27 | 4 | 9,277 | 14,661 | 249 | 123 | 36 | 2 | 10 | 3 |
| Mich. | 527 | 184 | 22 | 7 | 9,032 | 8,832 | 138 | 213 | 122 | 3 | 38 | 5 |
| Wis. | 180 | 7 | 4 | - | 3,304 | 3,360 | 90 | 97 | 3 | - | 16 | - |
| W.N. CENTRAL | 830 | 176 | 16 | 3 | 10,161 | 11,472 | 534 | 336 | 97 | 7 | 78 | 50 |
| Minn. | 213 | 15 | 2 | - | 1,679 | 1,231 | 111 | 39 | 12 | 1 | 1 | 9 |
| Iowa | 29 | 50 | - | - | 749 | 883 | 28 | 16 | 7 | 5 | 22 | 2 |
| Mo. | 363 | 65 | 5 | 2 | 5,827 | 6,751 | 229 | 245 | 62 | 1 | 38 | 28 |
| N. Dak. | 18 | 1 | 2 | - | 18 | 27 | 1 | - | - | - | 4 | - |
| S. Dak. | 9 | - | 2 | - | 102 | 151 | 17 | - | - | - | - | - |
| Nebr. | 48 | 6 | 3 | 1 | - | 484 | 77 | 18 | 5 | - | 11 | 8 |
| Kans. | 150 | 39 | 2 | - | 1,786 | 1,945 | 71 | 18 | 11 | - | 2 | 3 |
| S. ATLANTIC | 8,992 | 744 | 58 | 23 | 54,586 | 55,081 | 742 | 1,403 | 372 | 22 | 194 | 319 |
| Del. | 122 | 14 | - | - | 815 | 743 | 11 | 4 | 1 | - | - | 6 |
| Md. | 1,079 | 94 | 13 | 2 | 9,853 | 8,424 | 101 | 183 | 20 | 5 | 55 | 143 |
| D.C. | 763 | 20 | - | 1 | 3,909 | 2,672 | 15 | 30 | - | - | 8 | 2 |
| Va. | 656 | 97 | 14 | 5 | 6,887 | 6,327 | 78 | 63 | 18 | 2 | 5 | 41 |
| W. Va. | 23 | 10 | 1 | - | 387 | 317 | 6 | 21 | 20 | - | 1 | 9 |
| N.C. | 663 | 110 | 29 | 1 | 13,428 | 13,531 | 67 | 157 | 36 | - | 12 | 43 |
| S.C. | 612 | 17 | - | - | 6,704 | 5,498 | 25 | 22 | 3 | - | 9 | 5 |
| Ga. | 1,056 | 32 | 1 | - | - | 4,660 | 23 | 498 | 148 | - | 73 | 63 |
| Fla. | 4,018 | 350 | - | 14 | 12,603 | 12,909 | 416 | 425 | 126 | 15 | 31 | 7 |
| E.S. CENTRAL | 1,031 | 217 | 22 | 1 | 23,544 | 23,806 | 263 | 582 | 430 | 2 | 37 | 20 |
| Ky. | 161 | 71 | 9 | 1 | 2,479 | 2,440 | 96 | 47 | 13 | - | 5 | 10 |
| Tenn. | 315 | 34 | 9 | - | 7,174 | 7,198 | 99 | 495 | 409 | 1 | 20 | 7 |
| Ala. | 315 | 89 | 4 | - | 8,362 | 8,740 | 45 | 40 | 8 | 1 | 9 | 3 |
| Miss. | 240 | 23 | - | - | 5,529 | 5,428 | 23 | - | - | - | 3 | - |
| W.S. CENTRAL | 3,972 | 363 | 21 | 1 | 24,836 | 23,357 | 1,559 | 699 | 275 | 49 | 24 | 53 |
| Ark. | 134 | 24 | - | - | 3,785 | 3,256 | 36 | 14 | 4 | 1 | 5 | 3 |
| La. | 614 | 16 | 3 | - | 6,674 | 6,446 | 77 | 103 | 77 | 1 | 6 | - |
| Okla. | 156 | - | - | - | 1,969 | 2,464 | 135 | 168 | 161 | 1 | 9 | 26 |
| Tex. | 3,068 | 323 | 18 | 1 | 12,408 | 11,191 | 1,311 | 414 | 33 | 46 | 4 | 24 |
| MOUNTAIN | 1,242 | 97 | 6 | 3 | 4,683 | 5,954 | 2,164 | 308 | 229 | 32 | 53 | 5 |
| Mont. | 15 | - | - | - | 44 | 31 | 15 | 17 | 5 | - | 14 | - |
| Idaho | 30 | 3 | - | - | 44 | 109 | 184 | 54 | 54 | 1 | 1 | 1 |
| Wyo. | 12 | 2 | 1 | 2 | 38 | 51 | 14 | 14 | 79 | - | 3 | 1 |
| Colo. | 472 | 29 | 1 | - | 1,520 | 2,008 | 216 | 20 | 21 | 10 | 9 | - |
| N. Mex. | 92 | 6 | - | - | 523 | 496 | 630 | 116 | 36 | 8 | 2 | 3 |
| Ariz. | 349 | 34 | - | - | 1,746 | 2,194 | 730 | 21 | 8 | 8 | 3 | - |
| Utah | 69 | 9 | - | 1 | 156 | 71 | 243 | 36 | 16 | 1 | 7 | - |
| Nev. | 203 | 14 | 4 | - | 612 | 994 | 132 | 30 | 10 | 4 | 14 | - |
| PACIFIC | 7,631 | 796 | 63 | 6 | 15,788 | 20,247 | 3,801 | 1,229 | 367 | 105 | 43 | 42 |
| Wash. | 489 | - | - | - | 1,480 | 2,046 | 194 | 39 | 38 | 1 | 5 | - |
| Oreg. | 324 | - | - | - | 486 | 705 | 212 | 25 | 6 | 1 | - | - |
| Calif. | 6,697 | 710 | 62 | 5 | 12,988 | 16,898 | 3,237 | 1,135 | 318 | 101 | 35 | 42 |
| Alaska | 26 | 13 | 1 | - | 452 | 278 | 124 | 7 | - | - | - | - |
| Hawaii | 95 | 73 | - | 1 | 382 | 320 | 34 | 23 | 5 | 2 | 3 | - |
| Guam | 1 | 7 | - | - | 67 | 63 | 12 | - | - | 4 | 2 | - |
| P.R. | 1,012 | 21 | - | 3 | 272 | 270 | 38 | 192 | 82 | 6 | - | - |
| V.I. | 12 | - | - | - | 11 | 63 | - | 1 | - | - | - | - |
| Amer. Samoa | - | - | - | - | 18 | 30 | 4 | - | - | - | - | - |
| C.N.M.I. | - | - | - | - | 23 | 47 | 3 | - | - | - | - | - |

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

*Updated monthly; last update June 28, 1994.

## TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending July 16, 1994, and July 17, 1993 (28th Week)

| Reporting Area | Malaria | Measles (Rubeola) | | | | | Menin-gococcal Infections | Mumps | | Pertussis | | | Rubella | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Indigenous | | Imported* | | Total | | | | | | | | | |
| | Cum. 1994 | 1994 | Cum. 1994 | 1994 | Cum. 1994 | Cum. 1993 | Cum. 1994 | 1994 | Cum. 1994 | 1994 | Cum. 1994 | Cum. 1993 | 1994 | Cum. 1994 | Cum. 1993 |
| UNITED STATES | 465 | 2 | 581 | 1 | 143 | 208 | 1,601 | 24 | 793 | 27 | 1,576 | 1,890 | 5 | 203 | 136 |
| NEW ENGLAND | 33 | - | 12 | - | 10 | 57 | 79 | - | 14 | - | 163 | 367 | 3 | 125 | 1 |
| Maine | 2 | - | 1 | - | 3 | - | 13 | - | 3 | - | 2 | 6 | - | - | 1 |
| N.H. | 3 | - | 1 | - | - | - | 6 | - | 4 | - | 38 | 101 | - | - | - |
| Vt. | 1 | - | 1 | - | 1 | 31 | 2 | - | - | - | 27 | 45 | - | - | - |
| Mass. | 13 | - | 2 | - | 4 | 16 | 31 | - | - | - | 75 | 175 | 2 | 122 | - |
| R.I. | 5 | - | 4 | - | 2 | 1 | - | - | 1 | - | 4 | 4 | 1 | 2 | - |
| Conn. | 9 | - | 3 | - | - | 9 | 27 | - | 6 | - | 17 | 36 | - | 1 | - |
| MID. ATLANTIC | 65 | - | 165 | 1 | 22 | 13 | 152 | 1 | 68 | 6 | 316 | 244 | - | 11 | 44 |
| Upstate N.Y. | 25 | - | 25 | - | 3 | 1 | 58 | - | 18 | 1 | 123 | 87 | - | 8 | 11 |
| N.Y. City | 11 | - | 14 | - | 2 | 4 | 10 | - | 5 | - | 65 | 21 | - | 1 | 16 |
| N.J. | 17 | - | 122 | - | 14 | 8 | 37 | - | 6 | - | 8 | 42 | - | 2 | 9 |
| Pa. | 12 | - | 4 | 1 | 3 | - | 47 | 1 | 39 | 5 | 120 | 94 | - | - | 8 |
| E.N. CENTRAL | 49 | - | 58 | - | 40 | 15 | 247 | 1 | 133 | 5 | 232 | 428 | - | 11 | 3 |
| Ohio | 7 | - | 15 | - | - | 6 | 71 | - | 41 | 2 | 80 | 115 | - | - | 1 |
| Ind. | 11 | - | - | - | 1 | - | 43 | - | 6 | 3 | 40 | 33 | - | - | 1 |
| Ill. | 16 | - | 17 | - | 38 | 9 | 85 | - | 51 | - | 45 | 108 | - | 3 | - |
| Mich. | 13 | - | 23 | - | 1 | - | 30 | 1 | 31 | - | 22 | 19 | - | 8 | - |
| Wis. | 2 | - | 3 | - | - | - | 18 | - | 4 | - | 45 | 153 | - | - | 1 |
| W.N. CENTRAL | 24 | - | 116 | - | 42 | 3 | 114 | 1 | 38 | - | 79 | 116 | - | 2 | 1 |
| Minn. | 7 | - | - | - | - | - | 9 | - | 4 | - | 39 | 51 | - | - | - |
| Iowa | 4 | - | 6 | - | 1 | - | 13 | - | 10 | - | 6 | 1 | - | - | - |
| Mo. | 10 | - | 108 | - | 40 | 1 | 56 | 1 | 20 | - | 19 | 42 | - | 2 | 1 |
| N. Dak. | 1 | - | - | - | - | - | 1 | - | 2 | - | 3 | 3 | - | - | - |
| S. Dak. | - | - | - | - | - | - | 7 | - | - | - | - | 2 | - | - | - |
| Nebr. | 1 | - | 1 | - | 1 | - | 8 | - | 2 | - | 5 | 6 | - | - | - |
| Kans. | 1 | - | 1 | - | - | 2 | 20 | - | - | - | 7 | 11 | - | - | - |
| S. ATLANTIC | 100 | - | 7 | - | 2 | 22 | 276 | 3 | 119 | 5 | 179 | 168 | - | 9 | 6 |
| Del. | 3 | - | - | - | - | - | 4 | - | - | - | - | 3 | - | - | - |
| Md. | 47 | - | 1 | - | 1 | 4 | 22 | - | 35 | - | 56 | 63 | - | - | 2 |
| D.C. | 8 | - | - | - | - | - | 2 | - | - | - | 4 | 2 | - | - | - |
| Va. | 11 | - | 1 | - | 1 | 1 | 46 | 1 | 27 | - | 17 | 17 | - | - | - |
| W. Va. | - | - | - | - | - | - | 10 | - | 3 | - | 2 | 4 | - | - | - |
| N.C. | 2 | - | - | - | - | - | 41 | - | 26 | - | 44 | 25 | - | - | - |
| S.C. | 2 | - | - | - | - | - | 11 | - | 6 | - | 10 | 5 | - | - | - |
| Ga. | 12 | - | 2 | - | - | - | 54 | 1 | 8 | - | 13 | 12 | - | - | - |
| Fla. | 15 | - | 3 | - | - | 17 | 86 | 1 | 14 | 5 | 33 | 37 | - | 9 | 4 |
| E.S. CENTRAL | 13 | - | 28 | - | - | 1 | 106 | - | 15 | - | 86 | 82 | - | - | - |
| Ky. | 3 | - | - | - | - | - | 29 | - | - | - | 52 | 13 | - | - | - |
| Tenn. | 6 | - | 28 | - | - | - | 24 | - | 6 | - | 17 | 35 | - | - | - |
| Ala. | 3 | - | - | - | - | 1 | 47 | - | 3 | - | 14 | 27 | - | - | - |
| Miss. | 1 | - | - | - | - | - | 6 | - | 6 | - | 3 | 7 | - | - | - |
| W.S. CENTRAL | 24 | - | 9 | - | 7 | 1 | 203 | 6 | 176 | 2 | 55 | 44 | - | 12 | 16 |
| Ark. | 2 | - | - | - | 1 | - | 33 | - | 1 | 1 | 12 | 3 | - | - | - |
| La. | 4 | - | - | - | 1 | 1 | 24 | 1 | 19 | - | 6 | 6 | - | - | 1 |
| Okla. | 2 | - | - | - | - | - | 19 | - | 23 | 1 | 21 | 22 | - | 4 | 1 |
| Tex. | 16 | - | 9 | - | 5 | - | 127 | 5 | 133 | - | 16 | 13 | - | 8 | 14 |
| MOUNTAIN | 18 | 2 | 141 | - | 12 | 2 | 106 | 5 | 52 | 6 | 119 | 148 | 2 | 6 | 6 |
| Mont. | - | - | - | - | - | - | 3 | - | - | - | 3 | 1 | - | - | - |
| Idaho | 2 | - | - | - | - | - | 15 | 2 | 7 | - | 23 | 25 | - | 1 | 1 |
| Wyo. | 1 | - | - | - | - | - | 5 | - | 1 | - | - | 1 | - | - | - |
| Colo. | 6 | - | 13 | - | 1 | 2 | 16 | - | 2 | 4 | 38 | 59 | - | - | 1 |
| N. Mex. | 3 | - | - | - | - | - | 11 | N | N | 1 | 10 | 22 | 1 | 1 | - |
| Ariz. | 1 | - | - | - | - | - | 39 | - | 24 | - | 33 | 24 | - | - | 1 |
| Utah | 4 | 2 | 128 | - | - | - | 12 | 3 | 10 | 1 | 10 | 16 | 1 | 3 | 2 |
| Nev. | 1 | - | - | - | 11 | - | 5 | - | 7 | - | 2 | - | - | 1 | 1 |
| PACIFIC | 139 | - | 45 | - | 8 | 94 | 318 | 7 | 178 | 3 | 347 | 293 | - | 27 | 59 |
| Wash. | 4 | - | - | - | - | - | 23 | 1 | 6 | 1 | 17 | 23 | - | - | - |
| Oreg. | 7 | - | - | - | - | - | 48 | N | N | - | 27 | 3 | - | - | 1 |
| Calif. | 116 | - | 44 | - | 6 | 78 | 240 | 5 | 160 | 1 | 294 | 261 | - | 24 | 34 |
| Alaska | - | - | 1 | - | - | - | 2 | - | 2 | - | - | 3 | - | 1 | 1 |
| Hawaii | 12 | - | - | - | 2 | 16 | 5 | 1 | 10 | 1 | 9 | 3 | - | 2 | 23 |
| Guam | 1 | U | 211 | U | - | 2 | 1 | U | 4 | U | - | - | U | 1 | - |
| P.R. | 2 | - | 13 | - | - | 309 | 6 | - | 2 | - | 1 | 1 | - | - | - |
| V.I. | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Amer. Samoa | - | - | - | - | - | 1 | - | - | 1 | - | 1 | 2 | - | - | - |
| C.N.M.I. | 1 | U | 26 | U | - | 1 | - | U | 2 | U | - | - | U | - | - |

