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Aquatic Deaths and Injuries — United States

In 1980, 7,000 drownings, primarily associated with recreational activities, occurred in the United States. After motor vehicle and fall deaths, drownings are the third leading cause of unintentional injury deaths, and for ages 5 to 44, rank second only to motor vehicle deaths. Data show that death rates from drowning are more than five times greater for males than females (*1*) and nearly three times greater for blacks than whites (*2*).

It is often assumed that most aquatic deaths occur in swimming pools, but pools account for only about 10% of all reported drownings; persons are more likely to drown in lakes, rivers, or oceans. Quarries, pits, ornamental ponds, and bathtubs add to the toll (*3*). Residential home pools, however, do play a major role in childhood drownings when toddlers fall or wander into them. There is strong evidence that adequate fencing and self-latching gates substantially reduce the number of childhood drownings and virtually eliminate drownings among toddlers (*4-6*).

Although no precise statistical data exist on the total number of water-related injuries, it is estimated that 140,000 injuries associated solely with swimming activities occur annually (*7*). Diving and head-first sliding into water account for the most serious aquatic injuries because of damage to spinal cords, often as a result of striking the bottom or side of a shallow body of water. Of the estimated 700 spinal cord injuries resulting from aquatic accidents each year, the majority are sufficiently serious to cause permanent paralysis (*8*). A 10-year study of 152 sports-related cervical spinal cord injuries shows that three water-related activities—diving, surfing, and water skiing—accounted for 77% of all reported spinal injuries (*9*). Spinal cord injuries from diving alone exceed the total reported from all other sports combined (*10*).

The data below identify three additional factors that significantly influence aquatic deaths and injuries:

1. In recent years, residential spa and hot tub use has markedly increased. In 1980, an estimated 1,100 persons with spa or hot tub injuries required emergency

Aquatic Deaths — Continued

room treatment, as compared with only 200 the previous year. Alcohol was cited as a contributory factor in 12 of 30 residential spa-associated deaths reported to the Consumer Product Safety Commission since 1979 (*11*). The high temperatures of spas and hot tubs combined with a moderate level of alcohol in the blood stream tend to accelerate drowsiness. Death often results from drowning after a victim falls asleep (*12*).

2. Coast Guard data show that 7% of the boats involved in mishaps lacked available and accessible personal floatation devices, but this 7% accounted for 29% of fatalities (*3*).
3. Onboard and overboard falls contributed from 20% to over 30% of water-related fatalities, often when the victim was undertaking an activity other than boating (e.g., fishing) (*3*).

Many complex factors, both human and environmental, relate to water safety, including pre-existing illness and alcohol. Alcohol consumption is often cited as an indisputable factor in drowning and injury. One study showed that 47% of adults who drowned had evidence of alcohol in their blood (2). Many other studies support those findings and indicate that positive blood-alcohol tests on drowning victims are especially common, even among experienced swimmers.

A retrospective study to determine the epidemiologic features of recreational injuries and to identify intervention strategies to reduce the incidence of such injuries was recently completed by the Washington Department of Social and Health Services.

> Aquatic recreational activities present a hazard for males, generally less than age 25. It is clear that the full spectrum of injury, from minor to death, is possible in aquatic activities. Depending on the age under discussion and the injury, the target problems change. For the young, swimming pools present the greatest aquatic hazard due to drownings. Private rather than public pools are more frequently involved. Yet on an overall basis, swimming pools are not the major focal point for drowning prevention. The same appears true for spinal injuries. Here the target group is the diving teenager. The behavioral implications as well as environmental controls are evident in most of the descriptive literature regarding aquatic injuries, and it is clear prevention strategy cannot ignore the realities of either. (*3*)

Reported by Environmental Health Svcs Div, Center for Environmental Health, CDC.

Editorial Note: A National Conference on Injury Control, co-sponsored by CDC and held at Johns Hopkins School of Hygiene and Public Health on May 18-19, 1981, (*13*) brought together 25 leaders in the injury-control field. They represented public health and medical schools, state and local health departments, and other public and private agencies. The conference report suggests strategies or approaches for transforming existing knowledge and technology into measures that prevent injuries. Some of the suggested intervention strategies to prevent aquatic deaths and injuries are:

1. Develop and implement standards that govern safe pool design.
2. Require licensing for private and public pool construction and ownership based on certain safety requirements, including adequate fencing and accessible rescue and resuscitation equipment.

Aquatic Deaths – Continued

3. Require sign-posting in known hazardous-water areas regarding depth, undertow, or slippery banks.
4. Restrict the sale and consumption of alcoholic beverages in boating, pool, harbor, marina, and beach areas.
5. Impose sanctions for drunken boat drivers.
6. Integrate information into health department home-visit programs to make parents aware of pool, pond, and bathtub hazards.
7. Develop and institute programs for employees, who work in or near bodies of water, on how to recognize hazardous, environmental conditions and about emergency procedures that reduce the consequences of water-related injuries (e.g., procedures for extrication).
8. Conduct surveillance programs using emergency medical service logs, lifeguard data, coroner's records, and data from environmental groups, which are critical to evaluating the effectiveness of interventions.

