CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

September 10, 1993 / Vol. 42 / No. 35

MMWR
MORBIDITY AND MORTALITY WEEKLY REPORT

Effectiveness in Disease and Injury Prevention

Public Health Focus: Physical Activity and the Prevention of Coronary Heart Disease

Coronary heart disease (CHD) is the leading cause of mortality in the United States: each year, CHD is newly diagnosed in approximately 1.5 million persons and accounts for an estimated $47 billion in direct and indirect health-care costs (*1*). Multiple risk factors associated with CHD include genetic susceptibility, elevated serum cholesterol, low levels of high-density lipoprotein cholesterol, cigarette smoking, uncontrolled hypertension, obesity, diabetes mellitus, and physical inactivity (*2*). This report summarizes information about the potential efficacy and cost-effectiveness of physical activity promotion as a strategy for preventing CHD.

Efficacy and Attributable Risk

Mild to moderate levels of physical activity (e.g., walking, gardening, yardwork, and dancing) can help prevent CHD. In 1987, a review of 43 epidemiologic studies concluded that moderate to vigorous physical activity reduces risk for CHD (*3*). Two thirds of the studies documented a substantial inverse relation between physical activity and risk for CHD. In addition, the risk for CHD was increased nearly twofold for persons who were physically inactive (relative risk=1.9; 95% confidence interval=1.4–2.5), a level comparable to the relative risks associated with increased systolic blood pressure (2.1), cigarette smoking (2.5), and elevated serum cholesterol (2.4) (*4*). A subsequent meta-analysis (*5*) and results from other longitudinal studies (*6*) support the role of physical inactivity as a strong and independent risk factor for CHD.

Based on a national survey in 1985, 56% of men and 61% of women in the United States either never or irregularly engaged in physical activity (*7*). Specifically, 25% of men and 30% of women reported no leisure-time physical activity during the preceding month, and an additional 31% of men and women reported irregular physical activity. Of the 36% of men and 32% of women who were regularly active during leisure time, 8% of the men and 7% of the women reported participating in vigorous and intense activity (*7*).

An estimate of the population-attributable risk for CHD mortality associated with physical inactivity among a selected group of men from 1977 through 1985 was

Coronary Heart Disease — Continued

14% (*6*). In comparison, the risk for hypertension was 20%; for cigarette smoking, 13%; and for a positive family history of premature parental death, 20%. An analysis based on published studies and the U.S. death rate to estimate the number of deaths attributed to several risk factors for nine chronic diseases (*8*) indicated that, in 1986, a total of 205,254 deaths associated with CHD were attributed to never or irregularly engaging in physical activity—a number in excess of estimates for smoking (148,879), obesity (190,456), and hypertension (171,121) but similar to the estimates for elevated serum cholesterol (253,194).

Cost-Effectiveness

Based on 1989 mortality estimates for CHD, the extrapolated cost of physical inactivity is $5.7 billion; among other risk factors for CHD, only elevated serum cholesterol (≥200 μg/dL) has a higher estimated cost (Table 1). A cost-effectiveness analysis to estimate the health and economic implications of a physical activity program in preventing CHD was conducted using a model of two hypothetical cohorts (one physically active and another inactive) of 1000 men aged 35 years (*9*). This analysis was based on a 30-year period to observe differences in the occurrence of CHD events, life expectancy, and quality-adjusted life expectancy. Physical activity was associated with 78 fewer CHD events and 1138 quality-adjusted life-years gained during the 30-year period. For each quality-adjusted life-year gained, the direct cost was $1395, and total cost was $11,313—amounts similar to the cost savings of other CHD intervention strategies (Table 2).

In Canada, a program promoting physical activity in a selected worksite was evaluated after 12 years of operation (*12*). The program consisted of professionally led physical activity classes 2–3 times per week for 30–45 minutes per session; an onsite gymnasium and exercise equipment also were made available to employees of the company. Per capita medical claims were lower in the intervention site than in a control site having no promotion of physical activity (*12*). For each worker, the intervention program saved $679 in medical claims per year, a return of $6.85 on each dollar invested.

Other examples of worksite-based programs have been estimated to cost employers approximately $100–$400 per employee per year (*13*). The estimated rate of return

TABLE 1. Population attributable risk of coronary heart disease (CHD) deaths and estimated societal costs, by selected risk factors — United States*

Risk factor	Attributable risk (%)† (n=593,111)	Estimated cost (billions)§
Physical inactivity	34.6	$5.7
Obesity	32.1	$5.3
Smoking	25.0	$4.1
Hypertension	28.9	$4.7
Elevated serum cholesterol (≥200 μg/dL)	42.7	$7.0

*Source: *Reference 8*.
†Percentages cannot be summed because they are calculated independently for each risk factor.
§Costs include hospital, physician, and nursing services; medicines; and lost productivity.

Coronary Heart Disease — Continued

is $513 per employee year, which includes reduced health-care costs and reduced loss of productivity.

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Editorial Note: Epidemiologic, clinical, and experimental evidence have established the association between physical activity and the prevention of CHD (*3*). The finding that moderate levels of physical activity reduce the risk for CHD indicates that inactive persons can benefit from even modest increases in their physical activity. Theoretical estimates suggest that, in the United States, 20,000 fewer persons would die per year if half of those persons with no leisure-time physical activity begin to participate in moderate physical activity (e.g., brisk walking) a minimum of 2–3 times per week (*14*). Biologic mechanisms through which physical activity may prevent CHD include improved weight control, enhanced glucose tolerance and insulin sensitivity, reduced blood pressure, improved coronary artery blood flow, and augmented high-density lipoprotein levels.

Educating health professionals and lay persons to implement effective ways to reduce risk factors for CHD and subsequent disease could result in a substantial savings in health-care costs. To increase and promote levels of physical activity, health-care and public health providers should consider those factors associated with inactivity. In particular, prevalence of inactivity is higher among older persons and women. In addition, inactivity has been associated with cognitive factors (e.g., knowledge of the benefits of activity, the perception of poor health, lack of time, and dislike for activity), personal attributes (e.g., obesity, low educational attainment, lack of self-motivation, and lack of confidence in ability to perform an activity), and environmental factors (e.g., lack of social support, inconvenience of activities, aversion to vigorous activities, and cost of activities) (*15*).

In addition to worksite-based programs, physical activity levels have been successfully increased in school-based programs for students, faculty, and staff and in the community (*16*). Community-based campaigns focusing on participation, awareness

TABLE 2. Selected risk factors for coronary heart disease, by prevalence, population-attributable risk, and cost effectiveness — United States

Risk factor	Prevalence (%)	Attributable risk (%)*	Cost effectiveness
Physical inactivity	58.0	34.6	$11,313 per QALY†
Hypertension	18.0	28.9	$25,000 per QALY§
Smoking	25.5	25.0	$21,947 total lifetime benefits of quitting¶
Obesity	23.0	32.1	NA**
Elevated serum cholesterol (≥200 µg/dL)	37.0	42.7	$28,000 per QALY††

*Percentages cannot be summed because they are calculated independently for each risk factor.
†Quality-adjusted life-years.
§Source: *Reference 9*.
¶Source: *Reference 10*.
**Not available.
††Source: *Reference 11*.

Coronary Heart Disease — Continued

through media and education, and environmental efforts (e.g., increased access to trails, parks, and school facilities) have resulted in short-term improvements in the physical activity habits of targeted groups. Other potential sites for promoting physical activity include physician's offices and health clinics, as well as the home and neighborhood environment, where the emphasis should be on participation in a variety of self-directed, moderate-level physical activities (e.g., gardening, yardwork, and walking) with a goal of 30 minutes of activity per day at least 5 days per week.

