CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

February 3, 1995 / Vol. 44 / No. 4

MMWR

MORBIDITY AND MORTALITY WEEKLY REPORT

Current Trends

Occupational Silicosis — Ohio, 1989–1994

Silicosis is a chronic lung disease associated with the inhalation and pulmonary deposition of dust that contains crystalline silica. Through the Sentinel Event Notification System for Occupational Risks (SENSOR)* program, CDC's National Institute for Occupational Safety and Health (NIOSH) is assessing practical models for implementing state-based surveillance of silicosis and linking follow-up intervention activities to surveillance reports. From 1989 through 1992, the Ohio Department of Health (ODH) SENSOR program identified silicosis cases through reports of Bureau of Workers' Compensation (BWC) claims, physician reports, and death certificates. The addition in 1993 of hospital discharge reports as an ascertainment source resulted in a substantial increase in the number of silicosis case reports identified annually (Table 1). This report describes the investigation of a case of occupational silicosis in Ohio and summarizes the impact of hospital-based reporting on surveillance for silicosis in Ohio during 1993–1994.

Case Report

In September 1991, a case report† was sent to ODH by an infectious disease specialist who was treating a 55-year-old sandblaster with advanced silicosis and an associated *Mycobacterium kansasii* infection§ (*2*). In January 1992, NIOSH and ODH conducted a joint investigation at the worker's place of employment—a metal preparation shop—to evaluate current levels of exposure to respirable crystalline silica and to screen co-workers for silicosis. The investigation detected excessive exposures to respirable crystalline silica (*2–5*). Chest radiology revealed radiographic abnormalities consistent with pneumoconiosis in four of 16 current and former workers

*SENSOR is a program of cooperative agreements with state health departments to develop surveillance and intervention strategies for selected occupational conditions. The National Institute for Occupational Safety and Health currently supports SENSOR silicosis programs in seven states (Illinois, Michigan, New Jersey, North Carolina, Ohio, Texas, and Wisconsin).

†Case reports should be submitted for persons with a physician's provisional diagnosis of silicosis, a chest radiograph interpreted as consistent with silicosis, or pathologic findings consistent with silicosis (*1*).

§Silicosis is often complicated by severe *Mycobacterium* infections (e.g., *M. tuberculosis*, *M. kansasii*, and *M. avium* complex).

Silicosis — Continued

TABLE 1. Silicosis reports, by initial reporting source and year of ascertainment* — Ohio, 1989–1994

Reporting source	1989†		1990		1991		1992		1993		1994		Total	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Hospital	—		—		—		—		257	(93.1)	147	(96.7)	**404**	**(71.9)**
Death certificate	7	(23.3)	2	(9.1)	18	(46.2)	29	(67.4)	12	(4.3)	—		**68**	**(12.1)**
Bureau of Worker's Compensation	8	(25.7)	7	(31.8)	18	(46.2)	12	(27.9)	—		—		**45**	**(8.0)**
Physician	15	(50.0)	5	(22.7)	3	(7.7)	2	(4.7)	5	(1.8)	4	(2.6)	**34**	**(6.0)**
Other	—		8	(36.4)	—		—		2	(0.7)	1	(0.7)	**11**	**(2.0)**
Total	**30**	**(100.0)**	**22**	**(100.0)**	**39**	**(100.0)**	**43**	**(100.0)**	**276**	**(100.0)**	**152**	**(100.0)**	**562**	**(100.0)**

*Reports are classified by the year in which the report is received by the Ohio Department of Health, rather than by the year of diagnosis or hospitalization.
†The Sentinel Event Notification System for Occupational Risks (SENSOR) surveillance system was implemented in Ohio during 1988, and 1989 data may not be directly comparable with data for succeeding years.

(including one case of advanced silicosis [International Labour Organization, category C (*6*)]). At the time of the initial survey, ODH recommended that the company discontinue use of silica sand in abrasive blasting operations. In March 1992, the company substituted aluminum oxide for silica sand in all abrasive blasting operations.

Direct Hospital Discharge Reporting

In February 1993, ODH designated silicosis as a disease warranting special assessment; although not requiring reporting by hospitals, this designation authorized ODH surveillance staff to gain access to medical records of persons with potential cases. In April 1993, ODH notified all general (i.e., nonpediatric and nonpsychiatric) hospitals by mail about this designation and requested copies of medical records of all patients who had been discharged since March 1991 with a primary or secondary diagnosis coded as "Pneumoconiosis due to silica or silicates" (*International Classification of Diseases, Ninth Revision* [ICD-9], code 502). In response, hospitals sent the discharge records of 262 suspected silicosis cases for the period covered by the initial request (through 1993); ODH determined that 257 (98%) of these were unique cases that did not duplicate cases reported by the other sources (Table 1). An additional 147 cases (all of which were unique reports) were forwarded by hospitals during 1994 in response to a similar request mailed in March 1994. For 1993–1994, OHD received a total of 404 suspected silicosis cases that were reported only by hospitals; all other sources combined reported a total of 24 cases during these 2 years.

Of the 404 hospital-based reports, 99 (24%) were confirmed¶ as silicosis using information contained in the hospital records and, for some cases, direct contacts with discharged patients. An additional 69 (17%) cases met the objective medical criterion specified in the silicosis surveillance case definition; however, final confirmation for these is pending verification of a history of occupational exposure to airborne silica dust.

¶Case confirmation requires 1) a history of occupational exposure to airborne silica dust (exposure criterion) and 2) either a chest radiograph consistent with silicosis or pathologic findings characteristic of silicosis (medical criterion) (*1*).

Silicosis — Continued

Reported by: E Socie, MS, A Migliozzi, MSN, S Wagner, MPH, TJ Halpin, MD, State Epidemiologist, Ohio Dept of Health. Epidemiological Investigations Br, Div of Respiratory Disease Studies, National Institute for Occupational Safety and Health, CDC.

Editorial Note: The findings in this report demonstrate the potentially crucial role of direct hospital discharge reporting in surveillance for silicosis. In particular, compared with other information sources (e.g., computerized death certificate reviews and reports of BWC claims), advantages of hospital discharge-based reporting for silicosis are 1) case reports are submitted to ODH on a more timely basis—an action that is necessary to enable follow-up investigations, such as that described in this report, and 2) this source enables the provision of clinical information that is necessary for case confirmation. Although reports from physicians also are similarly useful, hospitals are more likely than physicians to report cases.

Other states have used direct hospital discharge reporting for surveillance for occupational asthma (*7*). Because occupational-related information is usually not included in hospital medical records, a phone interview is conducted with persons with identified cases to determine if the condition was work related. This approach to case identification may be useful for other conditions (e.g., asbestosis and coal workers' pneumoconiosis).

Hospital discharge data-based reporting for silicosis is subject to at least three limitations. First, most persons with silicosis are not hospitalized at the time of initial diagnosis and, therefore, will not be identified by hospital-based reporting during early stages of disease. Second, silicosis may not be entered as a discharge diagnosis if it is an incidental diagnosis and not a primary reason for hospitalization or if it is not mentioned in the patient's past medical history. Third, Ohio has no mechanism to assess completeness of direct hospital discharge reporting. Because of these limitations and to ensure complete case ascertainment, a comprehensive surveillance system for silicosis should employ other methods, including workers' compensation claim data, death certificate data, and direct physician reports.

In addition to Ohio, four other states (Illinois, Michigan, New Jersey, and Wisconsin) use hospital discharge data for silicosis surveillance; programs in Illinois and Wisconsin rely on voluntary direct reporting by physicians and hospitals while programs in Michigan and New Jersey mandate direct reporting by physicians and hospitals. In Illinois, Michigan, and New Jersey, computerized hospital discharge data also are reviewed annually, and investigation of discrepancies between cases identified through direct discharge reporting and through the review of computerized hospital discharge data tapes has enabled these states to improve ascertainment of cases and to assess underreporting by hospitals.

An important goal of the SENSOR projects for silicosis is to develop a model of silicosis surveillance that can be implemented in any state that has targeted the prevention of silicosis. Other conditions targeted by SENSOR include asthma, tuberculosis, burns, amputations, cadmium overexposure, carpal tunnel syndrome, childhood injuries, dermatitis, noise-induced hearing loss, pesticide health effects, and spinal cord injuries. Such systems most likely will require the use of multiple data sources for comprehensive case ascertainment.

