CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

June 20, 1997 / Vol. 46 / No. 24

MMWR™
MORBIDITY AND MORTALITY WEEKLY REPORT

Red Blood Cell Transfusions Contaminated with *Yersinia enterocolitica* — United States, 1991–1996, and Initiation of a National Study to Detect Bacteria-Associated Transfusion Reactions

Although bacteremia and sepsis are infrequently reported complications of red blood cell (RBC) transfusion, receipt of transfused blood contaminated with bacterial pathogens may result in sepsis, disseminated intravascular coagulation, and death. Such pathogens have included *Yersinia enterocolitica* and *Pseudomonas fluorescens*. From November 1985 through February 1991, a total of 11 cases of sepsis associated with receipt of transfused *Y. enterocolitica*-contaminated RBCs were reported in the United States (*1–3*). This report describes an additional 10 cases of *Y. enterocolitica* sepsis reported to CDC during March 1991–November 1996 in patients who received transfusions with contaminated RBCs and describes the development of a study to detect bacteria-associated reactions to transfusion of RBCs and other blood components.

Y. enterocolitica sepsis in a patient who had received a transfusion was defined as a reported transfusion reaction (e.g., fever, chills, or respiratory distress) and confirmation of *Y. enterocolitica* in the donor by titrating serum agglutinins against the recipient's *Y. enterocolitica* isolate and isolating *Y. enterocolitica* from the blood bag. Titers ≥1:128 were considered indicative of recent *Y. enterocolitica* infection. Medical records of the 10 case-patients were reviewed to determine the specific outcomes of these transfusions, and donors of the implicated units of blood were interviewed to determine risk factors for *Y. enterocolitica* bacteremia. When available, *Y. enterocolitica* strains were obtained to confirm species and serotype. Quantitative bacterial cultures and endotoxin concentrations were measured in samples of remaining blood contained in the implicated RBC bags, and *Y. enterocolitica* antibody titers were measured in the RBC bags, donors, and recipients (*4,5*).

Of the 10 case-patients, two received autologous RBCs (*6*). During the transfusion or within 12 hours following the transfusion, eight of the 10 patients developed fever (two recipients were receiving anesthesia for surgery at time of transfusion); seven, respiratory distress; four, hypotension; and three, disseminated intravascular coagulation. Five died ≤6 days (range: 2.5 hours–6 days) after transfusion, and death was attributed to *Y. enterocolitica* sepsis. *Y. enterocolitica* was isolated from blood samples from seven of eight patients; the recipient whose blood culture was negative was re-

Yersinia — Continued

ceiving antimicrobials when the specimen was obtained. Serum specimens obtained from five patients were analyzed for endotoxins; levels were elevated in all five serum specimens tested (median: 11,645 ng/mL; range: 3510–17,400 ng/mL).

The 10 donors were interviewed ≤3 months following donation; of these, three denied having had any symptoms, five denied fever at the time of donation but reported having had diarrhea <1 month before or <2 weeks after donation, and one reported having had fever with abdominal pain. One autologous donor had been hospitalized for *Y. enterocolitica* sepsis 1 day after blood donation; blood bank personnel were not notified about this hospitalization, and the autologous unit was subsequently transfused. The other autologous donor also developed symptoms after donation but was fully recovered when the transfusion was administered. Of the nine donors for whom antibody titers had been determined (titers were not measured for the one autologous donor), *Y. enterocolitica* antibody titers were elevated in seven patients 24–109 days after donation (median: 41 days). Of the two donors with antibody titers <1:128, *Y. enterocolitica* was isolated from the implicated unit in both instances.

Reported by: TJ Halpin, MD, State Epidemiologist, Ohio Dept of Health. W Moore, MD, State Epidemiologist, Tennessee Dept of Health. SH Waterman, MD, State Epidemiologist, California Dept of Health Svcs. JL Hadler, MD, State Epidemiologist, Connecticut Dept of Public Health. KR Wilcox, Jr, MD, State Epidemiologist, Michigan Dept of Community Health/Community Public Health Agency. B Ensign, MD, Lackland Air Force Base, Lackland; DM Simpson, MD, State Epidemiologist, Texas Dept of Health. KE Toomey, MD, State Epidemiologist, Div of Public Health, Georgia Dept of Human Resources. FJ Rentas, MS, The Blood Bank Center, US Army Medical Dept Activity, Fort Hood, Texas. DM Dwyer, MD, State Epidemiologist, Maryland Dept of Health and Mental Hygiene. R Haley, MD, American Red Cross Biomedical Svcs, Arlington, Virginia. Office of Compliance, Center for Biologics Evaluation and Research, Food and Drug Administration. Investigation and Prevention Br, Hospital Infections Program, National Center for Infectious Diseases, CDC.

Editorial Note: From 1986 through 1991, of 182 transfusion-associated fatalities reported to the Food and Drug Administration (FDA), 29 (16%) were caused by bacterial contamination of blood products (*7*). However, because FDA requires reporting of only fatal transfusion-related complications, the overall incidence of both fatal and nonfatal infectious complications associated with the receipt of blood and blood products in the United States probably is underestimated. The U.S. General Accounting Office estimated the rate of bacteria-associated adverse reactions from random donor platelet pools was 0.6 per 1000 pooled units and from *Yersinia*-associated RBC transfusion reactions was one per 500,000 units of RBCs (*8*). The incidence also may be underestimated because of failure to suspect bacterial contamination as a possible mechanism for adverse reactions to transfusion. If blood products are not cultured promptly following an adverse transfusion reaction, the role of bacterial contamination cannot be definitely established. In one referral hospital, a cluster of cases of reaction to bacterial contamination of platelets prompted education of clinicians about adverse transfusion reactions and initiation of active surveillance for bacterial contamination of platelets; the number of monthly reported platelet transfusion reactions and the rate of bacterial contamination of platelets subsequently increased 31- and 23-fold, respectively (*9*).

Potential mechanisms for the bacterial contamination of RBCs and of other blood components include donation by persons with asymptomatic *Y. enterocolitica* bacteremia on the day of donation, contamination with skin flora at the time of donation, or contamination during the processing of the unit. The findings in this report indicate

Yersinia — Continued

that *Y. enterocolitica* antibodies or bacteria were identified in donors or isolated from the implicated blood bags, indicating that blood from each donor was infected.

Because rates of bacteria-associated transfusion reactions in the United States are unknown, during late summer 1997, CDC, in collaboration with national blood-collection organizations, will initiate a prospective study to determine the rates of bacteria-associated transfusion reactions from whole blood, RBCs, and platelets (*10*). The study will be used to establish standardized definitions of adverse transfusion reactions in recipients of contaminated blood or blood components, develop an educational program to increase awareness among clinicians about bacterial contamination as a mechanism for these reactions, determine microbiologic safety of the U.S. blood supply, and attempt to identify methods to improve donor screening to reduce or eliminate bacterially contaminated blood products. Additional information about bacterial contamination of blood products and the collaborative study can be obtained from CDC's Hospital Infections Program, National Center for Infectious Diseases, telephone (404) 639-6413, fax (404) 639-6459.

At the time of donation, blood donors are asked whether they feel well that day or have a cold, the flu, a sore throat, or trouble breathing. Although donors may be asymptomatic or may not become ill until after donating, their blood can transmit bacteria. When transfusion-associated bacteremia or endotoxemia is suspected, the residual blood product unit should be saved and the recipient's blood and serum specimens collected. In addition, the associated transfusion service should be immediately informed of the reaction. Fatalities must be reported to the Office of Compliance, Center for Biologics Evaluation and Research, FDA, telephone (301) 594-1191.

References

1. Collins PS, Youkey JR, Collins GJ Jr, et al. Fatal sepsis from blood contaminated with *Yersinia enterocolitica:* a case report. Mil Med 1985;150:689–92.
2. CDC. *Yersinia enterocolitica* bacteremia and endotoxin shock associated with red blood cell transfusion—United States, 1987–1988. MMWR 1988;37:577–8.
3. CDC. *Yersinia enterocolitica* bacteremia and endotoxin shock associated with red blood cell transfusion—United States, 1991. MMWR 1991;40:176–8.
4. Hawkins TH, Brenner DJ. Isolation and identification of *Yersinia enterocolitica*. Atlanta, Georgia: US Department of Health, Education, and Welfare, Public Health Service, CDC, 1978.
5. Novitsky TJ, Roslansky PF, Siber GR, Warren HS. Turbidimetric method for quantifying serum inhibition of *Limulus* amoebocyte lysate. J Clin Microbiol 1985;21:211–6.
6. Richards C, Kolins J, Trindade CD. Autologous transfusion-transmitted *Yersinia enterocolitica* [Letter]. JAMA 1992;268:1541–2.
7. Hoppe PA. Interim measures for detection of bacterially contaminated red cell components [Editorial]. Transfusion 1992;32:199–201.
8. US General Accounting Office. Blood supply: transfusion-associated risks—report to the ranking minority member, Committee on Commerce, House of Representatives. Washington, DC: US General Accounting Office, 1997; document no. GAO/PEMD-97-2.
9. Zaza S, Tokars JI, Yomtovian R, et al. Bacterial contamination of platelets at a university hospital: increased identification due to intensified surveillance. Infect Control Hosp Epidemiol 1994;15:82–7.
10. CDC. Year-long estimation of the frequency of bacterial contamination of blood products in the United States. Federal Register 1997;62:22952–5.

As part of its commemoration of CDC's 50th anniversary, MMWR *is reprinting selected* MMWR *articles of historical interest to public health, accompanied by current editorial notes. Reprinted below is a report published March 12, 1982, that introduced a new measure of public health, years of potential life lost (YPLL). A contemporary editorial note follows the report.*

Notice to Readers

Introduction to Table V Premature Deaths, Monthly Mortality, and Monthly Physician Contacts — United States

Beginning with this issue, a new table will appear monthly in the MMWR: "Table V. Potential Years of Life Lost, Deaths, and Death Rates, by Cause of Death, and Estimated Number of Physician Contacts, by Principal Diagnosis" [see page 557]. By displaying a variety of measures that gauge the importance and relative magnitude of certain public health issues, this table will call attention to those issues where strategies for prevention are needed. Publication of this table reflects CDC's increased responsibility for promoting action to reduce unnecessary morbidity and premature mortality and continues the MMWR's tradition of disseminating public health information to its readership.

Further improvements in health can be achieved through actions taken by individuals as well as by administrators in the public and private sectors to promote a safer and healthier environment (*1*). To this end, the new table provides information regarding areas that provide the greatest potential for health improvement.