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Epidemiologic Notes and Reports

Handwashing and Glove Use in a Long-Term–Care Facility — Maryland, 1992

Residents of long-term–care facilities (LTCFs) are at risk for acquiring facility-associated infections and consequent mortality (*1,2*). Despite this risk, no national guidelines exist for infection-control practices in LTCFs, and information regarding the

Handwashing and Glove Use — Continued

nature of infection-control practices in LTCFs is limited. To evaluate glove use and handwashing practices in an LTCF, and to determine factors associated with compliance with infection-control policies and the frequency of microbial transmission, Maryland Department of Health and Mental Hygiene (DHMH) and CDC staff observed glove use and handwashing practices on a chronic-care ward of an LTCF in Maryland for a 1-month period during 1992. This report summarizes the findings of this study.

The 56-bed ward was located in a 255-bed, university-based LTCF. Most ward residents were elderly and had been admitted to the ward because of severe decubitus ulcers. Staff-resident interactions were selected systematically, and all were observed by the same DHMH staff person. Staff-resident interactions were observed if they involved one of the following activities: oral feeding, bathing, transferring, excretory care, respiratory care, dispensation of oral medication, wound care, soiled linen change, or gastrostomy care. Existing policies in this facility were used as a basis for determining when glove use, glove change, and handwashing had been required. These policies required glove use when contact with mucous membranes, nonintact skin, or any moist body substance was anticipated. Handwashing was required before and after any direct resident contact and immediately after touching mucous membranes, nonintact skin, moist body substances, or contaminated environmental surfaces and before touching a different care site on the same resident, a different resident, or a clean environmental surface; handwashing was required regardless of glove use.

During the 1-month study period, 231 interactions performed by at least 44 different staff members were observed. Gloves were required for 192 (83%) of the interactions and were used for 161 (84%) of these episodes. Changing of soiled gloves was required during 152 (94%) of the 161 interactions and occurred during 24 (15%). The proportion of staff members who used gloves when required varied by activity and was lowest during gastrostomy care (23 [68%] of 34) and highest during wound care (33 [100%] of 33). The rate of glove use when required was 74% (37/50) for registered nurses (RNs) and 87% for both licensed practical nurses (LPNs) (41/47) and nursing assistants (NAs) (80/92).

Handwashing was required during 213 of the 231 interactions. The proportion of staff members who washed hands when required varied by stage of interaction: 32% (25/79) of the time, hands were washed when required before an interaction; less than 1% (1/182) of the time, during an interaction; and 64% (114/179) of the time, after an interaction. The rate of handwashing when required after an interaction varied by activity performed and ranged from 50% (16/32) after soiled linen changes to 100% (25/25) after wound care. LPNs complied with handwashing guidelines more frequently than RNs or NAs, regardless of stage of interaction.

During 158 (68%) of the 231 interactions, a staff member's soiled (i.e., contact with mucous membranes, nonintact skin, or any moist body substance) hands or gloves touched other areas of the resident being cared for, a different resident, themselves, or an environmental surface, potentially resulting in microbial transmission. The proportion of interactions varied by type of activity performed and ranged from 50% (16/32) during wound care to 97% (37/38) during soiled linen changes.

Based on the findings of this investigation, DHMH and CDC personnel recommended measures to improve infection-control practices in this facility.

Handwashing and Glove Use — Continued

Recommendations focused on the need to better educate and motivate staff members to adhere to infection-control policies.

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Editorial Note: Since the early 1980s, guidelines have been developed for and studies have been conducted on the surveillance, prevention, and control of facility-associated infections, especially in acute-care settings (*3–5*). Although studies of staff practices (e.g., handwashing) that may be associated with facility-associated infections have been conducted in acute-care hospitals (*6,7*), little is known about infection-control practices in LTCFs (*8*). In addition, although general routes of disease transmission are known, it is unknown how, and under what circumstances, facility-associated infections are acquired.

The findings in this report characterize staff practices that may be related to LTCF-associated infections. However, these findings are subject to at least two limitations. First, because staff members could not be uniquely identified, observations may not have been independent. Second, the presence of an observer may have altered glove use and handwashing practices among LTCF staff. In addition, the findings in this LTCF may not be representative of other LTCFs in terms of residents or infection-control practices.

Because of the aging of the U.S. population and the increasing number of persons residing in LTCFs, the economic and health impact of LTCF-associated infections is likely to increase. The prevalence of facility-associated infections among LTCF residents is approximately 15% (*2,9*), and each resident is likely to acquire an average of two infections per year (*1*). Although factors such as decreased immune function, immobility, and frequent transfers to acute-care hospitals contribute to an increased risk for infection among LTCF residents, other risk factors, including breaches in handwashing and glove use, can be rectified by adherence to infection-control measures.

Effective infection-control practices are important in preventing infection in LTCF residents and reducing associated morbidity and mortality. The findings in this report indicate that lapses in infection control occur in LTCFs. Other factors likely to contribute to these lapses include high employee turnover, lack of an on-site infection-control practitioner, and reliance on staff with limited health-care training. In addition, LTCFs may not have written infection-control policies (*10*). Because no national guidelines exist for infection-control policies in LTCFs, many of these facilities have adopted guidelines developed for acute-care hospitals; however, further study is needed to determine whether these guidelines are practical or cost-effective.

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Handwashing and Glove Use — Continued

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Current Trends

Alcohol Use and Aquatic Activities — United States, 1991

Drowning, a leading cause of death from unintentional injury in the United States, accounted for approximately 4600 fatalities in 1991 (*1,2*). Although 25%–50% of adolescents and adults who drowned had consumed alcohol near the time of death (*3*), information regarding drinking behaviors during aquatic activities is limited. To assist in refining strategies for prevention of alcohol-related injury in aquatic settings, during July 15–September 30, 1991, the Boston University School of Public Health surveyed a national sample of adolescents and adults regarding their participation in aquatic activities and associated alcohol use. This report summarizes these findings.

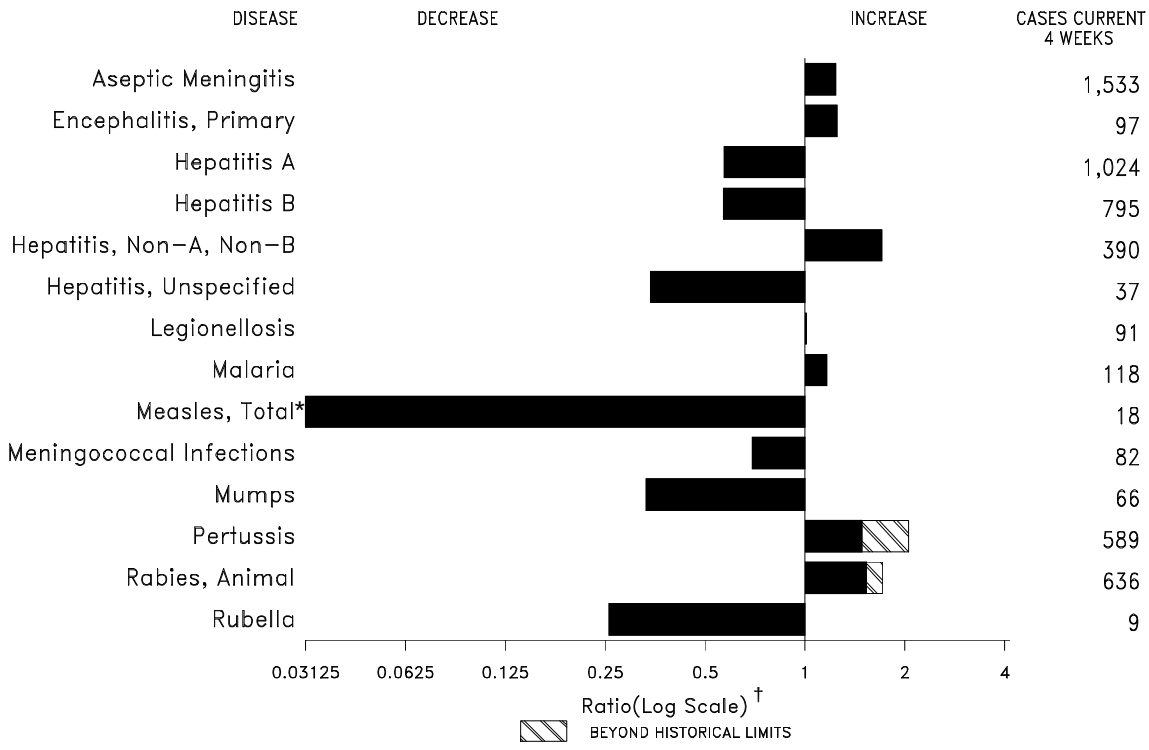
The two-stage Waksberg random-digit–dialing telephone procedure was used to obtain a probability sample of working residential telephone numbers in the continental United States (*4,5*). One randomly designated respondent aged ≥16 years was selected from each household. Of 3042 households contacted, 2706 persons (89%; 1255 [46%] men; 1451 [54%] women) reported participation in at least one activity on or near the water during the year preceding the interview and participated in the survey. Respondents were aged 16–94 years (mean: 42 years; median: 39 years). The standard error does not exceed ±2% for any given point estimate in this study. The most frequently reported aquatic activities were swimming (75%) and boating (72%).