References

1. CDC. Silicosis: cluster in sandblasters—Texas, and occupational surveillance for silicosis. MMWR 1990;39:433–7.

Silicosis — Continued

2. Liston R. Silica survey report. Columbus Ohio: Ohio Department of Health, March 1992. (Computer no. 12292).
3. NIOSH. Health hazard evaluation report: commercial steel treating company. Cincinnati: US Department of Health and Human Services, Public Health Service, CDC, 1992; DHHS publication no. (NIOSH)92-0174-2363.
4. NIOSH. Request for assistance in preventing silicosis and deaths from sandblasting. Cincinnati: US Department of Health and Human Services, Public Health Service, CDC, 1992; DHHS publication no. (NIOSH)92-102.
5. Short S, Liston R, O'Brien D, Migliozzi N, Wagner G, Parker J. Silico-tuberculosis death in a sandblaster: the utility of the Sentinel Event Notification System for Occupational Risks (SENSOR) program. Am Rev Respir Dis 1993;147:4:A898.
6. International Labour Office. Guidelines for the use of ILO International Classification of Radiographs of pneumoconioses. Revised ed. Geneva: International Labour Office, 1980:6–7. (Occupational safety and health series 22 [Rev.80]).
7. CDC. Surveillance for occupational asthma—Michigan and New Jersey, 1988–1992. In: CDC surveillance summaries (June). MMWR 1994;43(no. SS-1):9–17.

Current Trends

Update: Acquired Immunodeficiency Syndrome — United States, 1994

During 1994, state, local, and territorial health departments reported to CDC 80,691 cases of acquired immunodeficiency syndrome (AIDS) among persons in the United States, which followed the 106,618 cases reported in 1993. The number of cases reported in each of these years was greater than that reported in 1992 (47,572) and followed the expansion of the AIDS surveillance case definition for adolescents and adults implemented on January 1, 1993 (*1–3*). Based on analyses using consistent definitions, the rate of AIDS-related illnesses increased 3% in 1993 compared with 1992; a similar increase is expected for 1994 compared with 1993 (*3*). This report summarizes the characteristics of AIDS cases reported in 1994 and compares these findings with those in 1993.

Of the total 80,691 reported cases, 79,674 (99%) occurred among adolescents and adults (i.e., persons aged ≥13 years) and 1017 among children aged <13 years. Women, blacks and Hispanics, and persons in the South and Northeast accounted for higher percentages of reported cases during 1994 than during 1993 (Table 1). Among cases for which risks were reported, the largest decline in the proportion of reported cases occurred among homosexual/bisexual men.

The number of cases reported among adolescents and adults for 1994 (79,674) was lower than that reported for 1993 (105,676). During 1993, the number of cases reported among adolescents and adults decreased by quarter year of report and included 36,208 during the first quarter, 25,548 during the second quarter, 25,509 during the third quarter, and 18,411 during the fourth quarter. In comparison, the number of cases reported during 1994 varied less by quarter year of report and included 20,682 during the first quarter, 19,566 during the second quarter, 21,924 during the third quarter, and 17,502 during the fourth quarter.

Of all AIDS cases reported among adolescents and adults during 1994, a total of 43,226 (54%) was reported based on the reporting criteria added to the definition in

AIDS — Continued

TABLE 1. Characteristics of persons with reported AIDS cases, by year of report — United States, 1993–1994

Characteristic	1993 Reported cases No.	1993 Reported cases (%)	1994 Reported cases No.	1994 Reported cases (%)
Sex*				
Male	89,349	(83.8)	66,095	(81.9)
Female	17,269	(16.2)	14,594	(18.1)
Age group (yrs)				
0– 4	728	(0.7)	785	(1.0)
5–12	214	(0.2)	232	(0.3)
13–19	586	(0.6)	417	(0.5)
20–29	19,202	(18.0)	13,198	(16.4)
30–39	48,380	(45.4)	36,527	(45.3)
40–49	27,235	(25.5)	21,259	(26.3)
50–59	7,596	(7.1)	6,108	(7.6)
≥60	2,677	(2.5)	2,165	(2.7)
Race/Ethnicity[†]				
White, non-Hispanic	48,058	(45.1)	33,193	(41.1)
Black, non-Hispanic	38,455	(36.1)	31,487	(39.0)
Hispanic	18,847	(17.7)	15,066	(18.7)
Asian/Pacific Islander	771	(0.7)	577	(0.7)
American Indian/ Alaskan Native	348	(0.3)	227	(0.3)
HIV-exposure category				
Male homosexual/ bisexual contact	50,389	(47.3)	34,974	(43.3)
History of injecting-drug use				
Women and heterosexual men	29,792	(28.0)	21,717	(27.0)
Male homosexual/ bisexual contact	6,651	(6.2)	3,853	(4.8)
Persons with hemophilia	1,117	(1.0)	513	(0.6)
Heterosexual contact[§]	9,793	(9.2)	8,300	(10.3)
Transfusion recipients	1,199	(1.1)	779	(1.0)
Perinatal transmission	886	(0.8)	933	(1.2)
No risk reported	6,791	(6.4)	9,622	(11.9)
Region[¶]				
Northeast	31,094	(29.2)	25,301	(31.4)
Northcentral	11,195	(10.5)	7,962	(9.9)
South	35,611	(33.4)	28,627	(35.5)
West	25,328	(23.8)	16,236	(20.1)
U.S. territories	3,258	(3.1)	2,412	(3.0)
Total	**106,618**	**(100.0)**	**80,691**	**(100.0)**

*In 1994, two cases were reported in persons for whom sex was unknown.
[†]Excludes persons with unspecified race/ethnicity (139 in 1993 and 141 in 1994).
[§]Persons whose origin is or who had sex with a person whose origin is a country where heterosexual transmission was presumed to be the predominant mode of HIV transmission (i.e., formerly classified by the World Health Organization as Pattern II countries) are no longer automatically classified as having heterosexually acquired AIDS. These persons are classified as "no risk reported."
[¶]Northeast=New England and Middle Atlantic regions; Northcentral=East North Central and West North Central regions; South=South Atlantic, East South Central, and West South Central regions; West=Mountain and Pacific regions. Excludes persons for whom state of residence was unspecified (132 in 1993 and 153 in 1994).

AIDS — Continued

1993. Of these, 39,513 (91%) persons had severe human immunodeficiency virus (HIV)-related immunodeficiency only (i.e., <200 CD4+ T-lymphocytes per µL or a CD4+ T-lymphocyte percentage of total lymphocytes <14), 2357 (5%) had pulmonary tuberculosis (TB), 1239 (3%) had recurrent pneumonia, and 164 (<1%) had invasive cervical cancer; 47 persons were reported with ≥2 of these clinical diseases. Of the 3713 persons reported with one of the three opportunistic illnesses (i.e., pulmonary TB, recurrent pneumonia, and invasive cervical cancer), 1097 (30%) were women, 2237 (60%) were black, and 1785 (48%) were injecting-drug users.

The AIDS surveillance definition for children aged <13 years did not change in 1993. The number of cases reported in children during 1994 (1017) increased 8% over those reported during 1993 (942). Of the 1017 children, 50% were female, most were black (62%) or Hispanic (23%), and 92% were infected through perinatal transmission.

Reported by: Local, state, and territorial health depts. Div of HIV/AIDS, National Center for Infectious Diseases, CDC.

Editorial Note: This report confirms the predicted decline in the number of AIDS cases reported in 1994 compared with 1993 (*2*). Following the expansion of the surveillance definition on January 1, 1993, a substantial increase occurred in the number of cases reported, predominantly reflecting the reporting of persons with conditions diagnosed before that date and who were not eligible for reporting until these conditions were added to the surveillance definition. However, after these cases had been reported, the number of reported cases began to decrease by quarter, and during 1994, the numbers of cases reported by quarter were relatively stable.

The findings for 1994 indicate a continuation of trends for certain population groups, including an increase in the proportion of cases accounted for by women and racial/ethnic minorities, a decrease in the proportion accounted for by homosexual/bisexual men, and an increase in the number of cases in children. These patterns may reflect the evolution of the HIV epidemic but also may have been influenced by the differential effects of the expansion of the surveillance definition among different populations and in different geographic areas (*4*). Studies are in progress to evaluate the effects of use of the 1993 criteria on AIDS case reporting.

The large increases in case reporting associated with the expansion of the AIDS surveillance definition have constrained the usefulness of analyses based on year of report as an approach for monitoring trends. Instead, analyses based on the year of diagnosis—with adjustments for delays in reporting—typically have been used to more precisely monitor temporal changes in AIDS trends. Because most HIV-infected persons develop severe immunosuppression before the onset of AIDS-defining opportunistic illnesses (AIDS-OIs), the inclusion of the CD4+ reporting criteria in the surveillance definition has required an additional adjustment to estimate when persons who were reported using the CD4+ criteria will develop an AIDS-OI. Based on these methods, the estimated number of persons with diagnosed AIDS-OIs in 1993 increased 3% over 1992 (*3*) and indicated disproportionate increases for women and racial/ethnic minorities and a leveling of cases diagnosed among homosexual/bisexual men (CDC, unpublished data, 1994). Initial analysis suggests that the number of AIDS-OI diagnoses in 1994 will increase at a rate similar to that estimated for 1993.

