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1 Injuries Associated With Use of Snowmobiles — New Hampshire, 1989–1992
3 Physician Vaccination Referral Practices and Vaccines for Children — New York, 1994
6 Differences in Maternal Mortality Among Black and White Women — United States, 1990
14 Proportionate Mortality from Pulmonary Tuberculosis Associated With Occupations — 28 States, 1979–1990

Injuries Associated With Use of Snowmobiles — New Hampshire, 1989–1992

Recreational use of snowmobiles is popular in New Hampshire during the winter months; from 1982 to 1992, the annual number of registered snowmobiles ranged from approximately 21,200 to 42,500. During this period, 26 deaths associated with use of snowmobiles in New Hampshire accounted for 822 years of potential life lost before age 65 years. To assist in the development and evaluation of injury-prevention programs for users of off-highway recreational vehicles (OHRVs) (e.g., all-terrain vehicles, trail bikes, and snowmobiles), the State of New Hampshire Department of Fish and Game (DFG) and the New Hampshire Department of Health and Human Services examined reports of injuries resulting from OHRV use in New Hampshire from January 1989 through February 1992*. This report summarizes information about snowmobile-associated fatal and nonfatal injuries during this period.

Since 1981, New Hampshire has required reporting of OHRV incidents resulting in injury. A standard report form must be completed by a person involved in the event or by a law enforcement agent and filed with DFG within 5 days of the incident. Information collected on the form includes demographic characteristics of the operator, type of vehicle, environmental conditions, date and time of the incident, whether the operator reported having taken an OHRV safety course, type of injury, excessive speed, and use of alcohol and helmets.

During January 1989–February 1992, DFG received reports of 164 snowmobile incidents resulting in injury. Of the 164 incidents, 155 involved 188 vehicles and resulted in 163 nonfatal injuries, and nine involved 13 vehicles and resulted in 12 fatalities and two nonfatal injuries (Table 1). All fatal incidents were reported by law enforcement agents. Of the 155 reports of nonfatal incidents, 103 (66%) were completed by a law enforcement agent.

All operators involved in fatal (13) and most involved in nonfatal (161 [86%]) incidents were male. Seven (54%) operators involved in fatal incidents and 75 (40%) operators involved in nonfatal incidents were aged 20–29 years; no operators involved in fatal incidents and 40 (21%) involved in nonfatal incidents were aged <20 years. No operator involved in a fatal incident and 14 (7%) of those involved in a nonfatal incident were reported to have taken an OHRV safety course.

*Because the standard reporting form was changed in 1992, comparison with later years was not possible.

Snowmobiles — Continued

Of nine fatal events and 155 nonfatal events, seven (78%) and 64 (46%), respectively, occurred during darker periods (i.e., 4 p.m.–8 a.m., November–March). No fatal and 25 (16%) nonfatal events occurred during periods of precipitation or other inclement weather (i.e., fog or active snow, sleet, or rain). Operating on a frozen body of water was reported for five of nine fatal and 36 (23%) of 155 nonfatal events.

Overall, 67% of fatal incidents were associated with alcohol use and 67% with excessive speed. Of the 103 police-reported nonfatal incidents, 16 (16%) involved alcohol use, and 36 (35%) involved excessive speed; in comparison, of 52 incidents reported only by persons involved in the incident, one (2%) and three (6%), respectively, reported use of alcohol or excessive speed.

Of eight deaths resulting from incidents occurring on a frozen body of water, three resulted from hypothermia and five from either head and neck injuries (three) or multiple trauma (two). Three other deaths were attributed to head and neck trauma and one to multiple trauma.

Of 165 persons nonfatally injured, 104 (63%) were reported to have been wearing helmets. Helmets were reported to have been worn by 31 (57%) of 54 persons with nonfatal head injuries, compared with four of six persons with fatal head injuries.

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Editorial Note: In New Hampshire, most fatal snowmobile incidents involved male operators in their 20s, use of alcohol, or excessive speed; half of persons killed sustained head injuries. In addition, fatalities occurring as a result of operating on frozen bodies of water were associated with either severe trauma or events related to

TABLE 1. Selected characteristics of incidents and operators* of snowmobiles involved in injury, by outcome — New Hampshire, January 1989–February 1992

	Operator involved in fatal incident (n=13)		Operator involved in nonfatal incident (n=188)	
Characteristic	**No.**	**%**	**No.**	**%**
Male	13	(100)	161	(86)
Age <20 years	0		40	(21)
Age 20–29 years	7	(54)	75	(40)
Safety course completion	0		14	(7)
	Fatal incident (n=9)		**Nonfatal incident (n=155)**	
Condition	**No.**	**%**	**No.**	**%**
Darker periods†	7	(78)	64	(46)
Operating on a frozen body of water	5	(56)	36	(23)
Inclement weather§	0		25	(16)
Excessive speed¶	6	(67)	36	(35)
Alcohol use¶	6	(67)	16	(16)

*One incident may involve more than one vehicle or operator.
†Defined as 4 p.m.–8 a.m., November–March. Denominator is 139 for nonfatal category (no time noted on other reports).
§Fog or active snow, sleet, or rain.
¶For police-reported incidents only: 100% of fatal reports; 103 (66%) nonfatal reports.

Snowmobiles — Continued

falling through the ice (i.e., hypothermia). These findings are consistent with previous studies of fatalities associated with the use of OHRVs (*1,2*). For example, contributing factors for nondrowning deaths following incidents on frozen water surfaces have included high speeds attained on such open surfaces and unexpected uneven terrain (e.g., ice ridges) (*1*). The findings in this report also indicate that some snowmobile drivers and passengers did not wear helmets. Although this investigation could not assess the effectiveness of helmet use, a previous study estimated that helmet use can reduce the risk for death among all-terrain vehicle operators by approximately 42% and can reduce the likelihood of head injury in a nonfatal incident by approximately 64% (*3*).

The findings in New Hampshire are subject to at least three limitations. First, rates of injury and death could not be determined because of the lack of an accurate denominator. Although previous studies have used registered OHRVs as a denominator, this number may vary in relation to season and other environmental factors (e.g., inclement weather). Second, because approximately one third of nonfatal injury reports were completed only by persons involved in the incident, some information reported may not be valid (e.g., helmet use, speed, and alcohol use). Finally, these findings probably underestimate the true incidence of snowmobile-associated injuries because of underreporting. Review of hospital emergency and discharge records could assist in evaluating the extent of underreporting.

Information from the injury reporting system in New Hampshire may be useful for public health surveillance and assessment of snowmobile and other OHRV injuries (*4*). In addition, this data source can be used by the New Hampshire Snowmobile Association and other organizations to target high-risk groups for intervention programs. Since 1975, DFG has operated a safety training course for OHRV users. State law requires that any OHRV operator driving off their private property either possess a valid driver's license (minimum age: 16 years) or have taken this course. Operators aged <30 years should especially be targeted by any intervention strategy; in particular, young operators with a valid driver's license are encouraged to take the DFG safety course.

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Physician Vaccination Referral Practices and Vaccines for Children — New York, 1994

Although vaccinations are among the most effective preventive public health measures available, many children are not vaccinated on time (*1*). One identified barrier to timely vaccination is referral of children by primary-care physicians to other medical settings for vaccination (*2*). This report summarizes a survey by the New York

Vaccines for Children — Continued

State Department of Health of vaccination referral practices among New York physicians and describes the implementation in New York of Vaccines for Children (VFC), a national program making federally purchased vaccines available at no cost to health-care providers for administration to eligible children (*3*).