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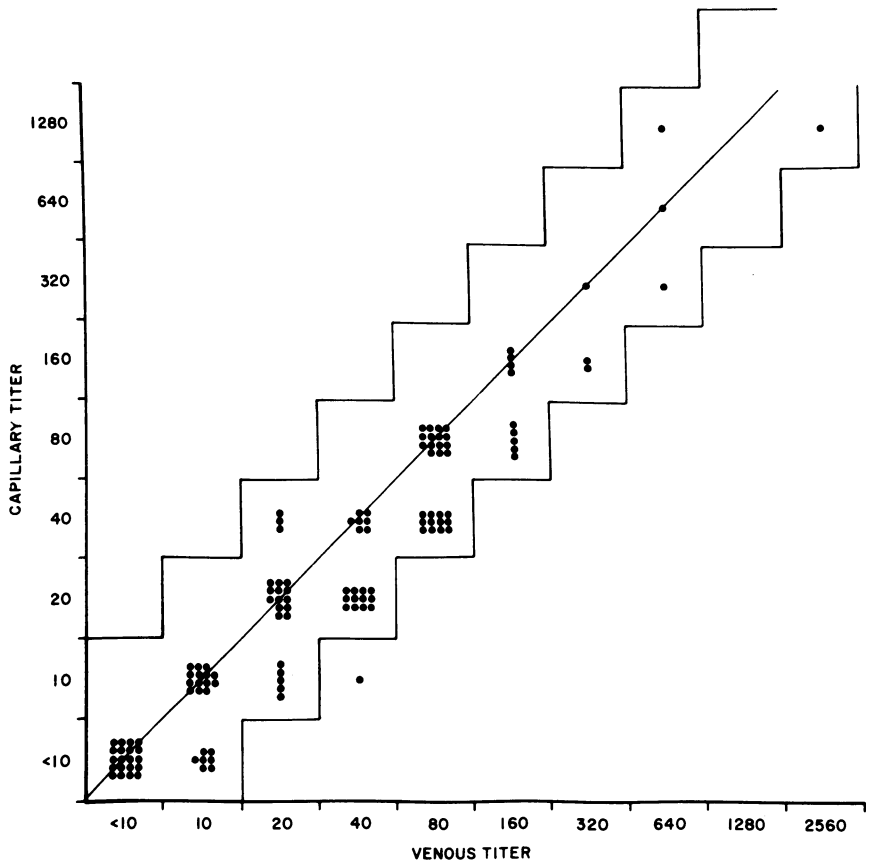
Current Trends

Laboratory Confirmation of Measles Using Capillary Blood Specimens

The Immunization Practices Advisory Committee (ACIP) has recommended that laboratory confirmation be attempted on every suspected case of measles that cannot be linked to another laboratory-confirmed case (*1*). To that end, a finger- or heelstick method of collecting capillary blood on filter-paper strips was evaluated for sensitivity and specificity in the laboratory diagnosis of measles.

The correlation of measles hemagglutination-inhibition (HI) antibody titers was assessed using 125 sets of capillary blood and venous serum specimens obtained from 81 individuals during investigations of sporadic and outbreak-associated cases. The close correspondence between venous and capillary HI antibody titers is indicated in Figure 1 (correlation coefficient = 0.85). Of the 125 sets, 124 (99.2%) had a ≤ two-

FIGURE 1. Relationship of hemagglutination-inhibition antibody titers in capillary blood specimens to venous serum specimens



Measles – Continued

fold difference in titer between the two tests. Only one of the sets (0.8%) showed a significant difference (≥ four-fold difference in titer) between the two tests.

The ability of capillary blood specimens to confirm recent measles infection was compared with that of venous serum specimens, the standard specimen used to confirm measles.* Paired acute- and convalescent-phase venous and capillary specimens from 44 individuals were tested. These tests showed substantial agreement (Table 1). The sensitivity of tests on capillary blood was 100%, and the specificity was 96.4%.

Using staphylococcal protein A (SPA) adsorption, measles-specific IgM was assessed on six simultaneously collected venous and capillary specimens (2). IgM was detected in both venous and capillary specimens in three sets of specimens; the remaining three sets were negative for IgM in both types of specimens.

A pilot program was carried out in Georgia from February through May 1982 to determine whether a higher proportion of specimens could be obtained from suspected measles cases† if capillary-blood testing was available. During the program's initial stages, when filter-paper strips were unavailable for capillary blood testing in several counties and only venipuncture could be used, specimens were obtained from eight of 16 (50%) suspected cases including two of 10 preschool-age (< 5 years) children. In contrast, when filter-paper strips were available, capillary specimens were obtained from 36 of 37 (97%) suspected cases of measles ($p = 0.0001$), including all 21 of preschool age.

Personnel obtaining capillary blood specimens enthusiastically accepted this

*Laboratory confirmation is defined as a ≥ four-fold rise in measles HI antibody titer.

†An illness with a generalized maculopapular rash (lasting more than a day if the report was delayed) accompanied by fever.

TABLE 1. Comparison of capillary blood and venous serologic assessments for diagnosing measles using rises in HI antibody titer between acute- and convalescent- specimens

		Venous acute- and convalescent-phase paired sera		
		≥4-fold rise	<4-fold rise	total
Capillary acute- and convalesent-phase paired specimens	≥4-fold rise	16	1	17
	<4-fold rise	0	27	27
Total		16	28	44

		95% confidence limits*
Sensitivity	16/16 = 100%	79.7%-100%
Specificity	27/28 = 96.4%	81.6%-99.9%
Predictive value positive	16/17 = 94.1%	71.3%-99.9%
Predictive value negative	27/27 = 100%	83.6%-100%

*95% binomial confidence limits for proportions

Measles – Continued

method, particularly for use among preschool-age children. All capillary specimens submitted in this pilot program were satisfactory for testing.

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Editorial Note: Confirmation of indigenous measles transmission in a given area is aided by laboratory assessment of suspected cases. The eagerness of investigators to obtain specimens, the availability of personnel trained in obtaining the specimens, and the likelihood of obtaining permission to collect specimens affect the proportion of suspected measles cases that undergo laboratory testing. The data presented here indicate that a fingerstick/filter-paper method of blood collection and testing is feasible, acceptable, and accurate.