Respondents were asked about alcohol use during participation in aquatic activities during the year preceding the interview. Of the 2706 respondents, 1889 (70%; 926 [74%] males; 963 [66%] females) reported alcohol use, and 817 (30%) abstained. Of the 1889 alcohol users, 1156 (61%; 656 [52%] males; 500 [34%] females) had consumed alcohol on at least one occasion while participating in an aquatic activity. The likelihood of having consumed alcohol varied by type of aquatic activity: of 2031 swimmers and 1943 boaters, 487 (24%) and 630 (32%), respectively, reported having used alcohol during those activities during the preceding year.

Respondents who participated in an aquatic activity during the 30 days preceding the interview (n=1877) were asked about associated alcohol use during their last day on or near the water. Of the 1877 respondents, 522 (28%) reported consuming alcohol during their last day of water recreation: 366 (70%) drank beer; 112 (21%), wine; 82 (16%), liquor; and 16 (3%), some other alcoholic beverage. Men who drank reported

(Continued on page 681)

FIGURE I. Notifiable disease reports, comparison of 4-week totals ending September 4, 1993, with historical data — United States



* The large apparent decrease in reported cases of measles(total) reflects dramatic fluctuations in the historical baseline. (Ratio (log scale) for week thirty-five is 0.02942).

† 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 thehatched 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 September 4, 1993 (35th Week)

	Cum. 1993		Cum. 1993
AIDS*	67,732	Measles: imported	38
Anthrax	-	indigenous	196
Botulism: Foodborne	8	Plague	7
Infant	29	Poliomyelitis, Paralytic§	-
Other	2	Psittacosis	39
Brucellosis	62	Rabies, human	1
Cholera	15	Syphilis, primary & secondary	17,212
Congenital rubella syndrome	7	Syphilis, congenital, age < 1 year¶	677
Diphtheria	-	Tetanus	27
Encephalitis, post-infectious	113	Toxic shock syndrome	163
Gonorrhea	253,456	Trichinosis	9
Haemophilus influenzae (invasive disease)†	813	Tuberculosis	13,713
Hansen Disease	115	Tularemia	92
Leptospirosis	25	Typhoid fever	217
Lyme Disease	4,321	Typhus fever, tickborne (RMSF)	295

*Updated monthly; last update July 31, 1993.
†Of 751 cases of known age, 247 (33%) were reported among children less than 5 years of age.
§Two (2) 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.
¶Reports through first quarter of 1993.

TABLE II. Cases of selected notifiable diseases, United States, weeks ending September 4, 1993, and August 29, 1992 (35th Week)

Reporting Area	AIDS*	Aseptic Meningitis	Encephalitis		Gonorrhea		Hepatitis (Viral), by type				Legionellosis	Lyme Disease
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
	Cum. 1993	Cum. 1993	Cum. 1993	Cum. 1993	Cum. 1993	Cum. 1992	Cum. 1993	Cum. 1993	Cum. 1993	Cum. 1993	Cum. 1993	Cum. 1993
UNITED STATES	67,732	6,932	465	113	253,456	330,195	13,992	8,149	3,191	415	775	4,321
NEW ENGLAND	3,232	196	12	5	5,487	6,945	317	360	339	9	36	1,151
Maine	94	24	2	-	57	65	12	9	4	-	4	6
N.H.	67	24	-	2	43	80	16	57	264	2	1	36
Vt.	14	23	3	-	18	18	3	7	2	-	-	4
Mass.	1,818	87	5	3	1,967	2,534	161	227	62	7	27	124
R.I.	219	38	2	-	271	483	60	16	7	-	4	183
Conn.	1,020	-	-	-	3,131	3,765	65	44	-	-	-	798
MID. ATLANTIC	15,598	490	37	7	29,980	36,493	730	940	244	4	160	2,284
Upstate N.Y.	2,373	252	25	4	5,656	7,538	247	285	157	1	52	1,269
N.Y. City	8,289	104	1	-	7,880	12,611	177	121	1	-	3	3
N.J.	2,991	-	-	-	5,090	5,101	207	269	58	-	24	514
Pa.	1,945	134	11	3	11,354	11,243	99	265	28	3	81	498
E.N. CENTRAL	5,419	1,021	121	20	48,617	61,026	1,515	968	434	10	204	41
Ohio	938	382	45	4	15,331	18,603	200	141	32	-	108	22
Ind.	634	131	14	8	5,189	5,795	475	149	8	1	38	8
Ill.	1,939	201	23	2	13,208	19,097	387	166	40	3	10	5
Mich.	1,379	278	29	6	11,083	14,632	138	287	322	6	40	6
Wis.	529	29	10	-	3,806	2,899	315	225	32	-	8	-
W.N. CENTRAL	2,428	409	18	-	13,134	17,565	1,609	420	102	11	50	105
Minn.	511	61	7	-	1,678	1,914	304	48	3	4	1	52
Iowa	141	70	1	-	658	1,090	35	17	7	1	7	7
Mo.	1,374	112	-	-	7,559	9,804	993	296	71	6	13	7
N. Dak.	1	12	3	-	38	58	63	-	-	-	1	2
S. Dak.	22	15	5	-	183	119	13	-	-	-	-	-
Nebr.	135	7	-	-	476	1,143	139	12	8	-	23	4
Kans.	244	132	2	-	2,542	3,437	62	47	13	-	5	33
S. ATLANTIC	14,279	1,619	90	51	68,078	100,189	852	1,567	443	57	141	589
Del.	253	44	3	-	944	1,182	9	118	88	-	10	286
Md.	1,630	163	20	-	11,020	10,304	120	186	8	5	33	109
D.C.	896	27	-	-	3,219	4,383	6	34	-	-	13	2
Va.	1,049	172	29	6	8,096	11,129	102	104	26	27	5	55
W. Va.	46	17	19	-	404	602	11	28	19	-	1	9
N.C.	790	162	17	-	16,983	16,654	52	216	54	-	18	64
S.C.	933	21	-	-	7,208	7,460	11	35	3	1	14	7
Ga.	1,854	109	1	-	4,660	29,932	67	147	72	-	27	29
Fla.	6,828	904	1	45	15,544	18,543	474	699	173	24	20	28
E.S. CENTRAL	1,796	445	18	7	29,617	32,640	180	859	620	1	32	14
Ky.	213	175	7	6	3,191	3,255	81	59	10	-	12	3
Tenn.	731	96	5	-	8,909	10,243	35	724	596	-	13	8
Ala.	531	119	1	-	10,677	11,359	41	71	4	1	2	3
Miss.	321	55	5	1	6,840	7,783	23	5	10	-	5	-
W.S. CENTRAL	6,957	813	35	2	29,762	36,348	1,372	1,101	217	127	21	36
Ark.	267	43	1	-	5,821	5,183	36	37	2	2	3	1
La.	921	59	4	-	7,965	10,350	52	144	88	3	2	1
Okla.	590	1	7	-	2,350	3,658	112	204	83	9	11	17
Tex.	5,179	710	23	2	13,626	17,157	1,172	716	44	113	5	17
MOUNTAIN	2,948	430	18	4	7,491	8,210	2,753	401	220	57	53	17
Mont.	22	-	-	1	53	75	58	4	2	-	5	-
Idaho	52	7	-	-	119	73	130	34	-	1	1	2
Wyo.	31	5	-	-	63	35	12	21	71	-	5	8
Colo.	985	116	7	-	2,379	2,921	645	50	36	33	6	-
N. Mex.	240	92	3	2	643	609	261	147	67	2	3	1
Ariz.	992	140	6	-	2,785	2,855	1,011	67	11	9	11	-
Utah	197	25	1	-	226	221	561	39	24	11	7	2
Nev.	429	45	1	1	1,223	1,421	75	39	9	1	15	4
PACIFIC	15,075	1,509	116	17	21,290	30,779	4,664	1,533	572	139	78	84
Wash.	1,008	-	1	-	2,609	2,683	516	150	130	8	9	3
Oreg.	575	-	-	-	1,100	1,146	65	23	11	-	-	2
Calif.	13,233	1,404	111	17	16,861	26,159	3,492	1,334	419	128	62	78
Alaska	47	15	3	-	356	474	534	8	9	-	-	-
Hawaii	212	90	1	-	364	317	57	18	3	3	7	1
Guam	-	2	-	-	38	48	2	2	-	1	-	-
P.R.	1,950	37	-	-	350	151	56	256	49	2	-	-
V.I.	34	-	-	-	79	70	-	4	-	-	-	-
Amer. Samoa	-	-	-	-	35	31	13	-	-	-	-	-
C.N.M.I.	-	3	-	-	58	61	-	1	-	1	-	-