Use of the expanded AIDS surveillance case definition has been associated with predicted changes (i.e., both anticipated increases and decreases) in AIDS case reporting during 1993–1994. However, the rate of reporting of AIDS remained high in 1994.

AIDS — Continued

The approximately 81,000 persons reported with AIDS represent 18% of the 441,528 cumulative AIDS cases reported since 1981. As a result of the expanding epidemic of severe HIV disease, in 1993 HIV became the leading cause of death among persons aged 25–44 years (*5*).

References

1. CDC. 1993 Revised classification system for HIV infection and expanded surveillance case definition for AIDS among adolescents and adults. MMWR 1992;41(no. RR-17).
2. CDC. Update: impact of the expanded AIDS surveillance case definition for adolescents and adults on case reporting—United States, 1993. MMWR 1994;43:160–1,167–70.
3. CDC. Update: trends in AIDS diagnosis and reporting under the expanded surveillance definition for adolescents and adults—United States, 1993. MMWR 1994;43:826–31.
4. CDC. Assessment of laboratory reporting to supplement active AIDS surveillance—Colorado. MMWR 1993;42:749–52.
5. NCHS. Annual summary of births, marriages, divorces, and deaths: United States, 1993. Hyattsville, Maryland: US Department of Health and Human Services, Public Health Service, CDC, 1994:18–20. (Monthly vital statistics report; vol 42, no. 13).

Current Trends

Acute Pulmonary Hemorrhage Among Infants — Chicago, April 1992–November 1994

A cluster of cases of acute pulmonary hemorrhage of unknown etiology occurred among eight infants in Cleveland during January 1993–November 1994 (*1*). During the investigation of these cases, a similar cluster was identified in the Chicago area. From April 1992 through November 1994, seven infants with acute pulmonary hemorrhage of unknown etiology were admitted to hospitals in the Chicago area. Four of the infants were treated at the same hospital in which, during the preceding 3 years (1989–1991), one case of pulmonary hemorrhage among infants had been diagnosed. This report summarizes the preliminary results of the ongoing epidemiologic, clinical, and laboratory investigations of these cases by pediatric pulmonologists in Chicago, the Illinois Department of Public Health, the Chicago Department of Public Health, the Cook County Department of Public Health, and CDC.

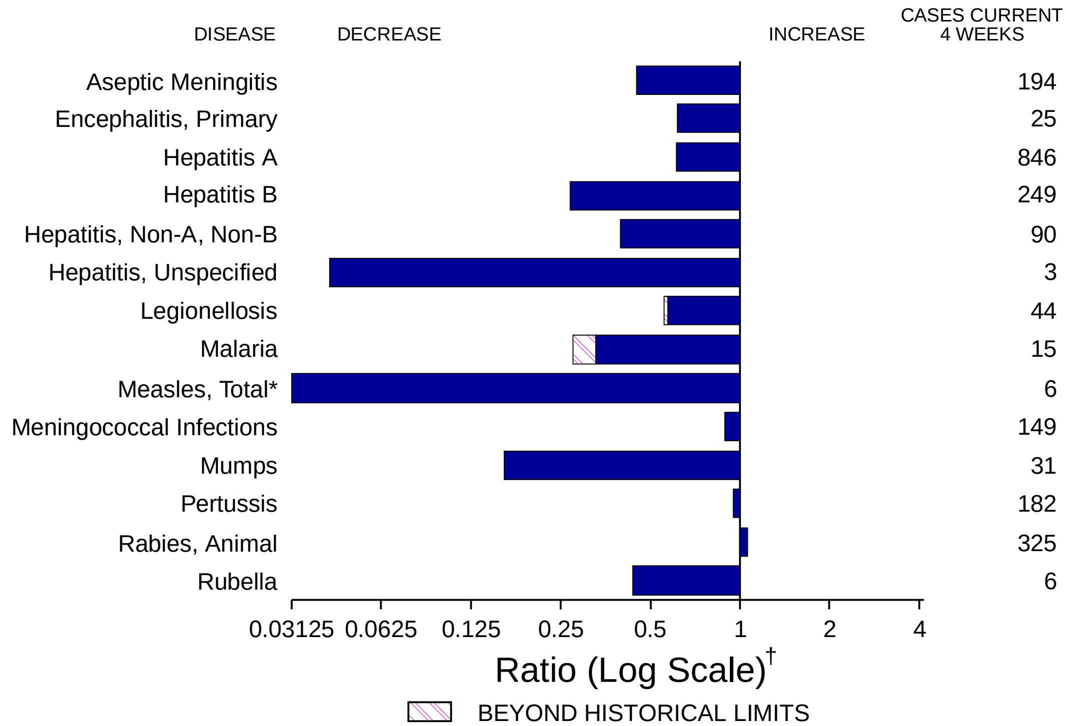
A surveillance case definition for acute pulmonary hemorrhage among infants that was established by CDC and public health officials in Chicago is the occurrence in an infant aged <1 year of hemoptysis and/or epistaxis or blood obtained from endotracheal tube following atraumatic intubation, not attributed to cardiac or vascular malformations, infectious processes, or known trauma.

The two infants with the most recently diagnosed cases had been admitted to separate hospitals in October and November 1994. A review of medical records identified two additional infants hospitalized in 1992 (in April and December) and three in 1993 (in March, May, and September). At the time of admission, all seven infants were afebrile but had anemia and histories consistent with either hemoptysis (four infants), epistaxis (one), or blood from the endotracheal tube (two). In addition, acute onset of severe respiratory distress was diagnosed in all seven at the time of admission.

Six infants were black and four were male. At the time of hospitalization, the infants were aged 3 weeks–8 months (mean: 12.3 weeks). All infants were healthy previously.

(Continued on page 73)

FIGURE I. Notifiable disease reports, comparison of 4-week totals ending January 28, 1995, with historical data — United States



*The large apparent decrease in the number of reported cases of measles (total), reflect dramatic fluctuations in the historical baseline. (Ratio (log scale) for week 4 measles (total) is 0.02178).
†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 January 28, 1995 (4th Week)

	Cum. 1995		Cum. 1995
Anthrax	-	Plague	-
Aseptic Meningitis	212	Poliomyelitis, Paralytic	-
Brucellosis	6	Psittacosis	2
Cholera	-	Rabies, human	-
Congenital rubella syndrome	-	Rocky Mountain Spotted Fever	6
Diphtheria	-	Syphilis, congenital, age < 1 year†	-
Encephalitis, primary	25	Tetanus	1
Encephalitis, post-infectious	1	Toxic shock syndrome	7
*Haemophilus influenzae**	98	Trichinosis	-
Hansen Disease	6	Tularemia	1
Hepatitis, unspecified	4	Typhoid fever	15
Leptospirosis	3		

*Of 97 cases of known age, 22 (23%) were reported among children less than 5 years of age.
†Updated quarterly from reports to the Division of STD & HIV Prevention, National Center for Prevention Services. First quarter data not yet available.
-: no reported cases

TABLE II. Cases of selected notifiable diseases, United States, weeks ending January 28, 1995, and January 29, 1994 (4th Week)

