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Perspectives in Disease Prevention and Health Promotion

Exposure-Related Hypothermia Deaths — District of Columbia, 1972-1982

During the ten cold-weather seasons of 1972-1973 through 1981-1982, 63 exposure-related hypothermia deaths (ERHD)* were recorded on death certificates within the District of Columbia (DC). Two additional ERHD cases have been recorded through December 20 of the current winter season. Most deaths occurred in December and January, particularly around Christmas. Inadequate housing and prior ethanol ingestion contributed to ERHD.

All were investigated (including autopsy) by the Office of the Chief Medical Examiner. Complete data were available on the 57 ERHD that occurred before January 1982. Fifty-four victims were DC residents, for an overall ERHD rate of 0.88 resident deaths/100,000 person years.† Resident ERHD rates/100,000 person years among black males (n = 42), white males (n = 7), black females (n = 4), and white females (n = 1) were 1.91, 1.01, 0.17, and 0.12, respectively. Corresponding relative risks were 15.9, 8.4, 1.4, and 1.0. Median age was 50 years. The highest age-specific death rate occurred in the 50-54-year range (n = 10; 3.0 deaths/100,000 person years). Seven victims (13.0%) were 65 years of age or older; one was less than 32 years old.

ERHD ranged from two to 12 per season and were noted in all months from October through April (Figure 1). Thirty-nine (72%) of the 54 resident ERHD occurred in December or January during these 9 years; 22 (56%) of these 39 occurred in the 6 coldest of these 18 months ($p < 0.005$). Eleven (20%) ERHD victims were found during Christmas weeks (Dec 24-30). Thirteen others (24%) were found during the subsequent two-week periods. Only 10 (19%) of the 54 DC resident ERHD victims survived long enough to reach hospitals. At least 15 (33%) of 46 victims had been undernourished (< 5th percentile of weight for height) (*1*). Pre-existing disease (convulsive disorders, diabetes, uremia) was a possible contributing factor in at least seven (13%) of these cases and trauma or accident in an additional four (7%). Twenty-seven victims (50%) had inadequate housing. Two of these were found dead in unheated apartments; for the remaining 25, no fixed address, other than abandoned buildings or vehicles, could be established despite extensive investigation. Fifteen others (28%) lived

*ERHD cases were defined as deaths occurring in appropriate environmental circumstances of persons without trauma or apparent natural disease sufficient to cause death. Body temperature was less than 35 C (95 F) for all hospitalized ERHD victims for whom data were available.

†Population estimates from Office of Planning and Development, DC Government.

Hypothermia Deaths — Continued

alone. Twenty-one (40%) of 52 resident ERHD victims for whom data were available were found in census tracts where the mean family income was less than $10,000. These census tracts contain only 13% of the total DC population ($p < 0.0001$). Blood ethanol levels were measured in 52 ERHD victims. Twenty-five (48%) of these victims had blood ethanol levels greater than 0.15 g/dl, a level felt to be associated with loss of central thermoregulatory ability (*2*). Eleven others (21%) had lower levels of ethanol in their blood. Victims with inadequate housing were less likely to have blood ethanol levels less than 0.15 g/dl (eight of 26) than were victims with adequate housing (17 of 26, $p = 0.010$, Fisher exact test). Twenty (37%) of the 54 were found partially or completely undressed. No victims were found with hats. Because their confused mental states were believed due to ethanol intoxication, several ERHD victims were taken to detoxification centers before their hypothermia was recognized. Only nine (17%) of these 54 victims had been reported missing. Investigators' reports indicated, however, that a substantial number had had contact with a community agency (hospital, police department, social agency) within hours to days before death.