Causes of death are listed in Table V in descending order of the potential years of lost life that are attributed to each cause. In 1980, heart disease, cancer, and cerebrovascular disease account for 67.9% of all deaths in the United States; motor-vehicle and other accidents, suicide, and homicide accounted for 8.1% (*2*). In terms of age at the time of death, the relative importance of causes of death changes remarkably; motor-vehicle and other accidents, suicide, and homicide accounted for 40.8% of the total years of life lost prematurely (before age 65 years); and heart disease, cancer, and cerebrovascular disease accounted for 37.2%.

"Potential years of life lost before age 65" in the table is estimated for persons between 1 year and 65 years old at the time of death and is derived by multiplying the annual number of deaths in each age category by the difference between 65 years and the age at the mid-point of each category. If deaths of persons older than 65 years were included, greater weight would be given to natural causes of death, and premature and preventable causes of death would no longer be distinguishable. If deaths of persons younger than 1 year were included, causes of death affecting this age group would be weighted heavily and would therefore contribute a disproportionately large share of potential years of life lost. However, "Infant mortality" in the table is a measure of deaths occurring in this age group and "Prenatal care" reflects efforts to prevent death in this group.

Cause-specific mortality rates, published in the *Monthly Vital Statistics Report* by the National Center for Health Statistics, are estimated from a systematic sample of

Introduction to Table V — Continued

TABLE V. Potential years of life lost, deaths, and death rates, by cause of death, and estimated number of physician contacts, by principal diagnosis, United States, October 1981

Cause of morbidity or mortality (Ninth Revision ICD, 1975)	Estimated annual total of potential years lost before age 65, 1980[1]	Estimated monthly mortality[2]		Estimated number of monthly physician contacts[3]
		Number	Rate/100,000	
ALL CAUSES (TOTAL)	10,006,060	164,950	844.4	96,550,000
Accidents and adverse effects (E800-E807, E810-E825, E826-E949)	2,684,850	8,500	43.5	5,156,000
Malignant neoplasms (140-208)	1,804,120	36,120	184.9	1,990,000
Diseases of heart (390-398, 402, 404-429)	1,636,510	61,810	316.4	5,168,000
Suicides, homicides (E950-E978)	1,401,880	4,160	21.3	—
Chronic liver disease and cirrhosis (571)	301,070	2,730	14.0	100,000
Cerebrovascular diseases (430-438)	280,430	13,710	70.2	473,000
Pneumonia and influenza (480-487)	124,830	3,790	19.4	904,000
Diabetes mellitus (250)	117,340	3,130	16.0	2,764,000
Chronic obstructive pulmonary diseases and allied conditions (490-496)	110,530	4,280	21.9	1,824,000
Prenatal care[4]				2,187,000
Infant mortality[4]		3,700	11.7/1000 live births	

[1]National Center for Health Statistics. *Monthly Vital Statistics Report*, Vol. 29, No. 13, September 17, 1981. Total potential years of life lost are estimated for persons between 1 year and 65 years old at the time of death and are derived from the product of the number of deaths in each age category and the difference between 65 years and the age at the mid-point of each category.

[2]National Center for Health Statistics. *Monthly Vital Statistics Report*, Vol. 30, No. 11, February 10, 1982, pp 8-9. Infant deaths and provisional U.S. population from Vol. 30, No. 10, January 15, 1982, p 1. Mortality rates on an annual basis per 100,000 estimated population in the United States are estimated from the underlying cause of death recorded on a 10% systematic sample of death certificates taken from all those received in state vital statistics offices during a 1-month period. The number of deaths each month is estimated from the product of the corresponding estimated mortality rate and the provisional U.S. population estimated for that month divided by the number of days that month as a proportion of the total days in the year.

[3]IMS America. *National Disease and Therapeutic Index* (NDTI), Monthly Report, October 1981, 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 (2100) who record all private patient contacts for 2 consecutive days each quarter.

[4]"Prenatal care" and "infant mortality" are included in the table because "Potential years of life lost" does not reflect deaths of children <1 year.

Introduction to Table V — Continued

10% of death certificates received in state vital statistics offices during a 1-month period using the underlying cause of death recorded on the certificate. Because complete information concerning the underlying cause of death is not available when the sample is taken, estimates for certain causes are biased in the monthly sample but then are corrected when annual estimates are made. The estimated number of deaths each month is obtained by multiplying the corresponding estimated mortality rate, which is computed on an annual basis, by the provisional population estimate for the United States and then dividing by the number of days for that month as a proportion of the total days in the year.

The measure for morbidity is obtained from the National Disease and Therapeutic Index (NDTI), a random sample of data from office-based physicians in 19 major specialities in the continental United States. Each physician in the sample records all his contacts with private patients for 2 consecutive days each quarter. These contacts comprise telephone calls (7% of total in 1981); office visits (68%); and patients visited by the physician in hospitals (22%), nursing homes (1%), and their own homes (1%). As a result, this measure gives greater weight to those diseases that prompt a visit to a private physician or required hospitalization. When the physician cannot make a diagnosis at the time of the visit, the suspected diagnosis or presenting symptom is recorded. Although misclassification might occur, the potential for this bias is reduced by using broad categories in the table.

Publication of Table V is an effort to use measures of morbidity and mortality as reminders of the impact on public health of some of these preventable problems. However, when data are summarized, their complexity and detail are sacrificed; and when information is simplified, although the overall effect may be clarified, subtle issues may be obscured. Therefore, a series of articles exploring different aspects of preventable problems will be published in the MMWR to complement this table. These articles will present more detailed analysis of what is known about health status indicators, risk factors, and other factors affecting public health.

References

1. Healthy People, The Surgeon General's Report on Health Promotion and Disease Prevention, 1979. Public Health Service, Office of the Assistant Secretary for Health and Surgeon General, DHEW (PHS) Publication No. 79-55071.
2. National Center for Health Statistics. *Monthly Vital Statistics Report*, Vol. 29, No. 13, September 17, 1981.

Editorial Note—1997: The 1982 addition to the *MMWR* of a monthly Table V, "Premature Deaths, Monthly Mortality, and Monthly Physician Contacts—United States," employed the measure of years of potential life lost (YPLL), which was designed to alert the public health community to the magnitude of "premature," "preventable," and "unnecessary" mortality. In contrast to the traditional measures of crude and age-adjusted mortality, which treats deaths at all ages equivalently, YPLL weights deaths inversely to age at death (i.e., deaths at young ages affect the value of YPLL more than deaths at older ages). Although the measure had been used since 1947 (*1*), the CDC series on YPLL especially raised awareness about the magnitude of the problem of injury among youth (*2*), causes of death among infants (e.g., sudden infant death syndrome [SIDS] and congenital anomalies [*3,4*]), and acquired immunodeficiency syndrome (AIDS) (*5*). YPLL contributed to the establishment of CDC's Violence Epidemiology Branch in 1983 and CDC's National Center for Injury Prevention and

Introduction to Table V — Continued

Control in 1992. Other measures of years of life lost have been modified to account for the "quality" of life lived with different types of morbidity and disability. For example, years of healthy life (YHL) considers activity limitations and perceived health and has been used to establish and monitor national health objectives in the United States for the year 2000 (*6*). In addition, disability-adjusted life years (DALY) "expresses years of life lost to premature death and years lived with a disability of specified severity and duration" (*7*). Measures of YPLL have served primarily as tools for health-care planning, prioritization, and administration rather than as instruments of causal research.

An analysis of "potential years of life lost" was first published 50 years ago by Mary Dempsey (*1*), a statistician at the National Tuberculosis Association, who sought to indicate the relative youth of decedents from tuberculosis compared with cancer and heart disease; while crude mortality rates of the latter were far higher, YPLL rates were more comparable. Many modifications and alternatives to YPLL have been formulated (*8,9*). Dempsey used life-expectancy-at-birth cutoffs specific to the populations compared; in contrast, some have used a fixed life expectancy for all populations compared, as proposed by Haenszel (*10*). Others have used different age cutoffs, at both lower age limits (e.g., 0, 1, 15, and 20 years) and upper limits (e.g., 65, 70, 75, and 85 years). The measure including ages 15–70 years has been referred to as potentially productive years of life lost, on the assumption that these are the productive years of life (*9*). Another measure, years of accumulated ability lost (YAAL), weights the number of deaths by the age at which they occur, on the assumption—contrary to that made in YPLL—that the potential contribution of the decedent is greater with greater age and experience; YAAL may be regarded as the inverse of YPLL (*11*).

YPLL measures the burden of mortality among the relatively young. As a rate (generally calculated per population aged <65 years), YPLL could be compared by cause (e.g., injury, AIDS, and cancer) or etiologic agent (e.g., cigarette smoking, alcohol consumption, and automobiles), among populations (e.g., by sex, race/ethnicity, and state), and over time. Although YPLL rates may be age-adjusted, adjustment may mask differences in the public health burden of mortality among youth, which YPLL measures.

YPLL can be interpreted in at least two ways. First, as indicated by its name, YPLL may be regarded as the sum of years of life lost by persons who died before age 65 years; thus, for example, a person who died at age 24 years lost 41 years of life, assuming he or she would have lived to be only 65. Second, assuming that young persons have greater life expectancy than older persons and that death at young ages is therefore a greater loss than death at older ages, YPLL can be interpreted as a measure of mortality in which death at young ages is numerically weighted more heavily than death at older ages. For example, the death of a 5-year-old has a weight of 60 (i.e., 65 minus 5 years), 12 times the weight of 5 for a 60-year-old who dies (i.e., 65 minus 60 years).

The measure of YPLL reported in the *MMWR* has been modified in several ways over the course of its publication. Until 1986, deaths among infants (aged <1 year) were excluded from YPLL calculations in the *MMWR* because it was believed that they would "be weighted heavily and would therefore contribute a disproportionately large share of potential years of life lost" (*12*). In 1986, deaths during the first year of life were added to the calculation, and infant mortality was no longer reported separately in Table V (*13*). This change resulted in the addition of congenital anomalies,

Introduction to Table V — Continued

prematurity, and SIDS as the fifth, sixth, and seventh causes of YPLL, respectively. Also beginning in 1986, YPLL tables and analyses were published annually rather than more frequently. In 1990 and 1992, annual *MMWR* reports on YPLL included comparison of YPLL with an upper age cutoff of 85 years in addition to the standard cutoff of 65 years (*14,15*). Initially, the nine leading causes of YPLL were reported; in the last years of publication, 13 leading causes were reported. While all-cause YPLL has declined slightly since the mid-1980s, this overall decline has been offset by an 11-fold increase in the proportion of YPLL associated with AIDS, first reported for 1984. In 1993, YPLL estimates based on provisional mortality data were not compared directly with estimates based on final data because of cause-specific differences in the delay of reporting provisional data (*16*). In 1986, a widely cited *MMWR* supplement, *Premature Mortality in the United States: Public Health Issues in the Use of Years of Potential Life Lost*, was published to review alternative methods for the estimation of potential life lost (*8*).

