

# MNWR

MORBIDITY AND MORTALITY WEEKLY REPORT

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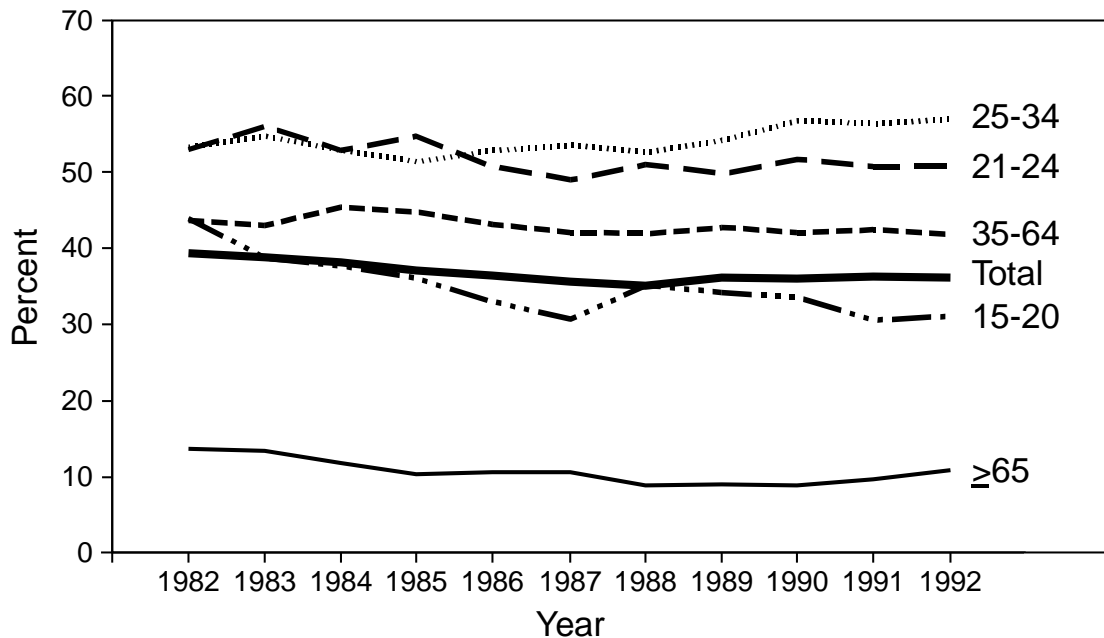
## *Effectiveness in Disease and Injury Prevention*

### **Motor-Vehicle-Related Deaths Involving Intoxicated Pedestrians — United States, 1982–1992**

Pedestrians account for 14% of all motor-vehicle-related deaths and approximately 3% of all motor-vehicle-related injuries in the United States (1). In 1992, a total of 5546 pedestrians were killed as a result of motor-vehicle crashes, and 96,000 suffered nonfatal injuries. Because of the effects of alcohol on attention, perception, vision, judgment, and motor control, intoxicated pedestrians are at increased risk for unintentional injury (2). Although alcohol consumption by pedestrians is an important contributing factor to motor-vehicle crashes in which pedestrians are injured, characteristics of intoxicated pedestrians who are killed as a result of such crashes have not been well defined. This report uses data from the National Highway Traffic Safety Administration's (NHTSA) Fatal Accident Reporting System for 1982–1992 to characterize intoxicated pedestrians aged >14 years who were killed as a result of motor-vehicle-related crashes.

NHTSA considers a fatal crash to be alcohol related if either the driver or a non-occupant (e.g., a pedestrian) had a blood alcohol concentration (BAC) >0.01 g/dL in a police-reported motor-vehicle crash. In most states, a BAC ≥0.10 g/dL is the statutory level of intoxication for drivers, although 10 states have established lower levels (e.g., ≥0.08 g/dL). However, there is no statutory level of intoxication for pedestrians. In this report, the term "intoxicated pedestrian" refers to a pedestrian with a BAC ≥0.10 g/dL. NHTSA uses statistical models, based on discriminant function analysis, to estimate BACs of drivers and pedestrians for whom alcohol levels were not available (3). Age groupings in this analysis are those used by NHTSA.

From 1982 to 1992, the number of intoxicated pedestrians who were killed as a result of motor-vehicle crashes declined 28%, from 2395 to 1727; the percentage of all pedestrian deaths that involved intoxicated pedestrians declined by 8%, from 39.4% to 36.2%. The largest decline (29%) in the percentage of deaths involving intoxicated pedestrians occurred among persons aged 15–20 years, decreasing from 44% in 1982 to 31% in 1992 (Figure 1). The only increase in the percentage of pedestrian deaths involving intoxicated pedestrians occurred among persons aged 25–34 years, increasing from 53.3% in 1982 to 57.1% in 1992 (Figure 1).

*Intoxicated Pedestrians — Continued***FIGURE 1. Percentage of all pedestrian deaths that involved intoxicated pedestrians\*, by age group and year — United States, 1982–1992**

\*Persons aged >14 years with a blood alcohol concentration  $\geq 0.10$  g/dL.

Source: Fatal Accident Reporting System, National Highway Traffic Safety Administration.

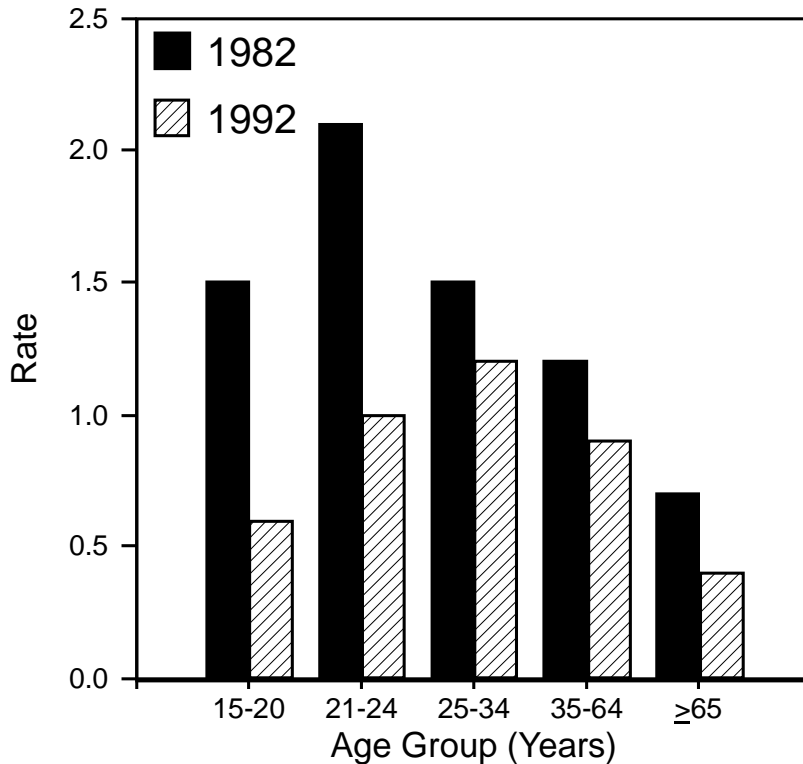
For all age groups, death rates for intoxicated pedestrians per 100,000 population declined in 1992 compared with 1982; the largest declines occurred among persons aged 15–20 years and 21–24 years (Figure 2). During both years, age-specific death rates for intoxicated pedestrians were lowest for persons aged  $\geq 65$  years.