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

*Updated monthly; last update July 31, 1993.

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending September 4, 1993, and August 29, 1992 (35th Week)

Reporting Area	Malaria	Measles (Rubeola)					Menin-gococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported*		Total									
	Cum. 1993	1993	Cum. 1993	1993	Cum. 1993	Cum. 1992	Cum. 1993	1993	Cum. 1993	1993	Cum. 1993	Cum. 1992	1993	Cum. 1993	Cum. 1992
UNITED STATES	750	1	196	5	38	2,116	1,662	12	1,132	189	2,820	1,588	2	146	133
NEW ENGLAND	54	-	56	-	4	55	94	-	8	1	491	127	-	1	6
Maine	1	-	2	-	-	3	5	-	-	-	13	7	-	1	1
N.H.	6	U	1	U	-	13	12	U	-	U	214	31	U	-	-
Vt.	1	-	30	-	1	-	4	-	-	-	55	6	-	-	-
Mass.	27	-	14	-	2	14	53	-	2	-	161	53	-	-	-
R.I.	2	-	-	-	1	21	1	-	2	-	6	-	-	-	4
Conn.	17	-	9	-	-	4	19	-	4	1	42	30	-	-	1
MID. ATLANTIC	114	-	7	1	4	201	199	-	88	22	332	73	1	42	10
Upstate N.Y.	43	-	-	1 †	2	111	91	-	33	22	152	38	1	9	7
N.Y. City	24	-	2	-	-	54	19	-	-	-	7	9	-	15	-
N.J.	31	-	5	-	2	36	31	-	8	-	35	26	-	13	3
Pa.	16	-	-	-	-	-	58	-	47	-	138	-	-	5	-
E.N. CENTRAL	45	-	14	3	5	50	262	-	157	-	485	232	-	5	9
Ohio	10	-	5	3†§	3	6	76	-	63	-	211	42	-	1	-
Ind.	3	-	-	-	-	20	44	-	3	-	53	21	-	1	-
Ill.	25	-	5	-	-	16	72	-	38	-	72	29	-	-	8
Mich.	7	-	4	-	1	4	42	-	50	-	28	8	-	2	1
Wis.	-	-	-	-	1	4	28	-	3	-	121	132	-	1	-
W.N. CENTRAL	19	-	1	-	2	11	110	1	34	33	262	137	-	1	8
Minn.	4	-	-	-	-	10	7	1	2	26	132	33	-	-	-
Iowa	2	-	-	-	-	1	18	-	7	7	20	3	-	-	3
Mo.	5	-	1	-	-	-	43	-	19	-	77	64	-	1	1
N. Dak.	2	-	-	-	-	-	3	-	5	-	3	13	-	-	-
S. Dak.	2	-	-	-	-	-	3	-	-	-	7	7	-	-	-
Nebr.	3	U	-	U	-	-	9	U	1	U	9	7	U	-	-
Kans.	1	-	-	-	2	-	27	-	-	-	14	10	-	-	4
S. ATLANTIC	213	1	23	-	5	120	320	2	359	10	304	113	-	9	13
Del.	2	-	1	-	-	1	11	-	5	-	9	6	-	2	-
Md.	29	-	-	-	4	16	40	-	65	3	100	17	-	2	5
D.C.	10	-	-	-	-	-	5	-	-	2	6	1	-	-	-
Va.	19	-	-	-	1	14	31	1	20	2	40	10	-	-	-
W. Va.	2	-	-	-	-	-	11	-	13	-	10	7	-	-	1
N.C.	90	-	-	-	-	24	55	-	195	-	45	22	-	-	-
S.C.	1	-	-	-	-	29	29	-	14	-	8	9	-	-	2
Ga.	13	-	-	-	-	-	72	-	14	1	17	14	-	-	-
Fla.	47	1	22	-	-	36	66	1	33	2	69	27	-	5	5
E.S. CENTRAL	22	-	1	-	-	460	103	-	39	94	212	22	-	-	1
Ky.	4	-	-	-	-	443	19	-	-	-	8	1	-	-	-
Tenn.	8	-	-	-	-	-	26	-	11	93	147	5	-	-	1
Ala.	6	-	1	-	-	-	34	-	21	1	46	13	-	-	-
Miss.	4	-	-	-	-	17	24	-	7	-	11	3	-	-	-
W.S. CENTRAL	19	-	2	-	3	1,085	143	6	166	4	97	182	-	17	6
Ark.	3	-	-	-	-	-	16	-	4	-	7	9	-	-	-
La.	2	-	1	-	-	-	28	2	14	1	7	6	-	1	-
Okla.	4	-	-	-	-	11	25	-	8	3	61	27	-	1	-
Tex.	10	-	1	-	3	1,074	74	4	140	-	22	140	-	15	6
MOUNTAIN	26	-	3	-	1	27	132	2	47	9	247	246	-	7	7
Mont.	2	-	-	-	-	-	11	-	-	2	4	3	-	-	-
Idaho	1	-	-	-	-	-	9	-	5	5	73	39	-	1	1
Wyo.	-	-	-	-	-	1	2	-	2	-	1	-	-	-	-
Colo.	15	-	2	-	1	22	23	-	14	-	73	27	-	-	1
N. Mex.	5	-	-	-	-	2	4	N	N	2	32	57	-	-	-
Ariz.	-	-	-	-	-	2	65	-	7	-	38	94	-	2	2
Utah	1	-	-	-	-	-	11	-	3	-	25	24	-	3	1
Nev.	2	-	1	-	-	-	7	2	16	-	1	2	-	1	2
PACIFIC	238	-	89	1	14	107	299	1	234	16	390	456	1	64	73
Wash.	21	-	-	-	-	10	55	-	10	6	40	136	-	-	6
Oreg.	4	U	-	U	-	3	22	N	N	U	10	24	U	2	1
Calif.	207	-	78	-	4	54	201	1	198	10	326	271	-	35	44
Alaska	1	-	-	-	1	9	13	-	8	-	4	6	-	1	-
Hawaii	5	-	11	1†	9	31	8	-	18	-	10	19	1	26	22
Guam	1	U	2	U	-	10	1	U	6	U	-	-	U	-	1
P.R.	-	-	224	-	-	339	7	-	2	-	2	12	-	-	-
V.I.	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-
Amer. Samoa	-	U	1	U	-	-	-	U	-	U	2	6	U	-	-
C.N.M.I.	-	-	-	-	1	2	-	-	12	-	1	1	-	-	-