The limitations of YPLL measures may constrain, in part, their usefulness. First, although YPLL has been thought to measure premature, preventable, and unnecessary morbidity and mortality, this assumption has not been evaluated and depends on the current state and deployment of knowledge and prevention strategies. Second, many YPLL measures ignore a large proportion of deaths in the population, including, for example, all deaths among persons aged ≥65 years. In 1994, 73% of deaths in the United States occurred among persons aged ≥65 years, and 24% occurred among persons aged ≥85 years (*17*). Many measures neglect the potential for premature, preventable, and unnecessary morbidity and mortality among persons in these age groups.

An annual report on changes in YPLL was last published in *MMWR* in 1993 (*16*), although YPLL statistics have been routinely published in CDC's annual compendium *Health, United States* (*18*), and CDC programs continue to report condition- and etiology-specific YPLL in the *MMWR*. CDC is reviewing its policy on how best to routinely disseminate age-related mortality information to achieve public health objectives. In addition to concerns about age-related value assumptions, there is growing interest in incorporating into summary health measures assessments of the "quality" of years lived or lost, the morbidity and disability associated with given causes of death before death, and self-perceived health status. These measures are intended to be used for surveillance and to provide a common denominator for cost-utility analysis. In addition, the importance of notions of premature, preventable, and unnecessary morbidity and mortality should be related to effective clinical and public health practice.

1997 Editorial Note by Robert A. Hahn, PhD, MPH, Div of Prevention Research and Analytic Methods (proposed), Epidemiology Program Office, CDC.

References

1. Dempsey M. Decline in tuberculosis: the death rate fails to tell the entire story. Am Rev TB 1947;56:157–64.
2. National Research Council. Injury in America: a continuing public health problem. Washington, DC: National Academy Press, 1985.
3. CDC. Premature mortality due to sudden infant death syndrome. MMWR 1986;35:169–70.
4. CDC. Premature mortality due to congenital anomalies. MMWR 1986;35:97–9.
5. Jaffe HW, Hardy AM, Morgan WM, Darrow WW. The acquired immunodeficiency syndrome in gay men. Ann Intern Med 1985;103:662–4.

Introduction to Table V — Continued

6. Erickson P, Wilson R, Shannon I. Years of healthy life. Healthy People 2000 Statistical Notes 1995;7:1–14.
7. Murray CJL, Lopez AD. The global burden of disease: summary. Cambridge, Massachusetts: Harvard University Press, 1996.
8. CDC. Premature mortality in the United States: public health issues in the use of years of potential life lost. MMWR 1986;35(no. 2S).
9. Gardner JW, Sanborn JS. Years of potential life lost (YPLL): what does it measure? Epidemiology 1990;1:322–9.
10. Haenszel W. A standardized rate for mortality defined in units of lost years of life. Am J Public Health 1950;40:17–26.
11. Hahn RA. Years of accumulated ability lost (YAAL): a new measure for public health. Technology: Journal of the Franklin Institute 1995;332A:101–3.
12. CDC. Introduction to Table V: premature deaths, monthly mortality, and monthly physician contacts—United States. MMWR 1982;31:109–10,117.
13. CDC. Changes in premature mortality—United States, 1983–1984. MMWR 1986;35:29–31.
14. CDC. Years of potential life lost before ages 65 and 85—United States, 1987 and 1988. MMWR 1990;39:20–2.
15. CDC. Years of potential life lost before ages 65 and 85—United States, 1989–1990. MMWR 1992;41:313–5.
16. CDC. Years of potential life lost before age 65—United States, 1990–1991. MMWR 1993;42:251–3.
17. Singh GK, Mathews TJ, Clarke SC, et al. Annual summary of births, marriages, divorces, and deaths: United States, 1994. Monthly Vital Stats Report 1995;43:1–44.
18. CDC. Health, United States, 1995. Hyattsville, Maryland: US Department of Health and Human Services, Public Health Service, 1996; DHHS publication no. (PHS)96-1232.

Status of Public Health — Democratic People's Republic of Korea, April 1997

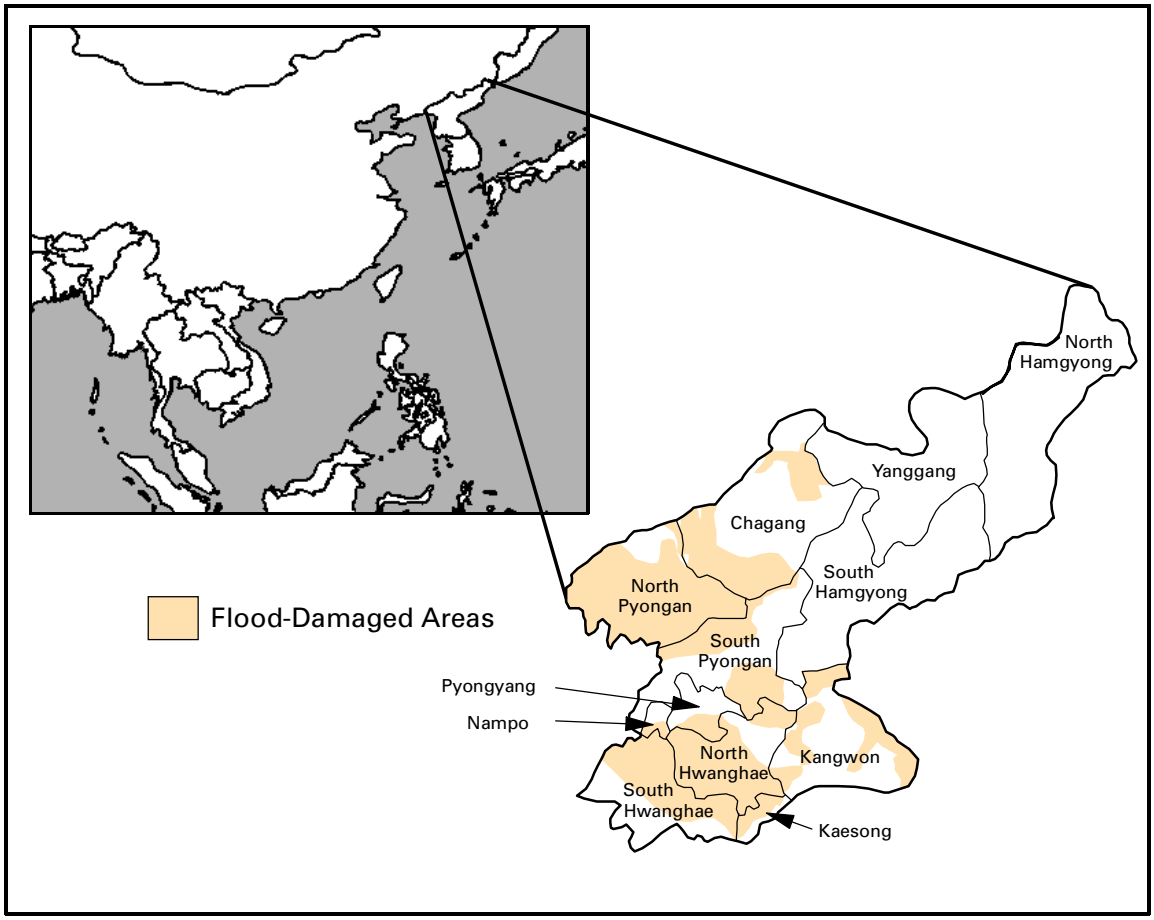
During 1995 and 1996, severe flooding in the Democratic People's Republic of Korea (i.e., North Korea [DPRK] [1990 population: 22 million]) (Figure 1) caused 186 deaths, dislocated approximately 550,000 persons from their homes, and caused damage to an estimated 1.2 million metric tons of crops (12% of total production) (*1,2*). In combination with systemic economic problems in DPRK, these natural disasters have been associated with reports of a severe, ongoing food shortage and increased risks to public health. To assist in targeting humanitarian aid, in April 1997, the U.S. Agency for International Development's Office of U.S. Foreign Disaster Assistance requested CDC to conduct an onsite assessment of the public health status and needs of the DPRK. This report summarizes findings of the assessment, which indicate a recent substantial decline in the health and nutritional status in DPRK.

The onsite assessment was conducted during April 1997 by a CDC epidemiologist. Information in this report is based on interviews with local public health officials; reports prepared by United Nations (UN) agencies; and direct observations in Pyongyang, North Pyongan, and South Pyongan provinces. Primary data were collected only in North Pyongan province because of constraints on time and independent travel.

Based on reports by the UN's Food and Agriculture Organization (FAO) and World Food Program (WFP), from 1984 through 1996, floods, outmoded agricultural techniques, and a lack of fertilizer reduced annual grain production in DPRK from 8.1 million metric tons (MT) to 4.3 million MT, respectively (*1,2*). Declines in concessional

Korea — Continued

FIGURE 1. Flood-damaged areas — Democratic People's Republic of Korea, 1995 and 1996



grain sales from other countries have prevented DPRK from compensating for reduced agricultural production with increased food imports and have resulted in a projected food deficit of 2.3 million MT for 1996–1997 (*2*). Despite international food aid totaling >400,000 MT during 1995–1996, grain allocation through the Public Distribution System (PDS) has declined from a preflood average of 585 g per person per day to 100–150 g per person per day during February–April 1997 (*2–4*); members of the military, government officials, and hard laborers reportedly receive higher allocations. Children aged ≤6 years are eligible to attend nursery centers where they are entitled to receive an additional 150 g per day in the form of corn soya blend. However, UN field reports indicate that since March 1997, attendance in nurseries has declined by 40%–80%, children's supplemental feeding has been halted in Chagang province, and the PDS has not provided a general food ration in North and South Hamgyong provinces (R. Soerensen, United Nations Children's Fund [UNICEF]/Pyongyang, and M. Ross, WFP/New York, personal communications, 1997; *4*). FAO and WFP estimate that persons in the DPRK supplement food provided by the PDS with an additional 30% of daily caloric intake from other sources (e.g., barter, private gardens, or foraging); how-