(Continued on page 428)

TABLE I. Summary—cases of specified notifiable diseases, United States

Disease	31st Week Ending			Cumulative, First 31 Weeks		
	August 7, 1982	August 8, 1981	Median 1977-1981	August 7, 1982	August 8, 1981	Median 1977-1981
Aseptic meningitis	248	338	229	3,224	3,539	2,490
Brucellosis	3	4	4	93	89	108
Encephalitis: Primary (arthropod-borne & unspec.)	37	36	36	539	578	447
Post-infectious	1	-	5	44	61	131
Gonorrhea: Civilian	18,239	21,304	21,165	539,129	588,355	573,920
Military	542	658	574	15,009	17,425	16,134
Hepatitis: Type A	387	548	548	12,858	15,214	16,885
Type B	397	505	316	12,182	12,123	9,756
Non A, Non B	42	N	N	1,261	N	N
Unspecified	164	202	202	5,342	6,488	5,946
Legionellosis	9	N	N	239	N	N
Leprosy	5	4	4	120	159	104
Malaria	24	17	19	566	850	420
Measles (rubeola)	32	26	144	1,123	2,471	12,563
Meningococcal infections: Total	42	43	32	1,935	2,371	1,787
Civilian	42	42	31	1,923	2,362	1,774
Military	-	1	-	12	9	13
Mumps	30	49	112	4,003	3,013	10,728
Pertussis	45	45	51	693	666	785
Rubella (German measles)	26	57	63	1,867	1,662	10,372
Syphilis (Primary & Secondary): Civilian	638	596	450	19,261	17,749	14,085
Military	4	3	5	247	230	182
Tuberculosis	504	433	563	15,202	15,737	16,521
Tularemia	4	8	8	129	133	114
Typhoid fever	5	15	15	223	298	272
Typhus fever, tick-borne (RMSF)	54	49	51	652	818	691
Rabies, animal	76	149	111	3,700	4,566	2,901

TABLE II. Notifiable diseases of low frequency, United States

	Cum. 1982		Cum. 1982
Anthrax	-	Poliomyelitis: Total	3
Botulism (Calif. 1)	50	Paralytic	3
Cholera	-	Psittacosis (Mass. 2, Idaho 1, Calif. 2)	81
Congenital rubella syndrome	5	Rabies, human	-
Diphtheria (Tex. 1)	1	Tetanus (Minn. 1, D.C. 1)	44
Leptospirosis (Tex. 1)	34	Trichinosis (Mo. 1)	60
Plague	8	Typhus fever, flea-borne (endemic, murine)	20

TABLE III. Cases of specified notifiable diseases, United States, weeks ending August 7, 1982 and August 8, 1981 (31st week)

Reporting Area	Aseptic Meningitis	Brucellosis	Encephalitis		Gonorrhea (Civilian)		Hepatitis (Viral), by type				Legionellosis	Leprosy
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
	1982	Cum. 1982	Cum. 1982	Cum. 1982	Cum. 1982	Cum. 1981	1982	1982	1982	1982	1982	Cum. 1982
UNITED STATES	248	93	539	44	539,129	588,355	387	397	42	164	9	120
NEW ENGLAND	27	3	18	5	13,221	14,503	7	12	1	14	-	1
Maine	2	-	-	-	625	745	-	-	-	-	-	-
N.H.	7	-	1	-	371	524	-	-	-	-	-	-
Vt.	-	-	-	-	253	250	2	-	1	-	-	-
Mass.	11	-	6	-	6,110	5,999	2	4	-	13	-	-
R.I.	2	-	-	-	871	765	2	1	-	-	-	-
Conn.	5	3	11	5	4,991	6,220	1	7	-	1	-	1
MID. ATLANTIC	41	3	57	10	69,237	69,293	46	51	4	9	1	4
Upstate N.Y.	16	3	21	3	11,318	11,231	23	20	1	4	-	1
N.Y. City	1	-	11	-	28,854	28,910	10	18	-	-	-	1
N.J.	22	-	12	-	12,687	13,402	13	13	3	5	1	1
Pa.	2	-	13	7	16,378	15,750	U	U	U	U	-	1
E.N. CENTRAL	27	1	118	10	75,558	88,925	54	53	-	9	4	3
Ohio	15	1	39	4	21,789	29,399	28	27	-	3	4	-
Ind.	2	-	29	3	9,333	7,834	7	3	-	1	-	-
Ill.	1	-	9	1	18,574	24,682	2	1	-	-	-	3
Mich.	6	-	37	-	18,667	18,960	14	21	-	4	-	-
Wis.	3	-	4	2	7,195	8,050	3	1	-	1	-	-
W.N. CENTRAL	11	14	40	3	26,348	27,914	17	17	1	5	1	3
Minn.	-	1	16	1	3,992	4,350	-	3	-	-	-	1
Iowa	4	3	15	1	2,768	3,080	1	-	-	-	1	-
Mo.	-	4	4	-	12,327	12,849	6	5	-	5	-	1
N. Dak.	2	-	-	-	353	385	-	-	-	-	-	-
S. Dak.	1	1	-	1	719	768	1	2	-	-	-	1
Nebr.	3	2	2	-	1,595	2,140	2	6	1	-	-	-
Kans.	1	3	3	-	4,594	4,342	7	1	-	-	-	-
S. ATLANTIC	51	18	93	6	127,757	144,585	44	84	4	29	1	7
Del.	1	-	-	-	2,333	2,305	3	-	-	3	-	-
Md.	2	-	15	-	18,311	16,425	4	12	2	4	-	3
D.C.	-	-	-	-	8,042	8,706	-	6	-	1	-	-
Va.	13	7	19	1	11,852	13,201	11	9	1	6	-	1
W. Va.	-	-	2	-	1,626	2,199	-	-	-	-	-	-
N.C.	7	-	9	1	23,010	22,353	-	7	-	2	-	-
S.C.	3	2	-	-	14,314	13,976	4	9	-	2	-	-
Ga.	1	1	8	-	9,483	30,022	9	16	-	4	-	-
Fla.	24	8	40	4	38,786	35,398	13	25	1	7	1	3
E.S. CENTRAL	15	11	31	2	47,930	48,936	19	29	5	7	-	-
Ky.	-	-	-	-	6,460	6,094	6	8	2	1	-	-
Tenn.	2	6	14	-	18,630	18,344	8	10	-	1	-	-
Ala.	13	4	12	2	14,470	15,108	2	11	3	5	-	-
Miss.	-	1	5	-	8,370	9,390	3	-	-	-	-	-
W.S. CENTRAL	23	23	68	1	78,079	78,071	73	21	-	55	-	18
Ark.	-	4	3	-	6,280	5,702	1	2	-	4	-	-
La.	3	6	10	-	14,656	13,230	17	6	-	12	-	-
Okla.	2	3	18	-	8,546	8,253	1	3	-	3	-	-
Tex.	18	10	37	1	48,597	50,886	54	10	-	36	-	18
MOUNTAIN	18	-	18	3	18,984	23,006	22	13	2	7	1	2
Mont.	-	-	-	-	780	847	2	-	-	-	-	-
Idaho	2	-	-	-	901	1,022	1	1	-	-	-	1
Wyo.	-	-	-	-	563	533	1	-	-	-	-	-
Colo.	3	-	8	1	4,962	6,212	2	6	-	-	1	-
N. Mex.	-	-	-	-	2,423	2,506	3	1	-	1	-	-
Ariz.	U	-	6	-	5,104	6,932	U	U	U	U	U	-
Utah	6	-	-	2	904	1,074	4	-	1	1	-	1
Nev.	7	-	4	-	3,347	3,880	9	5	1	5	-	-
PACIFIC	35	20	96	4	82,015	93,122	105	117	25	29	1	82
Wash.	4	-	9	-	6,763	7,588	4	15	2	1	1	7
Oreg.	-	-	2	-	4,597	5,560	8	3	1	1	-	1
Calif.	28	19	81	4	67,191	75,819	90	94	22	26	-	52
Alaska	1	1	3	-	1,999	2,330	-	3	-	-	-	1
Hawaii	2	-	1	-	1,465	1,825	3	2	-	1	-	21
Guam	U	-	-	-	72	73	U	U	U	U	U	-
P.R.	-	-	1	-	1,722	1,939	6	4	-	2	-	-
V.I.	-	-	-	-	137	112	-	-	-	-	-	-
Pac. Trust Terr.	U	-	-	-	187	267	U	U	U	U	U	10