For each year during 1982–1992, the number of deaths among intoxicated pedestrians was greater for males than females. However, the number decreased for both sexes from 1982 to 1992 (males: from 1923 to 1442; females: from 427 to 284). For males, the percentage of pedestrian deaths involving intoxicated pedestrians remained constant (44% versus 43% for 1982 and 1992, respectively); for females, the percentage declined steadily (27% versus 20% for 1982 and 1992, respectively).

From 1982 to 1992, the number of deaths among intoxicated pedestrians declined in both rural and urban areas (rural: from 1014 to 577; urban: from 1368 to 1127). The percentage of pedestrian deaths involving intoxicated pedestrians declined in rural areas (49% versus 43% for 1982 and 1992, respectively) but remained constant in urban areas (35% versus 34% for 1982 and 1992, respectively).

For both sexes, the percentage of pedestrian deaths involving intoxicated pedestrians in 1992 was higher in rural areas than in urban areas (males: 48% versus 41%, respectively; females: 26% versus 18%, respectively). In both rural and urban areas, the percentage was greatest among persons aged 21–24 years and 25–34 years combined (rural: 59%; urban: 54%).

Data for 1992 were examined to characterize the relation between posted speed limit, type of roadway, and deaths among intoxicated pedestrians. Of the 560 deaths

*Intoxicated Pedestrians — Continued***FIGURE 2. Death rate\* for intoxicated pedestrians†, by age group and year — United States, 1982 and 1992**

\* Per 100,000 population.

† Pedestrians aged >14 years with a blood alcohol concentration  $\geq 0.10$  g/dL.

Source: Fatal Accident Reporting System, National Highway Traffic Safety Administration and Bureau of the Census.

in rural areas where posted speed limit and land use were known, 381 (68%) occurred on roadways with a posted speed limit of 55 miles per hour (mph) or greater (Table 1). Most deaths in rural areas occurred either on major streets and highways (divided or undivided) (46%) or on local roadways (45%). Of the 1088 deaths in urban areas where posted speed limit and land use were known, 73% occurred on roadways with a posted speed limit of either 30–35 mph (431 [40%]) or 40–50 mph (357 [33%]). Most deaths in urban areas occurred either on major streets and highways (57%) or on interstates and freeways (25%).

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**Editorial Note:** The findings in this report indicate that among all pedestrian deaths, the proportion involving intoxicated pedestrians was higher in rural areas than in urban areas. In rural areas, these deaths occurred on roads with higher posted speed limits, suggesting that deaths among intoxicated pedestrians in rural areas may be associated with increased traffic speed or with the location of establishments that

*Intoxicated Pedestrians — Continued***TABLE 1. Estimated number and percentage of deaths among intoxicated pedestrians\*, by land use, posted speed limit, and type of roadway† — United States, 1992**

Land use	Posted speed limit (miles per hour)									
	5–25		30–35		40–50		≥55		Total	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)
<b>Rural areas</b>										
Interstates	0	—	0	—	1	( 1.9)	52	(98.1)	53	( 9.5)
Major streets/ Highways <sup>§</sup>	2	( 0.8)	13	( 5.1)	65	(25.3)	177	(68.9)	257	( 45.9)
Local roads <sup>¶</sup>	11	( 4.4)	27	(10.8)	60	(24.0)	152	(60.8)	250	( 44.6)
<b>Total</b>	<b>13</b>	<b>( 2.3)</b>	<b>40</b>	<b>( 7.1)</b>	<b>126</b>	<b>(22.5)</b>	<b>381</b>	<b>(68.0)</b>	<b>560</b>	<b>(100.0)</b>
<b>Urban areas</b>										
Interstates/Freeways	3	( 1.1)	18	( 6.6)	77	(28.1)	176	(64.2)	274	( 25.2)
Major streets/ Highways <sup>§</sup>	30	( 4.8)	286	(46.1)	248	(40.0)	56	( 9.0)	620	( 57.0)
Neighborhood streets**	27	(13.9)	127	(65.5)	32	(16.5)	8	( 4.1)	194	( 17.8)
<b>Total</b>	<b>60</b>	<b>( 5.5)</b>	<b>431</b>	<b>(39.7)</b>	<b>357</b>	<b>(32.8)</b>	<b>240</b>	<b>(22.1)</b>	<b>1088</b>	<b>(100.0)</b>

\*Pedestrians aged >14 years with a blood alcohol concentration  $\geq 0.10$  g/dL.

†Excludes cases for which speed and land use were unknown.

§These descriptions incorporate the Federal Highway Administration's (FHWA's) definitions of principal and minor arterials.

¶This description incorporates FHWA's definitions of rural collectors and local roads.

\*\*This description incorporates FHWA's definitions of urban collectors and local roads.

Source: Fatal Accident Reporting System, National Highway Traffic Safety Administration.

serve or sell alcohol along high-speed roadways where few barriers or sidewalks exist. In urban areas, deaths among intoxicated pedestrians may be associated with traffic volume or the location of establishments that serve or sell alcohol along densely populated commercial roadways with low posted speed limits.

In 1992, approximately 12% of all pedestrian deaths involved an intoxicated driver, and 36% involved an intoxicated pedestrian (4). Although reasons for the higher proportion of deaths involving intoxicated pedestrians are unclear, 60% of fatally injured intoxicated pedestrians have BACs  $\geq 0.20$  g/dL—twice the legal limit for drivers in most states (5) and many may be alcoholics (6). In addition, previous studies indicate that pedestrians with BACs  $\geq 0.08$  g/dL are 3.6 times more likely to be struck by a motor vehicle than those who are not alcohol impaired (7) and that severity of injuries is directly associated with BAC.