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

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending September 4, 1993, and August 29, 1992 (35th Week)

Reporting Area	Syphilis (Primary & Secondary)		Toxic-Shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1993	Cum. 1992	Cum. 1993	Cum. 1993	Cum. 1992	Cum. 1993	Cum. 1993	Cum. 1993	Cum. 1993
UNITED STATES	17,212	22,960	163	13,713	15,082	92	217	295	5,790
NEW ENGLAND	274	460	10	317	292	-	18	3	983
Maine	3	2	2	24	18	-	-	-	-
N.H.	25	33	2	9	3	-	1	-	58
Vt.	1	1	1	3	4	-	-	-	19
Mass.	102	229	4	165	149	-	12	3	395
R.I.	11	23	1	39	23	-	-	-	-
Conn.	132	172	-	77	95	-	5	-	511
MID. ATLANTIC	1,574	3,294	28	3,152	3,608	1	47	23	2,277
Upstate N.Y.	144	257	15	323	453	1	10	4	1,748
N.Y. City	810	1,827	1	1,860	2,128	-	26	-	-
N.J.	215	418	-	511	606	-	8	10	285
Pa.	405	792	12	458	421	-	3	9	244
E.N. CENTRAL	2,535	3,358	37	1,306	1,494	5	27	11	70
Ohio	787	528	14	220	230	1	6	7	5
Ind.	214	182	1	137	114	1	1	1	5
Ill.	821	1,436	6	580	745	2	15	1	12
Mich.	418	683	16	306	342	1	4	2	9
Wis.	295	529	-	63	63	-	1	-	39
W.N. CENTRAL	1,095	962	10	326	375	31	2	14	249
Minn.	51	62	2	40	109	-	-	1	36
Iowa	33	35	5	37	27	-	-	4	44
Mo.	897	747	-	176	165	12	2	6	9
N. Dak.	1	1	-	5	7	-	-	-	51
S. Dak.	1	-	-	11	17	15	-	2	32
Nebr.	10	24	-	14	16	1	-	-	7
Kans.	102	93	3	43	34	3	-	1	70
S. ATLANTIC	4,706	6,355	21	2,419	2,785	2	32	141	1,382
Del.	84	147	1	30	36	-	1	1	109
Md.	263	450	1	266	231	-	7	11	402
D.C.	249	298	-	119	84	-	-	-	13
Va.	446	522	6	299	248	-	3	8	260
W. Va.	9	13	-	53	69	-	-	5	59
N.C.	1,310	1,665	3	343	340	1	2	79	62
S.C.	713	870	-	281	275	-	-	9	111
Ga.	779	1,259	2	532	595	-	1	22	322
Fla.	853	1,131	8	496	907	1	18	6	44
E.S. CENTRAL	2,655	2,905	9	889	958	4	4	33	80
Ky.	223	97	2	254	265	-	1	5	11
Tenn.	750	804	3	144	244	3	1	18	-
Ala.	573	1,038	2	328	272	1	2	4	69
Miss.	1,109	966	2	163	177	-	-	6	-
W.S. CENTRAL	3,635	4,096	2	1,534	1,680	35	2	61	391
Ark.	545	610	-	120	122	20	-	1	28
La.	1,746	1,698	-	-	138	-	1	1	5
Okla.	281	222	2	97	110	12	-	55	55
Tex.	1,063	1,566	-	1,317	1,310	3	1	4	303
MOUNTAIN	163	251	9	351	401	9	8	9	126
Mont.	1	7	-	15	-	5	-	1	16
Idaho	-	1	1	8	16	-	-	-	5
Wyo.	7	3	-	2	-	2	-	7	16
Colo.	42	37	2	32	30	-	5	1	19
N. Mex.	24	29	-	46	53	1	1	-	7
Ariz.	73	126	1	154	192	-	2	-	49
Utah	4	7	4	21	56	1	-	-	4
Nev.	12	41	1	73	54	-	-	-	10
PACIFIC	575	1,279	37	3,419	3,489	5	77	-	232
Wash.	37	65	7	174	202	1	4	-	-
Oreg.	51	29	-	77	89	2	-	-	-
Calif.	478	1,175	30	2,950	2,983	2	70	-	215
Alaska	6	4	-	38	46	-	-	-	17
Hawaii	3	6	-	180	169	-	3	-	-
Guam	1	3	-	28	58	-	-	-	-
P.R.	374	215	-	152	135	-	-	-	29
V.I.	33	48	-	2	3	-	-	-	-
Amer. Samoa	-	-	-	2	-	-	-	-	-
C.N.M.I.	3	5	-	19	43	-	-	-	-