Reporting Area	AIDS*	Gonorrhea		Hepatitis (Viral), by type						Legionellosis	
				A		B		NA,NB			
	Cum. 1995	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994
UNITED STATES	-	23,876	28,264	996	1,247	298	731	107	302	51	118
NEW ENGLAND	-	343	611	11	23	6	25	-	9	-	1
Maine	-	3	3	3	-	1	-	-	-	-	-
N.H.	-	1	-	-	2	-	3	-	1	-	-
Vt.	-	2	2	-	-	-	-	-	-	-	-
Mass.	-	279	230	3	13	1	17	-	3	-	-
R.I.	-	38	29	2	8	2	2	-	5	-	1
Conn.	-	20	347	3	-	2	3	-	-	-	-
MID. ATLANTIC	-	1,918	2,486	22	85	9	87	13	33	3	7
Upstate N.Y.	-	168	-	5	10	4	14	8	7	1	-
N.Y. City	-	-	1,595	5	40	1	22	-	1	-	-
N.J.	-	394	35	-	21	-	30	-	18	-	2
Pa.	-	1,356	856	12	14	4	21	5	7	2	5
E.N. CENTRAL	-	5,849	5,355	197	155	42	124	15	32	22	55
Ohio	-	2,205	1,783	147	34	5	15	1	-	16	19
Ind.	-	377	665	16	29	10	29	1	1	6	20
Ill.	-	1,316	969	-	63	-	26	-	5	-	6
Mich.	-	1,812	1,389	32	15	27	29	13	26	-	9
Wis.	-	139	549	2	14	-	25	-	-	-	1
W.N. CENTRAL	-	1,431	1,426	17	70	12	37	3	1	4	7
Minn.	-	248	376	3	1	-	-	-	-	-	-
Iowa	-	85	65	4	2	4	2	1	-	2	4
Mo.	-	827	714	6	49	8	30	-	-	2	1
N. Dak.	-	-	1	-	-	-	-	-	-	-	-
S. Dak.	-	8	7	-	-	-	-	1	-	-	-
Nebr.	-	-	11	-	15	-	2	-	-	-	1
Kans.	-	263	252	4	3	-	3	1	1	-	1
S. ATLANTIC	-	8,648	7,621	49	56	68	151	18	49	9	12
Del.	-	175	100	1	1	1	2	-	-	-	-
Md.	-	1,344	1,393	15	19	12	20	1	8	2	2
D.C.	-	478	499	1	4	6	3	-	-	-	-
Va.	-	792	1,269	9	1	8	5	-	2	-	2
W. Va.	-	81	63	2	1	6	3	5	1	1	1
N.C.	-	2,036	2,019	7	5	26	37	6	10	5	1
S.C.	-	885	736	-	4	1	1	-	-	-	1
Ga.	-	1,332	-	-	1	-	66	-	23	1	2
Fla.	-	1,525	1,542	14	20	8	14	6	5	-	3
E.S. CENTRAL	-	2,874	3,552	20	118	21	115	1	89	1	22
Ky.	-	335	310	6	23	3	14	1	3	-	-
Tenn.	-	-	921	4	9	12	93	-	86	-	5
Ala.	-	2,098	1,507	9	6	6	8	-	-	-	-
Miss.	-	441	814	1	80	-	-	-	-	1	17
W.S. CENTRAL	-	1,062	3,830	35	34	24	33	14	14	-	1
Ark.	-	-	719	-	2	-	-	-	-	-	-
La.	-	1,062	1,334	-	1	1	3	-	-	-	-
Okla.	-	-	233	29	14	22	22	14	14	-	1
Tex.	-	-	1,544	6	17	1	8	-	-	-	-
MOUNTAIN	-	579	586	230	227	32	39	11	35	6	8
Mont.	-	-	20	3	-	2	1	2	-	1	1
Idaho	-	5	4	26	24	2	3	1	12	-	-
Wyo.	-	4	8	4	2	-	2	5	5	-	-
Colo.	-	228	280	57	23	7	8	1	9	-	2
N. Mex.	-	80	87	65	70	11	12	-	3	-	1
Ariz.	-	188	44	32	94	6	7	2	1	3	-
Utah	-	1	29	32	9	-	2	-	3	-	-
Nev.	-	73	114	11	5	4	4	-	2	2	4
PACIFIC	-	1,172	2,797	415	479	84	120	32	40	6	5
Wash.	-	167	242	11	42	2	7	2	6	-	2
Oreg.	-	-	99	121	25	10	3	3	-	-	-
Calif.	-	908	2,344	272	399	70	104	20	32	4	3
Alaska	-	70	51	8	8	1	-	-	-	-	-
Hawaii	-	27	61	3	5	1	6	7	2	2	-
Guam	-	-	12	-	-	-	-	-	-	-	-
P.R.	-	24	37	-	-	-	1	-	-	-	-
V.I.	-	-	3	-	-	-	1	-	-	-	-
Amer. Samoa	-	3	4	1	2	-	-	-	-	-	-
C.N.M.I.	-	-	7	-	-	-	-	-	-	-	-

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, National Center for Infectious Diseases.

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending January 28, 1995, and January 29, 1994 (4th Week)

Reporting Area	Lyme		Malaria		Measles (Rubeola)						Meningococcal Infections		Mumps	
					Indigenous		Imported*		Total					
	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	1995	Cum. 1995	1995	Cum. 1995	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994
UNITED STATES	130	202	19	51	-	6	-	-	6	5	166	272	36	78
NEW ENGLAND	5	16	3	4	-	2	-	-	2	1	15	12	-	1
Maine	-	-	-	1	-	-	-	-	-	-	2	3	-	-
N.H.	-	2	-	-	-	-	-	-	-	-	3	1	-	1
Vt.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mass.	5	-	1	-	-	-	-	-	-	1	7	3	-	-
R.I.	-	5	2	3	-	2	-	-	2	-	-	-	-	-
Conn.	-	9	-	-	-	-	-	-	-	-	3	5	-	-
MID. ATLANTIC	91	150	-	9	-	-	-	-	-	3	10	17	3	8
Upstate N.Y.	12	102	-	2	-	-	-	-	-	-	9	3	2	1
N.Y. City	-	8	-	2	-	-	-	-	-	-	-	-	-	-
N.J.	-	31	-	4	-	-	-	-	-	3	-	6	-	1
Pa.	79	9	-	1	-	-	-	-	-	-	1	8	1	6
E.N. CENTRAL	5	2	1	7	-	-	-	-	-	-	31	53	12	19
Ohio	5	2	-	1	-	-	-	-	-	-	10	9	8	-
Ind.	-	-	-	1	-	-	-	-	-	-	8	12	-	1
Ill.	-	-	-	4	-	-	-	-	-	-	10	16	-	11
Mich.	-	-	1	1	-	-	-	-	-	-	3	7	4	7
Wis.	-	-	-	-	-	-	-	-	-	-	-	9	-	-
W.N. CENTRAL	2	2	-	2	-	-	-	-	-	-	5	15	2	4
Minn.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iowa	-	-	-	1	-	-	-	-	-	-	3	-	1	1
Mo.	-	1	-	1	-	-	-	-	-	-	1	11	1	3
N. Dak.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S. Dak.	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Nebr.	-	-	-	-	U	-	U	-	-	-	-	1	-	-
Kans.	2	1	-	-	-	-	-	-	-	-	1	2	-	-
S. ATLANTIC	23	19	5	11	-	-	-	-	-	-	32	39	6	16
Del.	-	2	-	-	-	-	-	-	-	-	-	-	-	-
Md.	15	3	1	2	-	-	-	-	-	-	-	4	-	4
D.C.	-	-	-	1	-	-	-	-	-	-	1	1	-	-
Va.	-	-	-	2	-	-	-	-	-	-	1	4	2	-
W. Va.	4	1	-	-	-	-	-	-	-	-	-	4	-	-
N.C.	3	7	1	1	-	-	-	-	-	-	6	5	3	10
S.C.	1	-	-	1	-	-	-	-	-	-	2	-	-	1
Ga.	-	6	1	1	-	-	-	-	-	-	5	9	-	-
Fla.	-	-	2	3	-	-	-	-	-	-	17	12	1	1
E.S. CENTRAL	-	4	1	2	-	-	-	-	-	-	6	61	2	10
Ky.	-	4	-	-	-	-	-	-	-	-	2	8	-	-
Tenn.	-	-	-	1	U	-	U	-	-	-	-	5	-	-
Ala.	-	-	1	-	-	-	-	-	-	-	4	11	2	-
Miss.	-	-	-	1	U	-	U	-	-	-	-	37	-	10
W.S. CENTRAL	-	-	-	-	-	1	-	-	1	1	7	15	-	8
Ark.	-	-	-	-	-	-	-	-	-	-	-	1	-	-
La.	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Okla.	-	-	-	-	-	-	-	-	-	-	1	5	-	3
Tex.	-	-	-	-	U	1	U	-	1	1	5	9	-	5
MOUNTAIN	2	3	4	2	-	3	-	-	3	-	19	19	2	2
Mont.	-	-	1	-	-	-	-	-	-	-	-	1	-	-
Idaho	-	-	-	-	-	-	-	-	-	-	1	1	-	1
Wyo.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Colo.	1	-	1	-	-	-	-	-	-	-	7	2	-	-
N. Mex.	-	3	2	1	-	3	-	-	3	-	5	2	N	N
Ariz.	-	-	-	-	-	-	-	-	-	-	6	9	-	-
Utah	-	-	-	1	-	-	-	-	-	-	-	2	1	-
Nev.	1	-	-	-	-	-	-	-	-	-	-	2	1	1
PACIFIC	2	6	5	14	-	-	-	-	-	-	41	41	9	10
Wash.	-	-	-	-	-	-	-	-	-	-	2	4	1	1
Oreg.	-	-	1	-	-	-	-	-	-	-	9	4	N	N
Calif.	2	6	3	10	-	-	-	-	-	-	29	32	8	7
Alaska	-	-	1	-	-	-	-	-	-	-	-	-	-	2
Hawaii	-	-	-	4	-	-	-	-	-	-	1	1	-	-
Guam	-	-	-	-	U	-	U	-	-	-	-	-	-	-
P.R.	-	-	-	-	U	-	U	-	-	-	-	-	-	-
V.I.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amer. Samoa	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C.N.M.I.	-	-	-	1	U	-	U	-	-	12	-	-	-	-

*For imported measles, cases include only those resulting from importation from other countries.
N: Not notifiable U: Unavailable -: no reported cases