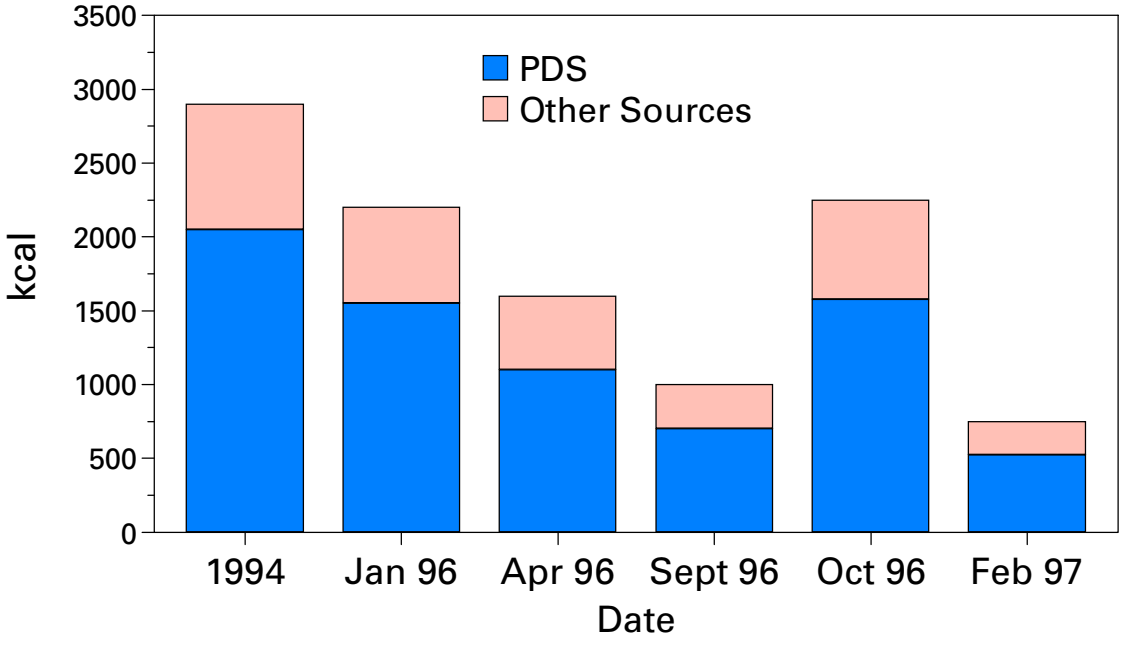
Korea — Continued

ever, the combination of food sources does not consistently provide the adult minimum daily caloric requirement of 2100 kilocalories (kcal) (Figure 2) (*2*).

Although DPRK has not permitted comprehensive, objective, anthropometric nutrition surveys, the CDC assessment did obtain weight and height measurements for nine infants in an orphanage in North Pyongan province. Of the nine infants, four were acutely malnourished (weight-for-height >2 standard deviations below the National Center for Health Statistics/CDC/World Health Organization reference median [*5*]). In April 1997, UNICEF documented evidence of acute malnutrition in four of 18 children aged 2–5 years in a kindergarten in Chagang Province (R. Soerensen, UNICEF/Pyongyang, personal communication, 1997). Clinical signs of anemia were present in malnourished infants in both North Pyongan and Chagang provinces, although blood samples could not be obtained. On April 8, 1997, the DPRK Ministry of Public Health (MoPH) reported that malnutrition was present in 15.6% (324,000) of all children aged <5 years and that 134 of these children had died in 1996 (R. Soerensen, UNICEF/Pyongyang, personal communication, 1997); the MoPH report did not specify the method of data collection or the definition of malnutrition.

The flooding destroyed or heavily damaged 298 health facilities and the only oral-rehydration solution factory in DPRK (*6*). In addition, flood damage and a lack of raw materials have led to a 60% decline in pharmaceutical production since 1995 (*4*). The CDC assessment included four hospital pharmacies in North and South Pyongan provinces and indicated that only herbal medicines were in supply.

FIGURE 2. Estimated quantity of food available per person per day (in kilocalories [kcal]) through the Public Distribution System (PDS) and other sources* — Democratic People's Republic of Korea, 1994 and January 1996–February 1997†



*Assumes 30% of daily caloric intake is from other sources (e.g., barter, private gardens, or foraging).
†The minimum daily requirement per person per day is 2100 kcal.

Source: References *2–4*.

Korea — Continued

The MoPH reported that through 1994, Expanded Program on Immunization (EPI) coverage of 95% had been achieved for children aged <5 years. However, since 1995, vaccination programs have not been conducted regularly because of a lack of vaccines (especially for poliomyelitis and tuberculosis), breakdowns in cold-chain equipment, and disruptions in transportation caused by the floods and shortages of fuel (*4*). The MoPH has reported seven confirmed cases of polio in 1995, six in 1996, and three during January–March 1997 (*7*).

From 1994 to 1996, overall crude mortality for children aged <5 years increased from 31 per 1000 to 58 per 1000 (DPRK MoPH briefing, 1997; R. Soerensen, UNICEF/Pyongyang, personal communication, 1997). Although the MoPH did not provide information on specific causes associated with the increased mortality, the MoPH reported that during January–September 1996, the number of cases of diarrhea was 20% higher and the number of cases of acute respiratory infection was 15% higher than the average number of such cases reported since 1992 (*6*).

Reported by: Office of US Foreign Disaster Assistance, US Agency for International Development, Washington, DC. International Emergency and Refugee Health Program, National Center for Environmental Health, CDC.

Editorial Note: The information provided in this report suggests objective and subjective evidence of malnutrition, increases in morbidity and mortality, and failures of the medical and public health infrastructure in DPRK. Despite the occurrence of acute malnutrition and micronutrient deficiencies and food deficits, severe malnutrition may not be highly visible because of at least four factors: 1) limited food stocks have been distributed equitably; 2) food production or availability through non-PDS sources may be higher than estimated; 3) household coping skills have been adequate; and 4) assessments have been conducted in only selected areas, and malnutrition may be less severe or less prevalent in those areas than in other areas (particularly the mountainous northeast region) to which access by international observers has been limited.

Since 1960, the primary causes of mortality in DPRK have gradually shifted from those of predominantly infectious etiology to chronic diseases, and the estimated annual crude mortality rate has decreased from 17 per 1000 in 1960 to 6 per 1000 in 1992 (*8*). The recent increase in infectious disease morbidity reported by MoPH may reflect factors including 1) damage to water/sanitation systems caused by the floods; 2) decreased capacity of both clinical-care and prevention programs; and 3) increased risk secondary to declining nutritional status. The increase in the death rate for children aged <5 years probably reflects the effects of these same factors, and the most recent rate of 58 per 1000 compares with a rate in 1995 of 10 per 1000 in the Republic of Korea and a rate of 120–200 per 1000 in most countries in Africa (*9*). The MoPH reported no cases of polio during 1987–1994 (*7*); the recent occurrence of cases and the deterioration of the vaccination program suggest a continuing high potential for outbreaks of polio and other vaccine-preventable diseases.

Because of the geographic limitation of this assessment and the diminished capacity of surveillance systems to detect diseases of public health importance, high priority should be given to conducting an independent, nationwide health and nutrition survey to obtain more objective data about the health status of the population of DPRK. Further recommendations for immediate action by appropriate UN agencies and nongovernmental organizations have included supplying high-energy milk and micro-

Korea — Continued

nutrient supplementation for children, continuing general food aid, and restoring essential public health services, especially vaccination and water-chlorination programs.

References

1. Food and Agricultural Organization and World Food Program, United Nations. FAO/WFP crop and food supply assessment mission to the Democratic People's Republic of Korea, December 1995. Rome, Italy: United Nations, Food and Agricultural Organization and World Food Program, 1996.
2. Food and Agricultural Organization and World Food Program, United Nations. FAO/WFP crop and food supply assessment mission to the Democratic People's Republic of Korea, December 1996. Rome, Italy: United Nations, Food and Agricultural Organization and World Food Program, 1997.
3. Lautze S. North Korea food aid assessment press debrief. Washington, DC: US Agency for International Development, 1996.
4. Yasukawa T. Travel report summary: Democratic People's Republic of Korea, March 10–April 2, 1997. Geneva, Switzerland: World Health Organization, Division of Emergency and Humanitarian Action, 1997.
5. World Health Organization. Nutritional assessment in emergencies. In: The management of nutrition in major emergencies. Geneva, Switzerland: World Health Organization (in press).
6. Office of the United Nations Resident Coordinator. Situation report: DPR Korea as of 15 October 1996. New York, New York: United Nations Development Program, November 1996.
7. CDC. Update: progress toward poliomyelitis eradication—South East Asia Region, 1995–1997. MMWR 1997;46:468–73.
8. Eberstadt N, Banister J. The population of North Korea. Berkeley, California: University of California, 1992.
9. World Health Organization. The world health report, 1996. Geneva, Switzerland: World Health Organization, 1996.

Update: Syringe-Exchange Programs — United States, 1996

As of December 1996, approximately one third (36%) of the 573,000 cases of acquired immunodeficiency syndrome (AIDS) among adults reported to CDC were directly or indirectly associated with injecting-drug use (*1*). Syringe-exchange programs (SEPs) are one of the strategies for preventing infection with human immunodeficiency virus (HIV) among injecting-drug users (IDUs). The goal of SEPs is to reduce the transmission of HIV and other bloodborne infections associated with drug injection by providing sterile syringes in exchange for used, potentially contaminated syringes. This report summarizes a survey of U.S. SEPs regarding their activities during 1995 and 1996 and compares the findings with those during 1994 and early 1995 (*2*). The findings indicate continued expansion in the number and activities of SEPs in the United States.*

In November 1996, the Beth Israel Medical Center (BIMC) in New York City, in collaboration with the North American Syringe Exchange Network (NASEN), mailed questionnaires to the directors of 101 SEPs in the United States that were members of NASEN. Although the number of SEPs in the United States is unknown, most are be-

*Single copies of this report will be available until June 20, 1998, from the CDC National AIDS Clearinghouse, P.O. Box 6003, Rockville, MD 20849-6003; telephone (800) 458-5231 or (301) 217-0023.

Syringe-Exchange Programs — Continued

lieved to be members of NASEN. From November 1996 through April 1997, BIMC contacted SEP directors to conduct structured telephone interviews based on the mailed questionnaires. SEP directors were asked about when the SEP began; the number of syringes[†] exchanged during 1995; and, for 1996, legal status, services provided, and the number of syringes exchanged.

Of the 101 SEPs, 87 (86%) participated in this survey. Of these, 51 began operating before 1995; 22, in 1995; and 14, in 1996. These 87 SEPs reported operating in 71 cities in 28 states and one territory[§]; 44 (51%) of the SEPs were located in four states (California [17], Washington [11], New York [10], and Connecticut [six]). In eight cities, at least two SEPs were reported operating. In the 1994–1995 survey, 60 SEPs reported operating in 46 cities and in 21 states (*2*).

Of the 73 SEPs operating in 1995, 70 reported exchanging approximately 11 million syringes. In 1996, of the 87 SEPs that provided information about the number of syringes exchanged, 84 reported exchanging approximately 14 million syringes (median: 36,017 syringes per SEP) (Table 1). The 10 most active SEPs (i.e., those that exchanged ≥500,000 syringes)[¶] exchanged approximately 9.4 million (69%) of all syringes exchanged. The SEP in San Francisco reported exchanging the largest number of syringes (1,461,096) in 1996. During 1996, a total of 50 SEPs (57%) reported exchanging ≤55,000 syringes each; of these, 23 (46%) exchanged <10,000 syringes each.