U: Unavailable

TABLE III. Deaths in 121 U.S. cities,* week ending September 4, 1993 (35th Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	669	444	99	88	19	19	57
Boston, Mass.	175	103	36	21	6	9	25
Bridgeport, Conn.	52	34	10	4	3	1	3
Cambridge, Mass.	24	19	4	1	-	-	2
Fall River, Mass.	25	21	2	1	1	-	1
Hartford, Conn.	59	40	8	7	3	1	2
Lowell, Mass.	19	15	2	1	1	-	1
Lynn, Mass.	19	14	3	2	-	-	1
New Bedford, Mass.	31	25	4	2	-	-	2
New Haven, Conn.	35	18	5	6	-	6	1
Providence, R.I.	55	45	6	3	1	-	11
Somerville, Mass.	3	2	-	1	-	-	-
Springfield, Mass.	37	28	8	-	-	1	2
Waterbury, Conn.	34	24	2	6	2	-	1
Worcester, Mass.	101	56	9	33	2	1	5
MID. ATLANTIC	2,204	1,380	418	299	60	47	92
Albany, N.Y.	43	31	8	1	2	1	-
Allentown, Pa.	31	27	3	1	-	-	-
Buffalo, N.Y.	100	62	30	4	3	1	3
Camden, N.J.	31	20	2	7	2	-	2
Elizabeth, N.J.	15	9	4	2	-	-	-
Erie, Pa.§	44	32	8	4	-	-	1
Jersey City, N.J.	44	34	5	3	2	-	1
New York City, N.Y.	1,234	746	233	206	29	20	46
Newark, N.J.	55	25	12	12	-	6	1
Paterson, N.J.	31	19	3	6	1	2	-
Philadelphia, Pa.	195	104	48	23	14	6	10
Pittsburgh, Pa.§	97	61	19	10	3	4	8
Reading, Pa.	U	U	U	U	U	U	U
Rochester, N.Y.	131	98	21	5	2	5	12
Schenectady, N.Y.	17	12	3	2	-	-	-
Scranton, Pa.§	24	17	5	1	-	1	1
Syracuse, N.Y.	75	57	8	7	2	1	4
Trenton, N.J.	26	18	4	4	-	-	2
Utica, N.Y.	11	8	2	1	-	-	1
Yonkers, N.Y.	U	U	U	U	U	U	U
E.N. CENTRAL	2,266	1,340	430	243	178	75	117
Akron, Ohio	55	38	14	1	-	2	-
Canton, Ohio	39	30	8	1	-	-	4
Chicago, Ill.	566	197	110	101	125	33	9
Cincinnati, Ohio	153	107	30	7	4	5	19
Cleveland, Ohio	110	73	21	11	4	1	2
Columbus, Ohio	169	121	31	7	4	6	19
Dayton, Ohio	107	65	24	13	2	3	4
Detroit, Mich.	232	129	43	39	14	7	4
Evansville, Ind.	45	39	4	1	1	-	6
Fort Wayne, Ind.	69	40	16	8	3	2	5
Gary, Ind.	15	7	4	3	1	-	-
Grand Rapids, Mich.	65	37	16	1	5	6	6
Indianapolis, Ind.	183	115	41	19	6	2	7
Madison, Wis.	39	28	6	4	-	1	1
Milwaukee, Wis.	148	109	22	11	2	4	15
Peoria, Ill.	55	41	9	4	1	-	7
Rockford, Ill.	47	28	12	4	2	1	2
South Bend, Ind.	30	22	4	4	-	-	2
Toledo, Ohio	83	65	9	3	4	2	4
Youngstown, Ohio	56	49	6	1	-	-	1
W.N. CENTRAL	736	525	129	48	18	16	35
Des Moines, Iowa	U	U	U	U	U	U	U
Duluth, Minn.	28	23	4	1	-	-	1
Kansas City, Kans.	28	20	3	2	2	1	1
Kansas City, Mo.	94	74	11	4	2	3	2
Lincoln, Nebr.	32	26	4	2	-	-	2
Minneapolis, Minn.	237	169	46	13	2	7	13
Omaha, Nebr.	70	48	17	3	1	1	4
St. Louis, Mo.	134	87	25	13	6	3	6
St. Paul, Minn.	54	38	9	4	2	1	4
Wichita, Kans.	59	40	10	6	3	-	2

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	≥65	45-64	25-44	1-24	<1	
S. ATLANTIC	1,120	687	221	149	39	24	68
Atlanta, Ga.	185	108	37	34	3	3	6
Baltimore, Md.	183	102	37	33	6	5	13
Charlotte, N.C.	88	47	17	15	5	4	4
Jacksonville, Fla.	112	74	23	12	3	-	8
Miami, Fla.	115	65	22	19	6	3	-
Norfolk, Va.	61	47	7	2	1	4	5
Richmond, Va.	79	42	23	11	2	1	6
Savannah, Ga.	54	33	9	6	3	3	4
St. Petersburg, Fla.	56	41	11	2	2	-	5
Tampa, Fla.	169	112	34	15	7	1	17
Washington, D.C.	U	U	U	U	U	U	U
Wilmington, Del.	18	16	1	-	1	-	-
E.S. CENTRAL	734	473	142	55	28	36	50
Birmingham, Ala.	113	68	24	9	6	6	4
Chattanooga, Tenn.	38	30	5	1	1	1	-
Knoxville, Tenn.	78	57	15	3	3	-	8
Lexington, Ky.	68	44	17	2	3	2	7
Memphis, Tenn.	155	88	37	13	3	14	17
Mobile, Ala.	108	72	19	9	5	3	5
Montgomery, Ala.	38	31	2	3	1	1	3
Nashville, Tenn.	136	83	23	15	6	9	6
W.S. CENTRAL	1,291	771	240	166	75	36	70
Austin, Tex.	71	50	12	7	2	-	8
Baton Rouge, La.	31	22	3	5	1	-	-
Corpus Christi, Tex.	U	U	U	U	U	U	U
Dallas, Tex.	152	89	28	24	7	4	2
El Paso, Tex.	77	43	12	10	8	4	6
Ft. Worth, Tex.	89	59	11	11	2	6	2
Houston, Tex.	354	200	76	57	15	6	30
Little Rock, Ark.	71	44	22	3	2	-	6
New Orleans, La.	121	47	18	21	22	10	-
San Antonio, Tex.	205	136	37	16	11	5	7
Shreveport, La.	26	17	7	1	1	-	1
Tulsa, Okla.	94	64	14	11	4	1	8
MOUNTAIN	796	506	161	65	40	23	45
Albuquerque, N.M.	74	46	13	9	5	1	4
Colo. Springs, Colo.	32	21	7	2	1	1	-
Denver, Colo.	91	53	23	6	4	5	5
Las Vegas, Nev.	154	96	39	11	6	1	10
Ogden, Utah	29	18	6	2	2	1	2
Phoenix, Ariz.	168	100	31	19	9	9	7
Pueblo, Colo.	26	19	3	3	1	-	-
Salt Lake City, Utah	87	61	11	6	4	5	9
Tucson, Ariz.	135	92	28	7	8	-	8
PACIFIC	1,503	959	286	172	51	29	80
Berkeley, Calif.	24	17	2	4	1	-	5
Fresno, Calif.	72	37	14	15	3	3	4
Glendale, Calif.	14	11	2	1	-	-	2
Honolulu, Hawaii	76	44	19	9	2	2	3
Long Beach, Calif.	80	42	18	9	5	6	3
Los Angeles, Calif.	296	183	53	40	12	3	14
Pasadena, Calif.	18	12	1	3	1	1	2
Portland, Oreg.	114	84	14	9	4	3	6
Sacramento, Calif.	154	115	25	10	4	-	8
San Diego, Calif.	120	76	16	21	5	2	9
San Francisco, Calif.	136	82	27	20	1	5	4
San Jose, Calif.	147	100	37	6	3	1	13
Santa Cruz, Calif.	U	U	U	U	U	U	U
Seattle, Wash.	143	88	32	16	7	-	2
Spokane, Wash.	48	29	12	5	2	-	2
Tacoma, Wash.	61	39	14	4	1	3	3
TOTAL	11,319¶	7,085	2,126	1,285	508	305	614

*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.

Alcohol Use — Continued

consuming more (mean: 4.5 alcoholic beverages) than did women (mean: 2.9 alcoholic beverages) on this occasion ($p<0.0001$) (Figure 1).

Of respondents who reported ever consuming alcohol during their lifetimes during aquatic activities (n=1183), 108 (9%) reported that they always or often drank on these occasions, 426 (36%) that they sometimes drank; and 649 (55%) that they rarely drank during aquatic activities. Two percent reported that alcohol consumption substantially increased their enjoyment of being on or near the water; 18%, "somewhat;" 23%, "a little;" and 56% reported that alcohol did not increase their enjoyment of being on or near the water.

Of the 3042 respondents, 2213 (73%) recalled at least one exposure to information (i.e., hearing or reading) about the risks of drinking during aquatic activities. A total of 2889 (95%) respondents strongly or somewhat favored laws for their own states that prohibit operation of recreational and commercial water vessels while intoxicated. In comparison, 34% and 42% of all respondents and respondents who had participated in boating, respectively, had knowledge of the 1984 legislation amending Title 46, United States Code, Chapter 23 (Operation of Vessels Generally), to include specific prohibitions regarding the operation of a vessel while intoxicated.