*For measles only, imported cases include both out-of-state and international importations.
N: Not notifiable U: Unavailable † International § Out-of-state

## TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending July 16, 1994, and July 17, 1993 (28th Week)

| Reporting Area | Syphilis (Primary & Secondary) | | Toxic-Shock Syndrome | Tuberculosis | | Tula-remia | Typhoid Fever | Typhus Fever (Tick-borne) (RMSF) | Rabies, Animal |
|---|---|---|---|---|---|---|---|---|---|
| | Cum. 1994 | Cum. 1993 | Cum. 1994 | Cum. 1994 | Cum. 1993 | Cum. 1994 | Cum. 1994 | Cum. 1994 | Cum. 1994 |
| UNITED STATES | 11,503 | 14,432 | 114 | 11,207 | 11,495 | 33 | 197 | 161 | 3,247 |
| NEW ENGLAND | 121 | 199 | 2 | 227 | 248 | - | 15 | 8 | 972 |
| Maine | 4 | 3 | - | - | 5 | - | - | - | - |
| N.H. | 1 | 21 | - | 11 | 10 | - | - | - | 98 |
| Vt. | - | 1 | 1 | 3 | 3 | - | - | - | 87 |
| Mass. | 48 | 86 | 1 | 117 | 140 | - | 11 | 7 | 382 |
| R.I. | 11 | 8 | - | 18 | 34 | - | 1 | - | 5 |
| Conn. | 57 | 80 | - | 78 | 56 | - | 3 | 1 | 400 |
| MID. ATLANTIC | 728 | 1,386 | 19 | 2,039 | 2,390 | 1 | 49 | - | 339 |
| Upstate N.Y. | 92 | 119 | 9 | 112 | 347 | 1 | 6 | - | 79 |
| N.Y. City | 324 | 703 | - | 1,346 | 1,451 | - | 29 | - | - |
| N.J. | 104 | 202 | - | 407 | 230 | - | 14 | - | 160 |
| Pa. | 208 | 362 | 10 | 174 | 362 | - | - | - | 100 |
| E.N. CENTRAL | 1,498 | 2,406 | 25 | 1,127 | 1,232 | 2 | 34 | 23 | 22 |
| Ohio | 631 | 649 | 9 | 174 | 171 | - | 4 | 14 | - |
| Ind. | 125 | 208 | 2 | 92 | 126 | - | 3 | 2 | 6 |
| Ill. | 413 | 944 | 5 | 581 | 651 | - | 17 | 5 | 3 |
| Mich. | 163 | 340 | 9 | 244 | 235 | 1 | 3 | 2 | 7 |
| Wis. | 166 | 265 | - | 36 | 49 | 1 | 7 | - | 6 |
| W.N. CENTRAL | 630 | 930 | 17 | 280 | 246 | 14 | - | 13 | 113 |
| Minn. | 28 | 42 | 1 | 61 | 30 | 1 | - | - | 13 |
| Iowa | 33 | 44 | 7 | 20 | 31 | - | - | 1 | 48 |
| Mo. | 539 | 746 | 5 | 129 | 125 | 9 | - | 5 | 9 |
| N. Dak. | - | 2 | - | 4 | 5 | - | - | - | 5 |
| S. Dak. | - | 1 | - | 16 | 10 | 1 | - | 6 | 14 |
| Nebr. | - | 10 | 2 | 10 | 14 | 1 | - | 1 | - |
| Kans. | 30 | 85 | 2 | 40 | 31 | 2 | - | - | 24 |
| S. ATLANTIC | 3,340 | 3,738 | 6 | 2,135 | 2,233 | 1 | 33 | 78 | 1,112 |
| Del. | 13 | 73 | - | - | 21 | - | 1 | - | 21 |
| Md. | 119 | 209 | - | 162 | 199 | - | 5 | 6 | 313 |
| D.C. | 137 | 200 | - | 61 | 87 | - | 1 | - | 2 |
| Va. | 401 | 343 | 1 | 185 | 237 | - | 5 | 6 | 209 |
| W. Va. | 8 | 4 | - | 46 | 44 | - | - | 2 | 43 |
| N.C. | 946 | 1,053 | 1 | 248 | 277 | - | - | 30 | 93 |
| S.C. | 402 | 566 | - | 209 | 231 | - | - | 2 | 99 |
| Ga. | 837 | 632 | - | 481 | 415 | 1 | 1 | 29 | 207 |
| Fla. | 477 | 658 | 4 | 743 | 722 | - | 20 | 3 | 125 |
| E.S. CENTRAL | 1,993 | 2,039 | 2 | 691 | 812 | - | 2 | 10 | 97 |
| Ky. | 112 | 168 | 1 | 174 | 199 | - | 1 | - | 4 |
| Tenn. | 514 | 586 | 1 | 207 | 236 | - | 1 | 7 | 34 |
| Ala. | 372 | 453 | - | 229 | 251 | - | - | 1 | 59 |
| Miss. | 995 | 832 | - | 81 | 126 | - | - | 2 | - |
| W.S. CENTRAL | 2,615 | 2,815 | 1 | 1,453 | 1,131 | 9 | 9 | 20 | 413 |
| Ark. | 277 | 327 | - | 145 | 93 | 8 | - | 3 | 15 |
| La. | 968 | 1,342 | - | 14 | 83 | - | 4 | - | 43 |
| Okla. | 83 | 198 | 1 | 155 | 81 | 1 | 1 | 14 | 21 |
| Tex. | 1,287 | 948 | - | 1,139 | 874 | - | 4 | 3 | 334 |
| MOUNTAIN | 153 | 133 | 4 | 248 | 286 | 5 | 6 | 9 | 49 |
| Mont. | 3 | 1 | - | 9 | 5 | 3 | - | 4 | - |
| Idaho | 6 | - | 1 | 9 | 7 | - | - | - | 2 |
| Wyo. | - | 4 | - | 3 | 2 | - | - | 2 | 12 |
| Colo. | 77 | 38 | 1 | 1 | 42 | - | 2 | 2 | - |
| N. Mex. | 9 | 19 | - | 37 | 35 | 1 | - | - | 2 |
| Ariz. | 30 | 56 | - | 122 | 126 | - | 1 | 1 | 25 |
| Utah | 5 | 1 | 2 | 23 | 11 | 1 | 1 | - | 6 |
| Nev. | 23 | 14 | - | 44 | 58 | - | 2 | - | 2 |
| PACIFIC | 425 | 786 | 38 | 3,007 | 2,917 | 1 | 49 | - | 130 |
| Wash. | 34 | 28 | - | 156 | 133 | - | 3 | - | - |
| Oreg. | 20 | 30 | - | 86 | 57 | 1 | - | - | - |
| Calif. | 367 | 722 | 35 | 2,580 | 2,546 | - | 44 | - | 101 |
| Alaska | 3 | 4 | - | 33 | 34 | - | - | - | 29 |
| Hawaii | 1 | 2 | 3 | 152 | 147 | - | 2 | - | - |
| Guam | 4 | 2 | - | 18 | 39 | - | 1 | - | - |
| P.R. | 166 | 304 | - | 73 | 111 | - | - | - | 48 |
| V.I. | 22 | 31 | - | - | 2 | - | - | - | - |
| Amer. Samoa | 1 | - | - | 3 | 2 | - | 1 | - | - |
| C.N.M.I. | 1 | 3 | - | 22 | 19 | - | 1 | - | - |