During April 1993, a random sample of 1137 licensed pediatricians and family-practice physicians (from a total n=5392) in New York were surveyed by mail about vaccination practices. Of 752 (66%) responses, 502 (67%) were from actively practicing primary-care physicians. Of these, 250 (50%) referred all or some of their patients elsewhere for vaccinations. Of referring physicians, 228 (91%) referred patients to a local health department clinic; 109 (44%) had increased the number of patient referrals during 1983–1993, while seven (3%) had decreased referrals. In addition, 63 (25%) reported that the number of well-child–care visits had decreased during 1983–1993, while five (2%) reported increases during that time. Of the 250 referring physicians, 246 provided reasons for referral and rated those reasons as "very important," "somewhat important," or "not important" (Table 1). Financial hardship was a "very important" reason for referral for 217 (88%) of those surveyed; the lack of vaccination coverage by private insurance was "very important" for 132 (54%). Physicians also were asked whether the government should underwrite the cost of mandatory vaccinations. Overall, 409 (54%) respondents indicated that some or all of the costs of childhood vaccination should be underwritten.

Since October 1, 1994, free vaccine has been available to VFC participating providers in New York. Categories of federally eligible children aged <19 years include those on Medicaid, those who are uninsured, those who are underinsured who visit federally qualified health centers, and American Indians/Alaskan Natives. New York also provided free vaccine to underinsured children who receive care in any medical setting and any child served at a local health department.

TABLE 1. Reasons for vaccination referral by physicians*, by importance — New York, 1993

	Very important		Somewhat important		Not important	
Reason	**No.**	**(%)**	**No.**	**(%)**	**No.**	**(%)**
Financial hardship for patient	217	(88)	14	(6)	15	(6)
Private insurance not covering vaccinations†	132	(54)	56	(23)	58	(24)
Free vaccine to physicians discontinued by health department§	110	(45)	34	(14)	102	(41)
Vaccine purchase costs for physician	94	(38)	56	(23)	96	(39)
Insufficient Medicaid reimbursement	74	(30)	43	(17)	129	(52)
Vaccine availability	36	(15)	42	(17)	168	(68)
Vaccine-related liability	24	(10)	31	(13)	191	(78)

*N=246 of 250 physicians who reported referring patients elsewhere for vaccinations.
†As of April 1994, all New York State-regulated major medical health insurance policies, exclusive of self-insured entities, were required to cover all childhood vaccinations.
§In 1986, the New York State Department of Health discontinued distribution of free vaccine to any physician through county health departments.

Source: New York State Department of Health.

Vaccines for Children — Continued

Medical-care providers were recruited for VFC through articles published in professional organization newsletters and by mailing of registration packets to licensed pediatricians, family physicians, osteopathic physicians, and medical facilities. As of December 27, 1994, a total of 1378 physician practices in New York (including at least 1972 individual physicians and at least 362 health-care facilities) were participating in VFC.

To determine the extent of enrollment by Medicaid providers, the list of VFC enrollees was compared to a list of providers who billed Medicaid for childhood vaccines during federal fiscal year 1993. Of 2169 physicians who billed Medicaid for childhood vaccines in 1993, a total of 1213 (56%) had enrolled. Among the 166 physicians who submitted a minimum of 1000 claims for individual vaccines, 143 (86%) had enrolled, while 653 (68%) of 956 physicians not yet enrolled had submitted fewer than 50 claims.

In September 1994, the New York State Department of Health conducted a telephone survey of health-care providers who had returned registration forms and declined participation in the program to determine reasons for nonparticipation and to guide future recruitment efforts. Of the 41 physicians who had declined, 29 (71%) were contacted. Of these, five (17%) were retired, five (17%) did not accept patients aged <19 years, six (21%) were subspecialists or in academic medicine and did not provide vaccinations, six (21%) indicated that most of their patients would not be eligible, one (2%) had multiple reasons for not registering, and the six (21%) with patients who could benefit from VFC agreed to register as a result of the phone call.

From September 15, 1994 (the first date vaccines could be ordered), through December 27, 1994, a minimum of 2,496,000 doses of vaccine had been ordered and approximately 2,456,000 doses were shipped to VFC participants. The average time between placement of orders and receipt of vaccine by providers was 1 week.

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Editorial Note: In the United States, approximately 2 million children need one or more doses of recommended vaccines (*4*). In a 1993 retrospective survey of children entering kindergarten in New York, only 53% had been appropriately vaccinated with the recommended vaccines by age 2 years (*5*). Important barriers to timely vaccination include missed opportunities to vaccinate at each health-care visit, inconvenient clinic hours, inadequate parental awareness of the need for timely vaccination, inadequate vaccination tracking, the costs of vaccines, and the referral of children from the private sector to the public sector. This report demonstrates that vaccination referrals, in part attributable to vaccine costs, are common among New York primary-care providers. Implementation of VFC is expected to reduce these financial barriers.

The actual number of VFC participants in New York probably is underestimated by VFC enrollment figures because many physicians work in facilities or in group practices where only the physician-in-chief is registered in the program. In addition, the impact of the program on vaccination coverage and overall occurrence of vaccine-preventable diseases cannot be determined yet. However, VFC has allowed New York to increase provision of vaccine to more children in primary-care settings where they first seek care. In states where vaccines have been made available for all children,

Vaccines for Children — Continued

vaccination rates of preschoolers are approximately 10% higher than the national average (AG Holtmann, University of Miami, unpublished data, 1993).

The Childhood Immunization Initiative (CII) has designated vaccination of preschool-aged children a national priority and has established 1996 and year 2000 goals of vaccinating at least 90% of children by age 2 years with the recommended number of doses of diphtheria and tetanus toxoids and pertussis, polio, *Haemophilus influenzae* type b, hepatitis B, measles, mumps, and rubella vaccines. The five strategies of CII, which address both financial and nonfinancial barriers to vaccination, are to 1) improve the delivery of vaccines; 2) reduce the cost of vaccines for parents (VFC); 3) enhance awareness, partnerships, and community participation; 4) monitor vaccination coverage and disease; and 5) improve vaccines and their use. VFC, as an integral part of this initiative, will assist physicians and other health-care providers in reaching these national goals.

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Differences in Maternal Mortality Among Black and White Women — United States, 1990

The risk for maternal mortality has consistently been higher among black women than white women. The 1990 national health objective of reducing maternal mortality to no more than five deaths per 100,000 live births for any racial/ethnic group was nearly achieved for white women, for whom the maternal mortality ratio* was 5.7 in 1990 (*1*); for black women, however, the ratio was 18.6. The year 2000 national health objectives include reducing the overall maternal mortality ratio to no more than 3.3 deaths per 100,000 live births and to no more than five for blacks (objective 14.3) (*2*). This report summarizes race-specific differences in maternal mortality among black and white women for 1990 and compares these with trends in mortality from 1940–1990.

Maternal mortality ratios were calculated at 10-year intervals from 1940 to 1990 using data contained on death certificates filed in state vital statistics offices and com-

*The maternal mortality ratio is the number of maternal deaths per 100,000 live births. CDC's National Center for Health Statistics (NCHS) uses the term maternal mortality rate as required by the World Health Organization. In this report, the term "ratio" is used because the numerator includes some maternal deaths that were not related to live births, and thus were not included in the denominator. For this analysis, 3 years of data were combined to calculate maternal mortality ratios to promote statistical reliability and stability in the estimates. For example, 1990 ratios are based on data from 1989 through 1991. In addition, beginning with the 1989 data year, NCHS began using race of mother instead of race of child to tabulate live birth and fetal death data by race. In this analysis, race for live births is tabulated by the race of the child for maternal mortality to maintain comparability of ratios.

Maternal Mortality — Continued

piled by CDC in a national database (*3,4*). Maternal deaths were defined as those for which a maternal condition was designated as the underlying cause of death, as recorded on the death certificate by the attending physician, medical examiner, or coroner.[†] This report compares maternal mortality only for black and white women because data for other racial/ethnic groups were not available for all years; data for Hispanic women are included in the totals for both blacks and whites.