N: Not notifiable U: Unavailable

TABLE III. (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending August 7, 1982 and August 8, 1981 (31st week)

Reporting Area	Malaria		Measles (Rubeola)			Meningococcal Infections (Total)		Mumps		Pertussis	Rubella		
	1982	Cum. 1982	1982	Cum. 1982	Cum. 1981	1982	Cum. 1982	1982	Cum. 1982	1982	1982	Cum. 1982	Cum. 1981
UNITED STATES	24	566	32	1,123	2,471	42	1,935	30	4,003	45	26	1,867	1,662
NEW ENGLAND	1	28	-	9	75	-	103	2	162	3	1	17	111
Maine	-	-	-	-	5	-	6	-	35	-	-	-	33
N.H.	-	-	-	2	6	-	14	-	12	-	-	8	43
Vt.	-	-	-	2	2	-	6	1	7	1	-	-	-
Mass.	-	21	-	2	54	-	27	1	78	2	1	5	23
R.I.	-	2	-	-	-	-	11	-	14	-	-	1	-
Conn.	1	5	-	3	8	-	39	-	16	-	-	3	12
MID. ATLANTIC	8	79	2	153	799	15	347	-	251	8	2	90	195
Upstate N.Y.	4	20	2	107	203	9	122	-	54	4	-	43	89
N.Y. City	3	24	-	38	69	1	59	-	42	-	-	31	49
N.J.	-	22	-	4	53	2	73	-	36	-	2	16	46
Pa.	1	13	-	4	474	3	93	-	119	4	-	-	11
E.N. CENTRAL	1	37	1	67	77	4	231	6	2,134	14	1	154	349
Ohio	-	9	-	1	15	1	87	-	1,552	2	-	-	3
Ind.	-	1	-	2	8	-	22	1	37	-	-	26	122
Ill.	-	4	-	23	23	1	63	1	168	7	-	55	84
Mich.	1	21	1	41	30	2	47	4	294	4	1	47	34
Wis.	-	2	-	-	1	-	12	-	83	1	-	26	106
W.N. CENTRAL	-	15	-	49	10	3	86	3	539	4	-	59	76
Minn.	-	2	-	-	3	1	21	2	414	1	-	9	7
Iowa	-	5	-	-	1	-	5	1	30	-	-	-	4
Mo.	-	4	-	2	1	-	25	-	15	-	-	38	2
N. Dak.	-	-	-	-	-	-	6	-	-	-	-	-	-
S. Dak.	-	-	-	-	-	-	4	-	1	-	-	1	-
Nebr.	-	3	-	3	4	2	11	-	-	-	-	-	1
Kans.	-	1	-	44	1	-	14	-	79	3	-	11	62
S. ATLANTIC	4	88	2	37	340	11	386	6	228	9	3	71	126
Del.	2	3	-	-	-	-	-	-	10	-	-	1	1
Md.	-	12	-	3	2	1	24	1	23	-	-	33	1
D.C.	-	3	-	1	1	-	2	-	-	-	-	-	-
Va.	-	26	-	14	6	3	45	1	32	-	1	14	4
W. Va.	-	6	-	2	9	1	8	3	84	-	2	3	22
N.C.	-	3	-	-	3	-	76	-	11	4	-	1	5
S.C.	-	4	-	-	-	4	46	-	13	-	-	1	8
Ga.	1	11	-	-	108	-	81	-	11	3	-	6	35
Fla.	1	20	2	17	211	2	104	1	44	2	-	12	50
E.S. CENTRAL	1	7	-	8	5	2	125	1	38	1	3	43	26
Ky.	-	4	-	1	1	-	20	-	12	-	3	25	17
Tenn.	-	-	-	6	2	1	53	-	14	1	-	2	8
Ala.	-	-	-	-	2	1	45	1	6	-	-	-	1
Miss.	1	3	-	1	-	-	7	-	6	-	-	16	-
W.S. CENTRAL	2	44	15	30	801	2	228	2	157	3	1	99	136
Ark.	-	3	-	-	1	-	12	-	6	-	-	1	3
La.	-	3	-	2	2	-	42	-	5	-	-	1	9
Okla.	-	6	12	12	5	-	24	-	-	-	-	3	-
Tex.	2	32	3	16	793	2	150	2	146	3	1	94	124
MOUNTAIN	2	17	-	6	33	1	93	2	69	-	-	67	80
Mont.	1	1	-	-	-	-	4	-	3	-	-	5	3
Idaho	-	1	-	-	1	-	6	-	3	-	-	3	3
Wyo.	-	-	-	-	-	-	5	-	2	-	-	7	7
Colo.	-	8	-	5	9	-	38	1	9	-	-	5	30
N. Mex.	-	2	-	-	8	-	14	-	-	-	-	5	5
Ariz.	U	3	U	1	5	U	15	U	33	U	U	12	19
Utah	1	2	-	-	-	1	8	1	14	-	-	20	4
Nev.	-	-	-	-	10	-	3	-	5	-	-	10	9
PACIFIC	5	251	12	764	331	4	336	8	425	3	15	1,267	563
Wash.	1	13	1	32	3	1	36	-	61	-	2	37	88
Oreg.	-	9	-	8	3	-	65	-	-	-	-	6	49
Calif.	4	227	10	719	323	3	222	8	350	3	9	1,211	412
Alaska	-	-	-	1	-	-	10	-	6	-	4	5	1
Hawaii	-	2	1	4	2	-	3	-	8	-	-	8	13
Guam	U	1	U	6	6	U	2	U	3	U	U	2	1
P.R.	-	4	-	81	258	-	8	-	46	3	-	7	3
V.I.	-	-	-	-	23	-	-	-	-	-	-	-	1
Pac. Trust Terr.	U	-	U	-	1	U	-	U	1	U	U	-	1