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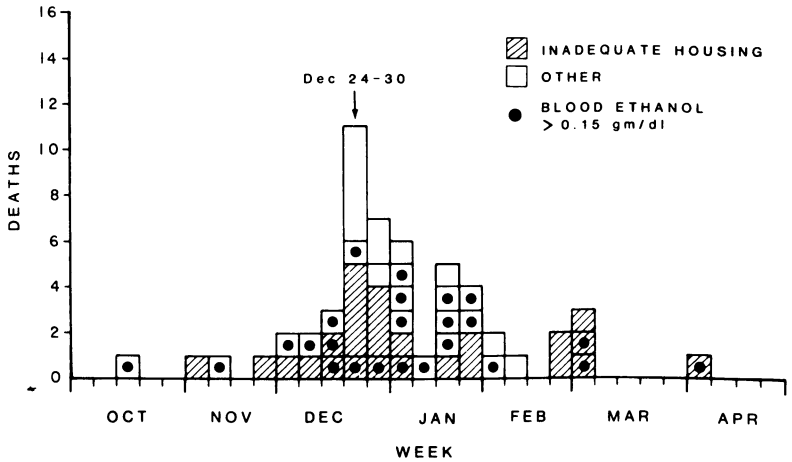
Editorial Note: Lack of adequate housing, acute ethanol intoxication, or both were noted in 82% of the ERHD victims in Washington, D.C. over this 10-year period. The higher rates of ERHD found in this study among blacks and among males are consistent with trends in previous death certificate data (*3*). In addition, ethanol-intoxication association, advanced age, and adverse social and economic circumstances have been described among patients hospitalized with hypothermia in the United Kingdom (*4,5*) and the United States (*6,7*). DC data suggest that younger and middle-aged adults, particularly nonwhite males, may comprise a larger proportion of those at risk from fatal hypothermia than previously thought. This difference may in part reflect the hospital-based nature of earlier studies (*4-7*) in that patients who survive to reach hospitals may represent a different subgroup of those at risk of hypothermia. Alternatively, the difference may represent economic circumstances different from those present in the earlier studies (*4-7*).

FIGURE 1. Exposure-related hypothermia deaths and associated factors by week — Washington, D.C., October 1, 1972 — April 30, 1981



Hypothermia Deaths — Continued

The seemingly irrational undressing noted in many of these ERHD has previously been reported from Scandinavia (*8*). That report suggested that when core body temperature falls to a critical level, peripheral vasoconstriction fails. The resulting sudden vasodilation could lead to an exaggerated sensation of heat and a consequent attempt by the victim to undress (*8*).

In addition to ongoing public education efforts (*9*), public safety personnel (police, ambulance crews) should receive training to recognize hypothermia victims, with particular emphasis on such aspects as confusion and unsteady gait, which are similar to symptoms of ethanol intoxication. Persons taken to detoxification centers during cold weather should have their temperatures taken on admission. Homeless persons found outside or removed from buildings during cold weather should be provided with alternative heated shelters. A clothed person loses the greatest amount of heat through the head, especially when hatless (*10*). The importance of adequate head covering for all people exposed to cold needs to be brought to public attention.

Although a large body of literature exists on various methods of resuscitation from hypothermia once it is recognized (*10,11*), one recent study in a northeastern U.S. area found that only 20% of hospital emergency rooms have low temperature thermometers (*12*). Hospitals should ensure that their emergency room staffs are familiar with symptoms of and initial therapy for hypothermia (*10,13*) and have access to low temperature thermometers. Based on a finding of hypoglycemia in a high proportion of patients with both ethanol intoxication and hypothermia, intravenous 50% dextrose has recently been recommended for use in resuscitation of hypothermic patients, unless serum glucose is known to be normal or high (*11*). During cold weather, homeless or intoxicated persons released from hospitals or jails should be sent directly to shelters.

Further studies are needed to more clearly define both the epidemiology and appropriate prevention of ERHD.