In 1990, the overall maternal mortality ratio was 8.0 deaths per 100,000 live births, a 98% decline from 363.9 in 1940. From 1940 to 1990, race-specific ratios declined substantially, from 319.8 to 5.7 for white women and from 781.7 to 18.6 for black women. Although the percentage decline was similar for black women and white women (97.6% and 98.2%, respectively), the ratios for black women were consistently two to four times higher than those for white women. For example, compared with that for white women, the maternal mortality ratio for black women was 2.4 times greater in 1940, 3.6 times greater in 1950, 4.1 times greater in 1960, 3.9 times greater in 1970, 3.4 times greater in 1980, and 3.3 times greater in 1990 (Figure 1, page 13).

From 1960 through 1990 (years for which more detailed data were available), the maternal mortality ratio was higher for black women in all age groups and for each of the major causes of death. The black-white differential was greatest for pregnancies that did not end in a live birth, such as ectopic pregnancy, spontaneous abortion, induced abortion, and gestational trophoblastic disease.[§]

Reported by: Div of Reproductive Health, National Center for Chronic Disease Prevention and Health Promotion; Div of Vital Statistics, National Center for Health Statistics, CDC.

Editorial Note: Despite overall improved maternal survival during 1940–1990, black women were more than three times more likely than white women to die from complications of pregnancy, childbirth, and the puerperium. Although the reasons for this disparity are unclear, possible explanations include differences in pregnancy-related morbidity, access to and use of health-care services, and content and quality of care.

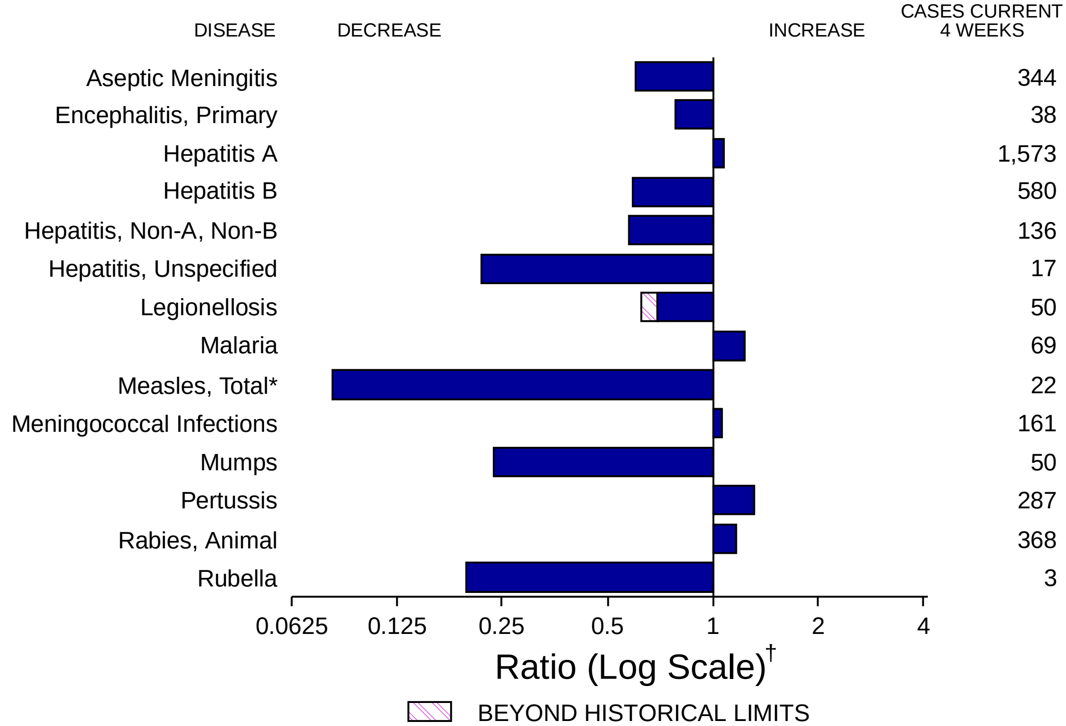
Maternal hospitalization, except when associated with delivery, can serve as a marker for severe maternal morbidity. For example, during 1987–1988, a study of pregnancy-related hospitalizations indicated the ratio for black women was 1.4 times that for white women (*6*); during the same period, the black-white maternal mortality ratio was 3.1. However, in a study of women in the military—who have unrestricted access to prenatal care—there was virtually no difference between black and white women in the overall prevalence of antenatal hospitalization and in the indications for hospitalization (*7*).

(Continued on page 13)

[†] An underlying cause of death is defined by the *International Classification of Diseases, Ninth Revision* (ICD-9), as "a) the disease or injury which initiated the train of morbid events leading directly to death, or b) the circumstances of the accident or violence which produced the fatal injury." In 1979, the ICD-9 provided the first formal definition of maternal mortality, defining maternal death as the death of a woman while pregnant or within 42 days of termination of pregnancy. This definition differed from that used previously by NCHS, which included deaths up to 1 year after termination of pregnancy. However, the change from the 1-year limit used in the eighth revision to the 42-day limit used in the ninth revision did not greatly affect the comparability of maternal mortality statistics (*4*).

[§] The ICD code is revised approximately every 10 years. In the ninth revision, ectopic pregnancy (ICDA code 631) was transferred from complications of pregnancy (ICDA codes 630–634) to pregnancy with abortive outcomes (ICD codes 630–638) (*5*). In this report, maternal deaths from ectopic pregnancy are included with abortive outcomes for all time periods.

FIGURE I. Notifiable disease reports, comparison of 4-week totals ending January 7, 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 01 measles (total) is 0.08178).
†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 7, 1995 (1st Week)

	Cum. 1995		Cum. 1995
Anthrax	-	Plague	-
Aseptic Meningitis	27	Poliomyelitis, Paralytic	-
Brucellosis	4	Psittacosis	-
Cholera	-	Rabies, human	-
Congenital rubella syndrome	-	Rocky Mountain Spotted Fever	2
Diphtheria	-	Syphilis, congenital, age < 1 year†	-
Encephalitis, primary	3	Tetanus	-
Encephalitis, post-infectious	-	Toxic shock syndrome	2
*Haemophilus influenzae**	10	Trichinosis	-
Hansen Disease	-	Tularemia	-
Hepatitis, unspecified	1	Typhoid fever	4
Leptospirosis	2		