U: Unavailable

TABLE III. (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending August 7, 1982 and August 8, 1981 (31st week)

Reporting Area	Syphilis (Civilian) (Primary & Secondary)		Tuberculosis		Tula-remia	Typhoid Fever		Typhus Fever (Tick-borne) (RMSF)		Rabies, Animal
	Cum. 1982	Cum. 1981	1982	Cum. 1982	Cum. 1982	1982	Cum. 1982	1982	Cum. 1982	Cum. 1982
UNITED STATES	19,261	17,749	504	15,202	129	5	223	54	652	3,700
NEW ENGLAND	327	367	14	407	2	-	14	1	7	27
Maine	1	2	1	33	-	-	-	-	-	20
N.H.	1	12	-	11	-	-	-	-	1	-
Vt.	1	13	2	9	-	-	2	-	-	-
Mass.	219	245	8	271	2	-	10	-	3	4
R.I.	17	21	-	17	-	-	-	1	2	-
Conn.	88	74	3	66	-	-	2	-	1	3
MID. ATLANTIC	2,653	2,667	107	2,566	7	-	34	3	27	109
Upstate N.Y.	265	241	20	442	7	-	5	2	9	54
N.Y. City	1,593	1,603	44	939	-	-	20	-	1	-
N.J.	359	361	25	521	-	-	5	1	11	8
Pa.	436	462	18	664	-	-	4	-	6	47
E.N. CENTRAL	1,046	1,222	61	2,323	1	1	17	1	61	420
Ohio	181	161	12	402	-	-	8	1	57	60
Ind.	116	113	7	306	-	-	-	-	-	62
Ill.	514	673	33	959	-	-	3	-	4	215
Mich.	176	217	-	530	-	1	6	-	-	4
Wis.	59	58	9	126	1	-	-	-	-	79
W.N. CENTRAL	349	358	14	442	16	-	8	2	19	833
Minn.	67	127	5	76	-	-	5	-	-	146
Iowa	18	14	2	50	1	-	1	1	4	262
Mo.	212	190	4	208	11	-	1	1	6	74
N. Dak.	6	6	-	8	-	-	-	-	-	73
S. Dak.	-	2	-	19	-	-	-	-	3	71
Nebr.	11	4	1	20	2	-	-	-	1	99
Kans.	35	15	2	61	2	-	1	-	5	108
S. ATLANTIC	5,240	4,669	130	3,119	10	-	34	32	366	633
Del.	9	7	1	26	-	-	-	-	-	2
Md.	285	354	19	364	1	-	9	4	38	33
D.C.	294	380	7	121	-	-	-	-	-	-
Va.	367	423	28	343	2	-	3	9	54	321
W. Va.	20	15	11	99	-	-	3	-	6	33
N.C.	386	354	9	502	-	-	-	11	161	42
S.C.	299	309	7	288	6	-	3	8	81	34
Ga.	1,071	1,202	11	468	-	-	-	-	24	126
Fla.	2,509	1,625	37	908	1	-	16	-	2	42
E.S. CENTRAL	1,344	1,148	67	1,418	6	-	14	6	50	436
Ky.	75	62	23	367	-	-	-	-	-	89
Tenn.	354	431	15	465	4	-	2	4	33	268
Ala.	497	321	23	408	-	-	9	-	6	78
Miss.	418	334	6	178	2	-	3	2	11	1
W.S. CENTRAL	5,032	4,281	41	1,830	66	1	23	7	109	722
Ark.	125	83	6	194	41	-	2	3	20	101
La.	1,130	983	-	286	3	-	3	-	-	21
Okla.	111	99	2	236	21	-	2	-	55	136
Tex.	3,666	3,116	33	1,114	1	1	16	4	34	464
MOUNTAIN	479	464	8	430	15	-	8	1	9	145
Mont.	3	11	3	26	2	-	-	-	2	54
Idaho	22	17	3	22	1	-	-	1	2	6
Wyo.	12	7	-	2	1	-	-	-	1	13
Colo.	131	144	-	52	3	-	2	-	1	21
N. Mex.	114	88	-	84	1	-	-	-	1	11
Ariz.	107	105	U	177	-	U	4	U	-	30
Utah	14	16	2	25	7	-	1	-	-	7
Nev.	76	76	-	42	-	-	1	-	2	3
PACIFIC	2,791	2,573	62	2,667	6	3	71	1	4	375
Wash.	83	94	2	172	1	-	3	-	-	2
Oreg.	69	57	1	109	-	-	1	1	1	1
Calif.	2,557	2,369	56	2,158	4	3	64	-	3	297
Alaska	8	10	-	46	1	-	1	-	-	75
Hawaii	74	43	3	182	-	-	2	-	-	-
Guam	1	-	U	8	-	U	-	U	-	-
P.R.	369	399	-	208	-	-	2	-	-	32
V.I.	17	13	-	1	-	-	-	-	-	-
Pac. Trust Terr.	-	-	U	68	-	U	-	U	-	-