To characterize risk factors associated with motor-vehicle-related deaths among intoxicated pedestrians, NHTSA is sponsoring a study in Baltimore to assess selected variables (e.g., time and location of crash, purpose of the pedestrian trip, and number of roadway lanes); the findings may assist in developing community-based interventions to reduce motor-vehicle crashes involving intoxicated pedestrians. In addition, a working group established by the International Council on Alcohol, Drugs, and Traffic Safety is reviewing the effectiveness of programs and developing recommendations for reducing this problem worldwide (8).

During 1982–1992, progress toward reducing the proportion of deaths among intoxicated drivers was greater than that among intoxicated pedestrians. Although no

*Intoxicated Pedestrians — Continued*

legal definition of intoxication exists for pedestrians, some of the prevention and intervention strategies designed to reduce alcohol-impaired driving may be adapted to reduce intoxication among pedestrians. Examples include statutory limitations on BAC; laws that control the availability of alcohol; early identification and treatment for persons with alcohol problems; and interventions targeting consumers, sellers, and servers of alcohol (9). Additional strategies include using environmental approaches that separate pedestrians from traffic (e.g., overpasses and pedestrian malls), which should assist in reducing deaths among all pedestrians (10); initiating public-awareness and public-education programs to inform drivers and pedestrians about the hazards associated with intoxicated pedestrians; devising different interventions for use on high-speed roads (in rural areas) and medium-speed roads (in urban areas); and developing ecologic approaches that focus on the interaction between the pedestrian, driver, vehicle design, community characteristics, and the physical and social environment.

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## Current Trends

### **Homicides of Persons Aged $\leq 18$ Years — Fulton County, Georgia, 1988–1992**

Homicide is a major cause of death among persons aged  $\leq 18$  years in the United States; among black males aged 15–24 years, homicide is the leading cause of death (1). Most efforts to characterize homicide among persons aged  $\leq 18$  years have used databases at the national level (2–5) rather than at the state or local level or have been restricted in scope to specific types of homicides (e.g., gang-related homicide [2]). This report summarizes an epidemiologic study of homicides that occurred among persons aged  $\leq 18$  years in Fulton County (Atlanta), Georgia (1990 population: 648,951), from 1988 through 1992.

All known or suspected homicides occurring in Fulton County are reported to the Fulton County Medical Examiner (FCME) for investigation of the cause, manner, and circumstances of death. FCME death investigation data for 1988 through 1992 were reviewed to identify cases of homicide among persons aged  $\leq 18$  years that resulted from an intentional act of commission or omission by another person regardless of the perpetrator's degree of intent. Information analyzed included the decedent's demographic characteristics, the circumstances and cause of death, toxicologic findings, the involvement of firearms in the death, and, when available, demographic data about the perpetrator(s). A person was classified as a perpetrator on the basis of police reports and district attorney records indicating that that person was a primary suspect or was arrested or charged with the homicide.

During the 5-year period, FCME certified 141 homicides of persons aged  $\leq 18$  years, accounting for 12% of all homicides in the county. Of the 141 homicides, 107 (75%) occurred among adolescents aged 13–18 years; eight (6%), among children aged 7–12 years; and 26 (19%), among children aged  $\leq 6$  years. The overall homicide rate for persons aged  $\leq 18$  years was 14.1 per 100,000, compared with 37.8 per 100,000 for persons of all ages; the rate for males (20.0 per 100,000) was more than threefold higher than for females (5.8 per 100,000). Rates were highest among adolescents aged 13–18 years (35.7) and among infants (i.e., children aged  $< 1$  year) (17.4) and higher among black persons aged  $\leq 18$  years (24.5) than persons of other races (2.5).

Of the 141 homicides, 110 (78%) resulted from the use of firearms. Firearms accounted for 98 (92%) of the 107 homicides among adolescents aged 13–18 years, compared with six (75%) of the eight deaths among children aged 7–12 years, five (33%) of the 15 deaths among children aged 1–6 years, and one (9%) of 11 deaths among infants. Deaths resulting from blunt-force injury accounted for 16 (11%) of the deaths, and the proportion of deaths from blunt force was higher among younger decedents: such deaths accounted for seven (64%) of the homicides among infants, seven (47%) among children aged 1–6 years, and two (2%) among those aged 7–18 years. Eight (6%) deaths were caused by sharp force (including stabbing and cutting), and seven (5%) resulted from other causes (e.g., asphyxia).

Of the 110 firearm-associated deaths, 58 (53%) resulted from the use of handguns. Investigative findings suggested that 14 (13%) other homicides may have resulted from the use of handguns. Six (5%) of the firearm-associated deaths resulted from the use of a rifle (including one assault rifle) and four (4%) from the use of a shotgun. In

*Homicides — Continued*

28 (25%) deaths, bullets were not recovered or records did not indicate bullet or gun type involved.

Overall, 86 (61%) of the homicides occurred outdoors. Homicides occurred indoors at home for 19 (73%) of 26 children aged  $\leq 6$  years, three (38%) of eight children aged 7–12 years, and 12 (11%) of 107 adolescents aged 13–18 years. Of the 86 homicides that occurred outside and away from home, 48 (56%) occurred in a “parking lot,” on a “sidewalk,” or “on the street”; three occurred at school; and nine involved victims who were in vehicles. Nineteen of the homicides occurred on a Monday; 23 on a Tuesday; 19 on a Wednesday; 17 on a Thursday; 15 on a Friday; 28 on a Saturday; and 20 on a Sunday. Most homicides (72 [51%]) occurred between 6 p.m. and midnight; 27 (19%), between midnight and 6 a.m.; 12 (9%), between 6 a.m. and noon; and 29 (21%), between noon and 6 p.m.

In 20 (14%) cases, a motive was not apparent. Of the 121 homicides for which a motive was determined, 29 (21%) deaths involved illicit drug activity as a precipitating motive, 14 (10%) resulted when the perpetrator was attempting to kill someone else, 14 (10%) were caused by perpetrators who were allegedly “playing” with a gun, 14 (10%) occurred under circumstances indicating child abuse or neglect, 11 (8%) resulted from “drive-by shootings,” 11 (8%) were caused by a family member, and 11 (8%) were associated with robbery.

Toxicology testing of 131 decedents detected ethanol in 21 (16%), cocaine in 17 (13%), and marijuana in 11 (8%). At least one drug (including ethanol) was detected in 44 of the 101 decedents aged 13–18 years who were tested.