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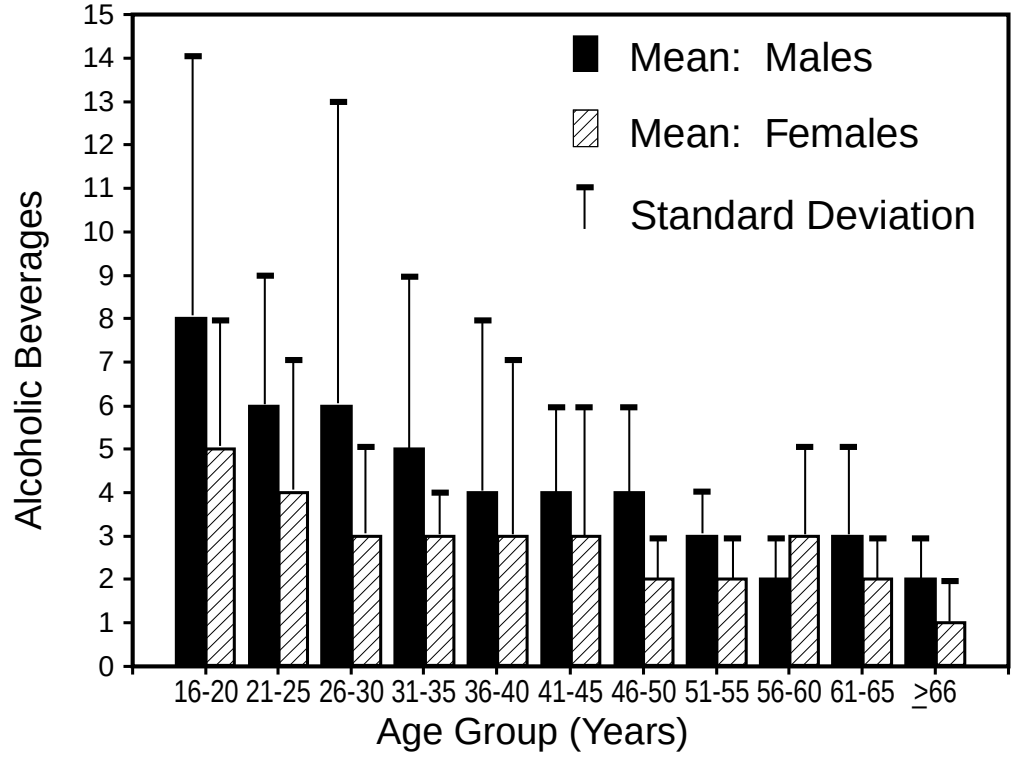
FIGURE 1. Mean number of alcoholic beverages consumed during the last day on or near the water by persons who participated in an aquatic activity during the 30 days preceding the interview, by sex and age group — United States, 1991*



*Sample size=1877.

Alcohol Use — Continued

Editorial Note: The determination that alcohol use is a risk factor for water-recreation–related fatalities is well documented (*6,7*). Alcohol use is a risk factor for injury and death in aquatic settings for a variety of reasons. For example, alcohol can reduce body temperature and, through its effect on the central nervous system, can impair swimming ability (*3*). In the national study described in this report, one third of boaters reported consuming alcohol while boating—a finding similar to one reported in the 1989 American Red Cross National Boating Survey (*8*), in which 29% of all boaters reported consuming alcohol during a typical boat outing. Because alcohol affects balance, movement, and vision, its use represents a risk for injury and death for boat operators and passengers, who can fall overboard while intoxicated (*3,9*).

The male-to-female ratio of drowning rates in the United States is approximately 14:1 for drownings associated with boating and 5:1 for other drownings (*1*). Alcohol use contributes largely to the sex differential in annual drowning rates. In the findings in this report, half of men and one third of women reported alcohol use during aquatic activities, and men reported consuming significantly more alcohol than did women, suggesting that sex differences in drowning may be related to differences in alcohol use and consumption.

More than half of all respondents reported that drinking did not increase their enjoyment of aquatic activities, and nearly all favored legislation that prohibits alcohol use in aquatic settings. These findings should assist in planning or refining strategies for prevention of alcohol-related injury in aquatic settings. In addition, only one third of respondents were aware of federal laws prohibiting the operation of a recreational boat while under the influence of alcohol, suggesting that alcohol advertisements involving aquatic settings may contribute to misconceptions about the safety and legality of combining alcohol use with swimming and boating (*1*).

Possible strategies for the prevention of alcohol-related aquatic injuries include 1) public service announcements by federal and state government agencies and community-based organizations warning about the dangers of combining alcohol use with water recreation: such messages should be tailored to swimming and boating; 2) elimination of advertisements that encourage the use of alcohol during boating activities; 3) restriction of sale of alcoholic beverages at aquatic facilities; and 4) passage and enforcement of federal and state legislation restricting water-recreation activities during alcohol consumption.

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Alcohol Use — Continued

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Current Trends

Characteristics of Death Certifiers and Institutions Where Death is Pronounced — Fulton County, Georgia, 1991

Information from death certificates (DCs) is used to measure health status and to set public health priorities at all levels in the United States. However, because of limitations in the training of physicians who certify deaths, the completeness and accuracy of cause-of-death information varies (*1–3*). To develop a basis for targeting education of physicians who certify deaths, CDC, in cooperation with the Fulton County (Georgia) Vital Records Office, reviewed a consecutive series of 500 DCs filed in Fulton County (1990 population: 648,951) from April 10 through May 2, 1991, to characterize the number and proportion of personal physicians (PPs) (defined as physician certifiers not acting in the capacity of medical examiners or coroners [MECs]) and MECs certifying death, as well as other factors. This report summarizes the results of that review.

In Georgia, DCs are filed in the county where death occurs. The 500 DCs included 306 (61.2%) filed for Fulton County residents. The DCs included deaths that occurred in January (three), February (11), March (75), and April (411) 1991. During the study, 13 hospitals and 23 long-term–care facilities (LTCFs [i.e., nursing homes and extended-care facilities not associated with hospitals]) were in operation in Fulton County.

PPs and MECs certified deaths pronounced at 23 institutions located in the county. Thirteen institutions were hospitals; four, LTCFs; and six, MEC offices in six Atlanta-area metropolitan counties, including Fulton County (although the incident leading to death may have occurred outside Fulton County, the death itself occurred in Fulton County). The number of persons certifying deaths in each institution ranged from one to 79. A total of 292 deaths were pronounced in the 13 hospitals (range: 2–103; mean: 30 deaths per hospital). Six deaths were pronounced at four of the LTCFs.

PPs certified 401 (80.2%) deaths and attributed 400 (99.9%) to natural causes. MECs certified 99 (19.8%) deaths and attributed 70 (70.7%) to natural causes. During the study period, 273 (12%) PPs certified 401 deaths; of these 273 PPs, 181 (66.3%) certified one death each. Each PP certified a mean of 1.5 (range: 1–13) deaths. The largest number of deaths (13) were certified by a PP at a hospital for terminally ill cancer patients. Of the 99 deaths certified by MECs, 95 (96.0%) were certified by eight medical examiners from two counties; coroners from four adjacent counties each certified one death. The mean number of certifications per MEC was 8.3; the largest number of certifications by a single MEC was 20.

Of the 401 persons whose deaths were certified by PPs, 290 (72.3%) were inpatients at institutions, 84 (20.9%) were pronounced dead on arrival at emergency departments, and 27 (6.7%) died in emergency departments. Standard procedure at the hospital where the largest number (103) of deaths was pronounced was for resident house staff to complete the DC.

