CENTERS FOR DISEASE CONTROL

MMWR

MORBIDITY AND MORTALITY WEEKLY REPORT

December 23, 1983 / Vol. 32 / No. 50

Perspectives in Disease Prevention and Health Promotion

Alcohol-Related Deaths — United States, 1968-1978

According to mortality data from the National Center for Health Statistics, from 1968 through 1978, 11,806,737 people died in the United States. Of these deaths, 22,958 were attributed to acute alcoholism,* acute ethylism,† or unspecified alcoholism (ICD§ 8-rubric 303.9); and 3,415 were attributed to poisoning by alcohol (ICD 8-rubric E860). When the risk of death was determined (using data from the Bureau of the Census), the risk remained constant. However, during this 11-year period, the proportion of deaths from these causes increased somewhat, especially for males.

To identify risk factors for reducing the number of deaths from these causes, acute alcoholism/ethylism deaths and alcohol poisoning deaths were further analyzed by urban or rural residence, sex, and month and week of occurrence. The proportion of deaths from both acute alcoholism/ethylism and alcohol poisoning was greatest for rural males (Table 1). Regardless of area of residence, the proportion of deaths attributed to both causes was more than twice as great for males as for females. The median age at death from acute alcoholism was 50.4 years, with the median age for women nearly equal to that (50.1). Nine of the deaths occurred among persons under the age of 10 years and 235 among persons 80 years or older. The median age at death for victims of alcohol poisoning was 48.2 years, with the median age for women slightly above that for men (50.5, compared with 47.3). Eighteen of these deaths occurred among persons under 10 years of age, and 10, among persons 80 years or older.

*A pathological dependence on alcohol.

†Poisoning or intoxication by ethyl alcohol.

§International Classification of Diseases, 8th Revision.

TABLE 1. Acute alcoholism/ethylism deaths and alcohol poisoning deaths, by sex and area of residence — United States, 1968-1978

	Male		Female		
	No. of deaths*	Rate per 1,000 deaths	No. of deaths*	Rate per 1,000 deaths	Rate ratio male:female
Urban	10,363	1.38	3,581	0.58	2.4
Rural	7,146	1.67	1,837	0.57	2.9

*International Classification of Diseases, 8th Revision, Codes 8-rubric 303.9 and 8-rubric E860.

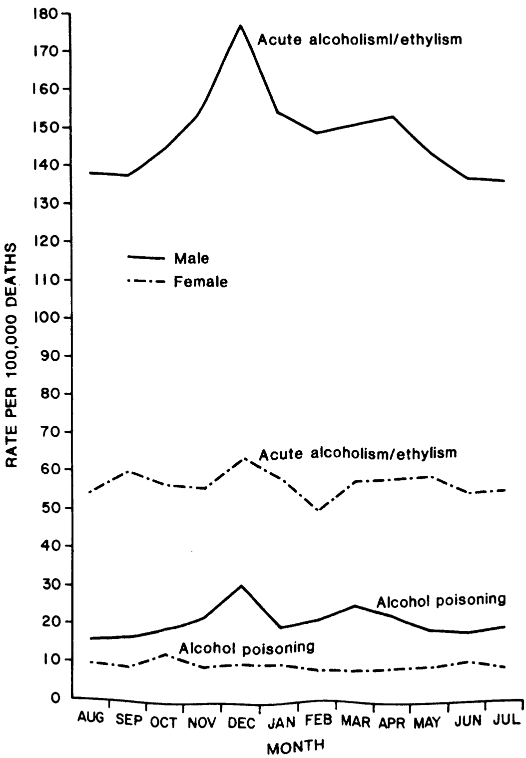
Alcohol – Continued

Seasonal data for deaths from acute alcoholism/ethylism and poisoning as a proportion of all deaths indicate that the proportion is greatest during December (Figure 1), especially among males. When deaths during the period from December 1 through January 4 were further analyzed by week, the pattern for males differed from that for females (Figure 2). For both causes of death, the greatest percentage of deaths among males within this period occurred during the week including December 25, with a decline during the week including January 1. For females, the rate rose during Christmas week and increased even more during the week following, which includes New Year's Eve and New Year's Day.

Reported by Div of Surveillance and Epidemiologic Studies, Epidemiology Program Office, CDC.

Editorial Note: The potential for rapid intake of large amounts of alcohol to cause death has been previously documented (*1,2*). Many of these are classified as deaths from acute alcohol intoxication, acute alcoholism, or acute ethylism. Death from alcohol poisoning has also been described (*1,3*). At least one study indicated the vast majority of alcohol poisoning deaths was caused by ethanol alone, and the remainder, by a combination of ethanol with other forms of alcohol (*3*). Even poisonings caused by alcohol other than ethanol are usually due to substitution of these substances for ethanol (*4*) and sometimes result from adulterated beverages given to unsuspecting drinkers (*1*). The similarity in distribution and trends for deaths from acute alcoholism and ethylism and deaths from alcohol poisoning indicates that these deaths are part of the same health problem.

FIGURE 1. Rate of death from acute alcoholism/ethylism and alcohol poisoning, by month and sex — United States, 1968-1978



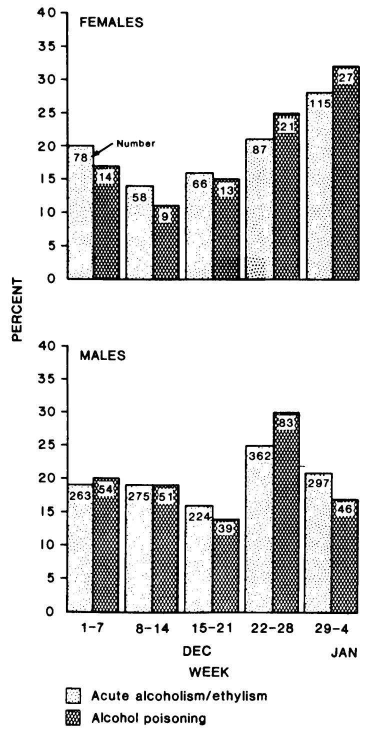
Alcohol — Continued

Nearly all deaths from acute alcohol poisoning are accidental, and many persons are not aware that alcohol in excess is poisonous and possibly fatal (*3*). Death from acute alcohol intoxication is often associated with exposure to cold (*1*). Conversely, ethanol has been identified as a risk factor for death from hypothermia (*5*). From the data presented here, several additional risk factors for acute alcohol-consumption deaths can be identified. It appears that not only the cold-weather months, but especially the weeks surrounding Christmas, are high-risk periods. During these times, males in general and rural males in particular are important target populations for prevention efforts.

References

1. Lees F. Alcohol and the nervous system. Br J Psychiat 1975; Spec. No. 9:263-71.
2. Estes NJ, Heinemann ME. Alcoholism: development, consequences, and interventions. St. Louis: The C. V. Mosby Company, 1982.
3. Fatteh A, Hayes B. Poisons that killed: an analysis of 300 cases. North Carolina Med J 1974; 35:227-9.
4. Friedman PA. Common poisons. In: Isselbacher KJ, Adams RD, Braunwald E, Petersdorf RG, Wilson JD, eds. Harrison's principles of internal medicine (ninth edition). New York: McGraw-Hill Book Co., 1980.
5. CDC. Exposure-related hypothermia deaths—District of Columbia, 1972-1982. MMWR 1982;31:669-71.

FIGURE 2. Percentage of deaths among females and males from acute alcoholism/ ethylism and alcohol poisoning, by week — United States, December 1-January 4, 1972-1978



Epidemiologic Notes and Reports

Food-borne Hepatitis A — Oklahoma, Texas

Two unrelated outbreaks of hepatitis A, involving a total of 326 people, occurred in Oklahoma and Texas during September and October 1983. Both were associated with restaurant food.