U: Unavailable

## TABLE III. Deaths in 121 U.S. cities,* week ending July 16, 1994 (28th Week)

| Reporting Area | All Causes, By Age (Years) | | | | | | P&I† Total |
|---|---|---|---|---|---|---|---|
| | All Ages | ≥65 | 45-64 | 25-44 | 1-24 | <1 | |
| NEW ENGLAND | 544 | 385 | 78 | 51 | 14 | 16 | 38 |
| Boston, Mass. | 152 | 92 | 25 | 22 | 4 | 9 | 13 |
| Bridgeport, Conn. | 42 | 36 | 3 | 3 | - | - | 2 |
| Cambridge, Mass. | 19 | 16 | 2 | 1 | - | - | - |
| Fall River, Mass. | 24 | 20 | 3 | 1 | - | - | - |
| Hartford, Conn. | 41 | 27 | 7 | 2 | 4 | 1 | 1 |
| Lowell, Mass. | 21 | 18 | 1 | 1 | 1 | - | 1 |
| Lynn, Mass. | 10 | 9 | - | 1 | - | - | - |
| New Bedford, Mass. | 23 | 16 | 5 | 2 | - | - | 2 |
| New Haven, Conn. | 35 | 26 | 4 | 3 | 2 | - | 4 |
| Providence, R.I. | 40 | 26 | 8 | 6 | - | - | 1 |
| Somerville, Mass. | 5 | 4 | 1 | - | - | - | - |
| Springfield, Mass. | 33 | 23 | 2 | 3 | 2 | 3 | 7 |
| Waterbury, Conn. | 32 | 22 | 5 | 3 | 1 | 1 | 1 |
| Worcester, Mass. | 67 | 50 | 12 | 3 | - | 2 | 6 |
| MID. ATLANTIC | 2,474 | 1,554 | 456 | 351 | 59 | 53 | 81 |
| Albany, N.Y. | 28 | 20 | 2 | 5 | - | 1 | 1 |
| Allentown, Pa. | 18 | 13 | 4 | 1 | - | - | - |
| Buffalo, N.Y. | 100 | 72 | 18 | 5 | 3 | 2 | 1 |
| Camden, N.J. | 34 | 17 | 8 | 5 | 4 | - | 3 |
| Elizabeth, N.J. | 15 | 6 | 4 | 4 | - | 1 | 1 |
| Erie, Pa.§ | 33 | 26 | 6 | - | - | 1 | 1 |
| Jersey City, N.J. | 60 | 27 | 16 | 11 | 1 | 5 | - |
| New York City, N.Y. | 1,470 | 891 | 271 | 245 | 30 | 32 | 21 |
| Newark, N.J. | 74 | 29 | 19 | 18 | 5 | 3 | 1 |
| Paterson, N.J. | 24 | 10 | 8 | 5 | 1 | - | - |
| Philadelphia, Pa. | 210 | 132 | 37 | 29 | 7 | 5 | 22 |
| Pittsburgh, Pa.§ | 61 | 46 | 11 | 3 | 1 | - | 4 |
| Reading, Pa. | U | U | U | U | U | U | U |
| Rochester, N.Y. | 136 | 104 | 17 | 11 | 4 | - | 13 |
| Schenectady, N.Y. | 20 | 19 | 1 | - | - | - | - |
| Scranton, Pa.§ | 29 | 20 | 6 | 2 | 1 | - | - |
| Syracuse, N.Y. | 103 | 78 | 16 | 5 | 2 | 2 | 9 |
| Trenton, N.J. | 19 | 12 | 4 | 2 | - | 1 | 2 |
| Utica, N.Y. | 13 | 12 | 1 | - | - | - | 1 |
| Yonkers, N.Y. | 27 | 20 | 7 | - | - | - | 1 |
| E.N. CENTRAL | 2,329 | 1,418 | 450 | 276 | 126 | 59 | 136 |
| Akron, Ohio | 70 | 46 | 14 | 3 | 1 | 6 | - |
| Canton, Ohio | 45 | 34 | 5 | 4 | - | 2 | 3 |
| Chicago, Ill. | 507 | 207 | 93 | 121 | 81 | 5 | 33 |
| Cincinnati, Ohio | 203 | 137 | 40 | 14 | 6 | 6 | 21 |
| Cleveland, Ohio | 147 | 89 | 36 | 16 | - | 6 | 3 |
| Columbus, Ohio | 171 | 105 | 40 | 20 | 3 | 3 | 9 |
| Dayton, Ohio | 104 | 77 | 11 | 7 | 6 | 3 | 4 |
| Detroit, Mich. | 266 | 155 | 52 | 38 | 8 | 13 | 11 |
| Evansville, Ind. | 40 | 30 | 7 | 2 | - | 1 | 2 |
| Fort Wayne, Ind. | 71 | 51 | 11 | 4 | 4 | 1 | 3 |
| Gary, Ind. | 22 | 10 | 6 | 4 | 2 | - | 2 |
| Grand Rapids, Mich. | 44 | 28 | 8 | 3 | 2 | 3 | 3 |
| Indianapolis, Ind. | 187 | 123 | 45 | 15 | 2 | 2 | 17 |
| Madison, Wis. | 47 | 31 | 9 | 5 | - | 2 | 4 |
| Milwaukee, Wis. | 125 | 90 | 22 | 8 | 4 | 1 | 8 |
| Peoria, Ill. | 43 | 31 | 8 | 1 | 2 | 1 | 2 |
| Rockford, Ill. | 33 | 22 | 7 | 3 | - | 1 | 3 |
| South Bend, Ind. | 50 | 39 | 8 | 2 | - | 1 | 2 |
| Toledo, Ohio | 87 | 63 | 14 | 5 | 3 | 2 | 3 |
| Youngstown, Ohio | 67 | 50 | 14 | 1 | 2 | - | 3 |
| W.N. CENTRAL | 781 | 550 | 128 | 56 | 27 | 20 | 43 |
| Des Moines, Iowa | 48 | 37 | 1 | 7 | 1 | 2 | 4 |
| Duluth, Minn. | U | U | U | U | U | U | U |
| Kansas City, Kans. | 13 | 6 | 4 | 1 | 2 | - | 1 |
| Kansas City, Mo. | 99 | 70 | 16 | 10 | 1 | 2 | 5 |
| Lincoln, Nebr. | 32 | 24 | 7 | 1 | - | - | 1 |
| Minneapolis, Minn. | 258 | 189 | 41 | 14 | 5 | 9 | 18 |