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending January 28, 1995, and January 29, 1994 (4th Week)

Reporting Area	Pertussis			Rubella			Syphilis (Primary & Secondary)		Tuberculosis		Rabies, Animal	
	1995	Cum. 1995	Cum. 1994	1995	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994
UNITED STATES	79	194	251	-	6	3	864	1,504	787	1,237	351	339
NEW ENGLAND	3	11	12	-	-	1	12	18	3	13	118	97
Maine	-	5	-	-	-	-	-	-	-	-	-	-
N.H.	-	-	4	-	-	-	-	-	-	-	18	11
Vt.	-	1	5	-	-	-	-	-	-	-	15	6
Mass.	3	5	1	-	-	1	6	4	1	3	61	42
R.I.	-	-	-	-	-	-	-	1	2	1	-	2
Conn.	-	-	2	-	-	-	6	13	-	9	24	36
MID. ATLANTIC	1	14	54	-	-	1	92	100	62	75	87	85
Upstate N.Y.	1	2	6	-	-	1	5	9	-	14	57	50
N.Y. City	-	-	-	-	-	-	68	75	22	52	-	-
N.J.	-	-	3	-	-	-	9	1	10	-	19	19
Pa.	-	12	45	-	-	-	10	15	30	9	11	16
E.N. CENTRAL	5	20	74	-	-	-	174	171	101	73	1	3
Ohio	3	14	17	-	-	-	64	63	26	13	1	-
Ind.	-	-	2	-	-	-	7	16	4	1	-	-
Ill.	-	-	27	-	-	-	68	40	50	55	-	-
Mich.	2	6	6	-	-	-	26	24	20	-	-	1
Wis.	-	-	22	-	-	-	9	28	1	4	-	2
W.N. CENTRAL	1	7	9	-	-	-	37	99	22	18	15	9
Minn.	-	-	-	-	-	-	3	4	-	2	-	-
Iowa	1	1	-	-	-	-	4	3	6	3	7	6
Mo.	-	1	4	-	-	-	30	92	8	9	3	-
N. Dak.	-	-	-	-	-	-	-	-	-	-	2	-
S. Dak.	-	-	-	-	-	-	-	-	-	2	-	-
Nebr.	U	-	-	U	-	-	-	-	-	-	-	-
Kans.	-	5	5	-	-	-	-	-	8	2	3	3
S. ATLANTIC	3	33	36	-	-	-	263	399	74	108	101	91
Del.	1	1	-	-	-	-	1	-	-	1	2	1
Md.	-	-	12	-	-	-	17	11	39	22	29	37
D.C.	1	1	-	-	-	-	13	13	9	11	-	-
Va.	-	-	3	-	-	-	37	49	-	-	19	19
W. Va.	-	-	1	-	-	-	-	-	8	3	4	2
N.C.	1	30	14	-	-	-	86	160	7	-	26	7
S.C.	-	-	5	-	-	-	55	38	10	24	8	6
Ga.	-	1	-	-	-	-	22	69	1	27	8	19
Fla.	-	-	1	-	-	-	32	59	-	20	5	-
E.S. CENTRAL	1	2	12	-	-	-	192	328	35	301	15	17
Ky.	-	-	1	-	-	-	16	15	5	5	1	-
Tenn.	U	-	2	U	-	-	-	84	-	5	8	9
Ala.	1	2	2	-	-	-	58	62	27	31	6	8
Miss.	U	-	7	U	-	-	118	167	3	260	-	-
W.S. CENTRAL	-	-	11	-	6	-	82	312	1	1	3	5
Ark.	-	-	-	-	-	-	-	34	-	-	-	1
La.	-	-	-	-	-	-	82	162	-	-	1	-
Okla.	-	-	11	-	-	-	-	11	1	1	2	4
Tex.	U	-	-	U	6	-	-	105	-	-	-	-
MOUNTAIN	63	92	7	-	-	-	11	20	17	28	5	9
Mont.	-	1	-	-	-	-	-	-	-	-	3	-
Idaho	15	26	-	-	-	-	-	-	1	1	-	-
Wyo.	-	-	-	-	-	-	1	-	-	-	-	2
Colo.	-	-	4	-	-	-	7	11	-	-	-	-
N. Mex.	1	3	1	-	-	-	1	-	-	4	-	-
Ariz.	47	62	2	-	-	-	2	3	11	17	2	7
Utah	-	-	-	-	-	-	-	3	-	-	-	-
Nev.	-	-	-	-	-	-	-	3	5	6	-	-
PACIFIC	2	15	36	-	-	1	1	57	472	620	6	23
Wash.	-	-	6	-	-	-	1	1	22	13	-	-
Oreg.	-	-	3	-	-	-	-	-	-	8	-	-
Calif.	-	12	25	-	-	1	-	56	434	584	6	19
Alaska	-	-	-	-	-	-	-	-	3	4	-	4
Hawaii	2	3	2	-	-	-	-	-	13	11	-	-
Guam	U	-	-	U	-	-	-	-	-	5	-	-
P.R.	U	-	-	U	-	-	5	25	-	-	4	4
V.I.	-	-	-	-	-	-	-	1	-	-	-	-
Amer. Samoa	-	-	-	-	-	-	-	-	1	-	-	-
C.N.M.I.	U	-	-	U	-	-	-	-	-	10	-	-