Oklahoma: The first outbreak occurred in Marietta in Love County (county population approximately 7,800), where 203 persons became ill from August 15 to October 10 (Figure 3). Hepatitis A was defined as: (1) jaundice or (2) serum glutamic oxalacetic transaminase enzyme (SGOT) greater than 100 mIU/ml plus nausea, vomiting, or fever or (3) a positive serum anti-hepatitis A virus (HAV) immunoglobulin (IgM). Twelve outbreak-related cases were reported elsewhere—10 in Texas and two in California. Patients ranged in age from 2 to 66 years (median 22 years); 52% were male.

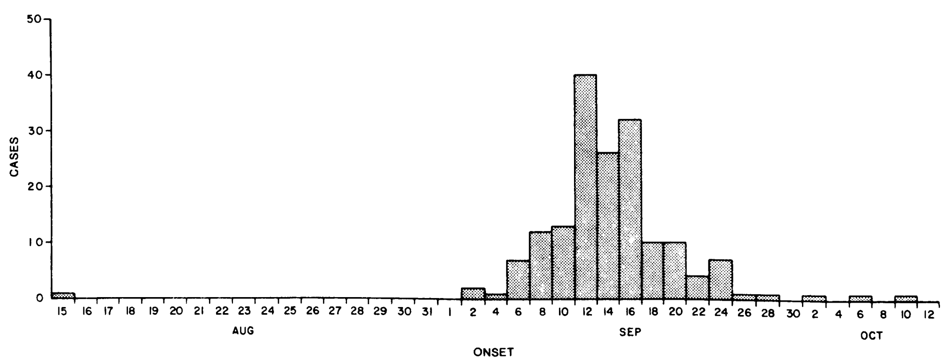
Of 175 patients interviewed about exposures, 161 (92%) had eaten at a drive-in restaurant 2-6 weeks before onset of illness. Twenty-nine patients were employed as foodhandlers at eight other restaurants in town. Two worked on icing and cream-filling machines at a local bakery that distributed cookies nationwide.

The index patient, a 22-year-old foodhandler at the drive-in restaurant, developed jaundice on August 19. Investigation into his personal hygiene suggested that his handwashing practices were good, although he developed diarrhea on August 15 and continued to work up to the onset of his jaundice.

To identify risk factors of the outbreak, a survey was conducted of local high-school students. Twenty-two (13%) of 169 students who completed questionnaires had hepatitis A. The only exposure associated with illness was eating at the same drive-in restaurant during August. Twenty-one (19%) of 110 students who had eaten there became ill, compared with one (2%) of 59 who had not eaten at the restaurant ($p < 0.01$). Attack rates increased with the number of meals eaten. No single food or drink could be implicated as a vehicle for transmission.

Most of the town's foodhandlers either had been exposed at the drive-in restaurant or were coworkers of infected foodhandlers; therefore, on September 16, the Oklahoma State Health Department recommended that immune globulin (IG) be given to patrons of five restaurants in Marietta where ill foodhandlers had prepared uncooked foods and to all foodhandlers

FIGURE 3. Hepatitis A cases, by date of onset — Marietta, Oklahoma, August 15-October 10, 1983



Hepatitis A — Continued

who worked in the town. A total of 5,500 doses were given. The drive-in restaurant voluntarily closed for a month; in addition, following a U.S. Food and Drug Administration investigation, the bakery, at which two hepatitis A patients worked, voluntarily recalled selected products. No additional cases have been reported.

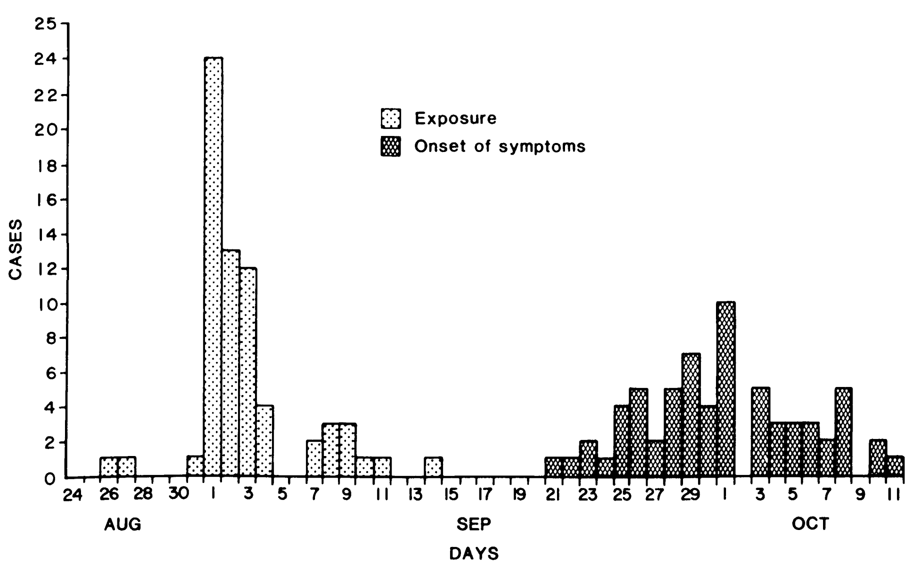
Texas: The second outbreak occurred in Lubbock, a city of 180,000 people. From October 5, through October 28, 1983, 123 physician-diagnosed cases of hepatitis A were reported to the Lubbock City Health Department. One hundred of these patients had eaten at a salad bar-type restaurant in the city 14-60 days before illness (Figure 4). Eight of the patients, including three cooks, were employed at the restaurant. Patients with restaurant-associated hepatitis A ranged in age from 7 to 64 years (mean 31 years); 65% were male; and 92% became jaundiced.

A case-control study was performed using 50 patients and 59 controls who had eaten at the restaurant only once between August 24 and September 17; controls had eaten with the patients and had sera negative for anti-HAV. Eating lettuce, tomatoes, or pickles on sandwiches was strongly associated with illness ($p < 0.001$); eating these vegetables at the salad bar, which was prepared by different foodhandlers, was not.

Eighty-seven of the restaurant's 96 employees, including all the cooks, completed questionnaires and underwent screening for anti-HAV immunoglobulin G (IgG) and IgM. One sandwich-maker experienced nausea and vomiting in mid-September but was never jaundiced. Two of his household members contracted hepatitis A during the outbreak, despite never having eaten at the restaurant, and only he made the implicated sandwiches during periods when patients were known to have been exposed. An anti-HAV IgM drawn on November 2 was negative; however, an anti-HAV IgG was positive.

On October 8, the Lubbock City Health Department advised that the following persons receive immune globulin (IG) as prophylaxis against hepatitis A: (1) all employees of the

FIGURE 4. Single-exposure hepatitis A cases, by exposure and onset — Lubbock, Texas, August 24-October 11, 1983



Hepatitis A — Continued

restaurant, (2) anyone who had eaten at the restaurant during the previous 2 weeks, and (3) all household contacts of persons with hepatitis A. Patrons were included because of the possibility of continuing food contamination by frequent sewage backups in the restaurant's kitchen. During October 1983, an estimated 15,000-20,000 doses of IG were given in the Lubbock area, mostly by private physicians.

Reported by M Gaither, JP Lofgren, MD, State Epidemiologist, Arkansas State Dept of Health; G Empey, Kern County Health Dept, AF Taylor, MPH, TG Stephenson, MPH, GA Pettersen, MD, San Bernadino Dept of Public Health, J Chin, MD, State Epidemiologist, California Dept of Health Svcs; B Baylor, MD, G Gwin, P Hunt, JT O'Connor, DO, V Smith, DO, Love County Health Center, W Baber, S Butler, R Campbell, M Claborn, P Claborn, L Douglas, MT, LL Jones, Y McGinnis, B Smith, Love County Health Dept, S Makintubee, J Mallonee, MPH, G Istre, MD, Acting State Epidemiologist, Oklahoma State Dept of Health; AB Way, MD, Lubbock City Health Dept, C Reed, MPH, L Sehulster, PhD, TL Gustafson, MD, CE Alexander, MD, Acting State Epidemiologist, Texas Dept of Health; Hepatitis Br, Div of Viral Diseases, Center for Infectious Diseases, Div of Field Svcs, Epidemiology Program Office, CDC.