*Of 10 cases of known age, 2 (20%) were reported among children less than 5 years of age.
†Updated quarterly from reports to the Division of Sexually Transmitted Diseases and 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 7, 1995, and January 8, 1994 (1st 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	-	2,732	6,882	144	407	33	172	7	71	5	27
NEW ENGLAND	-	76	117	2	6	1	6	-	3	-	1
Maine	-	1	-	-	-	-	-	-	-	-	-
N.H.	-	1	-	-	-	-	-	-	-	-	-
Vt.	-	-	-	-	-	-	-	-	-	-	-
Mass.	-	70	64	-	2	1	5	-	1	-	-
R.I.	-	4	10	2	4	-	-	-	2	-	1
Conn.	-	-	43	-	-	-	1	-	-	-	-
MID. ATLANTIC	-	250	637	1	35	-	33	-	5	-	-
Upstate N.Y.	-	-	-	-	2	-	1	-	1	-	-
N.Y. City	-	-	475	-	27	-	13	-	-	-	-
N.J.	-	-	18	-	1	-	10	-	2	-	-
Pa.	-	250	144	1	5	-	9	-	2	-	-
E.N. CENTRAL	-	83	1,448	40	44	5	41	-	11	2	8
Ohio	-	-	46	32	4	-	4	-	-	2	1
Ind.	-	60	133	2	8	2	4	-	-	-	1
Ill.	-	-	718	-	21	-	13	-	3	-	3
Mich.	-	-	397	6	5	3	12	-	8	-	2
Wis.	-	23	154	-	6	-	8	-	-	-	1
W.N. CENTRAL	-	54	161	1	21	1	11	1	-	1	-
Minn.	-	54	-	-	1	-	-	-	-	-	-
Iowa	-	-	24	-	1	1	1	1	-	1	-
Mo.	-	-	137	-	13	-	10	-	-	-	-
N. Dak.	-	-	-	-	-	-	-	-	-	-	-
S. Dak.	-	-	-	-	-	-	-	-	-	-	-
Nebr.	-	-	-	-	6	-	-	-	-	-	-
Kans.	-	-	-	1	-	-	-	-	-	-	-
S. ATLANTIC	-	1,637	1,843	3	12	12	10	2	5	1	-
Del.	-	18	26	-	-	1	1	-	-	-	-
Md.	-	200	225	1	5	1	3	-	-	-	-
D.C.	-	-	170	-	3	1	1	-	-	-	-
Va.	-	174	396	-	-	-	-	-	-	-	-
W. Va.	-	38	9	1	-	2	-	-	-	-	-
N.C.	-	266	567	1	1	6	4	2	2	1	-
S.C.	-	141	258	-	3	-	-	-	-	-	-
Ga.	-	487	-	-	-	-	1	-	2	-	-
Fla.	-	313	192	-	-	1	-	-	1	-	-
E.S. CENTRAL	-	285	631	4	90	2	34	-	34	-	15
Ky.	-	-	96	3	9	2	10	-	1	-	-
Tenn.	-	-	135	-	2	-	22	-	33	-	-
Ala.	-	-	184	-	2	-	2	-	-	-	-
Miss.	-	285	216	1	77	-	-	-	-	-	15
W.S. CENTRAL	-	231	767	3	1	-	3	-	1	-	1
Ark.	-	-	220	-	-	-	-	-	-	-	-
La.	-	231	351	-	-	-	-	-	-	-	-
Okla.	-	-	-	-	1	-	3	-	1	-	1
Tex.	-	-	196	3	-	-	-	-	-	-	-
MOUNTAIN	-	49	162	41	34	5	6	-	6	-	2
Mont.	-	-	10	-	-	-	-	-	-	-	1
Idaho	-	-	-	1	-	1	-	-	-	-	-
Wyo.	-	-	1	-	-	-	-	-	1	-	-
Colo.	-	37	79	23	5	2	1	-	3	-	-
N. Mex.	-	11	17	17	14	2	3	-	-	-	1
Ariz.	-	-	3	-	14	-	1	-	-	-	-
Utah	-	1	1	-	1	-	1	-	2	-	-
Nev.	-	-	51	-	-	-	-	-	-	-	-
PACIFIC	-	67	1,116	49	164	7	28	4	6	1	-
Wash.	-	-	71	-	10	-	2	-	-	-	-
Oreg.	-	-	22	-	2	1	1	-	-	-	-
Calif.	-	58	1,009	48	149	6	23	4	5	-	-
Alaska	-	4	8	-	3	-	-	-	-	-	-
Hawaii	-	5	6	1	-	-	2	-	1	1	-
Guam	-	-	1	-	-	-	-	-	-	-	-
P.R.	-	-	17	-	-	-	-	-	-	-	-
V.I.	-	-	2	-	-	-	-	-	-	-	-
Amer. Samoa	-	-	-	-	1	-	-	-	-	-	-
C.N.M.I.	-	-	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, National Center for Infectious Diseases.

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending January 7, 1995, and January 8, 1994 (1st 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	27	96	4	7	4	4	-	-	4	-	22	80	5	25
NEW ENGLAND	2	3	1	3	2	2	-	-	2	-	-	5	-	-
Maine	-	-	-	-	-	-	-	-	-	-	-	1	-	-
N.H.	-	1	-	-	-	-	-	-	-	-	-	1	-	-
Vt.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mass.	2	-	-	-	-	-	-	-	-	-	-	-	-	-
R.I.	-	2	1	3	2	2	-	-	2	-	-	-	-	-
Conn.	-	-	-	-	-	-	-	-	-	-	-	3	-	-
MID. ATLANTIC	20	89	-	1	-	-	-	-	-	-	-	2	-	1
Upstate N.Y.	-	75	-	-	-	-	-	-	-	-	-	-	-	-
N.Y. City	-	8	-	1	-	-	-	-	-	-	-	-	-	-
N.J.	-	3	-	-	U	-	U	-	-	-	-	-	-	-
Pa.	20	3	-	-	-	-	-	-	-	-	-	2	-	1
E.N. CENTRAL	2	-	1	-	-	-	-	-	-	-	7	14	2	8
Ohio	2	-	-	-	-	-	-	-	-	-	3	1	1	-
Ind.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ill.	-	-	-	-	-	-	-	-	-	-	3	6	-	6
Mich.	-	-	1	-	-	-	-	-	-	-	1	4	1	2
Wis.	-	-	-	-	-	-	-	-	-	-	-	3	-	-
W.N. CENTRAL	2	-	-	1	-	-	-	-	-	-	2	5	1	2
Minn.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iowa	-	-	-	1	-	-	-	-	-	-	2	-	1	-
Mo.	-	-	-	-	-	-	-	-	-	-	-	5	-	2
N. Dak.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S. Dak.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nebr.	-	-	-	-	U	-	U	-	-	-	-	-	-	-
Kans.	2	-	-	-	-	-	-	-	-	-	-	-	-	-
S. ATLANTIC	1	1	-	-	-	-	-	-	-	-	7	5	-	1
Del.	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Md.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
D.C.	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Va.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W. Va.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N.C.	-	-	-	-	-	-	-	-	-	-	3	3	-	-
S.C.	1	-	-	-	-	-	-	-	-	-	-	-	-	1
Ga.	-	-	-	-	-	-	-	-	-	-	-	2	-	-
Fla.	-	-	-	-	-	-	-	-	-	-	3	-	-	-
E.S. CENTRAL	-	3	-	1	-	-	-	-	-	-	-	38	-	8
Ky.	-	3	-	-	-	-	-	-	-	-	-	-	-	-
Tenn.	-	-	-	-	U	-	U	-	-	-	-	-	-	-
Ala.	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Miss.	-	-	-	1	-	-	-	-	-	-	-	37	-	8
W.S. CENTRAL	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ark.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
La.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Okla.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tex.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MOUNTAIN	-	-	-	-	2	2	-	-	2	-	3	4	-	-
Mont.	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wyo.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Colo.	-	-	-	-	-	-	-	-	-	-	-	1	-	-
N. Mex.	-	-	-	-	2	2	-	-	2	-	3	-	N	N
Ariz.	-	-	-	-	-	-	-	-	-	-	-	2	-	-
Utah	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nev.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PACIFIC	-	-	2	1	-	-	-	-	-	-	3	7	2	5
Wash.	-	-	-	-	-	-	-	-	-	-	-	1	-	1
Oreg.	-	-	-	-	-	-	-	-	-	-	-	-	N	N
Calif.	-	-	1	1	-	-	-	-	-	-	3	6	2	4
Alaska	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Hawaii	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Guam	-	-	-	-	U	-	U	-	-	-	-	-	-	-
P.R.	-	-	-	-	U	-	U	-	-	-	-	-	-	-
V.I.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amer. Samoa	-	-	-	-	U	-	U	-	-	-	-	-	-	-
C.N.M.I.	-	-	-	1	U	-	U	-	-	3	-	-	-	-