All 87 SEPs provided IDUs with information about safer injection techniques and/or use of bleach to disinfect injection equipment. Other services included referral of clients to substance-abuse treatment programs (84 [97%]), instruction in the use of condoms and dental dams to prevent sexual transmission of HIV and other sexually transmitted diseases (STDs) (84 [97%]), and STD-prevention education (70 [81%]). Health services offered on-site included HIV counseling and testing (35 [40%]), primary health care (15 [17%]), tuberculosis (TB) skin testing (23 [26%]), and STD screening (17 [20%]).

[†]For this report, the term "syringes" refers to both syringes and needles.

[§]California (17 SEPs); Washington (11); New York (10); Connecticut (six); Illinois and Michigan (three each); Massachusetts, Puerto Rico, Texas, and Wisconsin (two each); and one each in Colorado, Florida, Indiana, Louisiana, Maryland, Minnesota, Missouri, New Hampshire, New Jersey, North Carolina, Ohio, Oregon, Pennsylvania, Rhode Island, and Tennessee. Twenty-four SEPs asked that their location not be reported.

[¶]New York (two); Bridgeport, Connecticut; Chicago; Los Angeles; Oakland, California; Philadelphia; San Francisco; Seattle; and Tacoma, Washington (one each).

TABLE 1. Number and percentage of syringe-exchange programs (SEPs) and number and percentage of new syringes provided by SEPs, by size of program — United States, 1996

	SEPs		Total syringes exchanged	
Size of SEP*	**No.**	**(%)**	**No.**	**(%)**
< 10,000	23	(27)	64,737	(<1)
10,000– 55,000	27	(32)	810,247	(6)
55,001–499,999	24	(29)	3,658,060	(26)
≥500,000	10	(12)	9,407,628	(68)
Total	**84**	**(100)**	**13,940,672**	**(100)**

*Based on the number of syringes exchanged in 1996.

Syringe-Exchange Programs — Continued

SEPs were defined as legal if they operated in a state that had no law requiring a prescription to purchase a hypodermic syringe (i.e., a prescription law) or had an exemption to the state prescription law allowing the SEP to operate; illegal-but-tolerated if they operated in a state with a prescription law but had received a formal vote of support or approval from a local elected body (e.g., city council); and illegal-underground if the SEP operated in a state with a prescription law but had not received formal support from local elected officials. In 1996, a total of 46 (53%) SEPs were legal, 20 (23%) were illegal but tolerated, and 21 (24%) were illegal-underground. Legal SEPs were more likely than illegal ones to offer on-site HIV counseling and testing (29 [63%] of 46 legal versus eight [20%] of 41 illegal) and TB skin testing (19 [41%] of 46 versus three [7%] of 41). The three SEPs that did not refer clients to substance-abuse treatment were illegal-underground programs.

Reported by: D Paone, EdD, D Des Jarlais, PhD, J Clark, Q Shi, MS, Beth Israel Medical Center; M Krim, PhD, American Foundation for AIDS Research, New York. D Purchase, North American Syringe Exchange Network, Tacoma, Washington. Div of HIV/AIDS Prevention, National Center for HIV, STD, and TB Prevention, CDC.

Editorial Note: Among IDUs, multiperson use of syringes (i.e., "sharing") is the primary mechanism of transmission of HIV, hepatitis B and C, and other bloodborne infections related to injection of illicit drugs (*3*). Multiperson use occurs when an IDU prepares or injects drugs using a syringe borrowed, rented, and/or lent by another IDU. In addition, equipment and water used to prepare drugs for injection can become contaminated with blood remaining in previously used syringes.

In May 1997, the Public Health Service** released provisional recommendations for persons who continue to inject drugs (*4*). These recommendations include advice that drug users who cannot stop injecting drugs use only sterile syringes to prepare and inject drugs and other steps to prevent bloodborne infection transmission. If IDUs adhere to these recommendations, the number of syringes required would be substantially greater than that currently provided through SEPs and other sources. Because of the costs of large-scale expansion of SEPs, these services alone probably could not meet the demand for sterile syringes (*5*).

The findings in this report indicate an expansion in the number of SEPs and in the scope of activities since 1994 (*2*). During 1994–1996, there were increases in the number of SEPs participating in the surveys (58% [from 55 to 87]) and in the numbers of cities (52% [from 46 to 71]) and states (38% [from 21 to 29]) with SEPs. Although the number of syringes exchanged increased by 75% (from 8 million to 14 million) from 1994 to 1996, most SEPs exchanged relatively small numbers of syringes, and the 23 least active SEPs exchanged a mean of 2815 syringes per program. If less active SEPs are located in communities with large numbers of IDUs, their impact on the overall availability of sterile syringes will probably be limited.

The findings in this report are subject to at least two limitations. First, the extent of SEP activity is probably underestimated because of incomplete participation in this survey of U.S. SEPs and the possible existence of SEPs that are not members of NASEN. Second, because the definition of legal status did not include the local status of drug paraphernalia laws, legal barriers to SEPs may be underestimated (*6*).

** CDC, the Health Resources and Services Administration, the National Institute on Drug Abuse of the National Institutes of Health, and the Substance Abuse and Mental Health Services Administration.

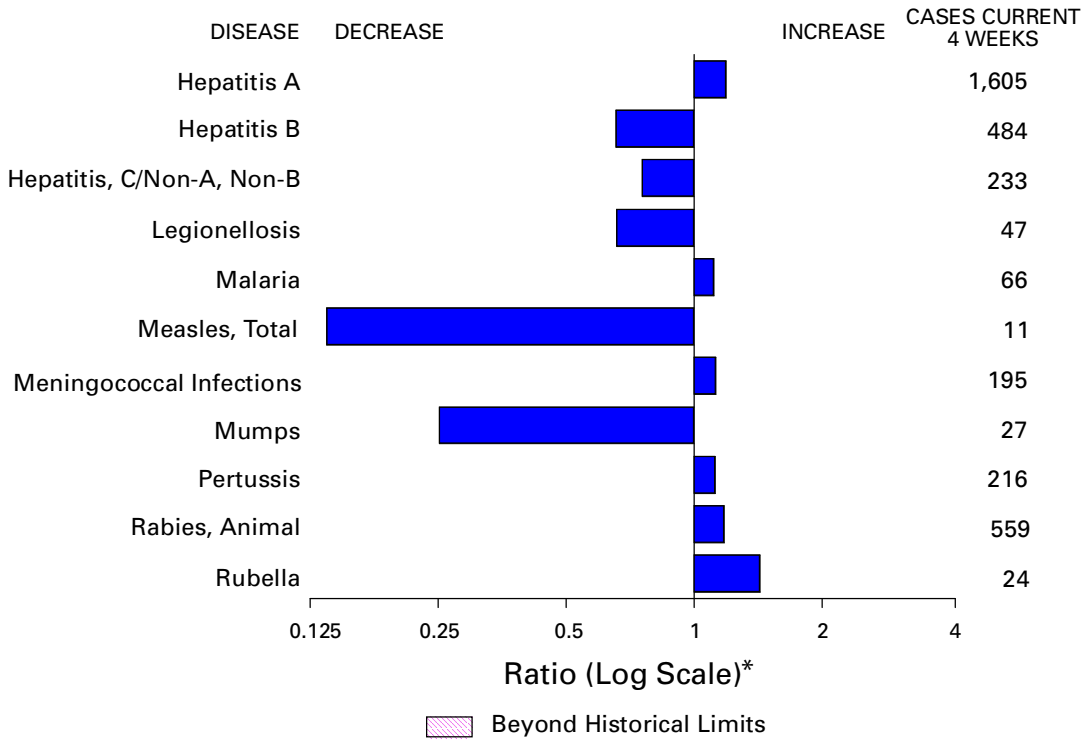
Syringe-Exchange Programs — Continued

Existing laws and regulations in many U.S. communities substantially limit the sale of sterile syringes and needles and establish criminal penalties for possession of syringes for persons who inject illicit drugs (*6*) and may reduce the likelihood that IDUs will be able to obtain sterile syringes from legal sources (e.g., pharmacies). In May 1997, in efforts to prevent HIV transmission among IDUs, the legislatures in Maine and Minnesota removed criminal penalties for possession of ≤10 syringes to permit the legal operation of SEPs and increase IDUs' use of sterile syringes from legal sources.

References

1. CDC. HIV/AIDS surveillance report, 1996. Atlanta, Georgia. US Department of Health and Human Services, Public Health Service, 1997:1–39. (Vol 8, no. 2).
2. CDC. Syringe exchange programs—United States, 1994–1995. MMWR 1995;44:684–5,691.
3. Garfein RS, Vlahov D, Galai N, Doherty MC, Nelson KE. Viral infections in short-term injection drug users: the prevalence of the hepatitis C, hepatitis B, human immunodeficiency, and human T-lymphotropic viruses. Am J Public Health 1996;86:655–61.
4. CDC/Health Resources and Services Administration/National Institute on Drug Abuse/Substance Abuse and Mental Health Services Administration. HIV prevention bulletin: medical advice for persons who inject illicit drugs. Atlanta: US Department of Health and Human Services, Public Health Service, 1997.
5. Bigg D. Syringe exchange programs will not be enough [Letter]. Inter J Drug Policy 1995;6:292.
6. Gostin LO, Lazzarini Z, Jones TS, Flaherty K. Prevention of HIV/AIDS and other blood-borne diseases among injection drug users: a national survey on the regulation of syringes and needles. JAMA 1997;277:53–62.

FIGURE I. Selected notifiable disease reports, comparison of provisional 4-week totals ending June 14, 1997, 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 — provisional cases of selected notifiable diseases, United States, cumulative, week ending June 14, 1997 (24th Week)

	Cum. 1997		Cum. 1997
Anthrax	-	Plague	1
Brucellosis	22	Poliomyelitis, paralytic	-
Cholera	3	Psittacosis	19
Congenital rubella syndrome	2	Rabies, human	2
Cryptosporidiosis*	537	Rocky Mountain spotted fever (RMSF)	81
Diphtheria	4	Streptococcal disease, invasive Group A	775
Encephalitis: California*	4	Streptococcal toxic-shock syndrome*	17
eastern equine*	-	Syphilis, congenital¶	82
St. Louis*	1	Tetanus	19
western equine*	-	Toxic-shock syndrome	52
Hansen Disease	52	Trichinosis	4
Hantavirus pulmonary syndrome*†	5	Typhoid fever	124
Hemolytic uremic syndrome, post-diarrheal*	20	Yellow fever	-
HIV infection, pediatric*§	112		

-:no reported cases
*Not notifiable in all states.
†Updated weekly from reports to the Division of Viral and Rickettsial Diseases, National Center for Infectious Diseases (NCID).
§Updated monthly to the Division of HIV/AIDS Prevention–Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention (NCHSTP), last update May 27, 1997.
¶Updated from reports to the Division of STD Prevention, NCHSTP.

TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending June 14, 1997, and June 15, 1996 (24th Week)

Reporting Area	AIDS		Chlamydia		*Escherichia coli* O157:H7		Gonorrhea		Hepatitis C/NA,NB	
					NETSS†	PHLIS§				
	Cum. 1997*	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1997	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996
UNITED STATES	25,284	29,762	180,760	188,419	533	251	113,340	136,610	1,415	1,612
NEW ENGLAND	903	1,213	7,512	7,633	43	23	2,509	2,831	27	45
Maine	25	16	428	167	2	-	25	8	-	-
N.H.	14	31	314	339	2	2	55	66	5	2
Vt.	18	9	186	206	3	1	24	27	-	14
Mass.	419	647	3,276	3,052	29	20	1,022	978	19	26
R.I.	71	73	948	938	1	-	216	241	3	3
Conn.	356	437	2,360	2,931	6	-	1,167	1,511	-	-
MID. ATLANTIC	8,301	8,162	24,551	31,996	32	8	14,168	19,382	147	137
Upstate N.Y.	1,358	1,002	N	N	20	3	2,549	3,279	112	106
N.Y. City	4,157	4,491	13,269	17,260	5	-	5,867	7,589	-	3
N.J.	1,773	1,636	3,247	6,411	7	3	1,878	3,918	-	-
Pa.	1,013	1,033	8,035	8,325	N	2	3,874	4,596	35	28
E.N. CENTRAL	1,687	2,391	26,628	40,292	92	28	16,331	26,093	254	240
Ohio	357	526	5,945	9,398	27	11	3,876	6,669	7	7
Ind.	329	342	3,991	4,496	20	5	2,717	2,994	7	7
Ill.	612	984	5,118	11,490	22	-	2,489	7,556	20	48
Mich.	306	400	8,235	9,951	23	4	5,816	6,657	220	178
Wis.	83	139	3,339	4,957	N	8	1,433	2,217	-	-
W.N. CENTRAL	469	678	10,214	14,522	75	42	4,704	7,263	95	40
Minn.	84	126	U	2,293	34	21	U	1,659	2	-
Iowa	67	51	2,125	1,906	15	8	578	472	26	16
Mo.	195	319	4,897	6,190	9	10	3,190	3,845	46	12
N. Dak.	5	7	384	425	3	2	24	12	2	-
S. Dak.	3	7	578	660	4	-	58	92	-	-
Nebr.	48	49	444	932	7	-	124	175	2	5
Kans.	67	119	1,786	2,116	3	1	730	1,008	17	7
S. ATLANTIC	6,203	7,575	38,562	25,577	64	19	37,798	43,154	132	79
Del.	111	142	-	-	1	2	524	661	-	-
Md.	734	853	3,367	2,881	3	1	6,061	5,771	9	1
D.C.	409	456	N	N	-	-	1,319	66	-	-
Va.	551	484	5,102	5,190	N	7	3,606	4,312	10	7
W. Va.	38	51	1,450	962	N	-	441	329	8	7
N.C.	361	361	7,750	U	18	9	7,326	8,628	28	21
S.C.	300	383	5,656	U	1	-	5,111	5,190	24	15
Ga.	850	1,085	4,426	5,822	19	-	5,728	10,118	U	-
Fla.	2,849	3,760	10,811	10,668	22	-	7,682	8,079	53	28
E.S. CENTRAL	810	973	15,117	13,879	41	7	14,797	14,653	169	307
Ky.	113	153	3,016	3,186	12	-	1,628	1,894	8	15
Tenn.	358	352	5,823	5,974	20	7	4,786	5,048	105	251
Ala.	194	277	3,716	3,898	6	-	5,212	6,087	6	2
Miss.	145	191	2,562	821	3	-	3,171	1,624	50	39
W.S. CENTRAL	2,596	3,145	21,297	9,797	27	5	14,112	9,251	174	141
Ark.	96	121	550	754	3	1	1,137	1,884	-	4
La.	476	688	3,671	3,148	4	3	3,444	3,416	97	81
Okla.	138	100	3,335	3,462	2	1	2,109	2,123	4	1
Tex.	1,886	2,236	13,741	2,433	18	-	7,422	1,828	73	55
MOUNTAIN	730	883	11,644	11,366	61	37	3,308	3,541	187	295
Mont.	18	10	470	561	3	-	20	13	10	9
Idaho	22	19	658	720	11	8	47	43	23	76
Wyo.	13	3	255	316	4	-	25	14	83	88
Colo.	180	245	1,896	897	19	10	761	829	20	26
N. Mex.	65	45	1,708	1,803	5	3	593	402	28	38
Ariz.	188	280	4,509	5,076	N	13	1,358	1,725	17	35
Utah	55	88	785	696	16	-	110	134	3	11
Nev.	189	193	1,363	1,297	3	3	394	381	3	12
PACIFIC	3,585	4,742	25,235	33,357	98	79	5,613	10,442	230	328
Wash.	288	362	4,183	4,556	20	20	891	1,006	14	29
Oreg.	144	223	1,671	2,546	29	34	249	245	4	5
Calif.	3,111	4,066	18,043	24,990	46	22	4,081	8,747	134	197
Alaska	16	11	624	441	3	-	184	207	-	2
Hawaii	26	80	714	824	N	3	208	237	78	95
Guam	2	4	31	197	N	-	3	33	-	5
P.R.	762	1,047	N	N	21	U	296	313	49	88
V.I.	36	10	N	N	N	U	-	-	-	-
Amer. Samoa	-	-	-	-	N	U	-	-	-	-
C.N.M.I.	1	-	N	N	N	U	16	11	2	-

N: Not notifiable U: Unavailable -: no reported cases C.N.M.I.: Commonwealth of Northern Mariana Islands

*Updated monthly to the Division of HIV/AIDS Prevention–Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention, last update May 27, 1997.

†National Electronic Telecommunications System for Surveillance.

§Public Health Laboratory Information System.

TABLE II. (Cont'd.) Provisional cases of selected notifiable diseases, United States, weeks ending June 14, 1997, and June 15, 1996 (24th Week)

Reporting Area	Legionellosis		Lyme Disease		Malaria		Syphilis (Primary & Secondary)		Tuberculosis		Rabies, Animal
	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997
UNITED STATES	368	345	1,270	2,143	569	531	3,638	5,319	7,267	8,219	3,336
NEW ENGLAND	26	18	255	333	28	16	69	72	196	181	512
Maine	1	1	3	3	1	3	-	-	11	12	100
N.H.	4	-	7	6	1	1	-	1	6	6	20
Vt.	4	2	3	2	2	2	-	-	3	-	87
Mass.	7	9	37	20	14	7	37	34	113	74	101
R.I.	5	6	43	39	2	3	1	1	13	20	11
Conn.	5	N	162	263	8	-	31	36	50	69	193
MID. ATLANTIC	59	74	742	1,568	144	159	171	241	1,391	1,426	705
Upstate N.Y.	13	17	110	681	26	29	17	35	189	158	524
N.Y. City	1	4	10	81	73	90	34	75	737	730	-
N.J.	7	7	188	277	33	29	65	82	284	310	68
Pa.	38	46	434	529	12	11	55	49	181	228	113
E.N. CENTRAL	129	121	25	19	37	71	316	921	781	899	68
Ohio	70	41	20	9	6	7	105	348	150	137	52
Ind.	22	30	5	7	6	6	75	123	65	90	8
Ill.	-	15	-	3	5	31	26	252	397	491	2
Mich.	31	24	-	-	17	16	59	92	121	138	6
Wis.	6	11	U	U	3	11	51	106	48	43	-
W.N. CENTRAL	34	21	15	51	18	13	58	197	208	224	206
Minn.	1	1	11	3	5	3	U	22	48	54	17
Iowa	9	3	-	6	8	2	3	13	20	31	72
Mo.	8	5	2	22	3	6	36	144	91	83	11
N. Dak.	2	-	-	-	-	-	-	-	5	2	28
S. Dak.	1	2	-	-	-	-	-	-	4	13	32
Nebr.	9	8	2	-	1	-	1	6	6	13	1
Kans.	4	2	-	20	1	2	18	12	34	28	45
S. ATLANTIC	56	42	137	91	134	83	1,523	1,745	1,426	1,499	1,389
Del.	4	2	14	47	2	2	14	17	11	24	31
Md.	14	6	92	12	43	22	422	288	140	118	249
D.C.	3	3	6	1	7	4	41	8	46	68	2
Va.	9	12	2	3	26	13	130	216	140	118	282
W. Va.	-	1	-	4	-	1	1	2	24	27	38
N.C.	6	3	7	17	7	10	326	502	172	191	441
S.C.	2	4	1	2	7	3	197	211	147	165	67
Ga.	-	1	1	-	13	8	249	324	248	316	131
Fla.	18	10	14	5	29	20	143	177	498	472	148
E.S. CENTRAL	14	21	31	31	14	13	845	1,268	474	638	130
Ky.	2	2	4	11	3	3	75	65	91	116	17
Tenn.	6	8	12	8	4	5	357	408	120	214	78
Ala.	2	2	4	1	4	2	222	255	183	196	35
Miss.	4	9	11	11	3	3	191	540	80	112	-
W.S. CENTRAL	6	2	11	17	5	11	483	532	926	959	157
Ark.	-	-	1	8	1	-	59	127	98	88	22
La.	1	-	1	-	4	1	185	252	-	4	1
Okla.	2	2	4	2	-	-	57	79	74	69	57
Tex.	3	-	5	7	-	10	182	74	754	798	77
MOUNTAIN	22	23	5	3	33	29	71	61	249	266	49
Mont.	1	1	-	-	2	3	-	-	7	7	10
Idaho	2	-	-	-	-	-	-	1	5	4	-
Wyo.	1	2	2	3	2	2	-	1	2	3	16
Colo.	4	6	2	-	15	14	2	18	50	43	-
N. Mex.	1	1	-	-	5	1	-	-	16	39	4
Ariz.	7	7	1	-	4	3	59	36	113	105	18
Utah	5	1	-	-	2	4	3	1	10	10	-
Nev.	1	5	-	-	3	2	7	4	46	55	1
PACIFIC	22	23	49	30	156	136	102	282	1,616	2,127	120
Wash.	6	1	1	1	8	7	6	3	94	121	-
Oreg.	-	-	9	9	10	11	4	5	66	84	2
Calif.	15	22	39	19	133	112	90	273	1,335	1,806	100
Alaska	-	-	-	-	3	2	1	-	41	39	18
Hawaii	1	-	-	1	2	4	1	1	80	77	-
Guam	-	1	-	-	-	-	-	3	5	45	-
P.R.	-	-	-	-	3	-	101	121	88	38	25
V.I.	-	-	-	-	-	-	-	-	-	-	-
Amer. Samoa	-	-	-	-	-	-	-	-	-	-	-
C.N.M.I.	-	-	-	-	-	-	5	1	-	-	-