Editorial Note: Hepatitis A outbreaks remain a highly visible health problem in the United States, although only a small proportion of hepatitis cases are traceable to such outbreaks. In

(Continued on page 659)

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

Disease	50th Week Ending			Cumulative, 50th Week Ending		
	December 17, 1983	December 18, 1982	Median 1978-1982	December 17, 1983	December 18, 1982	Median 1978-1982
Aseptic meningitis	194	170	157	11,500	9,340	8,220
Encephalitis: Primary (arthropod-borne & unspec.)	16	32	19	1,663	1,540	1,160
Post-infectious	1	3	4	69	79	210
Gonorrhea: Civilian	18,488	21,496	21,496	863,188	922,639	967,245
Military	413	358	601	23,024	24,981	25,893
Hepatitis: Type A	365	460	604	20,989	22,206	27,302
Type B	471	463	453	22,015	21,170	17,667
Non A, Non B	53	55	N	3,237	2,405	N
Unspecified	132	164	206	7,363	8,342	10,089
Legionellosis	16	15	N	689	630	N
Leprosy	7	25	3	229	227	210
Malaria	9	9	16	756	1,011	1,011
Measles: Total*	6	19	42	1,428	1,641	13,315
Indigenous	5	N	N	1,129	N	N
Imported	1	N	N	299	N	N
Meningococcal infections: Total	39	58	47	2,624	2,900	2,587
Civilian	39	58	47	2,609	2,886	2,568
Military	-	-	-	15	14	19
Mumps	127	69	157	3,175	5,146	8,225
Pertussis	39	40	34	2,179	1,703	1,610
Rubella (German measles)	7	25	57	935	2,255	3,749
Syphilis (Primary & Secondary): Civilian	610	796	595	30,946	31,798	26,349
Military	8	10	7	370	424	311
Toxic-shock syndrome	9	N	N	377	N	N
Tuberculosis	605	574	616	22,739	24,612	26,238
Tularemia	4	6	9	303	250	223
Typhoid fever	8	10	10	433	385	506
Typhus fever, tick-borne (RMSF)	3	2	7	1,129	956	1,038
Rabies, animal	42	60	61	5,634	5,990	5,990

TABLE II. Notifiable diseases of low frequency, United States

	Cum. 1983		Cum. 1983
Anthrax	-	Plague	39
Botulism: Foodborne	19	Poliomyelitis: Total	8
Infant (Calif. 1)	61	Paralytic (Pa. 1)	8
Other	3	Psittacosis (Fla. 1)	118
Brucellosis (Va. 2, Ky. 1)	179	Rabies, human	2
Cholera	1	Tetanus (Tex. 1)	73
Congenital rubella syndrome	20	Trichinosis	32
Diphtheria	4	Typhus fever, flea-borne (endemic, murine) (Tex. 4)	48
Leptospirosis	45		

*For measles only, imported cases includes both out-of-state and international importations.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending December 17, 1983 and December 18, 1982 (50th week)

Reporting Area	Aseptic Menin-gitis	Encephalitis		Gonorrhea (Civilian)		Hepatitis (Viral), by type				Legionel-losis	Leprosy	Malaria
		Primary	Post-in-fectious			A	B	NA,NB	Unspeci-fied			
	1983	Cum. 1983	Cum. 1983	Cum. 1983	Cum. 1982	1983	1983	1983	1983	1983	Cum. 1983	Cum. 1983
UNITED STATES	194	1,663	69	863,188	922,639	365	471	53	132	16	229	756
NEW ENGLAND	11	61	-	23,237	22,233	10	16	-	23	2	3	38
Maine	-	-	-	1,084	1,174	-	-	-	-	-	-	1
N.H.	-	5	-	701	728	1	1	-	-	-	1	2
Vt.	-	1	-	425	408	-	2	-	-	-	-	1
Mass.	4	28	-	10,026	9,901	8	6	-	23	1	-	18
R.I.	-	1	-	1,245	1,517	-	-	-	-	-	1	4
Conn.	7	26	-	9,756	8,505	1	7	-	-	1	1	12
MID ATLANTIC	13	130	7	112,127	117,452	59	75	4	3	10	27	107
Upstate N.Y.	5	33	-	17,770	19,519	9	28	1	1	-	-	31
N.Y. City	4	13	-	45,252	48,080	23	3	-	1	-	26	27
N.J.	-	18	1	20,937	21,375	17	23	-	-	1	-	28
Pa.	4	66	6	28,168	28,478	10	21	3	1	9	1	21
E.N. CENTRAL	22	585	20	120,269	133,135	18	54	5	4	2	6	54
Ohio	11	195	9	31,972	35,214	7	17	2	1	2	1	9
Ind.	4	185	1	11,954	15,738	9	13	1	1	-	-	7
Ill.	-	17	7	31,729	38,454	1	2	2	-	-	2	18
Mich.	7	124	-	33,380	32,015	1	22	-	2	-	3	15
Wis.	-	64	3	11,234	11,714	-	-	-	-	-	-	5
W.N. CENTRAL	9	167	10	40,010	43,261	17	12	3	1	-	6	32
Minn.	2	68	1	5,706	6,305	-	3	2	-	-	4	11
Iowa	1	58	-	4,433	4,654	1	1	1	-	-	-	4
Mo.	6	30	-	19,160	20,468	3	6	-	1	-	1	5
N. Dak.	-	4	-	428	556	-	-	-	-	-	-	2
S. Dak.	-	1	2	1,020	1,095	13	-	-	-	-	-	1
Nebr.	-	4	-	2,686	2,544	-	1	-	-	-	-	3
Kans.	-	2	7	6,577	7,639	-	1	-	-	-	1	6
S. ATLANTIC	41	229	16	225,065	240,290	39	102	10	11	1	13	121
Del.	-	1	-	4,130	4,001	1	4	-	-	-	-	1
Md.	4	23	-	28,870	30,181	2	14	-	2	-	1	21
D.C.	-	-	-	15,344	14,764	-	1	-	-	-	-	16
Va.	9	56	2	20,548	19,335	4	10	2	1	-	1	30
W. Va.	-	47	-	2,541	2,693	-	3	-	1	-	-	3
N.C.	8	47	-	34,522	37,811	2	10	-	2	-	2	4
S.C.	3	5	-	20,619	23,385	-	17	-	-	-	-	6
Ga.	3	9	2	47,469	46,911	6	15	1	-	-	1	10
Fla.	14	41	12	51,022	61,209	24	28	7	5	1	8	30
E.S. CENTRAL	5	67	2	72,658	80,213	6	27	3	1	-	-	14
Ky.	2	16	-	8,626	10,710	1	2	-	-	-	-	2
Tenn.	-	19	-	29,548	31,333	1	13	-	1	-	-	-
Ala.	1	24	-	22,528	23,972	2	7	3	-	-	-	7
Miss.	2	8	2	11,956	14,198	2	5	-	-	-	-	5
W.S. CENTRAL	53	168	2	121,125	127,025	60	35	3	58	-	35	66
Ark.	-	13	-	9,631	10,323	1	3	-	7	-	-	1
La.	44	20	-	23,369	22,920	11	8	2	6	-	1	8
Okla.	1	30	1	13,850	14,066	6	8	1	1	-	-	10
Tex.	8	105	1	74,275	79,716	42	16	-	44	-	34	47
MOUNTAIN	2	77	4	27,639	30,847	32	29	-	6	-	14	29
Mont.	-	2	-	1,193	1,294	-	1	-	-	-	-	-
Idaho	-	1	-	1,236	1,479	-	2	-	-	-	-	2
Wyo.	-	2	-	725	927	2	-	-	-	-	-	1
Colo.	2	46	-	7,715	8,300	6	8	-	1	-	2	10
N. Mex.	-	2	-	3,419	4,272	3	3	-	2	-	-	5
Ariz.	-	11	4	7,857	7,925	19	9	-	3	-	10	8
Utah	-	12	-	1,325	1,520	2	6	-	-	-	2	3
Nev.	-	1	-	4,169	5,130	-	-	-	-	-	-	-
PACIFIC	38	179	8	121,058	128,183	124	121	25	25	1	125	295
Wash.	3	13	1	9,292	11,026	1	3	-	1	1	16	16
Oreg.	-	-	4	6,438	7,594	28	10	5	-	-	1	12
Calif.	27	157	3	99,994	103,731	95	106	20	23	-	73	265
Alaska	2	-	-	3,092	3,308	-	-	-	-	-	-	-
Hawaii	6	9	-	2,242	2,524	-	2	-	1	-	35	2
Guam	U	-	-	114	134	U	U	U	U	U	2	2
P.R.	2	1	1	2,615	2,548	1	5	-	3	-	-	3
V.I.	U	-	-	267	273	U	U	U	U	U	-	-
Pac. Trust Terr.	U	-	-	-	388	U	U	U	U	U	-	-