*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 7, 1995, and January 8, 1994 (1st 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	7	7	114	-	-	1	164	388	62	522	45	83
NEW ENGLAND	-	-	3	-	-	-	4	4	2	2	19	26
Maine	-	-	-	-	-	-	-	-	-	-	-	-
N.H.	-	-	3	-	-	-	-	-	-	-	2	2
Vt.	-	-	-	-	-	-	-	-	-	-	-	1
Mass.	-	-	-	-	-	-	2	3	-	-	12	14
R.I.	-	-	-	-	-	-	-	-	2	-	-	1
Conn.	-	-	-	-	-	-	2	1	-	2	5	8
MID. ATLANTIC	-	-	28	-	-	1	1	29	-	9	13	28
Upstate N.Y.	-	-	-	-	-	1	-	-	-	1	11	20
N.Y. City	-	-	-	-	-	-	-	26	-	7	-	-
N.J.	U	-	1	U	-	-	-	-	-	-	-	-
Pa.	-	-	27	-	-	-	1	3	-	1	2	8
E.N. CENTRAL	2	2	29	-	-	-	22	44	-	23	1	1
Ohio	-	-	9	-	-	-	15	5	-	1	1	-
Ind.	-	-	-	-	-	-	3	3	-	-	-	-
Ill.	-	-	11	-	-	-	-	23	-	22	-	-
Mich.	2	2	1	-	-	-	4	5	-	-	-	-
Wis.	-	-	8	-	-	-	-	8	-	-	-	1
W.N. CENTRAL	1	1	1	-	-	-	-	16	2	1	1	1
Minn.	-	-	-	-	-	-	-	-	-	-	-	-
Iowa	-	-	-	-	-	-	-	1	2	-	1	1
Mo.	1	1	1	-	-	-	-	15	-	-	-	-
N. Dak.	-	-	-	-	-	-	-	-	-	-	-	-
S. Dak.	-	-	-	-	-	-	-	-	-	-	-	-
Nebr.	U	-	-	U	-	-	-	-	-	-	-	-
Kans.	-	-	-	-	-	-	-	-	-	1	-	-
S. ATLANTIC	-	-	19	-	-	-	47	69	12	16	11	18
Del.	-	-	-	-	-	-	-	-	-	-	1	-
Md.	-	-	2	-	-	-	4	2	9	9	4	7
D.C.	-	-	-	-	-	-	-	3	-	1	-	-
Va.	-	-	-	-	-	-	1	2	-	-	2	1
W. Va.	-	-	1	-	-	-	-	-	3	-	-	1
N.C.	-	-	12	-	-	-	20	30	-	-	2	1
S.C.	-	-	4	-	-	-	5	11	-	6	1	2
Ga.	-	-	-	-	-	-	4	15	-	-	1	6
Fla.	-	-	-	-	-	-	13	6	-	-	-	-
E.S. CENTRAL	-	-	9	-	-	-	72	95	-	262	-	1
Ky.	-	-	-	-	-	-	-	3	-	-	-	-
Tenn.	U	-	-	U	-	-	-	33	-	-	-	-
Ala.	-	-	1	-	-	-	-	16	-	3	-	1
Miss.	-	-	8	-	-	-	72	43	-	259	-	-
W.S. CENTRAL	-	-	8	-	-	-	16	75	-	-	-	1
Ark.	-	-	-	-	-	-	-	11	-	-	-	-
La.	-	-	-	-	-	-	16	51	-	-	-	-
Okla.	-	-	8	-	-	-	-	-	-	-	-	1
Tex.	-	-	-	-	-	-	-	13	-	-	-	-
MOUNTAIN	-	-	1	-	-	-	2	-	4	16	-	2
Mont.	-	-	-	-	-	-	-	-	-	-	-	-
Idaho	-	-	-	-	-	-	-	-	-	-	-	-
Wyo.	-	-	-	-	-	-	-	-	-	-	-	-
Colo.	-	-	1	-	-	-	2	-	-	-	-	-
N. Mex.	-	-	-	-	-	-	-	-	-	-	-	-
Ariz.	-	-	-	-	-	-	-	-	4	16	-	2
Utah	-	-	-	-	-	-	-	-	-	-	-	-
Nev.	-	-	-	-	-	-	-	-	-	-	-	-
PACIFIC	4	4	16	-	-	-	-	56	42	193	-	5
Wash.	-	-	1	-	-	-	-	-	-	-	-	-
Oreg.	-	-	1	-	-	-	-	-	-	2	-	-
Calif.	4	4	14	-	-	-	-	56	39	190	-	1
Alaska	-	-	-	-	-	-	-	-	-	-	-	4
Hawaii	-	-	-	-	-	-	-	-	3	1	-	-
Guam	U	-	-	U	-	-	-	-	-	-	-	-
P.R.	U	-	-	U	-	-	-	5	-	-	-	-
V.I.	-	-	-	-	-	-	-	1	-	-	-	-
Amer. Samoa	U	-	-	U	-	-	-	-	-	-	-	-
C.N.M.I.	U	-	-	U	-	-	-	-	-	6	-	-

U: Unavailable -: no reported cases

TABLE III. Deaths in 121 U.S. cities,* week ending January 7, 1995 (1st Week)

Reporting Area	All Causes, By Age (Years)						P&I[†] Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	670	470	110	59	15	16	46
Boston, Mass.	179	111	38	20	4	6	18
Bridgeport, Conn.	36	21	12	2	1	-	1
Cambridge, Mass.	34	28	3	2	1	-	-
Fall River, Mass.	50	41	4	4	1	-	-
Hartford, Conn.	71	39	12	12	6	2	3
Lowell, Mass.	27	25	1	1	-	-	4
Lynn, Mass.	23	18	3	1	-	1	3
New Bedford, Mass.	26	14	6	5	-	1	2
New Haven, Conn.	45	33	7	1	1	3	2
Providence, R.I.	40	35	3	2	-	-	-
Somerville, Mass.	7	5	1	1	-	-	-
Springfield, Mass.	40	32	6	1	-	1	3
Waterbury, Conn.	26	24	1	1	-	-	4
Worcester, Mass.	66	44	13	6	1	2	6
MID. ATLANTIC	2,987	1,972	573	311	69	61	211
Albany, N.Y.	48	34	8	4	1	1	6
Allentown, Pa.	20	17	1	1	1	-	-
Buffalo, N.Y.	118	92	15	5	3	3	18
Camden, N.J.	35	21	9	2	1	2	3
Elizabeth, N.J.	15	8	4	3	-	-	1
Erie, Pa.§	61	52	7	-	1	1	3
Jersey City, N.J.	56	41	6	4	1	4	-
New York City, N.Y.	1,681	1,059	364	200	35	23	101
Newark, N.J.	93	38	20	24	7	3	8
Paterson, N.J.	41	27	9	4	-	1	6
Philadelphia, Pa.	312	196	56	40	12	8	18
Pittsburgh, Pa.§	84	60	12	5	3	4	4
Reading, Pa.	25	19	4	2	-	-	4
Rochester, N.Y.	149	118	20	7	1	3	15
Schenectady, N.Y.	26	17	6	2	-	1	1
Scranton, Pa.§	40	30	8	2	-	-	4
Syracuse, N.Y.	89	67	11	4	2	5	8
Trenton, N.J.	48	38	7	1	-	2	8
Utica, N.Y.	23	19	3	-	1	-	1
Yonkers, N.Y.	23	19	3	1	-	-	2
E.N. CENTRAL	1,824	1,100	368	173	119	54	94
Akron, Ohio	55	41	8	2	-	4	-
Canton, Ohio	49	34	12	3	-	-	3
Chicago, Ill.	248	34	65	52	80	17	10
Cincinnati, Ohio	64	38	12	2	1	1	6
Cleveland, Ohio	125	76	34	5	4	6	-
Columbus, Ohio	144	98	25	14	3	4	7
Dayton, Ohio	119	87	25	5	-	2	6
Detroit, Mich.	284	175	54	38	10	7	5
Evansville, Ind.	11	9	1	1	-	-	1
Fort Wayne, Ind.	57	38	9	7	1	2	2
Gary, Ind.	11	4	4	2	1	-	-
Grand Rapids, Mich.	53	44	8	1	-	-	6
Indianapolis, Ind.	104	76	17	6	3	2	10
Madison, Wis.	57	33	14	5	2	3	5
Milwaukee, Wis.	161	109	32	12	6	2	15
Peoria, Ill.	22	17	5	-	-	-	4
Rockford, Ill.	50	35	7	5	1	2	4
South Bend, Ind.	51	40	5	3	2	1	4
Toledo, Ohio	99	68	22	4	4	1	5
Youngstown, Ohio	60	44	9	6	1	-	1
W.N. CENTRAL	705	500	104	57	21	11	41
Des Moines, Iowa	114	85	12	8	6	3	8
Duluth, Minn.	32	24	4	3	1	-	4
Kansas City, Kans.	32	26	4	1	1	-	2
Kansas City, Mo.	114	75	19	6	1	1	6
Lincoln, Nebr.	31	21	2	6	2	-	3
Minneapolis, Minn.	172	121	30	15	1	5	5
Omaha, Nebr.	68	45	13	6	4	-	4
St. Louis, Mo.	35	30	3	1	1	-	-
St. Paul, Minn.	56	40	8	3	3	2	8
Wichita, Kans.	51	33	9	8	1	-	1