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending August 7, 1982 (31st week)

Reporting Area	All Causes, By Age (Years)						P&I** Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	627	430	134	33	17	13	40
Boston, Mass.	173	100	43	16	7	7	18
Bridgeport, Conn.	48	39	7	2	-	-	2
Cambridge, Mass.	21	18	2	1	-	-	4
Fall River, Mass.	30	21	5	4	-	-	-
Hartford, Conn.	36	24	11	-	1	-	3
Lowell, Mass.	23	19	1	1	2	-	-
Lynn, Mass.	18	12	5	-	1	-	-
New Bedford, Mass.	23	21	2	-	-	-	1
New Haven, Conn.	58	38	17	2	-	1	-
Providence, R.I.	75	58	11	2	2	2	4
Somerville, Mass.	8	6	1	-	1	-	-
Springfield, Mass.	38	20	12	3	1	2	3
Waterbury, Conn.	22	16	4	-	2	-	3
Worcester, Mass.	54	38	13	2	-	1	2
MID. ATLANTIC	2,559	2,041	275	98	65	52	94
Albany, N.Y.	42	31	5	3	1	2	-
Allentown, Pa.	20	17	3	-	-	-	1
Buffalo, N.Y.	116	82	25	7	1	1	10
Camden, N.J.	35	23	7	2	1	2	1
Elizabeth, N.J.	19	15	4	-	-	-	2
Erie, Pa.†	44	35	7	1	1	-	-
Jersey City, N.J.	51	32	11	6	1	1	1
N.Y. City, N.Y. §	1,400	1,275	8	22	38	30	44
Newark, N.J.	60	26	22	10	1	1	5
Paterson, N.J.	29	19	5	3	1	-	6
Philadelphia, Pa.†	382	234	100	29	10	9	16
Pittsburgh, Pa.†	62	37	20	3	1	1	2
Reading, Pa.	26	19	5	1	1	-	1
Rochester, N.Y.	103	72	23	3	2	3	2
Schenectady, N.Y.	12	12	-	-	-	-	-
Scranton, Pa.†	22	18	2	2	-	-	2
Syracuse, N.Y.	55	32	17	1	3	2	-
Trenton, N.J.	40	28	8	3	1	-	-
Utica, N.Y.	22	20	1	1	-	-	-
Yonkers, N.Y.	19	14	2	1	2	-	1
E.N. CENTRAL	2,037	1,275	485	125	72	80	57
Akron, Ohio	28	19	4	2	1	2	-
Canton, Ohio	58	38	15	2	-	3	1
Chicago, Ill	511	299	130	38	18	26	10
Cincinnati, Ohio	132	79	28	11	9	5	9
Cleveland, Ohio	163	99	49	4	6	5	4
Columbus, Ohio	132	91	22	10	5	4	6
Dayton, Ohio	85	54	20	1	5	5	2
Detroit, Mich.	216	122	51	26	7	10	3
Evansville, Ind.	58	39	12	4	1	2	3
Fort Wayne, Ind.	38	24	14	-	-	-	1
Gary, Ind.	7	2	4	-	1	-	-
Grand Rapids, Mich.	58	44	9	2	2	1	-
Indianapolis, Ind.	140	90	37	4	2	7	5
Madison, Wis.	32	19	5	3	4	1	3
Milwaukee, Wis.	142	94	40	3	2	3	1
Peoria, Ill.	42	26	8	2	2	4	3
Rockford, Ill.	36	24	8	1	3	-	-
South Bend, Ind.	36	29	4	3	-	-	3
Toledo, Ohio	72	42	21	5	2	2	1
Youngstown, Ohio	51	41	4	4	2	-	2
W.N. CENTRAL	660	425	148	42	21	23	10
Des Moines, Iowa §	53	51	-	-	1	-	-
Duluth, Minn.	37	24	11	1	1	-	1
Kansas City, Kans.	26	11	10	3	1	1	-
Kansas City, Mo.	123	84	31	6	2	-	1
Lincoln, Nebr.	19	15	3	1	-	-	-
Minneapolis, Minn.	78	48	15	5	3	7	2
Omaha, Nebr.	77	37	25	6	5	4	3
St. Louis, Mo.	134	79	34	13	5	3	3
St. Paul, Minn.	62	46	6	3	1	6	-
Wichita, Kans.	51	30	13	4	2	2	-
S. ATLANTIC	1,161	665	319	95	37	45	37
Atlanta, Ga.	94	54	30	9	1	-	1
Baltimore, Md.	267	156	76	21	9	5	2
Charlotte, N.C.	53	32	10	4	3	4	3
Jacksonville, Fla.	116	69	27	10	5	5	4
Miami, Fla.	85	45	21	8	4	7	4
Norfolk, Va.	42	18	17	5	-	2	-
Richmond, Va.	82	46	30	1	1	4	5
Savannah, Ga.	39	23	12	4	-	-	2
St. Petersburg, Fla.	86	72	10	1	1	2	3
Tampa, Fla.	65	37	16	5	3	4	5
Washington, D.C.	161	79	46	20	6	10	2
Wilmington, Del.	71	34	24	7	4	2	6
E.S. CENTRAL	748	443	189	58	32	26	27
Birmingham, Ala.	107	56	27	9	5	10	1
Chattanooga, Tenn.	38	19	11	6	1	1	1
Knoxville, Tenn.	47	34	7	4	2	-	-
Louisville, Ky.	101	53	32	7	3	6	3
Memphis, Tenn.	251	160	54	21	10	6	11
Mobile, Ala.	52	33	11	3	3	2	5
Montgomery, Ala.	48	32	14	2	-	-	1
Nashville, Tenn.	104	56	33	6	8	1	5
W.S. CENTRAL	1,070	581	286	103	68	31	28
Austin, Tex.	32	19	4	6	3	-	-
Baton Rouge, La.	52	26	19	1	2	4	4
Corpus Christi, Tex.	44	23	11	5	4	1	-
Dallas, Tex.	190	110	51	20	4	5	2
El Paso, Tex.	50	32	8	2	6	1	4
Fort Worth, Tex.	54	30	11	6	4	3	5
Houston, Tex.	200	83	60	29	21	7	2
Little Rock, Ark.	72	41	18	8	2	3	4
New Orleans, La.	128	71	45	8	3	1	-
San Antonio, Tex.	156	84	45	14	10	3	4
Shreveport, La.	17	13	3	1	-	-	-
Tulsa, Okla.	75	49	11	3	9	3	3
MOUNTAIN	505	296	104	53	31	21	28
Albuquerque, N.Mex.	46	26	7	8	3	2	1
Colo. Springs, Colo.	37	17	10	6	2	2	5
Denver, Colo.	98	63	20	5	6	4	6
Las Vegas, Nev.	59	28	20	7	4	-	1
Ogden, Utah	18	12	1	2	2	1	3
Phoenix, Ariz.	115	68	19	16	6	6	4
Pueblo, Colo.	13	9	1	1	2	-	1
Salt Lake City, Utah	53	28	11	4	4	6	-
Tucson, Ariz.	66	45	15	4	2	-	7
PACIFIC	1,654	1,037	375	125	66	50	80
Berkeley, Calif.	20	15	3	-	1	1	1
Fresno, Calif.	53	32	15	2	1	3	3
Glendale, Calif.	19	13	4	2	-	-	1
Honolulu, Hawaii	57	28	16	3	6	4	5
Long Beach, Calif.	88	56	20	5	4	3	1
Los Angeles, Calif.	492	295	118	45	19	14	14
Oakland, Calif.	76	49	15	7	2	3	2
Pasadena, Calif.	24	21	1	1	-	1	-
Portland, Oreg.	117	76	30	5	4	2	5
Sacramento, Calif.	75	43	18	6	2	6	6
San Diego, Calif.	116	70	22	13	10	1	15
San Francisco, Calif.	126	85	26	10	3	2	3
San Jose, Calif.	163	105	37	11	8	2	15
Seattle, Wash.	130	82	31	8	5	4	2
Spokane, Wash.	60	39	11	5	1	4	4
Tacoma, Wash.	38	28	8	2	-	-	3
TOTAL	11,021††	7,193	2,315	732	409	341	401