TABLE III. (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending December 17, 1983 and December 18, 1982 (50th week)

Reporting Area	Measles (Rubeola)					Menin-gococcal Infections	Mumps			Pertussis			Rubella		
	Indigenous		Imported*		Total										
	1983	Cum. 1983	1983	Cum. 1983	Cum. 1982	Cum. 1983	1983	Cum. 1983	Cum. 1982	1983	Cum. 1983	Cum. 1982	1983	Cum. 1983	Cum. 1982
UNITED STATES	5	1,129	1	299	1,641	2,624	127	3,175	5,146	39	2,179	1,703	7	935	2,255
NEW ENGLAND	-	5	-	16	14	145	1	129	187	1	73	62	-	20	20
Maine	-	-	-	-	-	10	-	22	43	-	5	4	-	-	-
N.H.	-	-	-	3	3	6	-	27	18	-	10	12	-	5	11
Vt.	-	-	-	-	2	10	-	15	7	-	8	2	-	5	-
Mass.	-	4	-	5	3	46	1	28	75	1	38	28	-	8	2
R.I.	-	-	-	-	-	11	-	16	18	-	5	11	-	-	1
Conn.	-	1	-	8	6	62	-	21	26	-	7	5	-	2	6
MID ATLANTIC	-	75	-	44	169	440	85	367	335	9	384	499	-	146	109
Upstate N.Y.	-	5	-	13	112	140	2	105	94	1	121	283	-	31	53
N.Y. City	-	44	-	27	44	74	1	41	47	-	53	47	-	86	36
N.J.	-	26	-	1	6	75	79	139	54	-	20	23	-	3	18
Pa.	-	-	-	3	7	151	3	82	140	8	190	146	-	26	2
E.N. CENTRAL	-	649	-	58	79	487	20	1,396	2,611	6	478	351	1	134	207
Ohio	-	72	-	15	1	144	14	586	1,742	1	151	95	-	2	4
Ind.	-	402	-	4	2	54	2	56	46	2	60	25	1	27	29
Ill.	-	173	-	33	24	140	-	156	303	3	156	162	-	56	79
Mich.	-	2	-	5	52	87	4	507	391	-	42	30	-	19	50
Wis.	-	-	-	1	-	62	-	91	129	-	69	39	-	30	45
W.N. CENTRAL	-	1	-	7	49	140	3	169	636	13	142	82	1	43	62
Minn.	-	1	-	-	-	28	-	30	455	1	48	34	-	9	7
Iowa	-	-	-	-	-	20	3	44	61	-	9	9	-	-	-
Mo.	-	-	-	1	2	55	-	19	13	-	18	17	-	-	38
N. Dak.	-	-	-	-	-	4	-	1	-	-	3	-	-	-	-
S. Dak.	-	-	-	-	-	4	-	-	1	-	8	6	-	-	1
Nebr.	-	-	-	-	3	5	-	4	1	-	2	1	-	-	-
Kans.	-	-	-	6	44	24	-	71	105	12	54	15	1	34	16
S. ATLANTIC	-	173	-	31	229	538	3	225	321	3	245	280	-	99	98
Del.	-	-	-	-	-	11	-	8	13	-	5	8	-	-	1
Md.	-	6	-	4	5	54	-	43	34	-	20	73	-	2	34
D.C.	-	-	-	-	1	8	-	-	-	-	-	-	-	-	-
Va.	-	10	-	13	14	79	-	36	42	-	50	29	-	2	12
W. Va.	-	-	-	-	3	3	3	59	119	-	9	14	-	-	3
N.C.	-	-	-	1	2	105	-	14	22	2	31	45	-	10	2
S.C.	-	-	-	4	-	53	-	14	17	-	14	16	-	1	-
Ga.	-	8	-	-	-	89	-	51	28	-	65	41	-	13	18
Fla.	-	149	-	9	204	136	N	-	46	1	51	54	-	71	28
E.S. CENTRAL	2	3	-	24	9	153	1	59	67	-	34	52	-	19	49
Ky.	-	-	-	1	1	30	-	21	22	-	14	6	-	18	31
Tenn.	-	-	-	-	6	52	1	32	25	-	9	26	-	-	2
Ala.	-	1	-	4	2	49	-	2	10	-	5	5	-	1	-
Miss.	2	2	-	19	-	22	-	4	10	-	6	15	-	-	16
W.S. CENTRAL	-	44	-	35	169	267	5	219	262	2	450	104	-	120	128
Ark.	-	5	-	8	-	22	-	3	8	-	25	6	-	-	2
La.	-	4	-	25	13	47	-	1	6	1	12	22	-	10	1
Okla.	-	1	-	-	30	35	N	-	-	-	330	7	-	-	3
Tex.	-	34	-	2	126	163	5	215	248	1	83	69	-	110	122
MOUNTAIN	3	15	-	18	29	121	1	178	117	2	223	70	-	39	95
Mont.	-	-	-	4	-	30	-	7	7	-	2	1	-	6	6
Idaho	-	-	-	10	-	9	-	8	4	-	15	12	-	8	7
Wyo.	-	-	-	-	1	2	-	4	2	-	6	4	-	8	8
Colo.	-	-	-	3	8	37	-	53	20	1	134	20	-	1	6
N. Mex.	-	-	-	-	-	7	N	-	-	-	14	8	-	-	6
Ariz.	-	-	-	1	17	23	1	93	54	-	29	21	-	8	21
Utah	3	15	-	-	3	12	-	8	22	-	22	4	-	7	29
Nev.	-	-	-	-	-	1	-	5	8	1	1	-	-	1	12
PACIFIC	-	164	1	66	894	333	8	433	610	3	150	203	5	315	1,487
Wash.	-	2	-	33	42	48	1	53	102	-	20	33	-	9	58
Oreg.	-	8	-	2	17	59	N	-	-	-	9	27	-	14	7
Calif.	-	153	1 §	29	829	215	7	344	472	3	114	115	5	290	1,408
Alaska	-	-	-	2	1	4	-	16	15	-	4	-	-	1	5
Hawaii	-	1	-	-	5	7	-	20	21	-	3	28	-	1	9
Guam	U	1	U	1	9	1	U	1	5	U	-	-	U	-	2
P.R.	-	94	-	-	220	11	5	145	104	-	14	22	-	8	13
V.I.	U	-	U	5	-	-	U	-	4	U	-	-	U	2	2
Pac. Trust Terr.	U	-	U	-	1	-	U	-	6	U	-	-	U	-	-

*For measles only, imported cases includes both out-of-state and international importations.