Death Certification — Continued

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Editorial Note: Based on a meeting of experts cosponsored by CDC and the National Committee on Vital and Health Statistics in 1991, recommendations were developed for more accurate and consistent completion of DCs in physician-education programs (*4*). In particular, the recommendations suggested that, because most physicians are likely to certify only a small number of deaths, educational efforts should be aimed at physicians and institutions most likely to be pronouncing and certifying deaths. The findings in Fulton County characterize physicians and institutions involved in certifying deaths in a defined geographic area and may assist in the design of educational programs to increase the accuracy and completeness of DCs. In particular, these findings indicate that death-certification education efforts may be most effective if they are hospital based and targeted to all hospitals to reach appropriate PP certifiers and focus on the certification of inpatient deaths from natural causes. Because results from this study indicate that MECs certified nearly 20% of all deaths, education efforts for MECs could improve the accuracy and completeness of a substantial proportion of DCs.

Hospital-based efforts could include 1) training in death certification and registration before permanent or resident physician privileges are granted; 2) requiring physicians who certify the cause of death to complete approved training within a specified time after their first death certification; and 3) training a designated group of physicians to certify all deaths in the institution in consultation with the attending physician and after review of the medical record and other documents (*5*).

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Current Trends

Adult Blood Lead Epidemiology and Surveillance — United States, Second Quarter, 1993

Quarterly surveillance data from state-based Adult Blood Lead Epidemiology and Surveillance (ABLES) programs are reported for the second quarter of 1993. Previous quarterly summaries included multiple reports for persons received during the quarter (e.g., reflecting follow-up or repeat blood specimens). Counts of persons now exclude such multiple reports and report the highest blood lead level (BLL) obtained

Lead Epidemiology and Surveillance — Continued

during the reporting period. These data provide a better estimate of the number of persons with elevated BLLs in the system and assist with targeted prevention efforts.

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TABLE 1. Reports of elevated blood lead levels (BLLs) in adults — 20 states,* second quarter, 1993

Reported BLL (μg/dL)	Second quarter, 1993		Cumulative reports, 1993†	Cumulative reports, 1992§
	No. reports	No. persons		
25-39	4,053	1,975	19,332	15,279
40-49	1,061	442	5,349	4,288
50-59	257	120	1,346	1,289
≥60	161	77	746	585
Total	**5,532**	**2,614**	**26,773**	**21,441**

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

† Cumulative totals for 1993 reflect first-quarter data from 16 states (Alabama, Connecticut, Illinois, Iowa, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, Oregon, South Carolina, Texas, Utah, Vermont, and Wisconsin) and second-quarter data from 20 states.

§ Cumulative totals for 1992 reflect first- and second-quarter data from 12 states (Alabama, California, Connecticut, Illinois, Iowa, Maryland, Massachusetts, New Jersey, New York, Oregon, Texas, and Wisconsin).

Notice to Readers

Update: Polio Eradication — the Americas, 1993

On September 7, 1993, the Pan American Health Organization (PAHO) announced that 2 years have elapsed since the occurrence of the last case of poliomyelitis associated with wild poliovirus isolation in the Americas (Peru, August 1991). This achievement is a milestone in the global eradication of poliomyelitis. The only

Notices to Readers — Continued

infectious disease ever eradicated previously is smallpox, the last case of which was reported during August 1977 in Somalia.

PAHO has established an International Certification Commission on Polio Eradication (ICCPE) to independently verify whether transmission of wild poliovirus has been interrupted in the Americas. Before the Region of the Americas can be certified as polio-free, vaccination coverage with oral poliovirus vaccine must be kept at high levels, surveillance must be intensified (to comply with a series of specific indicators recommended by the ICCPE), and 3 years must elapse without any confirmed polio cases. This achievement is actively supported by each country in the Western Hemisphere and the many organizations collaborating closely with PAHO, including Rotary International, the U.S. Agency for International Development, the United Nations Children's Fund, the Inter-American Development Bank, and the Canadian Public Health Association.

Notice to Readers

Diagnosis of Tuberculosis by Nucleic Acid Amplification Methods Applied to Clinical Specimens

CDC and the Food and Drug Administration (FDA) have received inquiries from health-care providers about rapid assays for detecting *Mycobacterium tuberculosis* in clinical specimens. These assays, currently being offered by several commercial diagnostic laboratories, are based on DNA or RNA amplification procedures, such as the polymerase chain reaction. The false-positive rate, false-negative rate, reproducibility, and predictive value of these tests are not fully understood. In addition, none of the tests have been reviewed or approved by FDA, and their usefulness in patient management and public health practices has not been established. For the diagnostic evaluation of persons suspected of having tuberculosis, the Public Health Service advises clinicians to continue to rely on established techniques: medical history, physical examination, chest roentgenogram, tuberculin skin test, acid-fast stains of clinical specimens, standard or radiometric procedures for cultures and antimicrobial susceptibility testing, and nucleic acid probes for species identification of *M. tuberculosis* isolates.

Notice to Readers

New Pediatric Formulation of Recombivax HB®

On June 8, 1993, the Food and Drug Administration licensed a new formulation of the recombinant hepatitis B vaccine produced by Merck Sharpe & Dohme (West Point, Pennsylvania) (Recombivax HB®*). This pediatric formulation is intended specifically

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

Notices to Readers — Continued

for vaccinating infants born to hepatitis B surface antigen (HBsAg)-negative mothers and children aged <11 years. It is available in a concentration of 2.5 μg/0.5 mL in single-dose (0.5 mL) and six-dose (3.0 mL) vials both with brown caps. The previously licensed formulation of Recombivax HB®, which contains 10 μg/1.0 mL, is now also available in a single-dose vial (5.0 μg/0.5 mL) with a yellow cap. The 5.0-μg dose is for high-risk infants (those born to HBsAg-positive women or to women whose HBsAg status is not known) and for adolescents (aged 11–19 years). The previously licensed formulation (10 μg/1.0 mL) still can be used to provide the recommended microgram dose to infants, children, and adolescents.

Engerix-B® is the other hepatitis B vaccine available in the United States; it is manufactured by SmithKline Beecham (Pittsburgh, Pennsylvania), and no changes have been made in its formulation. Hepatitis B vaccines are supplied in several different concentrations and sizes of vials and the recommended age-specific dose varies by product (Table 1). Additional details regarding administration of hepatitis B vaccine are available in the recommendations of the Immunization Practices Advisory Committee (*1*) and the manufacturers' package inserts.

Reference

1. CDC. Hepatitis B virus: a comprehensive strategy for eliminating transmission in the United States through universal childhood vaccination—recommendations of the Immunization Practices Advisory Committee (ACIP). MMWR 1991;40(no. RR-13).

TABLE 1. Recommended doses of currently licensed hepatitis B vaccines

Group	Recombivax HB®*		Engerix-B®*	
	Dose (μg)	(mL)	Dose (μg)	(mL)
Infants of HBsAg† -negative mothers and children aged <11 yrs	2.5	(0.5)§	10.0	(0.5)
Infants of HBsAg-positive mothers; prevention of perinatal infection	5.0	(0.5)¶	10.0	(0.5)
Children and adolescents aged 11–19 yrs	5.0	(0.5)¶	20.0	(1.0)
Adults aged ≥20 yrs	10.0	(1.0)¶	20.0	(1.0)
Dialysis patients and other immunocompromised persons	40.0	(1.0)**	40.0	(2.0)††

* Both vaccines are routinely administered in a three-dose series. Engerix-B® also has been licensed for a four-dose series administered at 0, 1, 2, and 12 months.
† Hepatitis B surface antigen.
§ New pediatric formulation.
¶ Previously licensed formulation; can be used to deliver the appropriate age-specific dose to infants of HBsAg-negative mothers and children aged <11 yrs.
** Special formulation.
†† Two 1.0-mL doses administered at one site in a four-dose schedule at 0, 1, 2, and 6 months.

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