| Omaha, Nebr. | 94 | 67 | 15 | 2 | 5 | 5 | 4 |
| St. Louis, Mo. | 155 | 102 | 29 | 13 | 9 | 2 | 6 |
| St. Paul, Minn. | 47 | 30 | 9 | 6 | 2 | - | 2 |
| Wichita, Kans. | 35 | 25 | 6 | 2 | 2 | - | 2 |
| S. ATLANTIC | 1,317 | 781 | 277 | 173 | 53 | 33 | 64 |
| Atlanta, Ga. | 164 | 89 | 41 | 25 | 7 | 2 | 3 |
| Baltimore, Md. | 220 | 118 | 46 | 41 | 12 | 3 | 20 |
| Charlotte, N.C. | 97 | 56 | 18 | 18 | 3 | 2 | 2 |
| Jacksonville, Fla. | 124 | 83 | 23 | 13 | 3 | 2 | 4 |
| Miami, Fla. | 114 | 61 | 25 | 17 | 8 | 3 | - |
| Norfolk, Va. | 58 | 33 | 11 | 9 | - | 5 | 1 |
| Richmond, Va. | 80 | 44 | 23 | 8 | - | 5 | 3 |
| Savannah, Ga. | 33 | 26 | 7 | - | - | - | 4 |
| St. Petersburg, Fla. | 62 | 47 | 8 | 4 | 2 | 1 | 5 |
| Tampa, Fla. | 165 | 112 | 30 | 15 | 4 | 4 | 11 |
| Washington, D.C. | 174 | 92 | 43 | 20 | 13 | 6 | 8 |
| Wilmington, Del. | 26 | 20 | 2 | 3 | 1 | - | 3 |
| E.S. CENTRAL | 705 | 462 | 133 | 66 | 21 | 23 | 48 |
| Birmingham, Ala. | 128 | 85 | 21 | 10 | 5 | 7 | 4 |
| Chattanooga, Tenn. | 70 | 45 | 13 | 7 | 5 | - | 3 |
| Knoxville, Tenn. | 64 | 43 | 11 | 6 | 1 | 3 | 4 |
| Lexington, Ky. | 79 | 56 | 15 | 5 | 1 | 2 | 12 |
| Memphis, Tenn. | 108 | 61 | 26 | 16 | 3 | 2 | 12 |
| Mobile, Ala. | 75 | 49 | 10 | 9 | 4 | 3 | 6 |
| Montgomery, Ala. | 29 | 20 | 7 | 2 | - | - | 1 |
| Nashville, Tenn. | 152 | 103 | 30 | 11 | 2 | 6 | 6 |
| W.S. CENTRAL | 1,542 | 967 | 315 | 159 | 64 | 36 | 77 |
| Austin, Tex. | 78 | 50 | 13 | 10 | 2 | 3 | 9 |
| Baton Rouge, La. | 26 | 16 | 9 | - | - | 1 | - |
| Corpus Christi, Tex. | 53 | 29 | 9 | 9 | 4 | 2 | - |
| Dallas, Tex. | 222 | 142 | 40 | 22 | 10 | 7 | 7 |
| El Paso, Tex. | 89 | 62 | 16 | 6 | 4 | 1 | 5 |
| Ft. Worth, Tex. | 100 | 72 | 10 | 12 | 3 | 3 | 11 |
| Houston, Tex. | 347 | 192 | 92 | 42 | 15 | 6 | 30 |
| Little Rock, Ark. | 75 | 49 | 15 | 8 | 2 | 1 | 5 |
| New Orleans, La. | 161 | 102 | 29 | 18 | 10 | 2 | - |
| San Antonio, Tex. | 241 | 152 | 49 | 22 | 12 | 6 | 5 |
| Shreveport, La. | 31 | 24 | 6 | 1 | - | - | 1 |
| Tulsa, Okla. | 119 | 77 | 27 | 9 | 2 | 4 | 4 |
| MOUNTAIN | 879 | 575 | 158 | 95 | 30 | 21 | 39 |
| Albuquerque, N.M. | 101 | 64 | 19 | 9 | 5 | 4 | 2 |
| Colo. Springs, Colo. | 38 | 29 | 3 | 3 | 2 | 1 | 1 |
| Denver, Colo. | 146 | 92 | 26 | 22 | 2 | 4 | 9 |
| Las Vegas, Nev. | 174 | 111 | 36 | 17 | 9 | 1 | 7 |
| Ogden, Utah | 26 | 20 | 3 | 3 | - | - | 2 |
| Phoenix, Ariz. | 137 | 88 | 22 | 15 | 7 | 5 | 14 |
| Pueblo, Colo. | 26 | 20 | 5 | 1 | - | - | - |
| Salt Lake City, Utah | 95 | 54 | 22 | 10 | 4 | 5 | 3 |
| Tucson, Ariz. | 136 | 97 | 22 | 15 | 1 | 1 | 1 |
| PACIFIC | 2,352 | 1,557 | 407 | 260 | 63 | 56 | 166 |
| Berkeley, Calif. | 25 | 17 | 4 | 1 | 1 | 2 | - |
| Fresno, Calif. | 67 | 47 | 11 | 2 | 2 | 5 | 3 |
| Glendale, Calif. | 32 | 29 | 3 | - | - | - | 1 |
| Honolulu, Hawaii | 73 | 53 | 8 | 7 | 2 | 3 | 3 |
| Long Beach, Calif. | 83 | 55 | 14 | 11 | 1 | 2 | 13 |
| Los Angeles, Calif. | 625 | 387 | 122 | 79 | 22 | 11 | 23 |
| Pasadena, Calif. | 33 | 20 | 5 | 4 | 2 | 2 | 5 |
| Portland, Oreg. | 148 | 97 | 28 | 14 | 4 | 5 | 3 |
| Sacramento, Calif. | 198 | 127 | 40 | 25 | 1 | 5 | 14 |
| San Diego, Calif. | 413 | 296 | 60 | 34 | 9 | 9 | 60 |
| San Francisco, Calif. | 145 | 69 | 41 | 29 | 1 | 5 | 6 |
| San Jose, Calif. | 174 | 128 | 24 | 15 | 5 | 2 | 17 |
| Santa Cruz, Calif. | 35 | 24 | 5 | 3 | 3 | - | - |
| Seattle, Wash. | 165 | 108 | 25 | 23 | 7 | 2 | 7 |
| Spokane, Wash. | 57 | 46 | 7 | 1 | 1 | 2 | 8 |
| Tacoma, Wash. | 79 | 54 | 10 | 12 | 2 | 1 | 3 |
| TOTAL | 12,923¶ | 8,249 | 2,402 | 1,487 | 457 | 317 | 692 |