N: Not notifiable U: Unavailable †International §Out-of-state

TABLE III. (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending December 17, 1983 and December 18, 1982 (50th week)

Reporting Area	Syphilis (Civilian) (Primary & Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1983	Cum. 1982	1983	1983	Cum. 1983	Cum. 1983	Cum. 1983	Cum. 1983	Cum. 1983
UNITED STATES	30,946	31,798	9	605	22,739	303	433	1,129	5,634
NEW ENGLAND	661	593	-	20	689	4	18	6	37
Maine	19	8	-	-	36	-	-	-	9
N.H.	27	5	-	-	34	-	-	1	5
Vt.	3	4	-	-	12	-	-	-	2
Mass.	426	398	-	18	375	3	13	2	14
R.I.	22	27	-	-	58	1	1	-	1
Conn.	164	151	-	2	174	-	4	3	6
MID ATLANTIC	4,039	4,279	1	109	4,101	1	75	27	261
Upstate N.Y.	307	448	-	17	690	1	11	7	75
N.Y. City	2,378	2,527	-	57	1,640	-	27	2	-
N.J.	799	618	1	20	831	-	31	8	24
Pa.	555	686	-	15	940	-	6	10	162
E.N. CENTRAL	1,580	1,857	-	98	3,065	4	63	69	469
Ohio	441	318	-	16	488	-	19	27	60
Ind.	141	195	-	30	359	-	4	16	30
Ill.	669	969	-	30	1,304	1	28	17	239
Mich.	236	276	-	21	763	1	10	7	20
Wis.	93	99	-	1	151	2	2	2	120
W.N. CENTRAL	378	544	5	11	705	89	12	56	814
Minn.	144	142	2	4	153	-	2	-	143
Iowa	22	34	1	-	65	-	-	-	199
Mo.	145	292	-	5	344	60	8	27	96
N. Dak.	2	7	-	2	8	-	-	1	86
S. Dak.	11	2	-	-	36	10	-	5	144
Nebr.	15	15	2	-	25	8	-	3	65
Kans.	39	52	-	-	74	11	2	20	81
S. ATLANTIC	8,488	8,683	1	138	4,580	12	54	471	2,035
Del.	43	25	-	2	63	-	-	4	5
Md.	566	481	-	14	366	3	5	38	771
D.C.	374	469	-	9	189	-	3	-	141
Va.	545	598	-	3	488	1	17	60	609
W. Va.	24	30	-	5	132	-	2	12	114
N.C.	853	709	-	15	717	7	4	205	26
S.C.	560	554	-	18	440	-	2	80	36
Ga.	1,498	1,788	-	38	804	1	2	66	209
Fla.	4,025	4,029	1	34	1,381	-	19	6	124
E.S. CENTRAL	2,087	2,174	-	44	2,016	23	10	108	356
Ky.	171	127	-	7	507	1	3	24	83
Tenn.	574	619	-	17	615	17	2	49	188
Ala.	801	829	-	14	510	-	2	24	85
Miss.	541	599	-	6	384	5	3	11	-
W.S. CENTRAL	7,927	8,388	2	70	2,813	120	63	376	987
Ark.	187	217	-	8	346	70	4	42	158
La.	1,637	1,797	-	12	433	7	4	1	34
Okla.	194	181	2	12	266	32	2	233	102
Tex.	5,909	6,193	-	38	1,768	11	53	100	693
MOUNTAIN	631	809	-	7	603	41	23	14	231
Mont.	7	5	-	-	42	6	1	6	66
Idaho	7	25	-	2	29	2	1	3	16
Wyo.	12	16	-	-	11	8	-	2	12
Colo.	152	230	-	-	84	14	1	-	32
N. Mex.	169	186	-	-	108	3	2	-	15
Ariz.	162	215	-	4	253	1	16	1	36
Utah	22	23	-	1	37	6	1	1	11
Nev.	100	109	-	-	39	1	1	1	43
PACIFIC	5,155	4,471	-	108	4,167	9	115	2	444
Wash.	186	166	-	6	230	2	5	-	2
Oreg.	143	111	-	6	178	3	4	-	1
Calif.	4,735	4,072	-	92	3,455	3	103	2	426
Alaska	14	15	-	-	73	1	-	-	15
Hawaii	77	107	-	4	231	-	3	-	-
Guam	-	1	U	U	5	-	-	-	-
P.R.	879	784	-	8	455	-	1	-	48
V.I.	19	29	U	U	2	-	1	-	-
Pac. Trust Terr.	-	-	U	U	-	-	-	-	-

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending December 17, 1983 (50th week)