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Current Trends

Prevention of Secondary Cases of *Haemophilus influenzae* Type b Disease*

Haemophilus influenzae type b is the leading cause of meningitis in the United States, resulting in an estimated 8,000-11,000 cases per year (*1,2*). Age-specific incidence rates are highest among children less than 1 year of age and decrease steadily thereafter. The case-fatality ratio is approximately 3%-7%, and neurologic sequelae are common. In addition, *H. influenzae* type b causes an estimated 6,000 cases a year of other invasive diseases, including epiglottitis, pneumonia, cellulitis, and bacteremia (*3*).

An experimental vaccine composed of the polysaccharide capsule of the organism has been shown to be effective in children over the age of 18 months (*4*). However, the vaccine is poorly immunogenic and not protective in children under this age, the group at highest risk of disease. Work is continuing on development of an efficacious vaccine for this age group.

Recent studies have shown an increased risk of disease among close contacts of persons with *H. influenzae* disease, suggesting a need to consider chemoprophylaxis for prevention of secondary cases, pending development of a satisfactory vaccine.

Risk of secondary disease: Six studies have estimated the risk of disease among household contacts of cases in the month following onset of disease in the index case (*3,5-9*). Attack rates varied substantially with age; the rate was 3.8% among children under 2 years of age, 1.5% among children 2-3 years of age, 0.1% among children 4-5 years of age, and 0% among contacts over the age of 6 years. The attack rate for all ages was 0.3%. This represents approximately a 600-fold increase in risk, compared with the risk in the population at large. Fifty percent of associated cases occurred within 3 days of onset in the index case and 75% within 7 days (Figure 2 [*3,5-9*]).

Whether increased risk of disease occurs in day-care center contacts of children with invasive *H. influenzae* disease has not been resolved. Numerous clusters of cases in day care-centers have been reported, but only one study has looked systematically at attack rates in day-care center contacts; in that study, 1% (1/91) of day care-center contacts less than 4 years of age acquired invasive disease in the month after the index case, compared with 2% (3/131) of household contacts less than 4 years of age (*9*). Carriage rates among contacts were only slightly higher in households than in day-care centers (Figure 3) (*9*). This study looked only at contacts in the same classroom as the index case.

It is not known whether the risk of secondary cases is different for persons in contact with a case with meningitis than for those in contact with cases with epiglottitis or other invasive *H. influenzae* diseases. Carriage rates among contacts of meningitis patients have been reported as lower than carriage rates among contacts of patients with other clinical syndromes (*9*), and secondary cases have been reported among both groups. At this time, all index cases with invasive *H. influenzae* disease are considered to increase the risk for contacts.

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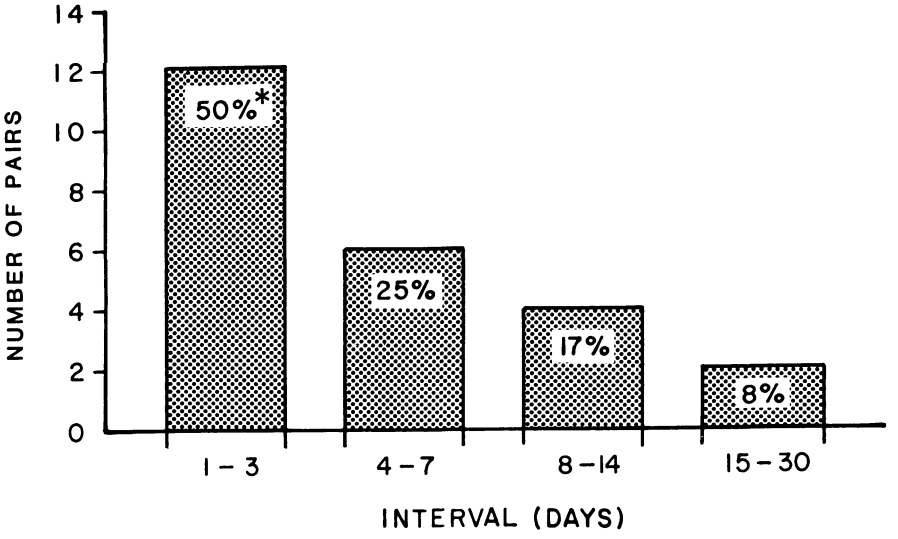
*These recommendations were developed in consultation with James Chin, MD, Chief, Infectious Diseases Section, California Department of Health Services; Vincent A. Fulginiti, MD, Chairman, Committee on Infectious Diseases, American Academy of Pediatrics; Gregory R. Istre, MD, Acting State Epidemiologist, Oklahoma State Department of Health; Arnold L. Smith, MD, Chief, Division of Infectious Diseases, Children's Orthopedic Hospital and Medical Center, Seattle, Washington; and Joel I. Ward, MD, Director of Medical Epidemiology and Assistant Professor of Pediatrics and Medicine, Harbor-UCLA Medical Center, Torrance, California.