Reporting Area	All Causes, By Age (Years)						P&I[†] Total
	All Ages	≥65	45-64	25-44	1-24	<1	
S. ATLANTIC	1,043	641	205	114	60	22	61
Atlanta, Ga.	48	30	10	5	2	1	3
Baltimore, Md.	83	40	19	15	6	3	6
Charlotte, N.C.	111	71	25	8	6	1	5
Jacksonville, Fla.	112	64	22	15	9	2	11
Miami, Fla.	94	40	23	13	16	2	-
Norfolk, Va.	58	39	11	4	2	2	7
Richmond, Va.	101	61	23	11	4	2	3
Savannah, Ga.	62	45	10	4	1	2	4
St. Petersburg, Fla.	57	44	6	5	-	2	1
Tampa, Fla.	151	109	24	12	4	2	18
Washington, D.C.	141	81	32	17	8	3	3
Wilmington, Del.	25	17	-	5	2	-	-
E.S. CENTRAL	655	444	109	66	27	9	51
Birmingham, Ala.	82	56	14	5	4	3	2
Chattanooga, Tenn.	70	48	11	8	3	-	9
Knoxville, Tenn.	67	55	6	6	-	-	7
Lexington, Ky.	53	38	10	2	2	1	8
Memphis, Tenn.	136	86	26	15	8	1	8
Mobile, Ala.	63	48	12	3	-	-	4
Montgomery, Ala.	72	51	12	5	3	1	7
Nashville, Tenn.	112	62	18	22	7	3	6
W.S. CENTRAL	1,276	845	241	127	33	30	91
Austin, Tex.	64	38	12	7	4	3	1
Baton Rouge, La.	75	56	13	3	2	1	3
Corpus Christi, Tex.	58	41	9	6	2	-	3
Dallas, Tex.	158	85	45	23	3	2	4
El Paso, Tex.	64	50	8	4	-	2	6
Ft. Worth, Tex.	90	72	9	4	3	2	11
Houston, Tex.	293	184	67	32	5	5	31
Little Rock, Ark.	60	34	17	6	-	3	6
New Orleans, La.	103	58	22	18	4	1	-
San Antonio, Tex.	166	121	22	11	7	5	16
Shreveport, La.	32	27	4	1	-	-	5
Tulsa, Okla.	113	79	13	12	3	6	5
MOUNTAIN	883	610	152	75	28	17	62
Albuquerque, N.M.	93	74	10	5	3	1	6
Colo. Springs, Colo.	46	33	10	2	1	-	6
Denver, Colo.	109	70	19	12	5	3	9
Las Vegas, Nev.	143	90	33	16	2	2	6
Ogden, Utah	32	27	3	2	-	-	2
Phoenix, Ariz.	175	117	28	16	6	7	14
Pueblo, Colo.	35	28	5	1	1	-	1
Salt Lake City, Utah	101	63	20	11	5	2	15
Tucson, Ariz.	149	108	24	10	5	2	3
PACIFIC	1,478	991	248	155	37	30	152
Berkeley, Calif.	19	14	2	3	-	-	3
Fresno, Calif.	107	80	10	12	3	2	9
Glendale, Calif.	14	10	3	1	-	-	1
Honolulu, Hawaii	64	32	14	9	5	4	8
Long Beach, Calif.	69	51	9	7	2	-	11
Los Angeles, Calif.	405	251	84	54	11	4	19
Pasadena, Calif.	24	16	6	-	1	1	4
Portland, Oreg.	U	U	U	U	U	U	U
Sacramento, Calif.	U	U	U	U	U	U	U
San Diego, Calif.	127	81	21	16	2	7	21
San Francisco, Calif.	132	80	19	17	-	-	19
San Jose, Calif.	206	156	25	16	2	7	26
Santa Cruz, Calif.	32	29	2	1	-	-	8
Seattle, Wash.	111	71	21	14	3	2	5
Spokane, Wash.	53	35	15	-	3	-	5
Tacoma, Wash.	115	85	17	5	5	3	13
TOTAL	11,521¶	7,573	2,110	1,137	409	250	809

*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.

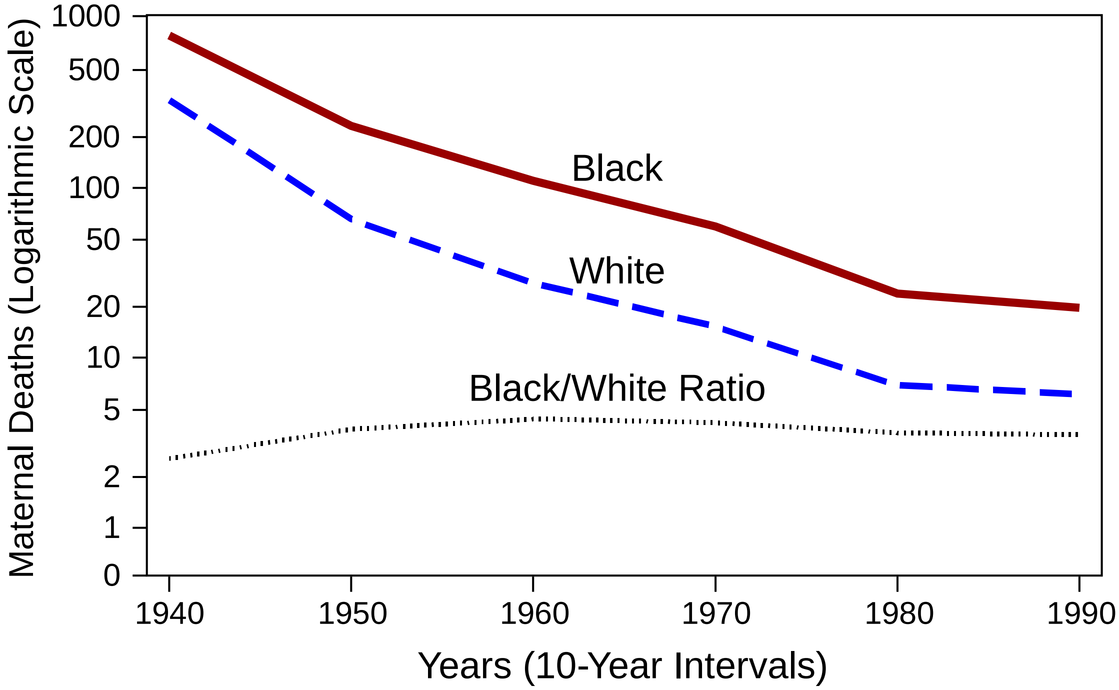
¶Total includes unknown ages.