Reporting Area	All Causes, By Age (Years)						P&I** Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	721	480	157	42	19	23	61
Boston, Mass.	171	104	39	13	6	9	18
Bridgeport, Conn.	50	32	10	5	3	-	7
Cambridge, Mass.	27	17	7	1	-	2	3
Fall River, Mass.	39	33	5	1	-	-	-
Hartford, Conn.	61	42	13	3	1	2	4
Lowell, Mass.	29	20	7	2	-	-	-
Lynn, Mass.	18	13	5	-	-	-	1
New Bedford, Mass.	35	27	2	3	-	3	-
New Haven, Conn.	62	34	19	6	1	2	3
Providence, R.I.	69	45	20	-	1	3	6
Somerville, Mass.	10	7	2	1	-	-	2
Springfield, Mass.	45	32	9	2	1	1	1
Waterbury, Conn.	29	23	3	1	1	1	7
Worcester, Mass.	76	51	16	4	5	-	9
MID. ATLANTIC	2,680	1,755	604	190	71	60	129
Albany, N.Y.	55	35	10	5	1	4	2
Allentown, Pa.	18	13	3	-	2	-	-
Buffalo, N.Y.	150	103	34	10	1	2	13
Camden, N.J.	34	20	10	2	-	2	2
Elizabeth, N.J.	29	19	9	-	-	1	1
Erie, Pa.†	47	34	9	3	1	-	6
Jersey City, N.J.	44	32	5	4	1	2	-
N.Y. City, N.Y.	1,444	931	328	114	42	29	52
Newark, N.J.	108	55	31	10	7	5	5
Paterson, N.J.	28	19	2	5	2	-	1
Philadelphia, Pa.†	307	188	77	24	10	8	15
Pittsburgh, Pa.†	48	31	13	2	-	2	3
Reading, Pa.	28	24	3	1	-	-	-
Rochester, N.Y.	130	97	25	2	1	5	11
Schenectady, N.Y.	28	23	4	1	-	-	2
Scranton, Pa.†	25	22	3	-	-	-	1
Syracuse, N.Y.	79	52	23	3	1	-	6
Trenton, N.J.	35	24	10	-	1	-	5
Utica, N.Y.	17	15	-	2	-	-	1
Yonkers, N.Y.	26	18	5	2	1	-	3
E.N. CENTRAL	2,332	1,499	573	149	54	57	87
Akron, Ohio	45	29	14	1	1	-	-
Canton, Ohio	36	27	6	1	2	-	-
Chicago, Ill.	588	357	151	45	19	16	10
Cincinnati, Ohio	130	92	26	4	3	5	14
Cleveland, Ohio	191	113	56	11	3	8	4
Columbus, Ohio	135	84	35	8	4	4	3
Dayton, Ohio	99	71	21	4	-	3	7
Detroit, Mich.	288	169	78	31	8	2	5
Evansville, Ind.	55	44	9	1	-	1	3
Fort Wayne, Ind.	55	35	16	3	-	1	2
Gary, Ind.	20	8	6	3	2	1	-
Grand Rapids, Mich.	50	32	13	3	-	2	3
Indianapolis, Ind.	169	107	46	10	2	4	3
Madison, Wis.	34	18	8	4	2	2	5
Milwaukee, Wis.	134	99	26	3	3	3	7
Peoria, Ill.	39	22	13	2	1	1	5
Rockford, Ill.	33	24	8	1	-	-	4
South Bend, Ind.	66	50	12	1	1	2	5
Toledo, Ohio	112	78	20	10	3	1	7
Youngstown, Ohio	53	40	9	3	-	1	-
W.N. CENTRAL	711	499	127	33	16	34	35
Des Moines, Iowa	61	46	10	3	2	-	2
Duluth, Minn.	21	15	4	-	-	2	3
Kansas City, Kans.	19	7	5	3	1	3	1
Kansas City, Mo.	130	91	20	7	5	5	-
Lincoln, Nebr.	26	19	6	1	-	-	2
Minneapolis, Minn.	104	75	15	5	3	6	5
Omaha, Nebr.	93	65	22	4	1	1	6
St. Louis, Mo.	160	110	28	6	4	12	13
St. Paul, Minn.	59	47	10	2	-	-	1
Wichita, Kans.	38	24	7	2	-	5	2
S. ATLANTIC	1,437	898	348	97	46	47	58
Atlanta, Ga.	136	88	33	8	2	5	1
Baltimore, Md.	476	289	117	33	23	14	14
Charlotte, N.C.	80	50	23	5	2	-	2
Jacksonville, Fla.	118	73	26	6	6	7	7
Miami, Fla.	86	42	31	9	1	3	1
Norfolk, Va.	51	34	9	3	-	5	4
Richmond, Va.	82	41	21	14	3	2	8
Savannah, Ga.	49	29	11	6	1	2	6
St. Petersburg, Fla.	137	115	19	-	1	2	8
Tampa, Fla.	68	41	21	-	2	4	5
Washington, D.C.	83	51	21	8	2	1	-
Wilmington, Del.	71	45	16	5	3	2	2
E.S. CENTRAL	688	447	158	45	28	10	47
Birmingham, Ala.	121	82	24	9	3	3	2
Chattanooga, Tenn.	60	42	8	6	1	3	5
Knoxville, Tenn.	61	42	15	2	2	-	5
Louisville, Ky.	132	80	32	9	9	2	15
Memphis, Tenn.	95	66	25	2	2	-	13
Mobile, Ala.	49	34	10	2	3	-	1
Montgomery, Ala.	53	38	7	6	2	-	2
Nashville, Tenn.	117	63	37	9	6	2	4
W.S. CENTRAL	1,391	841	345	102	48	55	49
Austin, Tex.	57	39	12	5	-	1	2
Baton Rouge, La.	43	26	9	3	3	2	2
Corpus Christi, Tex.	43	29	11	-	2	1	1
Dallas, Tex.	159	89	43	15	9	3	2
El Paso, Tex.	58	37	14	5	2	-	7
Fort Worth, Tex.	121	67	29	5	4	16	2
Houston, Tex.	360	189	108	32	17	14	7
Little Rock, Ark.	68	38	21	7	-	2	4
New Orleans, La.	127	82	27	7	4	7	-
San Antonio, Tex.	184	119	40	15	6	4	13
Shreveport, La.	66	41	19	4	1	1	2
Tulsa, Okla.	105	85	12	4	-	4	7
MOUNTAIN	663	419	150	42	26	25	34
Albuquerque, N.Mex.	81	46	14	13	4	4	2
Colo. Springs, Colo.	46	25	13	4	3	1	6
Denver, Colo.	118	80	26	4	3	5	5
Las Vegas, Nev.	86	52	25	7	2	-	7
Ogden, Utah	24	17	4	-	1	1	3
Phoenix, Ariz.	153	97	34	5	10	7	1
Pueblo, Colo.	17	13	4	-	-	-	-
Salt Lake City, Utah	42	22	11	2	1	6	-
Tucson, Ariz.	96	67	19	7	2	1	10
PACIFIC	2,232	1,511	451	145	62	61	124
Berkeley, Calif.	20	15	5	-	-	-	1
Fresno, Calif.	91	70	12	3	2	4	5
Glendale, Calif.	58	42	13	1	-	2	4
Honolulu, Hawaii	63	35	17	5	4	2	7
Long Beach, Calif.	105	67	30	5	2	1	5
Los Angeles, Calif.	905	630	161	73	23	17	37
Oakland, Calif.	49	29	11	6	1	2	2
Pasadena, Calif. §	32	30	-	1	-	1	1
Portland, Oreg.	103	74	20	4	3	1	4
Sacramento, Calif.	82	44	23	8	3	4	9
San Diego, Calif.	134	79	32	11	9	3	15
San Francisco, Calif.	138	100	31	5	1	1	8
San Jose, Calif.	153	94	40	6	4	9	16
Seattle, Wash.	169	119	27	9	7	7	2
Spokane, Wash.	54	41	9	2	-	2	5
Tacoma, Wash.	76	42	20	6	3	5	3
TOTAL	12,855††	8,349	2,913	845	370	372	624

* 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.

Hepatitis A — Continued

1982, less than 7% of hepatitis cases reported to the Viral Hepatitis Surveillance Program were associated with food-borne or waterborne outbreaks (*1*).

Despite substantial numbers of hepatitis A infections reported each year among foodhandlers, only a few food-borne outbreaks result from such infections. In 1982, 691 infected foodhandlers were reported to CDC, but only eight food-borne or waterborne epidemics were reported (*1*). This suggests that contamination of food by infected foodhandlers is uncommon. Since cooking inactivates the virus, food-borne outbreaks of hepatitis A almost always involve only foods that remain uncooked between contamination and consumption. Most authorities accept handwashing as the single, most important environmental barrier preventing transfer of virus from feces to food. As demonstrated in the first outbreak, the presence of diarrhea in the index patient may increase risk of disease transmission in spite of a history of good handwashing.

Since the 1940s, immune globulin (IG) has been used successfully in the prophylaxis of hepatitis A if given within 2 weeks of exposure (*2*). In established food-borne outbreaks, which are usually recognized about 4 weeks (one incubation period) after exposure has occurred, IG is generally not useful in preventing illness.

Health departments are often asked to evaluate situations in which a lone foodhandler at a restaurant has contracted hepatitis A. If the diagnosis has been confirmed by a positive serum anti-HAV IgM, IG should be administered to all other foodhandlers at the restaurant. Because of the low risk of hepatitis transmission by a foodhandler, only rarely is IG prophylaxis recommended for patrons of the restaurant. CDC has recommended that such a program not be undertaken unless the following conditions exist: (1) the foodhandler has a positive anti-HAV IgM; (2) the foodhandler handles, without gloves, cold foods that will not be cooked before consumption; (3) the foodhandler has inadequate personal hygiene, especially failure to wash hands after defecation; (4) the patrons have had repeated exposures to these foods; (5) IG can be administered within 2 weeks of the last possible exposure (*3*).

References

1. CDC. Unpublished data.
2. Seeff LB, Hoofnagle JH. Immunoprophylaxis of viral hepatitis. Gastroenterology 1979;77:161-82.
3. CDC. Hepatitis Surveillance Report No. 45. May 1980.

Interstate Transmission of Measles in a Gypsy Population — Washington, Idaho, Montana, California

A measles outbreak among 44 persons, with rash onsets ranging from September 4, through November 14, 1983, was reported from Washington, Idaho, Montana, and California (Figure 5). The source was a measles outbreak in Chicago, Illinois. Seven (16%) patients were hospitalized during the outbreak (Table 2), three of whom were hospitalized with dehydration, two with severe vomiting and diarrhea, one with otitis media, and one with bronchitis. No deaths were reported. Of the 44 patients, 27 (61%) were children of people who call themselves Gypsies.