N: Not notifiable U: Unavailable -: no reported cases

TABLE III. Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending June 14, 1997, and June 15, 1996 (24th Week)

Reporting Area	*H. influenzae*, invasive		Hepatitis (Viral), by type				Measles (Rubeola)					
			A		B		Indigenous		Imported†		Total	
	Cum. 1997*	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	1997	Cum. 1997	1997	Cum. 1997	Cum. 1997	Cum. 1996
UNITED STATES	528	563	12,428	12,458	3,863	4,283	4	46	-	18	64	230
NEW ENGLAND	28	14	261	149	61	93	-	8	-	-	8	11
Maine	3	-	37	12	5	2	U	-	U	-	-	-
N.H.	2	9	17	5	5	7	-	-	-	-	-	-
Vt.	1	-	7	3	2	7	-	-	-	-	-	1
Mass.	19	5	113	76	30	26	-	8	-	-	8	9
R.I.	2	-	26	6	8	6	-	-	-	-	-	-
Conn.	1	-	61	47	11	45	-	-	-	-	-	1
MID. ATLANTIC	56	116	905	810	526	688	4	11	-	4	15	21
Upstate N.Y.	3	28	121	176	99	162	-	1	-	3	4	4
N.Y. City	18	29	317	275	176	256	-	4	-	1	5	7
N.J.	25	32	163	179	126	133	-	1	-	-	1	-
Pa.	10	27	304	180	125	137	4	5	-	-	5	10
E.N. CENTRAL	76	94	1,252	1,147	408	519	-	4	-	2	6	16
Ohio	43	50	192	448	41	58	-	-	-	-	-	2
Ind.	8	7	142	153	44	70	-	-	-	-	-	-
Ill.	17	26	234	270	82	148	-	4	-	1	5	3
Mich.	7	6	612	174	227	194	-	-	-	1	1	2
Wis.	1	5	72	102	14	49	U	-	U	-	-	9
W.N. CENTRAL	26	20	953	933	245	219	-	9	-	2	11	16
Minn.	16	10	87	50	18	19	-	-	-	2	2	14
Iowa	3	3	143	196	41	23	-	-	-	-	-	-
Mo.	3	4	488	474	160	139	-	1	-	-	1	1
N. Dak.	-	-	9	22	1	-	-	-	-	-	-	-
S. Dak.	2	1	13	38	-	-	-	8	-	-	8	-
Nebr.	1	1	74	67	8	16	-	-	-	-	-	-
Kans.	1	1	139	86	17	22	-	-	-	-	-	1
S. ATLANTIC	109	100	734	474	565	549	-	1	-	3	4	4
Del.	-	1	11	6	3	3	-	-	-	-	-	1
Md.	43	32	128	93	83	75	-	-	-	1	1	-
D.C.	2	5	14	15	21	15	-	-	-	1	1	-
Va.	6	4	87	74	56	68	-	-	-	-	-	2
W. Va.	3	4	6	10	8	14	-	-	-	-	-	-
N.C.	16	16	103	57	108	155	-	-	-	1	1	-
S.C.	4	3	63	29	57	40	-	-	-	-	-	-
Ga.	20	27	120	15	47	7	-	-	-	-	-	-
Fla.	15	8	202	175	182	172	-	1	-	-	1	1
E.S. CENTRAL	35	18	314	770	323	384	-	-	-	-	-	-
Ky.	5	5	36	16	18	38	-	-	-	-	-	-
Tenn.	22	7	193	543	206	229	-	-	-	-	-	-
Ala.	8	5	50	99	31	25	-	-	-	-	-	-
Miss.	-	1	35	112	68	U	U	-	U	-	-	-
W.S. CENTRAL	29	23	2,654	2,274	503	465	-	3	-	1	4	2
Ark.	1	-	133	236	28	40	-	-	-	-	-	-
La.	6	1	107	62	58	55	-	-	-	-	-	-
Okla.	17	20	793	932	16	23	-	-	-	-	-	-
Tex.	5	2	1,621	1,044	401	347	-	3	-	1	4	2
MOUNTAIN	57	31	1,895	1,991	430	518	-	5	-	-	5	37
Mont.	-	-	50	60	5	5	-	-	-	-	-	-
Idaho	1	1	75	128	16	60	-	-	-	-	-	1
Wyo.	-	-	19	19	20	15	-	-	-	-	-	-
Colo.	7	6	220	177	87	60	-	-	-	-	-	6
N. Mex.	7	8	151	233	147	171	-	-	-	-	-	-
Ariz.	23	11	940	759	89	120	-	5	-	-	5	8
Utah	3	5	335	438	49	58	-	-	-	-	-	18
Nev.	16	-	105	177	17	29	-	-	-	-	-	4
PACIFIC	112	147	3,460	3,910	802	848	-	5	-	6	11	123
Wash.	3	2	251	252	34	49	-	-	-	-	-	37
Oreg.	20	19	181	537	55	56	-	-	-	-	-	4
Calif.	83	120	2,944	3,049	695	735	-	2	-	6	8	17
Alaska	1	4	21	28	12	3	-	-	-	-	-	63
Hawaii	5	2	63	44	6	5	-	3	-	-	3	2
Guam	-	-	-	6	1	-	U	-	U	-	-	-
P.R.	-	1	160	115	600	513	-	-	-	-	-	1
V.I.	-	-	-	22	-	19	U	-	U	-	-	-
Amer. Samoa	-	-	-	-	-	-	U	-	U	-	-	-
C.N.M.I.	5	10	1	1	21	5	U	1	U	-	1	-

N: Not notifiable U: Unavailable -: no reported cases

*Of 115 cases among children aged <5 years, serotype was reported for 60 and of those, 22 were type b.

†For imported measles, cases include only those resulting from importation from other countries.

TABLE III. (Cont'd.) Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending June 14, 1997, and June 15, 1996 (24th Week)

Reporting Area	Meningococcal Disease		Mumps			Pertussis			Rubella		
	Cum. 1997	Cum. 1996	1997	Cum. 1997	Cum. 1996	1997	Cum. 1997	Cum. 1996	1997	Cum. 1997	Cum. 1996
UNITED STATES	1,857	1,776	10	298	341	59	2,241	1,642	-	46	112
NEW ENGLAND	111	71	-	7	-	-	475	319	-	-	23
Maine	11	9	U	-	-	U	6	10	U	-	-
N.H.	10	2	-	-	-	-	61	19	-	-	-
Vt.	2	3	-	-	-	-	163	10	-	-	2
Mass.	59	24	-	2	-	-	228	277	-	-	19
R.I.	8	7	-	4	-	-	12	-	-	-	-
Conn.	21	26	-	1	-	-	5	3	-	-	2
MID. ATLANTIC	164	194	-	27	50	1	164	106	-	3	6
Upstate N.Y.	41	45	-	5	13	-	52	53	-	1	3
N.Y. City	30	28	-	-	13	-	40	16	-	2	1
N.J.	36	44	-	-	2	-	5	6	-	-	2
Pa.	57	77	-	22	22	1	67	31	-	-	-
E.N. CENTRAL	260	254	-	31	80	4	170	230	-	2	3
Ohio	104	85	-	13	27	3	68	73	-	-	-
Ind.	32	37	-	4	5	-	27	14	-	-	-
Ill.	77	78	-	7	15	-	24	53	-	-	1
Mich.	27	28	-	7	32	1	31	19	-	-	2
Wis.	20	26	U	-	1	U	20	71	U	2	-
W.N. CENTRAL	139	132	-	9	5	4	128	66	-	-	-
Minn.	17	14	-	3	1	2	84	42	-	-	-
Iowa	29	28	-	4	-	1	16	3	-	-	-
Mo.	70	55	-	-	2	-	16	14	-	-	-
N. Dak.	1	2	-	-	2	-	2	-	-	-	-
S. Dak.	4	4	-	-	-	1	2	1	-	-	-
Nebr.	6	12	-	2	-	-	3	2	-	-	-
Kans.	12	17	-	-	-	-	5	4	-	-	-
S. ATLANTIC	335	268	1	41	46	1	199	157	-	21	14
Del.	4	2	-	-	-	-	-	13	-	-	-
Md.	31	30	-	4	16	-	72	55	-	-	-
D.C.	1	6	-	-	-	-	2	-	-	-	1
Va.	30	32	-	4	4	-	19	18	-	1	2
W. Va.	12	10	-	-	-	-	4	2	-	-	-
N.C.	55	45	-	7	9	-	46	27	-	10	-
S.C.	41	36	-	9	5	-	8	5	-	9	1
Ga.	69	74	-	4	2	-	7	7	-	-	-
Fla.	92	33	1	13	10	1	41	30	-	1	10
E.S. CENTRAL	140	131	1	16	15	2	39	148	-	-	2
Ky.	35	19	1	3	-	-	2	128	-	-	-
Tenn.	50	39	-	3	1	2	17	12	-	-	-
Ala.	39	37	-	6	3	-	12	4	-	-	2
Miss.	16	36	U	4	11	U	8	4	U	-	N
W.S. CENTRAL	195	205	4	33	27	-	38	49	-	4	7
Ark.	25	26	-	-	-	-	7	2	-	-	-
La.	33	35	4	11	10	-	11	4	-	-	1
Okla.	23	20	-	-	-	-	5	4	-	-	-
Tex.	114	124	-	22	17	-	15	39	-	4	6
MOUNTAIN	109	109	3	41	14	31	691	164	-	4	6
Mont.	8	5	-	-	-	1	8	5	-	-	-
Idaho	7	12	-	2	-	21	509	58	-	1	2
Wyo.	1	3	-	1	-	-	4	-	-	-	-
Colo.	30	19	-	3	2	5	118	30	-	-	2
N. Mex.	18	20	N	N	N	-	31	30	-	-	-
Ariz.	28	27	2	27	1	4	15	12	-	3	1
Utah	11	11	1	6	2	-	4	5	-	-	-
Nev.	6	12	-	2	9	-	2	24	-	-	1
PACIFIC	404	412	1	93	104	16	337	403	-	12	51
Wash.	51	52	-	12	10	14	177	154	-	-	11
Oreg.	83	74	-	1	-	1	17	30	-	-	1
Calif.	267	280	1	69	78	1	136	208	-	7	36
Alaska	1	4	-	2	2	-	1	1	-	-	-
Hawaii	2	2	-	9	14	-	6	10	-	5	3
Guam	-	1	U	1	4	U	-	-	U	-	-
P.R.	8	8	-	4	1	-	-	2	-	-	-
V.I.	-	-	U	-	1	U	-	-	U	-	-
Amer. Samoa	-	-	U	-	-	U	-	-	U	-	-
C.N.M.I.	-	-	U	4	-	U	-	-	U	-	-