U: Unavailable.

-: no reported cases.

Maternal Mortality — Continued

FIGURE 1. Maternal mortality ratio*, by race† — United States, 1940–1990



*The maternal mortality ratio is the number of maternal deaths per 100,000 live births.
†For live births, maternal race is derived from the race of the child. Data for races other than black and white were not available for analysis.

Early entry into prenatal care (i.e., during the first trimester)—one indicator of access to and use of pregnancy-related health care—has been assessed for women whose pregnancies ended in a live birth. During 1980–1990, although 76% of all mothers received early prenatal care, the percentage of black women who did not receive early prenatal care was nearly twice that for white women (*8*). In 1990, 39.4% of black mothers did not receive early prenatal care, compared with 20.8% of white mothers. Once women enter prenatal care, studies indicate differences between black and white women in the advice given to them and use of technology (*9,10*).

Data describing access to pregnancy-related health care other than prenatal care (e.g., gynecologic services) or the content and quality of health care once women obtain these services are limited. Narrowing discrepancies in maternal mortality between black and white women will require evaluating and addressing race-specific differences in morbidity and in access to and use and content of pregnancy-related care. Addressing discrepancies in maternal mortality also may improve maternal morbidity and infant survival.

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Maternal Mortality — Continued

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Proportionate Mortality from Pulmonary Tuberculosis Associated With Occupations — 28 States, 1979–1990

The risk for occupational exposure to tuberculosis (TB) is increased among health-care and other workers exposed to persons with active TB, workers exposed to silica or other agents that increase the risk of progression from latent infection to active TB, and workers in occupations associated with low socioeconomic status (SES). Accurate estimates of and surveillance for occupationally associated TB are limited because reports of incident TB cases lack comprehensive occupational data (*1*). Although occupation is routinely recorded on death certificates, this information is not routinely coded and entered into vital statistics data files. To identify occupations associated with increased risk for TB mortality, CDC's National Institute for Occupational Safety and Health (NIOSH) used data from the National Occupational Mortality Surveillance (NOMS) database* to conduct a proportionate mortality study of persons with pulmonary TB by occupation for 1979–1990 (the most recent year for which data were available). This report presents the findings of the study.

Data collected in the NOMS database include each decedent's usual industry and occupation, coded using 1980 U.S. census codes (*2*). During 1979–1990, approximately 3.4 million mortality records that included a usual occupation (excluding "housewife") were reported to NOMS. For this study, data for blacks and whites were analyzed separately because of substantial differences in race-specific rates of pulmonary TB (*1,3*); numbers of deaths for other racial groups were too small to calculate stable estimates. Ethnicity was not routinely coded on death certificates until 1989 and could not be analyzed.

Indirectly age-standardized, race- and sex-specific proportionate mortality ratios (PMRs) were calculated by comparing the proportion of pulmonary TB deaths (*International Classification of Diseases, Ninth Revision*, code 011) among decedents in

*Through a collaborative project with CDC (specifically NIOSH and the National Center for Health Statistics) and the National Cancer Institute, the following 28 states contributed occupation-coded death certificate data to NOMS for ≥1 year during 1979–1990: Alaska, California, Colorado, Georgia, Idaho, Indiana, Kansas, Kentucky, Maine, Missouri, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, Tennessee, Utah, Vermont, Washington, West Virginia, and Wisconsin.

Pulmonary Tuberculosis — Continued

each occupational group to the proportion of pulmonary TB deaths among all decedents with a coded occupation (*4*). Confidence intervals (CIs) were calculated using the Mantel-Haenszel chi-square test or, when <1000 deaths were observed, the variance from a Poisson distribution. This analysis examined a total of 458 separate or combined occupational groups, comprising all 503 census occupational codes; of these 458 groups, 329 (71.8%) had one or more deaths attributed to pulmonary TB. Data are presented for the 21 occupational groups in which at least one of the race- and sex-specific categories had both 1) four or more pulmonary TB deaths and 2) either a PMR >200 or a PMR with a 95% CI that did not include 100.

From 1979 through 1990, a total of 2206 deaths was attributed to pulmonary TB. Of these deaths, 1024 (46.4%) occurred among workers in the 21 occupational groups that met the selection criteria. The 21 occupational groups were categorized into four risk groups (Table 1): 1) high potential for exposure to persons with TB (based on published reports and NIOSH health hazard evaluations [HHEs][†]); 2) potential for substantial exposure to silica (determined using unpublished data from the National Occupational Exposure Survey [*5*] and the National Occupational Health Survey of Mining [*6*]); 3) low SES occupation (defined as a Nam-Powers socioeconomic index score <30 [where 1 signifies the lowest possible SES occupation and 100 the highest]) (*7*) without other recognized risk factors; and 4) unknown risk factors.

Of the 21 occupational groups that met the selection criteria, two race- and sex-specific groups were associated with potential workplace exposure to persons with TB: white male health services workers (health and nursing aides, orderlies, and attendants) (PMR=350; seven deaths)[§] and white male funeral directors (PMR=299; four deaths) (Table 1). Six of the 21 occupational groups were associated with potential for high silica exposure. For white males, these groups comprised mining machine operators; operators of machinery used to grind, abrade, buff, or polish; nonconstruction laborers; and construction workers (particularly brick and stone masons, construction laborers, carpenters, and roofers); PMRs ranged from 134 (169 deaths) to 290 (six deaths). For black males, these groups comprised construction workers (particularly construction laborers); mixing and blending machine operators; and furnace, kiln, and oven operators, except food; PMRs ranged from 128 (105 deaths) to 376 (five deaths).

For two of the occupations associated with low SES that met the selection criteria (food preparation and service workers [particularly bartenders and cooks] and farm workers), previous reports have documented increased risk for TB (*8*). The other low SES occupations that met the selection criteria (e.g., housekeepers and butlers and nonfarm animal caretakers) have not previously been associated with increased risk for TB.

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Editorial Note: In comparison with surveillance for TB based on incident symptomatic cases or TB skin-test conversions, mortality-based surveillance may be a relatively

[†]The NIOSH HHE program is a federally mandated program for investigation of suspected hazardous exposures or disease outbreaks in the workplace. As of March 1994, a total of 50 HHE requests related to TB had been received by NIOSH and 25 completed (NIOSH, unpublished data, 1994).

[§]Based on the criteria used in this analysis, no other health-care workers had elevated PMRs.

TABLE 1. Selected age-adjusted proportionate mortality ratios* (PMRs) for pulmonary tuberculosis (TB) and potential TB risk factors, by usual occupation, sex, and race of decedent† — 28 states, 1979–1990