U: Unavailable -: no reported cases

TABLE III. Deaths in 121 U.S. cities,* week ending January 28, 1995 (4th Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	676	484	119	50	10	13	70
Boston, Mass.	186	123	36	20	3	4	17
Bridgeport, Conn.	33	23	7	1	1	1	3
Cambridge, Mass.	31	22	3	5	1	-	3
Fall River, Mass.	25	20	4	1	-	-	-
Hartford, Conn.	71	43	18	8	-	2	1
Lowell, Mass.	29	23	5	-	1	-	4
Lynn, Mass.	11	9	1	-	1	-	-
New Bedford, Mass.	18	16	-	1	1	-	3
New Haven, Conn.	42	27	12	3	-	-	2
Providence, R.I.	67	50	8	5	1	3	10
Somerville, Mass.	2	1	-	1	-	-	-
Springfield, Mass.	67	50	13	2	1	1	13
Waterbury, Conn.	37	34	1	1	-	1	4
Worcester, Mass.	57	43	11	2	-	1	10
MID. ATLANTIC	2,755	1,904	475	264	59	53	160
Albany, N.Y.	49	36	9	4	-	-	2
Allentown, Pa.	20	18	1	1	-	-	-
Buffalo, N.Y.	111	90	9	10	1	1	16
Camden, N.J.	49	31	7	7	2	2	1
Elizabeth, N.J.	25	19	4	1	1	-	1
Erie, Pa.§	55	44	7	1	2	1	5
Jersey City, N.J.	48	26	12	6	-	4	-
New York City, N.Y.	1,434	945	271	159	27	32	62
Newark, N.J.	66	35	13	12	3	3	7
Paterson, N.J.	35	21	5	7	2	-	2
Philadelphia, Pa.	406	280	79	31	14	2	26
Pittsburgh, Pa.§	69	52	9	4	1	3	2
Reading, Pa.	17	12	3	2	-	-	5
Rochester, N.Y.	132	100	19	7	2	4	11
Schenectady, N.Y.	35	30	3	1	1	-	3
Scranton, Pa.§	22	22	-	-	-	-	-
Syracuse, N.Y.	116	93	16	4	2	1	11
Trenton, N.J.	44	29	8	6	1	-	6
Utica, N.Y.	22	21	-	1	-	-	-
Yonkers, N.Y.	U	U	U	U	U	U	U
E.N. CENTRAL	2,475	1,542	466	263	124	80	141
Akron, Ohio	54	42	8	3	-	1	-
Canton, Ohio	39	29	8	-	2	-	4
Chicago, Ill.	482	193	94	94	77	24	17
Cincinnati, Ohio	179	114	29	23	4	9	20
Cleveland, Ohio	192	108	41	29	6	8	3
Columbus, Ohio	176	118	35	11	4	8	16
Dayton, Ohio	146	121	15	7	3	-	9
Detroit, Mich.	248	130	65	34	8	11	6
Evansville, Ind.	50	41	8	1	-	-	3
Fort Wayne, Ind.	69	45	19	3	1	1	6
Gary, Ind.	26	11	10	3	1	1	-
Grand Rapids, Mich.	71	62	5	1	1	2	7
Indianapolis, Ind.	214	128	50	23	6	7	9
Madison, Wis.	66	59	2	4	1	-	7
Milwaukee, Wis.	137	102	23	8	2	2	11
Peoria, Ill.	36	27	5	3	1	-	3
Rockford, Ill.	66	51	10	2	2	1	5
South Bend, Ind.	48	35	7	2	1	3	3
Toledo, Ohio	113	78	22	9	2	2	9
Youngstown, Ohio	63	48	10	3	2	-	3
W.N. CENTRAL	731	528	122	42	16	15	47
Des Moines, Iowa	U	U	U	U	U	U	U
Duluth, Minn.	23	16	6	-	1	-	1
Kansas City, Kans.	36	31	2	2	1	-	-
Kansas City, Mo.	124	75	21	13	5	2	9
Lincoln, Nebr.	46	37	8	1	-	-	4
Minneapolis, Minn.	169	125	31	8	2	3	17
Omaha, Nebr.	99	65	22	6	2	4	3
St. Louis, Mo.	124	93	20	4	3	4	8
St. Paul, Minn.	60	51	4	2	1	2	5
Wichita, Kans.	50	35	8	6	1	-	-
S. ATLANTIC	1,284	814	257	146	31	34	90
Atlanta, Ga.	175	110	32	26	1	6	7
Baltimore, Md.	170	99	36	27	3	5	21
Charlotte, N.C.	57	36	10	9	1	1	2
Jacksonville, Fla.	126	90	24	6	3	3	15
Miami, Fla.	89	55	21	10	3	-	2
Norfolk, Va.	60	33	16	7	3	1	2
Richmond, Va.	111	75	25	6	2	2	4
Savannah, Ga.	60	45	10	4	-	1	6
St. Petersburg, Fla.	51	41	4	1	1	4	2
Tampa, Fla.	233	157	47	18	5	6	25
Washington, D.C.	144	71	29	30	9	5	4
Wilmington, Del.	8	2	3	2	-	-	-
E.S. CENTRAL	884	560	179	82	43	20	67
Birmingham, Ala.	146	91	32	14	4	5	6
Chattanooga, Tenn.	80	62	9	7	2	-	8
Knoxville, Tenn.	123	87	22	7	6	1	13
Lexington, Ky.	40	26	12	1	1	-	5
Memphis, Tenn.	244	157	47	24	11	5	22
Mobile, Ala.	20	7	3	6	4	-	-
Montgomery, Ala.	53	30	14	4	4	1	5
Nashville, Tenn.	178	100	40	19	11	8	8
W.S. CENTRAL	1,581	1,019	294	154	61	53	101
Austin, Tex.	74	52	10	5	4	3	3
Baton Rouge, La.	58	45	7	3	1	2	1
Corpus Christi, Tex.	57	41	7	-	5	4	5
Dallas, Tex.	269	149	63	35	13	9	9
El Paso, Tex.	U	U	U	U	U	U	U
Ft. Worth, Tex.	119	71	27	14	3	4	7
Houston, Tex.	357	237	67	35	10	8	32
Little Rock, Ark.	66	47	10	4	5	-	4
New Orleans, La.	70	41	15	8	6	-	-
San Antonio, Tex.	262	172	42	26	5	17	20
Shreveport, La.	97	56	20	14	4	3	7
Tulsa, Okla.	152	108	26	10	5	3	13
MOUNTAIN	957	625	190	89	28	25	64
Albuquerque, N.M.	100	67	19	10	2	2	2
Colo. Springs, Colo.	55	43	8	4	-	-	3
Denver, Colo.	139	81	28	16	3	11	11
Las Vegas, Nev.	190	104	60	22	4	-	10
Ogden, Utah	32	24	6	2	-	-	3
Phoenix, Ariz.	170	110	27	20	8	5	18
Pueblo, Colo.	15	14	-	1	-	-	2
Salt Lake City, Utah	105	67	16	9	9	4	7
Tucson, Ariz.	151	115	26	5	2	3	8
PACIFIC	2,052	1,356	370	211	47	36	175
Berkeley, Calif.	21	17	2	2	-	-	2
Fresno, Calif.	71	53	9	2	4	3	6
Glendale, Calif.	22	20	1	1	-	-	3
Honolulu, Hawaii	71	46	17	7	-	1	5
Long Beach, Calif.	87	64	15	7	-	1	10
Los Angeles, Calif.	539	331	98	75	21	2	25
Pasadena, Calif.	38	28	7	2	-	1	5
Portland, Oreg.	133	95	20	13	4	1	13
Sacramento, Calif.	205	127	50	19	4	5	14
San Diego, Calif.	152	100	24	20	3	5	25
San Francisco, Calif.	174	98	32	19	1	4	25
San Jose, Calif.	193	130	43	13	2	5	19
Santa Cruz, Calif.	25	16	4	5	-	-	4
Seattle, Wash.	139	92	24	15	4	4	6
Spokane, Wash.	46	33	6	3	2	2	4
Tacoma, Wash.	136	106	18	8	2	2	9
TOTAL	13,395¶	8,832	2,472	1,301	419	329	915

*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.

-: no reported cases.

Acute Pulmonary Hemorrhage — Continued

One infant, a twin, had been delivered at 34 weeks. Six had been delivered at full term without complications. Six infants had been fed cow's-milk–based formulas, and one had been breastfed. The residences of the infants were dispersed in an approximately 40-square-mile area.

Because of the severity of respiratory distress, all seven infants were admitted to pediatric intensive-care units and were given respiratory support by mechanical ventilation. Duration of mechanical ventilation ranged from 4 to 12 days (mean: 8 days). On admission, mean hematocrit was 26.2% (range: 17.0%–30.5% [normal: 36.0%–47.0%]), and mean hemoglobin was 7.9 mg/dL (range: 5.0 mg/dL–9.6 mg/dL [normal: 10.0–15.0 mg/dL]). Red blood cell morphology (anisocytosis and 1+ schistocytosis) suggested mild hemolysis. For all seven infants, platelet counts were normal, and findings were within normal limits for prothrombin time and partial thromboplastin time. White blood cell counts ranged from 7.0 cells/mm^3 to 26.1 cells/mm^3 (mean= 14.3 cells/mm^3). All seven infants received blood transfusions for anemia.

Chest radiographs within 24 hours of admission indicated bilateral alveolar infiltrates in all seven infants. Bronchoscopy was performed for all seven infants to identify the source of bleeding, but no source was detected. Gastrointestinal evaluations (i.e., endoscopies and abdominal computerized axial tomography scans) performed for four of the infants also did not detect a source of bleeding. Evaluations of two of the infants for allergies to cow's milk protein through quantification of milk precipitins were negative.

Cultures of blood and urine specimens were negative for bacterial, mycotic, and viral pathogens. Cultures of tracheal aspirates were positive in one infant and yielded *Serratia marcessens* and *Staphylococcus aureus*. Twelve days after admission, respiratory syncytial virus was isolated from tracheal aspirates from one infant, but she was discharged with a diagnosis of idiopathic pulmonary hemosiderosis.

After receiving antibiotics and other supportive care, all seven infants fully recovered and were discharged. One infant died 3 weeks after discharge; lung biopsy and immunologic, gastrointestinal, and infectious disease evaluations of this infant were negative. Autopsy results were unremarkable, except for the lung parenchyma, which was dark red, poorly aerated, and oozing blood.

Active case finding has identified two potential additional cases in the Chicago area. A case-control study is in progress to determine risk factors for acute pulmonary hemorrhage among infants. A similar case-control study was initiated in Cleveland in November 1994.

Reported by: ME Wylam, MD, L Lester, MD, HV Connolly, MD, Wyler Children's Hospital; S McColley, MD, Children's Memorial Hospital; P Diaz, MD, W Addington, MD, B Paul, MD, H Guerrero, MBA, U Samala, MPH, S Whitman, PhD, G Good, MS, R Lee, S Arrowsmith, R Holcombe, S Lincoln, M Jordan-Williams, Chicago Dept of Public Health; K Scott, MD, Cook County Dept of Public Health; E Donoghue, MD, B Lifshultz, MD, Office of the Medical Examiner, County of Cook, Chicago; JR Lumpkin, MD, BJ Francis, MD, State Epidemiologist, Illinois Dept of Public Health; DO Hryhorczuk, MD, L Curtis, MS, Univ of Illinois at Chicago School of Public Health. Div of Reproductive Health, National Center for Chronic Disease Prevention and Health Promotion; Div of Environmental Hazards and Health Effects, and Div of Environmental Health Laboratory Sciences, National Center for Environmental Health; Div of Field Epidemiology, Epidemiology Program Office, CDC.

Editorial Note: The cluster of cases of acute pulmonary hemorrhage among infants in Chicago was identified as a result of active case-finding efforts during the investigation of a similar cluster identified in Cleveland during November 1994 (*1*). Patients in

Acute Pulmonary Hemorrhage — Continued

both clusters have been aged <1 year, predominantly black, and previously healthy. Unlike the infants in Cleveland, however, the residences of the infants in Chicago were not tightly clustered geographically in one area of the city. In addition, abundant hemosiderin-laden macrophages, indicative of continued pulmonary hemorrhage, were not identified in the bronchial aspirates of the infants in Chicago. However, for six of the infants who underwent bronchoscopy, the procedure was performed within 2 weeks of the initial presentation with pulmonary hemorrhage, and hemosiderin-laden macrophages may not yet have been present.