The outbreak began with a 2-year-old Gypsy boy who lived in a neighborhood in Chicago where an outbreak of measles occurred. He had onset of rash on September 4 in Billings, Montana, where he infected a 13-year-old Gypsy boy who subsequently had rash onset September 19 while attending a wedding in Spokane, Washington. The wedding, which was

Measles — Continued

held in a banquet room at a race track, was attended by approximately 375 people from Gypsy communities in Idaho, Montana, Oregon, and Washington. Approximately 75 of the attendees were children. Of these, 17 were infected by the 13-year-old boy, for an attack rate of 23%. None of the 17 children had adequate evidence of immunity to measles.* The resulting outbreak involved persons living in four states.

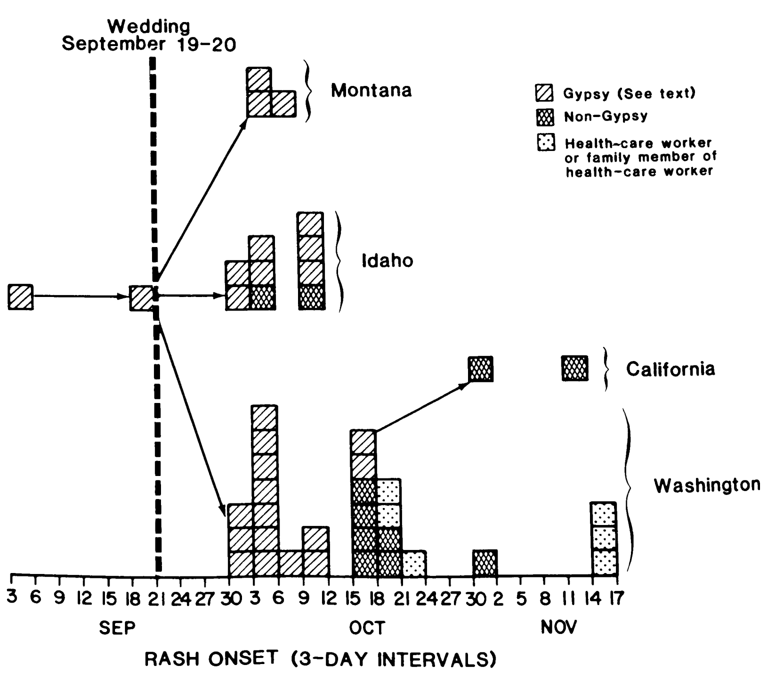
Washington: Twenty-eight cases were reported in four spread generations of infection. All 13 cases in the first two generations occurred among the Gypsy population. Three addi-

*Written documentation showing date of administration of live measles vaccine on or after the first birthday, or documented history of physician-diagnosed measles illness.

TABLE 2. Age distribution and hospitalization of 44 measles patients — Washington, Idaho, Montana, California, September 4-November 14, 1983

	Measles patients		Hospitalized	
Age	No.	% of total	No.	% of total
< 5	19	43.2	5	11.4
5-9	11	25.0	1	2.3
10-14	5	11.4	1	2.3
15-19	3	6.8	0	0.0
≥ 20	6	13.6	0	0.0
Total	44	100.0	7	15.9

FIGURE 5. Reported measles cases, by date of rash onset — Washington, Idaho, Montana, California, September 4-November 14, 1983



Measles — Continued

tional generations occurred, involving other persons in their communities. Transmission probably occurred at the race track, in patients' homes, and in school.

Twenty-one (75%) of the 28 patients lacked adequate evidence of immunity to measles. Of these, 15 were Gypsies, four were children of chiropractors who refused permission for vaccination, and two were either too young or too old to attend school, and therefore, were not affected by the school immunization law. The four children of chiropractors had been allowed to attend school on the basis of personal exemptions. In addition, three patients were infected in medical settings—an 8-year-old child, who was infected by another patient while visiting a private physician, and a 32-year-old ward clerk and a 27-year-old emergency-room nurse who were infected when exposed to four children with measles. The nurse was probably infectious while she attended a national conference for approximately 800 emergency-room nurses in Anaheim, California. Following this incident, immunization program staff contacted these nurses in their 46 states of residence, but no additional cases were identified.

Idaho: Nine cases occurred among unimmunized individuals. Four of the patients attended the wedding in Spokane with the 13-year-old Gypsy boy. In addition, a 38-year-old man who did not attend the wedding was probably infected by the same boy. No additional cases occurred after October 10.

Montana: Three patients were infected by the 13-year-old boy at the wedding. No additional cases were reported after October 7.

California: A 2½-year-old unvaccinated child from a migrant family in Santa Clara had rash onset November 12. She was infected by her 18-month-old sister, who acquired measles in Washington from children of one of the affected Gypsy families.

Reported by LG Dales, MD, J Chin, MD, State Epidemiologist, California Dept of Health Svcs; D Adams, District III Health Dept, Canyon County, G Hurst, District V Health Dept, Twin Falls County, J Jelke, District VI Health Dept, Bannock County, B Arnell, District VII Health Dept, Bonneville County, F Dixon, MD, CD Brokopp, DrPH, State Epidemiologist, Idaho Dept of Health and Welfare; Immunization Program, KT Reddi, MD, Chicago Dept of Health, BJ Francis, MD, State Epidemiologist, Illinois Dept of Public Health; BL Desonia, SC Linder, JK Gedrose, State Epidemiologist, Montana Dept of Health and Environmental Sciences; MQ Luther, MD, BA Feyh, MS, S Thompson, Spokane County Health District, BJ Baker, DA Johnson, VJ Ross, RH Leahy, MD, Chief, Office of Preventive Health Svcs, JM Kobayashi, MD, State Epidemiologist, Washington State Dept of Social and Health Svcs; Div of Immunization, Center for Prevention Svcs, CDC.

Editorial Note: This outbreak primarily involved a highly mobile group of Gypsies and demonstrates that clusters of susceptibles can sustain measles transmission. Similar interstate measles outbreaks in other highly mobile groups have been reported in recent months (*1,2*). Outbreaks have also been reported among children where parents oppose immunization on religious or philosophical grounds (*3*). The failure of measles to spread extensively in the community in each outbreak suggests that immunization levels in the general population are high.

It is believed that approximately 500,000 Gypsies currently reside in the United States (*4*). Even though most Gypsies do not object to immunization, none of the Gypsy patients in this outbreak had been vaccinated against measles. Folk medicine is often preferred over established medical practices; Gypsies generally avoid established medical care except when very ill (*5,6*). Moreover, many Gypsy children do not attend school, and therefore, are not affected by school immunization laws.

Since such populations are difficult to reach in vaccination programs and since measles is continually imported into the United States in low numbers, the potential exists for occasional small outbreaks, as reported here. Communities can best protect themselves by ensuring that high immunization levels are achieved and maintained. The kind and quality of surveillance

Measles — Continued

and epidemiologic follow-up demonstrated by this outbreak were made possible by rapid, effective communication between the 46 states involved in the active surveillance and tracing of contacts of patients. Highly motivated and responsive staff again played a significant role in the delineation and containment of this outbreak and the maintenance of high immunization levels.

References

1. CDC. Measles among members of a drum and bugle corps—Arkansas, California, Kansas. MMWR 1983;32:561-2, 567.
2. CDC. Transmission of measles across state lines—Kentucky, New Hampshire, Tennessee, Virginia. MMWR 1982;31:123-6.
3. CDC. Measles among children with religious exemptions to vaccination—Massachusetts, Ohio. MMWR 1981;30:550, 555-6.
4. Wetzel RC, Dean JM, Rogers MC. The art of pediatrics: Gypsies and acute medical intervention. Pediatrics 1983;72:731-5.
5. Mandell F. Gypsies: culture and child care. Pediatrics 1974;54:603-7.
6. Anderson G, Tighe B. Gypsy culture and health care. Am J Nurs 1973;73:282-5.