N: Not notifiable U: Unavailable -: no reported cases

TABLE IV. Deaths in 122 U.S. cities,* week ending June 14, 1997 (24th Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	>65	45-64	25-44	1-24	<1	
NEW ENGLAND	507	376	88	20	13	10	31
Boston, Mass.	121	79	22	7	8	5	8
Bridgeport, Conn.	49	36	10	1	1	1	2
Cambridge, Mass.	11	7	3	1	-	-	1
Fall River, Mass.	21	19	-	1	1	-	-
Hartford, Conn.	28	20	6	-	2	-	-
Lowell, Mass.	26	19	5	2	-	-	-
Lynn, Mass.	14	11	3	-	-	-	1
New Bedford, Mass.	20	17	2	1	-	-	-
New Haven, Conn.	34	28	4	1	-	1	2
Providence, R.I.	54	42	9	1	-	2	3
Somerville, Mass.	9	8	1	-	-	-	-
Springfield, Mass.	37	25	10	1	1	-	7
Waterbury, Conn.	26	20	5	1	-	-	3
Worcester, Mass.	57	45	8	3	-	1	4
MID. ATLANTIC	2,091	1,448	407	157	47	32	113
Albany, N.Y.	40	34	6	-	-	-	5
Allentown, Pa.	20	15	3	1	1	-	-
Buffalo, N.Y.	U	U	U	U	U	U	U
Camden, N.J.	41	27	7	3	3	1	5
Elizabeth, N.J.	17	15	2	-	-	-	2
Erie, Pa.	42	33	6	2	1	-	4
Jersey City, N.J.	43	28	12	1	1	1	3
New York City, N.Y.	1,144	782	223	100	20	19	36
Newark, N.J.	66	29	23	10	2	2	3
Paterson, N.J.	20	14	5	1	-	-	-
Philadelphia, Pa.	299	190	70	26	9	4	24
Pittsburgh, Pa.§	51	33	11	1	3	3	6
Reading, Pa.	5	4	1	-	-	-	-
Rochester, N.Y.	124	107	11	4	2	-	14
Schenectady, N.Y.	27	21	5	1	-	-	-
Scranton, Pa.	18	11	4	3	-	-	2
Syracuse, N.Y.	75	58	9	3	3	2	4
Trenton, N.J.	19	14	4	-	1	-	2
Utica, N.Y.	19	13	4	1	1	-	-
Yonkers, N.Y.	21	20	1	-	-	-	3
E.N. CENTRAL	1,714	1,179	332	122	44	37	92
Akron, Ohio	36	27	8	1	-	-	-
Canton, Ohio	29	22	6	1	-	-	2
Chicago, Ill.	U	U	U	U	U	U	U
Cincinnati, Ohio	105	70	23	4	3	5	9
Cleveland, Ohio	171	117	28	16	6	4	3
Columbus, Ohio	206	132	44	17	8	5	14
Dayton, Ohio	120	82	21	9	5	3	15
Detroit, Mich.	235	138	62	22	8	5	3
Evansville, Ind.	42	33	6	2	-	1	2
Fort Wayne, Ind.	72	54	12	4	1	1	2
Gary, Ind.	22	11	4	5	-	2	-
Grand Rapids, Mich.	70	51	12	5	-	2	7
Indianapolis, Ind.	182	118	41	15	4	4	10
Lansing, Mich.	30	21	4	2	1	2	4
Milwaukee, Wis.	124	96	21	5	2	-	6
Peoria, Ill.	24	18	4	2	-	-	5
Rockford, Ill.	50	38	8	2	2	-	1
South Bend, Ind.	52	40	9	1	1	1	3
Toledo, Ohio	88	68	13	4	2	1	5
Youngstown, Ohio	56	43	6	5	1	1	1
W.N. CENTRAL	843	601	139	55	18	17	73
Des Moines, Iowa	122	96	18	6	1	1	12
Duluth, Minn.	33	28	3	2	-	-	6
Kansas City, Kans.	41	25	9	4	2	1	-
Kansas City, Mo.	114	73	18	6	1	3	4
Lincoln, Nebr.	31	23	4	3	1	-	2
Minneapolis, Minn.	191	147	30	8	4	2	31
Omaha, Nebr.	80	50	12	10	3	5	2
St. Louis, Mo.	95	65	17	7	4	2	9
St. Paul, Minn.	47	35	12	-	-	-	3
Wichita, Kans.	89	59	16	9	2	3	4
S. ATLANTIC	1,223	772	255	125	39	31	74
Atlanta, Ga.	164	100	28	25	5	6	7
Baltimore, Md.	156	95	31	22	6	2	16
Charlotte, N.C.	93	67	17	4	5	-	9
Jacksonville, Fla.	124	74	25	14	7	3	2
Miami, Fla.	89	55	22	10	2	-	-
Norfolk, Va.	51	36	9	4	1	1	7
Richmond, Va.	89	52	19	9	2	7	3
Savannah, Ga.	63	46	12	3	-	2	10
St. Petersburg, Fla.	60	47	8	3	1	1	6
Tampa, Fla.	166	114	32	13	4	3	9
Washington, D.C.	148	71	47	18	6	6	5
Wilmington, Del.	20	15	5	-	-	-	-
E.S. CENTRAL	911	609	193	73	22	14	66
Birmingham, Ala.	193	123	51	11	5	3	14
Chattanooga, Tenn.	76	55	13	5	3	-	3
Knoxville, Tenn.	86	60	15	9	2	-	4
Lexington, Ky.	69	46	14	5	3	1	9
Memphis, Tenn.	219	147	38	25	2	7	21
Mobile, Ala.	72	47	16	6	2	1	1
Montgomery, Ala.	59	48	10	1	-	-	5
Nashville, Tenn.	137	83	36	11	5	2	9
W.S. CENTRAL	1,327	854	274	128	49	22	95
Austin, Tex.	99	59	19	14	7	-	2
Baton Rouge, La.	34	22	7	2	2	1	1
Corpus Christi, Tex.	79	52	18	3	3	3	6
Dallas, Tex.	175	103	41	20	8	3	7
El Paso, Tex.	84	54	15	8	6	1	6
Ft. Worth, Tex.	79	54	19	4	1	1	5
Houston, Tex.	366	229	83	38	8	8	33
Little Rock, Ark.	80	51	18	6	4	1	6
New Orleans, La.	U	U	U	U	U	U	U
San Antonio, Tex.	181	123	28	20	6	4	14
Shreveport, La.	71	52	11	5	3	-	5
Tulsa, Okla.	79	55	15	8	1	-	10
MOUNTAIN	956	649	158	95	40	11	60
Albuquerque, N.M.	95	69	10	13	3	-	6
Boise, Idaho	35	28	4	-	1	2	1
Colo. Springs, Colo.	58	33	17	3	2	3	2
Denver, Colo.	115	73	15	13	9	5	10
Las Vegas, Nev.	172	124	37	9	1	1	4
Ogden, Utah	31	18	7	6	-	-	3
Phoenix, Ariz.	133	82	20	19	9	-	9
Pueblo, Colo.	35	21	8	3	3	-	-
Salt Lake City, Utah	109	73	14	13	9	-	9
Tucson, Ariz.	173	128	26	16	3	-	16
PACIFIC	1,140	806	193	78	34	29	116
Berkeley, Calif.	18	13	2	2	1	-	1
Fresno, Calif.	U	U	U	U	U	U	U
Glendale, Calif.	U	U	U	U	U	U	U
Honolulu, Hawaii	60	42	13	3	1	1	4
Long Beach, Calif.	66	47	10	3	4	2	11
Los Angeles, Calif.	U	U	U	U	U	U	U
Pasadena, Calif.	16	12	3	-	-	1	1
Portland, Oreg.	161	115	29	8	6	3	15
Sacramento, Calif.	140	95	25	13	2	5	19
San Diego, Calif.	155	105	25	10	10	5	23
San Francisco, Calif.	103	70	13	12	5	3	14
San Jose, Calif.	148	107	29	7	2	3	16
Santa Cruz, Calif.	30	25	3	2	-	-	2
Seattle, Wash.	111	74	19	12	2	4	4
Spokane, Wash.	61	43	12	4	1	1	3
Tacoma, Wash.	71	58	10	2	-	1	3
TOTAL	10,712¶	7,294	2,039	853	306	203	720

U: Unavailable -: no reported cases

*Mortality data in this table are voluntarily reported from 122 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 this Pennsylvania city, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

¶Total includes unknown ages.

Contributors to the Production of the *MMWR* (Weekly)

Weekly Notifiable Disease Morbidity Data and 122 Cities Mortality Data

Denise Koo, M.D., M.P.H.

State Support Team

Robert Fagan
Jill Andrews
Karl A. Brendel
Siobhan Gilchrist, M.P.H.
Harry Holden
Gerald Jones
Felicia Perry
Svati Shah, M.P.H.

CDC Operations Team

Carol M. Knowles
Deborah A. Adams
Willie J. Anderson
Christine R. Burgess
Timothy M. Copeland
Patsy A. Hall
Myra A. Montalbano
Angela Trosclair, M.S.

Desktop Publishing and Graphics Support

Morie M. Higgins
Peter M. Jenkins

The *Morbidity and Mortality Weekly Report (MMWR)* Series is prepared by the Centers for Disease Control and Prevention (CDC) and is available free of charge in electronic format and on a paid subscription basis for paper copy. To receive an electronic copy on Friday of each week, send an e-mail message to *listserv@listserv.cdc.gov*. The body content should read *SUBscribe mmwr-toc*. Electronic copy also is available from CDC's World-Wide Web server at *http://www.cdc.gov/* or from CDC's file transfer protocol server at *ftp.cdc.gov*. To subscribe for paper copy, contact Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402; telephone (202) 512-1800.

Data in the weekly *MMWR* are provisional, based on weekly reports to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the following Friday. Address inquiries about the *MMWR* Series, including material to be considered for publication, to: Editor, *MMWR* Series, Mailstop C-08, CDC, 1600 Clifton Rd., N.E., Atlanta, GA 30333; telephone (404) 332-4555.

☆**U.S. Government Printing Office: 1997-532-228/67009 Region IV**