* 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 4 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.

§ Data not available. Figures are estimates based on average of past 4 weeks.

TABLE V. Years of potential life lost, deaths, and death rates, by cause of death, and estimated number of physician contacts, by principal diagnosis, United States

Cause of morbidity or mortality (Ninth Revision ICD, 1975)	Years of potential life lost before age 65 by persons dying in 1980[1]	Estimated mortality March 1982		Estimated number of physician contacts March 1982[4]
		Number[2]	Annual Rate/100,000[3]	
ALL CAUSES (TOTAL)	10,006,060	172,320	879.1	103,081,000
Accidents and adverse effects (E800-E807, E810-E825, E826-E949)	2,684,850	7,040	35.9	5,394,000
Malignant neoplasms (140-208)	1,804,120	36,930	188.4	1,511,000
Diseases of heart (390-398, 402, 404-429)	1,636,510	66,570	339.6	5,856,000
Suicides, homicides (E950-E978)	1,401,880	4,290	21.9	—
Chronic liver disease and cirrhosis (571)	301,070	2,350	12.0	156,000
Cerebrovascular diseases (430-438)	280,430	13,839	70.6	440,000
Pneumonia and influenza (480-487)	124,830	4,920	25.1	1,389,000
Diabetes mellitus (250)	117,340	2,800	14.3	2,568,000
Chronic obstructive pulmonary diseases and allied conditions (490-496)	110,530	5,700	29.1	2,187,000
Prenatal care[5]				2,452,000
Infant mortality[5]		3,600	11.8 /1,000 live births	

[1]Years of potential life lost for persons between 1 year and 65 years old at the time of death are derived from the number of deaths in each age category as reported by the National Center for Health Statistics, *Monthly Vital Statistics Report* (MVSR), Vol. 29, No. 13, September 17, 1981, multiplied by the difference between 65 years and the age at the mid-point of each category. As a measure of mortality, "Years of potential life lost" underestimates the importance of diseases that contribute to death without being the underlying cause of death.