*Mortality data in this table are voluntarily reported from 121 cities in the United States, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.
†Pneumonia and influenza.
§Because of changes in reporting methods in these 3 Pennsylvania cities, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.
¶Total includes unknown ages.
U: Unavailable.

*Hypertension — Continued*

study also suggest that similar efforts may be needed for persons with hypertension who perceive that they are generally in excellent or very good health.

Having a regular source of medical care and having seen a physician within the preceding year were strongly associated with taking action to control blood pressure. Lack of access to preventive health care also has been associated with an increased frequency of hypertensive emergencies and uncontrolled hypertension (*5*). These findings underscore the importance of increasing access to health care for all persons in the United States.

Lifestyle modifications (e.g., limiting salt intake, reducing weight, and increasing physical activity) are effective in lowering blood pressure (*6,7*). However, most persons with hypertension in this study did not recall being advised by a physician to exercise. The low proportion of persons who recalled having received advice about physical activity may reflect insufficient training of many health-care providers in counseling patients about physical activity (*8*). Compared with medication costs, physical activity is a less costly means of lowering blood pressure and decreasing the risk for cardiovascular disease. Medication costs, which can account for 80% of the expenses associated with treating hypertension, may be a barrier to persons who want to control their blood pressure (*1*).

To achieve the year 2000 objective for taking action to control blood pressure, additional public health efforts should target young men with hypertension and persons without access to preventive health care. Use of data from national surveys, such as the NHIS, will help measure progress toward this objective. Additional information about high blood pressure is available from the American Heart Association, telephone (214) 373-6300, or the National High Blood Pressure Education Program, telephone (800) 575-9355 ([301] 251-1222).

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*International Notes*

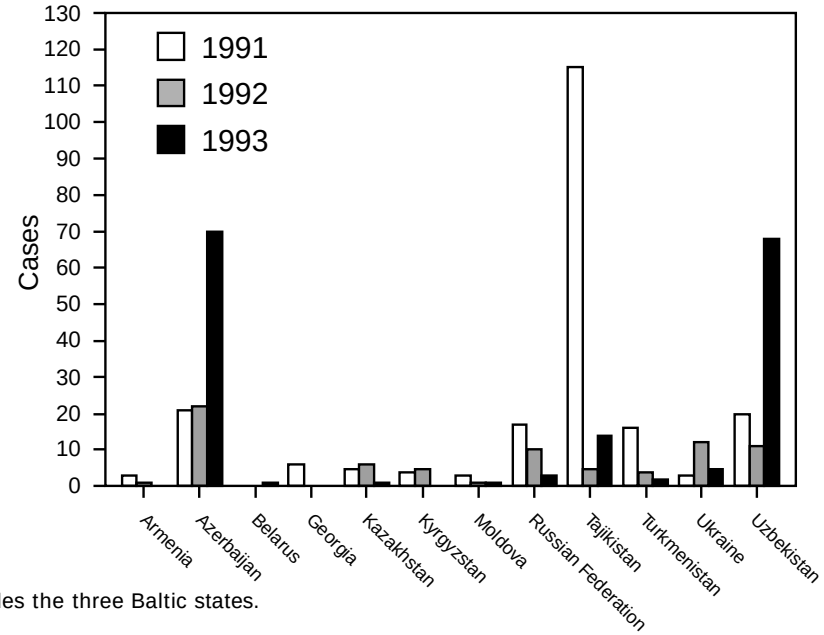
## Status of Poliomyelitis Eradication — Europe and the Central Asian Republics, 1993

In 1989, the World Health Organization (WHO) Regional Office for Europe adopted a resolution to eradicate poliomyelitis from the European Region by the year 2000. This report summarizes progress toward that goal.