Of the seven cases in Chicago, six were in blacks—a finding that may be associated with socioeconomic status or with the prevalence of other specific risks, for which race is most likely a marker. Other factors being assessed through the case-control study include infant feeding practices, child-care practices, family medical histories, occupational exposures, environmental exposures, and animal/rodent exposures. In addition, through collection of clinical data, the investigation will include assessment of potential hematologic, allergenic, and genetic etiologies.

Pulmonary hemorrhage is most commonly a complication of other conditions, such as cardiac defects, vascular malformations, neoplasms, infection, milk protein allergies, and immune complex disorders (*2,3*), and occurs only rarely among infants. Physicians should report possible cases through state health departments to CDC's Air Pollution and Respiratory Health Branch, Division of Environmental Hazards and Health Effects, National Center for Environmental Health; telephone (404) 488-7320; fax (404) 488-7335; Internet: rae1@cehdeh1.em.cdc.gov.

References
1. CDC. Acute pulmonary hemorrhage/hemosiderosis among infants—Cleveland, January 1993–November 1994. MMWR 1994;43:881–3.
2. Levy J, Wilmott R. Pulmonary hemosiderosis. In: Hilman BC, ed. Pediatric respiratory disease: diagnosis and treatment. Philadelphia: WB Saunders Co., 1993:543–9.
3. Kumar SR, Rosner IK, Godwin T, Rappaport I. Pulmonary hemorrhage in a young infant. Ann Allergy 1989;62:168–211.

Epidemiologic Notes and Reports

Transmission of Pertussis from Adult to Infant — Michigan, 1993

During 1993, a total of 6586 pertussis cases was reported in the United States, including 675 (10%) cases among persons aged >19 years. However, the total number of cases probably was substantially higher because only an estimated 10% of all pertussis cases are reported (*1*); underreporting is greater among adults, who often have only a mild cough. This report summarizes the investigation of two cases of pertussis in which transmission occurred from an adult resident of Massachusetts who was visiting the residence of an infant in Michigan.

Patient 1. On October 11, 1993, a 4-month-old boy in Ann Arbor, Michigan, developed a mild cough. His symptoms gradually worsened during the following 2 weeks with paroxysms of cough associated with whooping, vomiting, and apnea. A culture of a nasopharyngeal specimen obtained on October 25 yielded *Bordetella pertussis*. On September 8, the infant had received one dose of diphtheria and tetanus toxoids

Pertussis — Continued

and pertussis vaccine (DTP). Treatment for the infant and chemoprophylaxis of his household contacts with erythromycin were initiated on October 27 and continued for 2 weeks. Although hospitalization was not required, the infant had a persistent cough for 3 months. The infant had not attended group day care.

Patient 2. During September 17–20, 1993, the infant's 47-year-old aunt from Cambridge, Massachusetts, had visited his home. During the visit, she developed a mild cough. On return to Massachusetts, her cough worsened, and she developed paroxysms of cough with inspiratory whoop and posttussive apnea. On September 23, bronchitis was diagnosed, and she was treated with codeine. On September 29, therapy with a 7-day course of erythromycin and a steroid inhalant was initiated. Because of the history of close contact with her nephew—in whom a culture-confirmed case of pertussis had been diagnosed—on November 17, a serum sample was obtained for immunoglobulin G (IgG) antibody to pertussis toxin; the serum IgG concentration was >30 µg/mL*. Inhalant therapy was discontinued, and a 14-day course of erythromycin was prescribed for the patient and three household contacts.

Reported by: ED Mokotoff, MPH, Disease Surveillance Section, RA Dunn, MD, Immunization Section, DR Johnson, MD, Disease Control Div, KR Wilcox, Jr, MD, State Epidemiologist, Michigan Dept of Public Health. L Burger, MPH, S Lett, MD, Immunization Program, Massachusetts Dept of Public Health. Div of Epidemiology and Surveillance, National Immunization Program, CDC.

Editorial Note: The investigation of the two cases described in this report indicates the continuing occurrence of pertussis in adults and that adults can be a source of pertussis infection for susceptible infants. Health-care providers should consider pertussis in the differential diagnoses for acute cough of ≥7 days' duration in adults, particularly if the cough is paroxysmal and associated with posttussive vomiting and/or whooping. Although the cough associated with pertussis in adults generally is mild (*3*), the case in this report indicates that classic symptoms of pertussis (e.g., paroxysms of cough, posttussive whoop, and apnea) can occur in adults.

Laboratory confirmation of pertussis can be difficult because of the low sensitivity of microbiologic cultures and the occurrence of false results from direct fluorescent antibody tests. Serodiagnosis and recently developed polymerase chain reaction tests may be useful for diagnosis, particularly in persons with a mild cough. However, these tests have not been standardized and are not widely available.

Transmission of pertussis can be reduced with prompt diagnosis and treatment of cases and early administration of chemoprophylaxis to close contacts (*4*). Administration of erythromycin for 14 days is recommended for persons with pertussis and all their household contacts (regardless of age or vaccination status) and is an important method of protecting children aged <6 months who are too young to have received the initial three-dose series of DTP recommended during infancy (*5,6*). Chemoprophylaxis of household contacts with erythromycin should be administered as soon as possible after first contact with a primary case; chemoprophylaxis administered ≥21 days after first contact is considered of limited value (*7*).

*Since 1987, the Massachusetts Public Health Biologic Laboratory has performed an indirect enzyme-linked immunosorbent assay for IgG to pertussis toxin for diagnosis of pertussis among persons aged ≥11 years. A serum antipertussis toxin concentration of ≥20 µg/mL in one specimen is considered by public health authorities in Massachusetts as evidence of recent infection with *B. pertussis* (*2*).

Pertussis — Continued

References

1. Sutter RW, Cochi SL. Pertussis hospitalization and mortality in the United States, 1985–1988. JAMA 1992;267:386–91.
2. Marchant CD, Loughlin AM, Lett SM, et al. Pertussis in Massachusetts, 1981–1991: incidence, serologic diagnosis, and vaccine effectiveness. J Infect Dis 1994;169:1297–305.
3. Bass JW. Pertussis: current status of prevention and treatment. Pediatr Infect Dis 1985;4:614–9.
4. Sprauer MA, Cochi SL, Zell ER, et al. Prevention of secondary transmission of pertussis in households with early use of erythromycin. Am J Dis Child 1992;146:177–81.
5. ACIP. Diphtheria, tetanus, and pertussis: recommendations for vaccine use and other preventive measures—recommendations of the Immunization Practices Advisory Committee (ACIP). MMWR 1991;40(no. RR-10).
6. American Academy of Pediatrics. Pertussis. In: Peter G, ed. 1994 Red book: report of the Committee on Infectious Diseases. 23rd ed. Elk Grove Village, Illinois: American Academy of Pediatrics, 1994:355–67.
7. Health and Welfare Canada. Pertussis consensus conference. In: Canada communicable disease report. Vol 19-16. Ottawa: Health and Welfare Canada, 1993:124–35.

Current Trends

Controlling Lead Toxicity in Bridge Workers — Connecticut, 1991–1994

Workers involved in the repair of infrastructure—including bridges and roads—are at risk for exposure to lead and lead poisoning (*1,2*). Because of these risks, in 1990, the Yale University School of Medicine, the Connecticut Department of Public Health and Addiction Services (CDPHAS), the Connecticut Department of Transportation (CONNDOT), and CDC's National Institute for Occupational Safety and Health (NIOSH) initiated the Connecticut Road Industry Surveillance Project (CRISP)* to reduce lead toxicity in bridge workers through the incorporation of protective measures into contracts in addition to the use of regulatory measures. This report describes an assessment of the impact of this program.

The two principal elements of CRISP are 1) detailed medical and environmental specifications (e.g., medical examinations and industrial hygiene) for monitoring and reducing occupational lead exposures at bridge sites—these specifications are included in the construction contracts and are paid for by CONNDOT under the terms of the contract; and 2) a centralized, statewide surveillance system to monitor blood lead levels (BLLs) in workers—this system is based in CDPHAS.

Since 1993, CONNDOT has mandated that, for jobs associated with potential lead exposures, both the bids and contracts explicitly address lead-control activities, including the need for an industrial hygienist to monitor every project, personal and ambient airborne lead sampling, minimum standards for protective equipment, and standardized comprehensive medical monitoring (using the CRISP protocol). Medical examinations must be conducted at designated CRISP-affiliated clinics and blood lead specimens analyzed at a single, specified Occupational Safety and Health Administration (OSHA)-approved laboratory. CRISP centralizes the collection and review of

*CRISP is funded through a cooperative agreement between NIOSH and the Yale University School of Medicine.