The identity of a perpetrator was known to law enforcement officials when they began their investigation in 56 (40%) of the cases. As of February 28, 1993, records of the police and district attorney indicated that 100 suspects had been identified or arrested for 82 (58%) of the homicides. Of the 100 persons, 90 were of the same race as the victim, 82 were males of the same race as the victim, and 46 were aged  $\leq 18$  years.

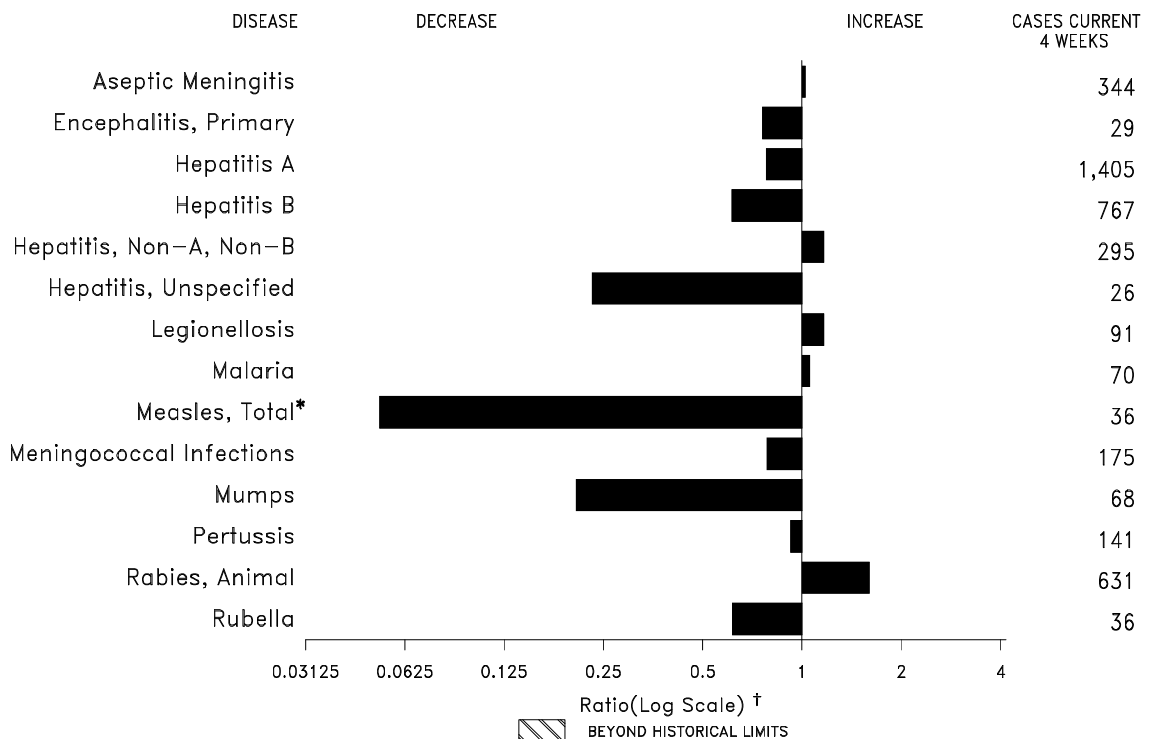
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**Editorial Note:** In Fulton County, a high percentage of homicides among persons aged  $\leq 18$  years were associated with firearms, a finding consistent with previous reports (2–4,6,7) describing homicide among children and young adults. Previous reports also have documented higher rates of homicide among infants and children of pre-school age and adolescents (8). Based on the findings in Fulton County and previous reports, prevention strategies should recognize that younger children are more likely to be victimized indoors, at home, and by family members who use blunt force, shaking, or methods other than firearms (7), and homicides among adolescents occur away from home and outdoors and are perpetrated by nonfamily members using firearms (2,4,6).

In Fulton County, black males were at highest risk for homicide; however, birth-, maternal-, or education-related risk factors were not evaluated. Race may be a marker for these and other potential risk factors for homicide (e.g., socioeconomic status) (9).

*(Continued on page 261)*

**FIGURE I. Notifiable disease reports, comparison of 4-week totals ending April 9, 1994, with historical data — United States**



\*The large apparent decrease in reported cases of measles (total) reflects dramatic fluctuations in the historical baseline.

† 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 April 9, 1994 (14th Week)**

	Cum. 1994		Cum. 1994
AIDS*	20,445	Measles: imported	8
Anthrax	-	indigenous	87
Botulism: Foodborne	10	Plague	1
Infant	15	Poliomyelitis, Paralytic <sup>§</sup>	-
Other	6	Psittacosis	7
Brucellosis	15	Rabies, human	-
Cholera	3	Syphilis, primary & secondary	5,305
Congenital rubella syndrome	3	Syphilis, congenital, age < 1 year	-
Diphtheria	-	Tetanus	7
Encephalitis, post-infectious	35	Toxic shock syndrome	69
Gonorrhea	95,832	Trichinosis	23
<i>Haemophilus influenzae</i> (invasive disease) <sup>†</sup>	305	Tuberculosis	4,234
Hansen Disease	31	Tularemia	2
Leptospirosis	10	Typhoid fever	77
Lyme Disease	710	Typhus fever, tickborne (RMSF)	30

\*Updated monthly; last update March 29, 1994.

<sup>†</sup>Of 285 cases of known age, 82 (29%) were reported among children less than 5 years of age.

<sup>§</sup>No cases of suspected poliomyelitis have been reported in 1994; 3 cases of suspected poliomyelitis have been reported in 1993; 4 of the 5 suspected cases with onset in 1992 were confirmed; the confirmed cases were vaccine associated.



TABLE II. Cases of selected notifiable diseases, United States, weeks ending April 9, 1994, and April 10, 1993 (14th Week)