Outbreak of Diarrheal Illness Associated with a Natural Disaster — Utah

On August 8, 1983, the Utah Department of Health was notified by the Tooele County Health Department (TCHD) of an outbreak of diarrheal illness in Tooele, Utah, possibly associated with a contaminated public water supply that resulted from flooding during Utah's spring thaw. By September 30, 1983, 1,272 individuals were identified who met the following case definition: diarrhea lasting more than 5 days or recurrent diarrhea and two or more of the following symptoms: abdominal pain or cramping, bloating, nausea, weight loss, vomiting, or fever over 37.8 C (100 F). A total of 1,230 of the patients resided in Tooele (9.8% of the population of 12,500); the remaining 42 patients resided elsewhere but had visited or worked in Tooele.

Cases were identified from two sources: 1,104 came from Tooele physicians' daily rosters, and 168 responded to announcements by the local news media. Individuals were contacted by telephone and asked standardized questions.

For comparison, individuals living in a city of similar size and sociodemographics 65 miles distant and with its own municipal water system were selected randomly and asked the same questions as the patients. Three (2.9%) of 103 comparison individuals interviewed met the case definition. The difference between the prevalence of diarrheal illness in Tooele and that in the comparison city was statistically significant ($p < 0.02$). Statistical comparison of the patients from Tooele and the individuals from the comparison town failed to incriminate exposure to mountain stream water (a common source of giardiasis in Utah), pet ownership, food, day-care centers, or anal intercourse—all recognized modes of giardiasis exposure.

The age and sex distributions of patients were similar to those of the general population served by the water district. Besides diarrhea, the most common symptoms were abdominal pain or cramping (88%) and bloating (77%). Sixty-seven percent complained of nausea; 32%, of vomiting; and 17%, of fever over 37.8C (100 F). Of 410 individuals submitting stool specimens for bacterial and parasitic examination, 105 (26%) had *Giardia lamblia*. No other pathogenic parasites were observed, and no *Salmonella*, *Shigella*, *Yersinia*, or *Campylobacter* were isolated. Approximately 90% of the 1,100 persons receiving medication were treated

Diarrheal Illness — Continued

with metronidazole (Flagyl*); the remainder were treated with quinacrine (Atabrine*) or furazolidone (Furoxone*) or were given symptomatic medications.

Because of complaints about muddy water, the municipal water system in Tooele was inspected during the last week in July, and a pipe damaged by flooding, probably during the week of July 17 when Tooele experienced several days of heavy rain, was identified. During this week, three of five routine bacteriologic samples from this source had unsatisfactory coliform counts. Diarrheal illness peaked on August 1, approximately 2 weeks after the heavy rains and the abnormal coliform counts (Figure 6). The incubation period of waterborne giardiasis has been estimated as 7-14 days (*1*). On August 1, in response to complaints of murky tap water, the implicated water source was disconnected from the public water system. Ten days later, the system was hyperchlorinated to inactivate *G. lamblia* cysts.

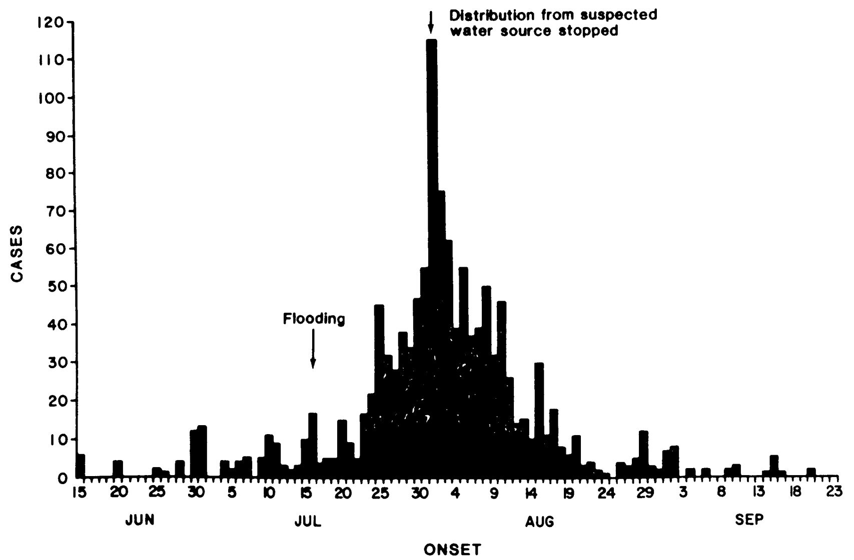
The number of new cases declined steadily throughout August, and continuing surveillance indicates that no new cases have been epidemiologically linked to the public water system. A detailed cost analysis estimated the direct costs of the giardiasis cases at over $116,000.

Reported by DM Perrotta, PhD, CR Nichols, MPA, AP Nelson, MPH, L Scanlon, G Smith, RE Johns, Jr, MD, State Epidemiologist, Utah Dept of Health, D Forster-Burke, M Bateman, G Dalton, MS, Tooele County Health Dept, Utah; Protozoal Diseases Br, Div of Parasitic Diseases, Center for Infectious Diseases, CDC.

Editorial Note: Flooding associated with abnormal weather patterns last year caused extensive damage in many areas in the United States, including Utah. This report illustrates a less obvious consequence of such natural disasters. A similar period of heavy water run-off associated with unseasonably warm weather and ash fall from the Mount St. Helens volcano eruption in 1980 was also linked to an outbreak of diarrhea due to *G. lamblia* (*2*).

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

FIGURE 6. Distribution of cases of diarrheal illness associated with a contaminated municipal water supply, by date of onset — Utah, 1983



Diarrheal Illness — Continued

It is unclear that this present outbreak of diarrheal illness was due solely to giardiasis, although this parasite was the only pathogenic agent identified. Because normal chlorine levels were temporarily unable to control bacterial contamination, some of the diarrhea cases may have been caused by unidentified bacteria or viruses.

Quinacrine (Atabrine) is the drug of choice for adults with giardiasis (*3*). Although individuals who receive quinacrine often complain of its bitter taste, the drug has not been associated with long-term adverse effects, as has metronidazole. The efficacy of quinacrine is thought to be better than that of metronidazole, and quinacrine costs considerably less (*4*).

References

1. CDC. Unpublished data.
2. Weniger BG, Blaser MJ, Gedrose J, Lippy EC, Juranek DD. An outbreak of waterborne giardiasis associated with heavy water runoff due to warm weather and volcanic ashfall. Am J Public Health 1983;73:868-72.
3. The Medical Letter. Drugs for parasitic diseases. 1982;24:5-12.
4. Wolfe MS. Giardiasis. New Engl J Med 1978;298:319-21.

The *Morbidity and Mortality Weekly Report* is prepared by the Centers for Disease Control, Atlanta, Georgia, and available on a paid subscription basis from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, (202) 783-3238.

The data in this report are provisional, based on weekly reports to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the succeeding Friday.

The editor welcomes accounts of interesting cases, outbreaks, environmental hazards, or other public health problems of current interest to health officials. Such reports and any other matters pertaining to editorial or other textual considerations should be addressed to: ATTN: Editor, *Morbidity and Mortality Weekly Report*, Centers for Disease Control, Atlanta, Georgia 30333.

☆U.S. Government Printing Office: 1984-746-149/2012B Region IV

DEPARTMENT OF
HEALTH & HUMAN SERVICES
Public Health Service
Centers for Disease Control
Atlanta GA 30333

Official Business
Penalty for Private Use $300

U.S. MAIL

Postage and Fees Paid
U.S. Dept. of H.H.S.
HHS 396

X

HHS Publication No. (CDC) 84-8017

Redistribution using indicia is illegal.