In 1993, countries in the European Region of WHO (which includes the central Asian republics of the New Independent States (NIS) of the former Soviet Union) reported 198 cases of polio (presumed or known to be attributable to wild poliovirus), including one case classified as imported. In addition, 21 cases of vaccine-associated polio were reported. Each year during 1990–1992, a total of 373, 318, and 181 indigenous cases of polio, respectively, were reported in Europe. In 1993, outbreaks of polio occurred in Azerbaijan (70 cases) and Uzbekistan (68 cases).

Polio was reported from 12 (24%) of the 50 countries in the European Region in 1993. Excluding the Netherlands, Romania, and Turkey, all these countries are republics of the NIS, located in Eastern Europe (Belarus, Moldova, Russian Federation, and Ukraine), the Transcaucasus Region (Azerbaijan), or in Central Asia (Kazakhstan, Tajikistan, Turkmenistan, and Uzbekistan). During 1991–1993, four countries (Azerbaijan, Tajikistan, Turkey, and Uzbekistan) consistently reported more than five cases of polio each year; each republic of the NIS reported at least one case (Figure 1). In 1980, the Soviet Union, Turkey, and the remaining European countries reported approximately

**FIGURE 1. Reported cases of poliomyelitis — New Independent States of the former Soviet Union,* 1991–1993**




*Excludes the three Baltic states.

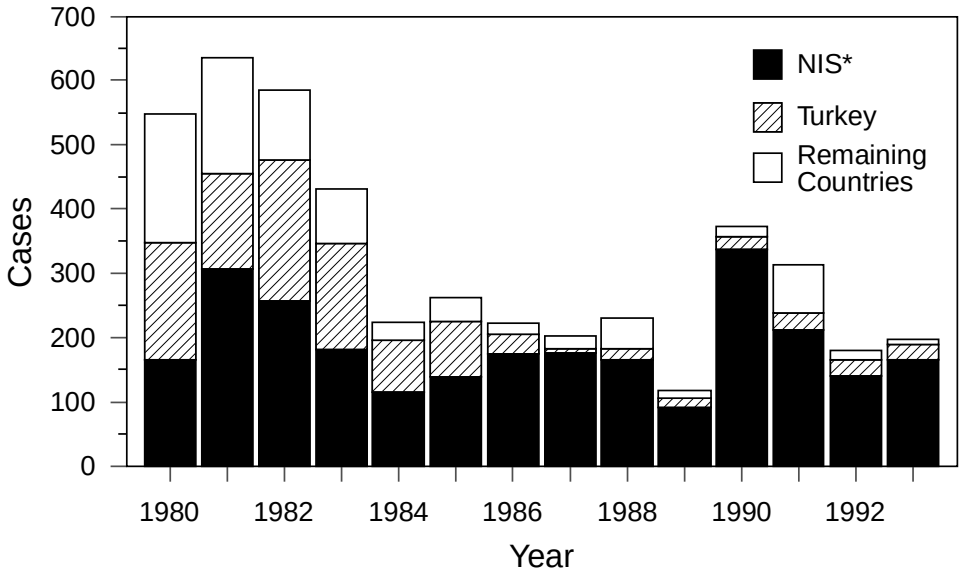
*Poliomyelitis — Continued*

one third of polio cases each. However, in 1993, the republics of the NIS reported 83% of cases (Figure 2). A recent analysis of geopolitical units (districts and oblasts) in the European Region that continue to report polio indicated a substantial decrease (50%) from 1992 to 1993 in the number of districts and oblasts in which wild poliovirus circulated (from 105 in 1992 to 52 in 1993).

Individual countries in the region continue to refine and implement strategies to eradicate polio. In addition to strengthening routine vaccination-delivery systems, all polio-endemic countries (except the Federal Republic of Yugoslavia [Serbia and Montenegro] and Turkey) have adopted supplemental vaccination activities with oral poliovirus vaccine (OPV). Surveillance continues to be strengthened, with monitoring for acute flaccid paralysis (AFP) recently adopted in 11 additional countries (Bulgaria, Czech Republic, Hungary, Ireland, Poland, Romania, Russian Federation [some areas], Slovakia, Turkey, Ukraine, and the United Kingdom).

In the European Region, progress toward polio eradication was made despite civil unrest and war in some countries and the recent large-scale reemergence of diphtheria in Azerbaijan, Russian Federation, and Ukraine (*1* ). In some areas, lack of financial resources resulted in insufficient supplies of OPV and other vaccines. In particular, the polio outbreaks in Azerbaijan and Uzbekistan can be attributed to shortages of OPV. However, countries with sufficient supplies of OPV also experienced endemic poliovirus transmission. For example, during 1989–1993, Turkey reported 14–27 cases of polio annually; the primary reason for the ongoing endemic spread of poliovirus in this country may be attributed to low OPV coverage among children aged <1 year (69% with three doses of OPV in 1992 versus 65% in 1993). Other countries with ongoing endemic poliovirus transmission and relatively low vaccination coverage levels during 1992 and 1993 include Azerbaijan (70% in 1992 versus 40% in 1993), Russian

**FIGURE 2. Reported cases of poliomyelitis, by area — European Region, World Health Organization, 1980–1993**




*New Independent States of the former Soviet Union.

*Poliomyelitis — Continued*

Federation (69% in 1992 versus 82% in 1993), Uzbekistan (85% in 1992 versus 46% in 1993), and Tajikistan (precise data are not available).

*Reported by: Regional Office for Europe, Copenhagen, Denmark; Expanded Program on Immunization, Global Program for Vaccines, World Health Organization, Geneva. Div of Viral and Rickettsial Diseases, National Center for Infectious Diseases; Polio Eradication Activity, National Immunization Program, CDC.*

**Editorial Note:** Rapid progress toward global eradication of polio has been demonstrated through regional elimination of polio in the Western Hemisphere (*2,3*); steady movement toward elimination in countries of East Asia, including China (*4*), Philippines (*5*), and Vietnam (*6*); and development of polio-free zones in northern and southern Africa and on the Arabian Peninsula. However, increased efforts are needed in other areas, including the Indian subcontinent, sub-Saharan Africa, the Transcaucasus Region, and the central Asian republics (*7*). Many of the poliovirus genotypes responsible for recent epidemics in Europe (including the outbreak of 71 cases caused by poliovirus type 3 in the Netherlands during 1992–1993) probably originated from the Indian subcontinent (*8*).