Reporting Area	AIDS*	Aseptic Meningitis	Encephalitis		Gonorrhea		Hepatitis (Viral), by type				Legionellosis	Lyme Disease
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
			Cum. 1994	Cum. 1994	Cum. 1994	Cum. 1994	Cum. 1994	Cum. 1993	Cum. 1994	Cum. 1994	Cum. 1994	Cum. 1994
UNITED STATES	20,445	1,282	146	35	95,832	105,441	5,082	2,938	1,162	103	380	710
NEW ENGLAND	697	47	5	2	2,170	2,198	80	133	34	13	13	93
Maine	28	4	1	-	14	27	11	3	-	-	-	-
N.H.	22	1	-	1	-	17	2	6	5	-	-	3
Vt.	10	5	-	-	7	11	-	-	-	-	-	1
Mass.	337	17	3	-	814	817	39	121	22	13	10	51
R.I.	83	20	1	1	115	110	12	3	7	-	3	15
Conn.	217	-	-	-	1,220	1,216	16	-	-	-	-	23
MID. ATLANTIC	5,899	135	21	11	12,517	10,385	284	291	154	4	55	438
Upstate N.Y.	537	50	8	1	2,300	2,144	120	106	72	-	13	249
N.Y. City	3,661	3	1	-	3,383	3,355	21	12	-	-	-	-
N.J.	1,203	-	-	-	1,142	1,448	74	91	62	-	6	80
Pa.	498	82	12	10	5,692	3,438	69	82	20	4	36	109
E.N. CENTRAL	1,670	229	42	8	16,883	22,175	430	271	79	2	102	9
Ohio	296	63	15	-	6,226	6,295	151	57	3	-	57	8
Ind.	286	50	2	-	2,222	2,140	96	52	2	-	13	-
Ill.	767	28	10	2	3,490	7,573	77	24	1	1	4	-
Mich.	230	84	15	6	4,470	4,408	70	94	71	1	24	1
Wis.	91	4	-	-	475	1,759	36	44	2	-	4	-
W.N. CENTRAL	426	83	5	1	5,218	5,483	220	160	54	2	47	7
Minn.	106	5	1	-	906	724	42	12	2	-	-	4
Iowa	13	31	-	-	395	447	8	10	4	1	19	1
Mo.	163	22	-	-	2,790	3,050	124	122	44	1	20	-
N. Dak.	27	1	1	-	-	15	1	-	-	-	-	-
S. Dak.	4	-	1	-	45	51	10	-	-	-	-	-
Nebr.	29	2	1	1	-	171	23	5	2	-	7	-
Kans.	84	22	1	-	1,082	1,025	12	11	2	-	1	2
S. ATLANTIC	4,056	313	25	11	27,713	28,277	352	751	286	13	85	131
Del.	53	1	-	-	468	363	4	11	19	-	1	40
Md.	298	45	5	1	5,076	4,584	44	91	11	4	21	22
D.C.	304	6	-	-	2,090	1,529	8	13	-	-	-	1
Va.	249	45	10	4	3,622	2,395	34	27	13	1	2	12
W. Va.	7	5	-	-	190	179	3	7	8	-	1	3
N.C.	384	48	10	-	6,988	6,581	28	81	24	-	6	19
S.C.	325	7	-	-	3,344	2,478	8	12	1	-	1	-
Ga.	547	10	-	-	-	3,853	36	345	151	-	35	32
Fla.	1,889	146	-	6	5,935	6,315	187	164	59	8	18	2
E.S. CENTRAL	549	79	14	1	11,545	10,128	122	308	225	1	21	3
Ky.	105	30	4	1	1,212	1,266	55	12	4	-	1	1
Tenn.	154	21	6	-	3,086	2,530	36	274	219	1	13	1
Ala.	155	21	4	-	4,526	3,653	16	22	2	-	5	1
Miss.	135	7	-	-	2,721	2,679	15	-	-	-	2	-
W.S. CENTRAL	2,674	78	5	-	10,918	12,769	731	305	93	22	11	7
Ark.	65	6	-	-	1,914	2,339	13	7	2	-	4	-
La.	304	3	1	-	3,717	3,020	25	35	19	1	-	-
Okla.	57	-	-	-	494	838	59	95	50	-	7	6
Tex.	2,248	69	4	-	4,793	6,572	634	168	22	21	-	1
MOUNTAIN	609	39	2	-	1,593	3,068	1,016	130	96	5	21	4
Mont.	8	-	-	-	29	13	9	7	-	-	9	-
Idaho	15	1	-	-	17	33	88	22	32	1	-	1
Wyo.	5	-	-	-	27	23	5	6	28	-	1	-
Colo.	292	6	-	-	680	1,041	61	6	7	2	1	-
N. Mex.	43	6	-	-	281	288	282	53	12	2	1	3
Ariz.	124	18	-	-	-	1,062	409	17	4	-	1	-
Utah	33	2	-	-	90	86	111	7	9	-	-	-
Nev.	89	6	2	-	469	522	51	12	4	-	8	-
PACIFIC	3,865	279	27	1	7,275	10,958	1,847	589	141	41	25	18
Wash.	209	-	-	-	853	1,036	97	23	21	-	5	-
Oreg.	103	-	-	-	289	415	85	13	2	1	-	-
Calif.	3,477	218	26	-	5,686	9,261	1,590	529	114	38	18	18
Alaska	10	12	1	-	218	136	63	4	-	-	-	-
Hawaii	66	49	-	1	229	110	12	20	4	2	2	-
Guam	-	-	-	-	31	32	1	-	-	4	-	-
P.R.	608	5	-	-	139	145	16	74	17	2	-	-
V.I.	24	-	-	-	8	22	-	1	-	-	-	-
Amer. Samoa	-	-	-	-	7	7	4	-	-	-	-	-
C.N.M.I.	1	-	-	-	16	17	2	-	-	-	-	-

N: Not notifiable

U: Unavailable

C.N.M.I.: Commonwealth of Northern Mariana Islands

\*Updated monthly; last update March 29, 1994.



**TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending April 9, 1994, and April 10, 1993 (14th Week)**

Reporting Area	Syphilis (Primary & Secondary)		Toxic- Shock Syndrome	Tuberculosis		Tula- remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1994	Cum. 1993	Cum. 1994	Cum. 1994	Cum. 1993	Cum. 1994	Cum. 1994	Cum. 1994	Cum. 1994
UNITED STATES	5,305	7,711	69	4,234	4,496	2	77	30	1,553
NEW ENGLAND	57	125	2	83	75	-	9	2	485
Maine	1	2	-	-	7	-	-	-	-
N.H.	-	15	-	2	5	-	-	-	62
Vt.	-	-	-	-	1	-	-	-	47
Mass.	17	59	2	39	25	-	5	2	184
R.I.	5	3	-	8	16	-	1	-	5
Conn.	34	46	-	34	21	-	3	-	187
MID. ATLANTIC	381	636	12	737	988	-	16	-	169
Upstate N.Y.	36	71	6	62	144	-	3	-	-
N.Y. City	187	399	-	415	607	-	7	-	-
N.J.	39	111	-	142	113	-	6	-	89
Pa.	119	55	6	118	124	-	-	-	80
E.N. CENTRAL	640	1,263	16	454	535	-	16	4	6
Ohio	282	311	5	63	72	-	1	2	-
Ind.	75	104	1	38	50	-	1	-	-
Ill.	147	525	4	245	299	-	8	1	2
Mich.	96	192	6	98	95	-	3	1	2
Wis.	40	131	-	10	19	-	3	-	2
W.N. CENTRAL	318	512	10	107	77	2	-	1	40
Minn.	14	29	-	26	-	-	-	-	1
Iowa	13	26	6	9	5	-	-	1	18
Mo.	266	384	3	50	43	2	-	-	4
N. Dak.	-	-	-	1	4	-	-	-	-
S. Dak.	-	-	-	6	6	-	-	-	2
Nebr.	-	8	1	3	5	-	-	-	-
Kans.	25	65	-	12	14	-	-	-	15
S. ATLANTIC	1,590	2,016	4	661	710	-	14	20	524
Del.	6	34	-	-	9	-	-	-	4
Md.	72	110	-	85	104	-	2	-	174
D.C.	67	129	-	36	42	-	1	-	1
Va.	193	164	-	88	133	-	-	1	114
W. Va.	6	1	-	23	22	-	-	-	20
N.C.	510	543	-	75	121	-	-	10	51
S.C.	190	328	-	100	91	-	-	-	47
Ga.	287	357	-	232	188	-	-	9	105
Fla.	259	350	4	22	-	-	11	-	8
E.S. CENTRAL	1,033	831	1	225	295	-	-	1	37
Ky.	69	72	-	80	79	-	-	-	2
Tenn.	238	182	1	1	53	-	-	-	9
Ala.	181	213	-	105	113	-	-	-	26
Miss.	545	364	-	39	50	-	-	1	-
W.S. CENTRAL	1,097	1,776	-	421	368	-	3	2	208
Ark.	133	336	-	73	27	-	-	1	8
La.	543	682	-	-	-	-	2	-	30
Okla.	15	102	-	29	35	-	-	1	15
Tex.	406	656	-	319	306	-	1	-	155
MOUNTAIN	52	63	2	115	140	-	6	-	23
Mont.	-	-	-	-	5	-	-	-	-
Idaho	1	-	1	4	2	-	-	-	-
Wyo.	-	1	-	3	1	-	-	-	5
Colo.	41	21	1	1	19	-	2	-	-
N. Mex.	5	12	-	25	10	-	-	-	-
Ariz.	-	27	-	55	67	-	1	-	17
Utah	5	1	-	-	9	-	1	-	-
Nev.	-	1	-	27	27	-	2	-	1
PACIFIC	137	489	22	1,431	1,308	-	13	-	61
Wash.	8	12	-	59	63	-	1	-	-
Oreg.	2	25	-	34	18	-	-	-	-
Calif.	125	448	19	1,258	1,131	-	11	-	44
Alaska	1	2	-	14	12	-	-	-	17
Hawaii	1	2	3	66	84	-	1	-	-
Guam	1	-	-	7	16	-	-	-	-
P.R.	73	157	-	-	44	-	-	-	18
V.I.	7	15	-	-	2	-	-	-	-
Amer. Samoa	-	-	-	-	1	-	1	-	-
C.N.M.I.	1	-	-	14	6	-	1	-	-

U: Unavailable



*Homicides — Continued*

The definition of perpetrator used in Fulton County was necessary because insufficient time had elapsed in some cases to allow for legal disposition of the case and because of other factors (e.g., difficulty in identifying a perpetrator because of plea bargaining and case complexity). However, nearly half of known or suspected perpetrators were aged  $\leq 18$  years, illicit drug activity was the suspected motive cited most commonly, and most decedents and perpetrators were of the same race. These findings suggest that programs to prevent homicide among persons aged  $\leq 18$  years could be integrated with drug-abuse prevention programs.

The reduction of homicide among children and young adults is a national health objective for the year 2000 (objective 7.1) (10). Studies to characterize homicide at the local level—such as that in Fulton County—will be critical for developing local prevention and intervention strategies (3,4). Law enforcement, public health, criminal justice, and other agencies in Fulton County are developing programs to monitor homicide occurrence and plans to use that information to assist in reducing homicide in persons aged  $\leq 18$  years.

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2. Rogers C. Gang-related homicides in Los Angeles County. *J Forensic Sci* 1993;38:831–4.
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### Workers' Memorial Day — April 28, 1994

Each year, approximately 6300 workers in the United States die from work-related injuries; costs of such injuries exceed \$83 billion annually (1). In addition, an estimated 50,000–70,000 workers die each year from occupational diseases. To honor those who have died from occupational injuries or diseases and to recognize opportunities to prevent these deaths, April 28, 1994, has been designated Workers' Memorial Day.

Additional information on causes and prevention of work-related injury and disease is available from CDC's National Institute for Occupational Safety and Health, telephone (800) 356-4674.

#### Reference

1. Hensler DR, Marquis MS, Abrahamse AF, et al. Compensation for accidental injuries in the United States. Santa Monica, California: Rand/The Institute for Civil Justice, 1991.

### Current Trends

#### Occupational Injury Deaths — United States, 1980–1989

During 1980–1989, 63,589 workers died from occupational injuries, an average of 17 deaths per day. CDC's National Institute for Occupational Safety and Health (NIOSH) monitors occupational injury deaths through the National Traumatic Occupational Fatalities (NTOF) surveillance system (1). This report summarizes occupational injury deaths compiled by NTOF\* for 1980–1989†.

The leading causes of occupational injury deaths were motor-vehicle-related injuries (23%), machine-related injuries (14%), homicides (12%), falls (10%), electrocutions (7%), and incidents during which a worker was struck by a falling object (7%). The industrial sectors with the highest average annual fatality rates were mining (31.9 per 100,000 workers), construction (25.6), transportation/communication/public utilities (23.3), and agriculture/forestry/fishing (18.3). The largest numbers of deaths occurred in the construction (11,430), transportation/communication/public utilities (11,320), manufacturing (8562), and agriculture/forestry/fishing (7480) industries.

Motor vehicles were the leading cause of occupational injury death in 34 states. Machines accounted for the largest number of deaths in seven states (Iowa, Louisiana, Minnesota, Missouri, North Dakota, Oklahoma, and South Dakota), as did homicide (Alabama, Connecticut, District of Columbia, Maryland, Michigan, New York,<sup>§</sup> and South Carolina). Air transport crashes were the leading cause of death in two states (Hawaii and Nevada), and water transport incidents were the leading cause of death in one state (Alaska).

\*The criteria provided to the vital statistics reporting units for submission of death certificates to NTOF are 1) age  $\geq 16$  years; 2) external cause of death (*International Classification of Diseases, Ninth Revision*, codes E800–E999); and 3) "injury at work?" item marked "yes".