Potential TB risk factor/ Occupation of decedent§ (1980 Census code)	Male						Female					
	White			Black			White			Black		
	No.	PMR	(95% CI)	No.	PMR	(95% CI)	No.	PMR	(95% CI)	No.	PMR	(95% CI)
Occupational TB exposure												
Funeral directors (018)	4	299*	(82– 766)	1	135	(3– 754)	0	—		0	—	
Health service occupations (445–447)	7	350*	(141– 721)	1	24	(1– 135)	7	88	(35– 182)	5	73	(24– 169)
Nursing aides, orderlies, and attendants (447)	6	349*	(128– 760)	1	28	(1– 156)	6	88	(32– 191)	5	79	(26– 185)
Occupational silica exposure												
Construction occupations (553–599, 865, and 869)	169	134*	(114– 156)	105	128*	(104– 155)	0	—		0	—	
Brick and stone masons (553 and 563–564)	12	213*	(110– 371)	11	159	(80– 285)	0	—		0	—	
Carpenters (554, 567, and 569)	50	147*	(109– 194)	9	97	(44– 184)	0	—		0	—	
Roofers (595)	6	290*	(106– 630)	1	53	(1– 293)	0	—		0	—	
Construction laborers (869)	34	175*	(121– 244)	61	156*	(120– 201)	0	—		0	—	
Mining machine operators (616)	54	276*	(207– 360)	4	128	(35– 328)	0	—		0	—	
Grinding/Abrading/Buffing/ Polishing machine operators (709)	7	265*	(107– 547)	1	94	(2– 523)	0	—		0	—	
Mixing/Blending machine operators (756)	1	58	(2– 326)	5	376*	(122– 878)	0	—		0	—	
Furnace/Kiln/Oven operators, except food (766)	1	27	(1– 153)	5	206*	(67– 481)	0	—		1	15,000	(372–82,842)
Laborers, except construction (889)	85	159*	(127– 196)	92	111	(89– 136)	12	162	(84– 283)	8	147	(64– 291)
Low socioeconomic status occupations												
Housekeepers and butlers (405)	0	—		1	303	(8–1,690)	2	187	(23– 676)	9	225*	(103– 427)
Food preparation and service workers (433–444)	19	170*	(102– 266)	19	111	(67– 174)	17	103	(60– 164)	11	113	(56– 202)
Bartenders (434)	6	194	(71– 422)	5	454*	(147–1,059)	0	—		0	—	

Cooks, except short order (436)	9	258*	(118–490)	10	107	(51–196)	7	109	(44–224)	6	88	(32–192)
Farm workers (479)	13	206*	(110–352)	30	239*	(162–342)	0	—		4	160	(44–411)
Nonfarm animal caretakers (487)	1	434	(11–2,419)	4	796*	(217–2,038)	0	—		0	—	
Winding/Twisting machine operators (738)	7	330*	(133–680)	1	209	(5–1,164)	1	22	(1–120)	0	—	
Textile sewing machine operators (744)	4	254*	(69–650)	1	63	(2–348)	11	111	(55–198)	3	121	(25–355)
Vehicle washers and equipment cleaners (887)	0	—		6	383*	(141–835)	1	2,401	(64–13,380)	0	—	
Unknown risk												
Entertainers (186–187, 193–194, and 198)	7	253*	(102–522)	0	—		0	—		0	—	
Technicians, not elsewhere classified (235)	5	211*	(69–493)	0	—		0	—		0	—	
Material recording, scheduling, and distribution clerks (359–374)	17	108	(63–173)	5	77	(25–181)	4	234*	(64–600)	0	—	
Farm operators (473 and 474)	125	117	(97–140)	60	159*	(122–205)	0	—		10	259*	(124–477)
Automobile mechanics (505–506)	27	159*	(105–232)	7	74	(30–152)	0	—		0	—	
Electrical commercial/industrial equipment repair (523)	6	344*	(126–749)	1	194	(5–1,081)	0	—		0	—	
Butchers, bakers, and batch makers (686–688)	9	97	(45–185)	10	226*	(108–415)	2	246	(30–888)	1	280	(7–1,562)
Butchers (686)	4	69	(19–177)	8	263*	(113–518)	1	550	(14–3,064)	0	—	

* Selection criteria: 1) at least four TB deaths in a race- and sex-specific group and 2) either a PMR >200 or a PMR with a 95% confidence interval (CI) excluding 100.

† Source: 1979–1990 National Institute for Occupational Safety and Health, CDC, mortality data file; includes death records from 28 states (Alaska, California, Colorado, Georgia, Idaho, Indiana, Kansas, Kentucky, Maine, Missouri, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, Tennessee, Utah, Vermont, Washington, West Virginia, and Wisconsin).

Pulmonary Tuberculosis — Continued

insensitive indicator of current occupational risks. However, except for studies of selected occupations, the findings in this report comprise the only available information about possible associations between occupation and TB infection. Furthermore, these findings identify several additional occupations associated with increased risk for TB, for which there are biologically plausible explanations. For example, the increased risk for funeral directors may reflect increased likelihood of exposure to infection from cadavers, and for mining machine operators, may reflect exposure to silica, which increases the risk of progression from latent infection to active TB. For occupational groups categorized "unknown risk," reasons for their elevated PMRs cannot be explained. These groups may be at increased risk through factors other than the three recognized in this analysis or may show elevated PMRs by chance alone.

The findings in this report are subject to at least four limitations. First, mortality-based surveillance data are not sensitive indicators of risk for disease because mortality is affected by a combination of several interacting factors. In particular, mortality from TB reflects exposure, infection, SES, access to and adequacy of medical care, and underlying medical conditions. Overall, such factors probably contributed to the approximately threefold greater proportion of pulmonary TB-related mortality among blacks than among whites in this study (0.18% and 0.05%, respectively). Second, the method of death certificate-based PMR analysis described in this report is subject to possible misclassification of usual occupation and cause of death and to potential biases inherent in the use of the PMR statistic as a risk estimator (*4*) and fails to compensate statistically for multiple comparisons. Third, death certificates lack information about lifestyle and other risk factors; therefore, no adjustment was made for possible confounding. Fourth, the timeliness of death certificates as a source of data is constrained by processing delays. Despite these limitations, these findings are important because of the strength and biological plausibility of many of the reported associations.

The recent increase in TB incidence and the occurrence of multidrug-resistant TB have focused attention on particular populations at high risk for disease and on the potential for transmission of infection to health-care workers. Occupation-based surveillance for TB can assist in identifying groups at high risk and indicate trends in the occurrence of infection in these workers. These surveillance findings also can assist in evaluating the effectiveness of prevention measures for groups previously established to be at risk, such as miners and agricultural workers.

To improve the detection and control of TB among occupational groups, CDC has proposed two surveillance activities (*9*): 1) collection and analysis of occupational information from TB case reports and 2) serial cross-sectional surveys of known high-risk populations (including selected occupations) to determine the prevalence of TB skin-test positivity. These data, in combination with ongoing collection and analysis of occupational information from death certificates, will enable comprehensive surveillance for monitoring recognized high-risk populations and identifying new at-risk groups.

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Pulmonary Tuberculosis — Continued

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Erratum: Vol. 43, No. 40

In "Adult Blood Lead Epidemiology and Surveillance—United States, Second Quarter, 1994," on page 741, the first sentence of the second paragraph should read "The cumulative number of BLL reports for the first and second quarters of 1994 increased *48% over the comparable time period for 1993 (Table 1).*" On pages 741–742, the last sentence of the third paragraph should be deleted. The following table contains the corrected numbers and footnotes and replaces Table 1 on page 742.

TABLE 1. Reports of elevated blood lead levels (BLLs) among adults — 22 states,* second quarter, 1994

Reported BLL (μg/dL)	Second quarter, 1994		Cumulative reports, 1994	Cumulative reports, 1993§
	No. reports	No. persons†		
25–39	4,544	2,247	8,630	6,221
40–49	1,372	646	2,742	1,478
50–59	261	133	536	321
≥60	110	59	226	184
Total	**6,287**	**3,085**	**12,134**	**8,204**

*Reported by Alabama, Arizona, California, Connecticut, Illinois, Iowa, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, North Carolina, Oklahoma, Oregon, Pennsylvania, South Carolina, Texas, Utah, Vermont, Washington, and Wisconsin.

†Individual reports are categorized according to the highest reported BLL for the person during the given quarter. Pennsylvania reports only numbers of reports on a quarterly basis; quarterly summaries of numbers of persons do not include Pennsylvania data.

§Data for first quarter 1993 were reported from 16 states (Alabama, Connecticut, Illinois, Iowa, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, Oregon, South Carolina, Texas, Utah, Vermont, and Wisconsin). Data for second quarter 1993 also include reports from Arizona, California, and Washington.

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