Lead Toxicity — Continued

comprehensive medical data for exposed workers and the response when workers' BLLs exceed specific action levels. Lead-control specifications were fully implemented in all CONNDOT contracts in February 1993. CRISP had enrolled some workers before 1993; however, most of these workers were employed by construction companies that were voluntarily and independently attempting to protect workers from lead exposures.[†] However, since February 1993, all workers potentially exposed to lead at CONNDOT bridge repair sites have been enrolled in CRISP.

From July 1991 through December 1994, a total of 1421 workers were enrolled in the CRISP database; 34 workers were monitored in 1991, 108 in 1992, 669 in 1993, and 959 in 1994[§]. These workers were employed by 90 contractors and other companies and were assigned to projects at 68 CONNDOT sites.

BLLs for the most highly exposed work categories declined substantially during 1991–1993 and remained relatively stable during 1994 (Table 1). Average BLLs in painters/blasters declined from 41.8 µg/dL and 28.2 µg/dL in 1991 and 1992, respec-

[†]For this reason, CRISP data from 1991 and 1992 may not be representative of all Connecticut lead-exposed bridge workers during that time; however, comparison of CRISP data from subsequent years with these data would most likely underestimate reductions in BLLs resulting from CRISP activities.

[§]The same worker may have been monitored in >1 year and would, therefore, be counted in the total for each year in which he or she was monitored.

TABLE 1. Mean blood lead levels (BLLs) for hands-on bridge workers, by job category and year — Connecticut Road Industry Surveillance Project (CRISP), 1991–1994

Job category/ Year	No. workers	Mean BLL (µg/dL)	Standard deviation
Carpenters			
1991	—*	—	—
1992	1	14.0	0
1993	52	6.8	3.6
1994[†]	28	7.5	5.9
Iron workers/ Welders			
1991	10	20.6	15.1
1992	22	19.1	8.8
1993	103	13.6	8.9
1994[†]	116	10.9	5.8
Painters/Blasters			
1991	19	41.8	18.6
1992	30	28.2	17.3
1993	122	16.4	10.6
1994[†]	261	16.6	10.4
Laborers/ Groundsmen			
1991	1	9.0	0
1992	31	17.1	8.8
1993	160	7.1	4.2
1994[†]	226	9.2	7.4

*No carpenters were enrolled in CRISP in 1991.
[†]Data for 1994 are complete through September 30, 1994.

Lead Toxicity — Continued

tively, to 16.4 μg/dL and 16.6 μg/dL in 1993 and 1994,¶ respectively. Similarly, average BLLs for iron workers/welders declined steadily from 20.6 μg/dL in 1991 to 10.9 μg/dL in 1994, and those for carpenters from 14.0 μg/dL in 1992** to 7.5 μg/dL in 1994.

Reported by: KF Maurer, MD, MR Cullen, MD, Occupational and Environmental Medicine Program, Yale Univ School of Medicine, New Haven; M Erdil, MD, Immediate Medical Care Center, Weathersfield; CJ Dupuy, MS, BC Jung, MPH, JL Hadler, MD, State Epidemiologist, Connecticut Dept of Public Health and Addiction Svcs; B Castler, Connecticut Dept of Transportation. SK Hammond, PhD, School of Public Health, Univ of California, Berkeley. Div of Surveillance, Hazard Evaluations, and Field Studies, National Institute for Occupational Safety and Health, CDC.

Editorial Note: Although the potential for high exposures to lead among bridge repair workers was well documented in 1982 (*3*), limited progress has been made in controlling exposures. In 1991, NIOSH reported elevated airborne lead exposures and BLLs in bridge repair workers at eight sites in five states and recommended improved surveillance for and more effective control of lead exposures at such sites (*4*). During 1988–1991, efforts by clinicians and industrial hygienists in Connecticut confirmed high lead exposures and high BLLs among bridge workers in certain job categories (*5*). In May 1993, OSHA lowered the permissible exposure level for lead in the construction industry (previously 200 $\mu g/m^3$) to that established for general industry (50 $\mu g/m^3$) (*6*). One of the national health objectives for the year 2000 is to eliminate exposures associated with BLLs >25 μg/dL in workers (objective 10.8) (*7*).

In Connecticut, extensive bridge repair and rehabilitation began statewide in 1983 after the collapse of an interstate highway bridge. The presence of lead-containing paints on most bridges created the potential for high exposures to lead for many workers. CRISP is an innovative approach for workers and their employers to control lead exposures on bridge repair jobs and, compared with traditional surveillance and regulatory approaches, is unique in its routine use of health-related contract language and its focus on medical surveillance—an approach that emphasizes a collaborative, nonadversarial strategy for exposure control.

The use of contract language as a foundation for health and safety activity in the construction industry ensures worker protection through direct, day-to-day enforcement by the contracting parties. For example, for bridge repair projects, CONNDOT inspectors and field engineers enforce the requirements of the "Lead Health Protection Program" (as it is termed in the contracts) just as they do the thickness of paint applied or other construction specifications.

The medical focus and regional organization of CRISP were designed to address the specific circumstances of the construction industry, in which workers frequently transfer sites, change employers, or move to different regions. The requirement that all clinics adhere to a standard medical protocol and the centralization of all medical decision making for bridge workers ensures that CONNDOT's contractors and their employees receive a consistent standard for medical care and work- and exposure-related decisions. In addition, because medical data are relayed to the central CRISP office within 48–72 hours of medical evaluation and testing for BLL, CRISP staff can respond rapidly to reports of elevated BLLs with recommendations to reduce or eliminate further exposures to the affected worker or to address adverse exposure-related health effects.

¶BLL data for 1994 are complete through September 30, 1994.

**No carpenters were enrolled in the system in 1991.

Lead Toxicity — Continued

The findings in this report indicate that after implementation of CRISP, BLLs decreased substantially among Connecticut bridge workers. Evaluation of these results is complicated by the concurrent promulgation (in 1993) by OSHA of the Interim Final Standard for Lead in Construction (29 CFR 1926.62) (*6*), a comprehensive standard for lead control in the construction industry. The relative contributions of these efforts in reducing BLLs are even more difficult to clarify because some provisions of the CONNDOT "Lead Health Protection Program" contain more aggressive worker exposure-control requirements than does the OSHA standard (e.g., CRISP mandates more frequent BLL monitoring during the initial months of a project than does OSHA). In addition, CRISP, CONNDOT, and OSHA allow CRISP-enrolled employers 30 days to correct problems on their sites before a formal referral to OSHA is made from CRISP/CONNDOT; this agreement assists CRISP in encouraging compliance from companies and enables OSHA to more effectively target problem sites for inspection.

References

1. CDC. Lead poisoning in bridge demolition workers—Massachusetts. MMWR 1989;38:687–8, 693–4.
2. CDC. Lead poisoning in bridge demolition workers—Georgia, 1992. MMWR 1993;42:388–90.
3. Landrigan PJ, Baker EL Jr, Himmelstein JS, Stein GF, Weddig JP, Straub WE. Exposure to lead from the Mystic River Bridge: the dilemma of deleading. N Engl J Med 1982;306:673–6.
4. NIOSH. Request for assistance in preventing lead poisoning in construction workers. Cincinnati: US Department of Health and Human Services, Public Health Service, CDC, 1990; DHHS publication no. (NIOSH)91-116a. (Revised 1992).
5. Maurer KF, Smith IK, Cullen MR. Controlling lead toxicity in bridge workers: preliminary findings of the Connecticut Road Industry Surveillance Project. Journal of Protective Coatings and Linings 1993;10:37–43.
6. Occupational Safety and Health Administration, US Department of Labor. Lead exposure in construction: interim final rule. Federal Register 1993;58:26590–649. (29 CFR 1926).
7. Public Health Service. Healthy people 2000: national health promotion and disease prevention objectives—full report, with commentary. Washington, DC: US Department of Health and Human Services, 1991; DHHS publication no. (PHS)91-50212.

Erratum: Vol. 44, No. 3

In the notice to readers "Availability of Electronic *MMWR* on Internet," the information in the box by the first bullet on page 49 should be http://www.cdc.gov/ instead of as published.

The *Morbidity and Mortality Weekly Report (MMWR)* Series is prepared by the Centers for Disease Control and Prevention (CDC) and is available on a paid subscription basis from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402; telephone (202) 783-3238.

The 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 succeeding Friday. Inquiries about the *MMWR* Series, including material to be considered for publication, should be directed to: Editor, *MMWR* Series, Mailstop C-08, Centers for Disease Control and Prevention, Atlanta, GA 30333; telephone (404) 332-4555.

☆**U.S. Government Printing Office: 1995-633-175/05051 Region IV**