†Most recent year for which data are available.

§Because homicide data were not available for the entire period of the study, homicide numbers for New York were estimated.

*Occupational Injury Deaths — Continued*

The construction industry accounted for the largest number of deaths in 15 states (Arizona, Connecticut, District of Columbia, Florida, Maryland, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, Pennsylvania, Rhode Island, Tennessee, Texas, and Virginia). Transportation/communication/public utilities accounted for the largest number of deaths in 14 states (Arkansas, California, Colorado, Delaware, Illinois, Indiana, Kansas, Louisiana, Montana, Nevada, New Mexico, Ohio, Utah, and Wyoming); agriculture/forestry/fishing, the largest number of deaths in 10 states (Alaska, Hawaii, Idaho, Iowa, Minnesota, Missouri, Nebraska, North Dakota, South Dakota, and Wisconsin); manufacturing, the largest number of deaths in eight states (Alabama, Georgia, Maine, Michigan, Mississippi, Oregon, South Carolina, and Washington); mining, the largest number of deaths in three states (Kentucky, Oklahoma, and West Virginia); and construction and manufacturing, an equal number of deaths in one state (Vermont).

Mining was the highest risk industry in 23 states.<sup>¶</sup> Construction was the highest risk industry in 12 states (Connecticut, District of Columbia, Florida, Georgia, Illinois, Maine, Minnesota, New Jersey, New York, Ohio, Oklahoma, and South Dakota), and transportation/communication/public utilities was the highest risk industry in 12 states (Arkansas, Colorado, Delaware, Idaho, Kansas, Mississippi, Montana, Nebraska, New Mexico, Texas, West Virginia, and Wyoming). Agriculture/forestry/fishing was the highest risk industry in four states (Alaska, Hawaii, Louisiana, and Rhode Island).

*Reported by: Div of Safety Research, National Institute for Occupational Safety and Health, CDC.*

**Editorial Note:** This report provides both the most comprehensive analysis of occupational injury deaths in the United States and the first description of patterns of occupational injury fatalities in all states. Based on these findings and previous studies, NIOSH recommends that states examine the industries and occupations at highest risk for or with greatest numbers of occupational fatalities. Preventing occupational fatalities requires the efforts of employers, employees, public health and other government agencies, industry, and labor officials.

Although rankings of causes of death varied by state, the overall leading causes of death were motor-vehicle-related incidents, machine-related incidents, homicides, and falls. Prevention of workplace deaths from these diverse causes requires multidisciplinary approaches. For example, in preventing deaths from motor-vehicle crashes, existing injury-control technologies (e.g., safety belts and air bags) developed by organizations addressing public safety also may be applicable to workers whose job requires travel by motor vehicle.

Most occupational fatalities—including nontraffic motor-vehicle-related deaths—occurred at construction, agricultural, manufacturing, retail, and other self-contained or fixed worksites. These worksites provide unique opportunities for implementing injury-prevention strategies in relatively controlled environments. Prevention of worker deaths from machine-related incidents, homicides, falls, and other leading causes require interventions unique to the workplace (e.g., installation or redesign of machine guarding, use of personal protective equipment, improved environmental design, worker training, and employer/employee safety programs).

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<sup>¶</sup>Denominators derived from employment data obtained from County Business Patterns, an establishment-based census of employers (2).

*Occupational Injury Deaths — Continued*

One of the national health objectives for the year 2000 is to reduce the number of deaths from work-related injuries to no more than four per 100,000 workers (objective 10.1) (3). The findings in this report may be used in targeting injury-prevention efforts for workers in groups that are at high risk for or are characterized by large numbers of occupational fatalities.

NIOSH has recently published *Fatal Injuries to Workers in the United States, 1980–1989: A Decade of Surveillance: National and State Profiles* (1). Single copies are available without charge from the Publications Office, Division of Standards Development and Technology Transfer, NIOSH, CDC, Mailstop C-13, 4676 Columbia Parkway, Cincinnati, OH 45226-1998; telephone (800) 356-4674; fax (513) 533-8573.

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2. US Department of Commerce. *County business patterns [State files and machine-readable public-use data tapes]*. Washington, DC: US Department of Commerce, Bureau of the Census, 1980–1989.
3. 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, Public Health Service, 1991; DHHS publication no. (PHS)91-50212.

*Notice to Readers***National Infant Immunization Week**

April 23–29, 1994, has been designated National Infant Immunization Week. This week also will inaugurate the Childhood Immunization Initiative (1), a comprehensive effort to ensure that children aged 0–2 years are fully vaccinated. The theme of the initiative, “Immunize on Time, Your Baby’s Counting on You,” emphasizes the need for parents to know their child’s vaccination status and promotes adherence to the vaccination schedule. Public service announcements, produced in English and Spanish with information for contacting state health departments, are designed to increase awareness about age-appropriate vaccination (comprising approximately five visits to a health-care provider by the second birthday). Health-care providers are encouraged to use every opportunity to ensure children in their care are up-to-date with their vaccinations (2,3).

State and local events will encourage cooperation between health-care providers and parents to ensure that children receive all recommended vaccinations by their second birthday. Local programs are encouraged to participate in National Infant Immunization Week by tailoring activities to fit their communities’ needs.

Nationwide toll-free information services will refer parents without vaccination providers to vaccination services nearest them. The English-language number (800) 232-2522 and Spanish-language number (800) 232-0233 are for general audiences; health-care providers can call (800) 232-7468 to obtain information about current guidelines by facsimile or mail. Additional information about childhood vaccination is



available from state immunization programs or CDC's National Immunization Program, Mailstop E-06, 1600 Clifton Road, NE, Atlanta, GA 30333.