[2]The number of deaths is estimated by CDC by multiplying the estimated annual mortality rates (MVSR Vol. 31, No. 4, July 14, 1982, pp. 8-9) and the provisional U.S. population in that month (MVSR Vol. 31, No. 3, June 21, 1982, p.1) and dividing by the days in the month as a proportion of the days in the year.

[3]Annual mortality rates are estimated by NCHS (MVSR Vol. 31, No. 4, July 14, 1982, pp. 8-9), using the underlying cause of death from a systematic sample of 10% of death certificates received in state vital statistics offices during the month and the provisional population of those states included in the sample for that month.

[4]IMS America *National Disease and Therapeutic Index* (NDTI), Monthly Report, March 1982, Section III. This estimate comprises the number of office, hospital, and nursing home visits and telephone calls prompted by each medical condition based on a stratified random sample of office-based physicians (2,100) who record all private patient contacts for 2 consecutive days each quarter.

[5]"Prenatal care" (NDTI) and "Infant mortality" (MVSR Vol. 31, No. 3, June 21, 1982, p.1) are included in the table because "Years of potential life lost" does not reflect deaths of children < 1 year.

Measles – Continued

Measles HI antibody titers in capillary blood and venous sera obtained from the same individuals have been compared previously, with good agreement (*3*). The data presented here corroborate these findings. This method of collection and testing, if used correctly, can yield valid laboratory assessments. Filter-paper capillary blood assessments were as sensitive as venous serum assessments in detecting seroconversion and were also highly specific. IgM can probably be measured accurately using SPA adsorption.

The fingerstick method of obtaining blood is acceptable to donors, their parents, and blood collectors (*4*). After a brief orientation, blood collectors were able to obtain satisfactory specimens.

Any laboratory that can perform measles HI antibody tests can measure HI antibody from filter-paper strips after extracting blood from the filter papers by a standardized elution technique. Accurate testing requires a standard volume of blood, which is assured by complete filling of the areas indicated on the filter-paper strips.

The fingerstick method potentially allows all suspected cases, particularly in preschool children, access to laboratory assessment. Persons desiring information about laboratory testing for measles using capillary blood on filter-paper strips should contact the immunization programs of their state health departments.

References

1. ACIP. Measles prevention. MMWR 1982;31:217-24,229-31.
2. CDC. Serologic diagnosis of measles: MMWR 1982;31:396,401-2.
3. Brody JA, McAlister R, Haseley R, Lee P. Use of dried whole blood collected on filter paper disks in adenovirus complement fixation and measles hemagglutination inhibition tests. J Immunol 1964; 92:854-7.
4. Matthews HM. Parasitic disease: testing with filter-paper blood spots. Laboratory Management 1981;19:55-62.

The Surgeon General's Warning on Marijuana

The Surgeon General of the Public Health Service has issued the following warning on marijuana:

Marijuana use is a major public health problem in the United States. In the past 20 years, its use has increased 30-fold; it is estimated that more than a quarter of the American population has used it. The age at which persons first use marijuana has decreased gradually to the junior high school years. Until recently, nearly 11% of high school seniors used it, and although that figure has declined to 7%, its daily use still exceeds that of alcohol; more high school seniors use marijuana than smoke cigarettes. In a recent study, 32% of those surveyed had used marijuana during the previous 30 days, while 25% had smoked tobacco.

Marijuana — Continued

On March 24, 1982, the Department of Health and Human Services submitted to Congress a report reviewing the consequences of marijuana use. *Marijuana and Health, 1982*, ninth in a series, is primarily based on two recently conducted, comprehensive, scientific reviews by the Institute of Medicine of the National Academy of Sciences, the Canadian Addiction Research Foundation, and the World Health Organization (WHO). Both independent reviews corroborate the Public Health Service's findings of health hazards associated with marijuana use: Acute intoxication with marijuana interferes with many aspects of mental functioning and has serious, acute effects on perception and skilled performance, such as driving and other complex tasks involving judgement or fine motor skills.

Among the known or suspected chronic effects of marijuana are:

1. short-term memory impairment and slowness of learning.
2. impaired lung function similar to that found in cigarette smokers. Indications are that more serious effects, such as cancer and other lung disease, follow extended use.
3. decreased sperm count and sperm motility.
4. interference with ovulation and pre-natal development.
5. impaired immune response.
6. possible adverse effects on heart function.
7. by-products of marijuana remaining in body fat for several weeks, with unknown consequences. The storage of these by-products increases the possiblilties for chronic, as well as residual, effects on performance, even after the acute reaction to the drug has worn off.

Of special concern are the long-term developmental effects in children and adolescents, who are particularly vulnerable to the drug's behavioral and psychological effects. The "amotivational syndrome," characterized by a pattern of energy loss, diminished school performance, harmed parental relationships, and other behavorial disruptions, has been associated with prolonged marijuana use by young persons. Although more research is required, recent national surveys report that 40% of heavy users experience some or all of those symptoms.

The Public Health Service concludes that marijuana has a broad range of psychological and biological effects, many of which are dangerous and harmful to health, and it supports the major conclusion of the National Academy of Sciences' Institute of Medicine.

The Morbidity and Mortality Weekly Report, circulation 111,113, is published by the Centers for Disease Control, Atlanta, Georgia. The data in this report are provisional, based on weekly telegraphs to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the succeeding Friday.

The editor welcomes accounts on interesting cases, outbreaks, environmental hazards, or other public health problems of current interest to health officials. Send reports to: Attn: Editor, Morbidity and Mortality Weekly Report, Centers for Disease Control, Atlanta, Georgia 30333.

Send mailing list additions, deletions and address changes to: Attn: Distribution Services, Management Analysis and Services Office, 1-SB-419, Centers for Disease Control, Atlanta, Georgia 30333. When requesting changes be sure to give your former address, including zip code and mailing list code number, or send an old address label.

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