Countries in the European Region are categorized into three major areas with distinct epidemiologic characteristics. The western and central European countries, which have achieved high vaccination coverage and good sanitation, have eliminated polio as an indigenous disease; however, this area remains subject to importations of poliovirus, particularly among groups that routinely object to vaccination (e.g., members of religious groups in the Netherlands) or groups with suboptimal coverage (e.g., migrant or hard-to-reach populations [*9*]). The Balkan and Asia Minor countries (excluding Turkey) have controlled polio well, even though small outbreaks have occurred periodically—most recently during 1990–1991 in Bulgaria (*10*) and Romania (CDC, unpublished data, 1993). In the NIS, two major geographic reservoirs of poliovirus have emerged—the Transcaucasus Region and the central Asian republics.

Increased efforts to eliminate polio in Europe must be aimed at the two geographic poliovirus reservoirs and the remaining polio-endemic countries. In all polio-endemic geopolitical units, routine vaccination coverage with three doses of OPV must be increased to more than 90% of children aged <1 year, and an additional dose of OPV should be administered at birth. In all polio-endemic countries, supplemental OPV vaccination activities (e.g., National Immunization Days*) should be implemented. Because the number of districts and oblasts in the European Region that reported cases of polio in 1993 has declined substantially, "mopping up"† has become a feasible strategy.

Nongovernmental organizations, particularly Rotary International, have been instrumental in raising funds to support the initiative to eradicate polio worldwide. Political commitment and funding by member countries of the European Region will be needed to eradicate polio from the area by the year 2000.

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* Mass campaigns over a short period (days to weeks) in which two doses of OPV are administered to all children in the target age group, regardless of prior vaccination history, with an interval of 4–6 weeks between doses.

† House-to house administration of two doses of OPV to all young children with an interval of 4–6 weeks between doses. This supplemental activity aims to reach primarily infants and children not covered by existing routine vaccination programs.

*Poliomyelitis — Continued*

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## *Epidemiologic Notes and Reports*

### Outbreak of Pneumonia Associated with a Cruise Ship, 1994

On July 15, 1994, the New Jersey State Department of Health notified CDC of six persons hospitalized with pneumonia. An investigation was initiated to determine the etiology and potential sources and modes of transmission of the illness. These persons traveled between New York City and Bermuda aboard the cruise ship *Horizon* (Celebrity Cruise Line, port of origin: New York City) from June 25 through July 2. Subsequent investigations have identified 16 additional persons with pneumonia who had traveled on the vessel since May 28, 1994. Initial laboratory tests indicate *Legionella* sp. infection (Legionnaires' disease) has been confirmed in four of the 22 patients; specimens for laboratory testing are being collected from the other patients.

Physicians evaluating persons who developed pneumonia within 2 weeks after travel aboard the *Horizon* are encouraged to report these cases immediately to CDC through local or state health departments. Updated information is available from CDC's Division of Bacterial and Mycotic Diseases, National Center for Infectious Diseases, telephone (404) 639-3057.

*Reported by: C Genese, MJ Hung, S Paul, MD, J Brook, MD, L Finelli, KC Spitalny, MD, State Epidemiologist, New Jersey State Dept of Health. BA Mojica, MD, KJ Mohoney, MSW, RT Hefferman, MPH, Div of Disease Intervention, New York City Dept of Health; SF Kondracki, DL Morse, MD, State Epidemiologist, New York State Dept of Health. JT Rankin, Jr, DVM, State Epidemiologist, Pennsylvania Dept of Health. JL Hadler, MD, State Epidemiologist, Connecticut Dept of Public Health and Addiction Svcs. Child and Respiratory Diseases Br, Div of Bacterial and Mycotic Diseases, National Center for Infectious Diseases; Div of Quarantine, National Center for Prevention Svcs; Office of the Director, National Center for Environmental Health; Div of Field Epidemiology, Epidemiology Program Office, CDC.*

*Notice to Readers*

## NIOSH Alert: Request for Assistance in Controlling Exposures to Nitrous Oxide During Anesthetic Administration

CDC's National Institute for Occupational Safety and Health (NIOSH) periodically issues alerts on workplace hazards that have caused death, serious injury, or illness to workers. One such alert, *Request for Assistance in Controlling Exposures to Nitrous Oxide During Anesthetic Administration* (*1*), was published recently and is available to the public.*

Nitrous oxide is used as an anesthetic agent in medical, dental, and veterinary operatories. Occupational exposures in dental operatories may be excessive and tend to be more difficult to control than in general operating theaters. Approximately 424,000 workers (i.e., dentists, dental assistants, and dental hygienists) practice dentistry in the United States; in a 1991 survey by the American Dental Association, 58% of dentists reported having nitrous oxide anesthetic equipment.

Workers exposed to nitrous oxide may suffer adverse reproductive effects and decreases in mental performance, audiovisual ability, and manual dexterity. This alert presents control measures for preventing or substantially reducing exposure to nitrous oxide during administration of anesthetic gas. These control measures should be part of a written comprehensive safety and health plan for workers.

*Reference*

1. NIOSH. NIOSH alert: NIOSH request for assistance in controlling exposures to nitrous oxide during anesthetic administration. Cincinnati: US Department of Health and Human Services, Public Health Service, CDC, 1994; DHHS publication no. (NIOSH)94-100.

*Single copies of this document are available without charge from the Publications Office, Division of Standards Development and Technology Transfer, NIOSH, CDC, Mailstop C-13, 4676 Columbia Parkway, Cincinnati, OH 45226-1998; telephone (800) 356-4674 ([513] 533-8328 for persons outside of the United States); fax (513) 533-8573.

*Notice to Readers*

## Course in Hospital Epidemiology

CDC, the Society for Healthcare Epidemiology of America (SHEA), and the American Hospital Association will cosponsor a hospital epidemiology training course September 17–20, 1994, in Chicago. The course, designed for infectious disease fellows, new hospital epidemiologists, and infection-control practitioners, provides hands-on exercises to improve skills in detection, investigation, and control of epidemiologic problems encountered in the hospital setting and lectures and seminars on fundamental aspects of hospital epidemiology.

Additional information is available from SHEA Meetings Department, 875 Kings Highway, Suite 200, Woodbury, NJ 08096-3172; telephone (609) 845-1720; fax (609) 853-0411.

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I **U.S. Government Printing Office: 1994-533-178/05018 Region IV**