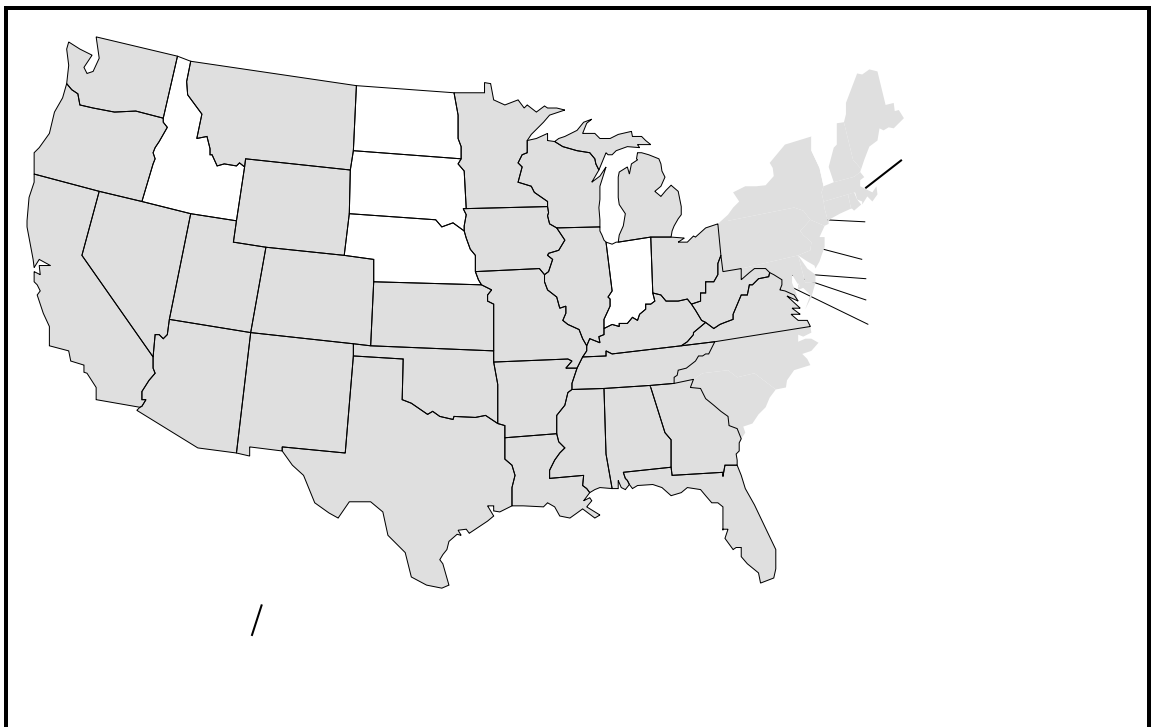
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3. National Vaccine Advisory Committee. The measles epidemic: the problems, barriers, and recommendations. *JAMA* 1991;266:1547–52.

*Notice to Readers*

**Availability of *National HIV Serosurveillance Summary* —  
*Results through 1992***

CDC collaborates with state and local health departments, other federal agencies, blood-collection agencies, hospitals, and medical research institutions to conduct human immunodeficiency virus (HIV) seroprevalence surveys and studies in selected populations. These activities constitute a serosurveillance network to monitor the prevalence of HIV infection in the United States. These surveys monitor various populations, including persons at increased risk (e.g., persons attending drug-treatment centers and sexually transmitted disease clinics) and broader populations (e.g., applicants for military service and childbearing women) (Figure 1).



*Notices to Readers — Continued*

Single copies of *National HIV Serosurveillance Summary—Results through 1992 (1)* are available free from the CDC National AIDS Clearinghouse, P.O. Box 6003, Rockville, MD 20849-6003; telephone (800) 458-5231.

*Reference*

1. CDC. National HIV serosurveillance summary—results through 1992. Atlanta: US Department of Health and Human Services, Public Health Service, 1994; DHHS publication no. (CDC)11-93/036.

*Notice to Readers*

**Publication of Special NIOSH Hazard Review  
of the Rubber Products Manufacturing Industry**

CDC's National Institute for Occupational Safety and Health (NIOSH) recently published *Special NIOSH Hazard Review: Rubber Products Manufacturing Industry (1)\**, which summarizes adverse health effects associated with worker exposures in the rubber products industry and examines research needed to assess and prevent these effects.<sup>†</sup>

Excess deaths from bladder, stomach, lung, hematopoietic, and other cancers have occurred among workers involved in the manufacture of rubber products. These workers may also risk adverse respiratory effects, dermatologic effects, reproductive effects, injuries, and repetitive trauma disorders. The adverse health effects cannot be attributed to a single chemical or group of chemicals because workplace exposures vary greatly and chemical formulations change frequently. Most of the chemicals found in the rubber products industry have not been tested for carcinogenicity or toxicity nor do they have Occupational Safety and Health Administration permissible exposure limits or NIOSH recommended exposure limits. This hazard review concludes that epidemiologic, toxicologic, and industrial hygiene studies are needed to assess the risk for cancer and other adverse health effects for rubber products workers.

*Reference*

1. NIOSH. Special NIOSH hazard review: rubber products manufacturing industry. Cincinnati: US Department of Health and Human Services, Public Health Service, CDC, 1993; DHHS publication no. (NIOSH)93-106.

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

<sup>†</sup>NIOSH special hazard reviews address hazards for which there are not sufficient data to permit comprehensive review in a NIOSH criteria document or a Current Intelligence Bulletin.

## Notice to Readers

### **Publication of *NEG and NIOSH Basis for an Occupational Health Standard: Ethyl Ether***

CDC's National Institute for Occupational Safety and Health (NIOSH) has recently released *NEG and NIOSH Basis for an Occupational Health Standard: Ethyl Ether (1)*\*. This document was developed as the result of an agreement between NIOSH and the Nordic Expert Group for Documentation of Occupational Exposure Limits (NEG) to exchange occupational safety and health information and expertise.

The document presents a survey of the literature concerning occupational exposure limits for ethyl ether. This chemical has a wide range of uses in the chemical industry, mainly as a solvent and an extraction medium. Ethyl ether has also been used as an inhalation anesthetic for surgery, but it has largely been replaced in this role by more modern anesthetics. More than 125 million tons of ethyl ether are produced each year in the United States.

The acute and chronic toxicities of ethyl ether are low, and the principal exposure routes in the occupational setting are inhalation and skin contact. The critical effect of ethyl ether is irritation of the upper respiratory passages. Long-term exposure to low concentrations in air may produce central nervous system symptoms such as sleepiness, dizziness, irritability, headache, and psychic disturbances. Ethyl ether is a mild skin irritant, especially after repeated exposures.

#### *Reference*

1. NIOSH. *NEG and NIOSH basis for an occupational health standard: ethyl ether*. Cincinnati: US Department of Health and Human Services, Public Health Service, CDC, 1993; DHHS publication no. (NIOSH)93-103.

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

### **Erratum: Vol. 42, No. SS-5**

In the article "Silicosis Surveillance—Michigan, New Jersey, Ohio, and Wisconsin, 1987–1990" on page 25, the last sentence of the *Case Confirmation* paragraph is incorrect. The sentence should state: "Case confirmation requires a) a history of occupational exposure to airborne silica dust *and* a chest radiograph or other imaging technique interpreted as consistent with silicosis *or* b) a lung tissue biopsy indicating silicosis."

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.

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