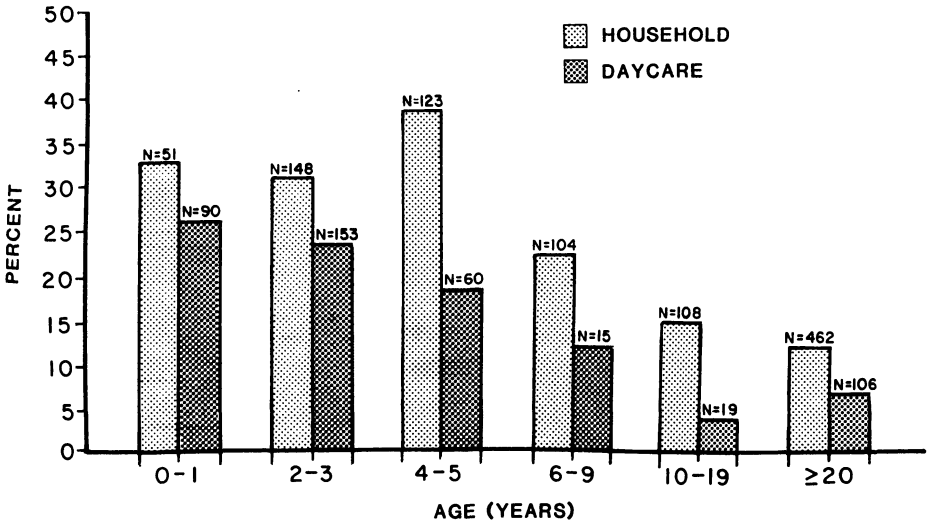
Haemophilus influenzae — Continued

FIGURE 2. Interval between onset of primary and associated cases of *Haemophilus influenzae* type b disease



*Represents percentage of all pairs.

FIGURE 3. Carriage rates of *H. influenzae* type b in contacts, by age of contact and setting exposed



Haemophilus influenzae – Continued

Efficacy of chemoprophylaxis: Initial studies focused on usefulness of various antimicrobial agents to eliminate nasopharyngeal carriage of *H. influenzae* type b. Ampicillin, trimethoprim-sulfamethoxazole, erythromycin-sulfisoxazole, and cefaclor were shown to eliminate carriage in fewer than 70% of culture-positive contacts. Also, in persons with *H. influenzae* disease, pharyngeal carriage of the organism has been shown to persist following intravenous therapy with chloramphenicol or ampicillin.

Rifampin in a dosage of 10 mg/kg per dose* administered twice a day for 2 days, the regimen currently recommended for meningococcal chemoprophylaxis, failed to eradicate carriage in as many as 36% of culture-positive individuals (*9,10*). However, rifampin in a dosage of 20 mg/kg per dose* once daily for 4 days (maximum dose 600 mg) eradicated carriage in 90%-100% of contacts treated (*9,11,12*).

A recent multicenter, randomized, placebo-controlled trial among both household and day-care center contacts has evaluated the efficacy of rifampin chemoprophylaxis in preventing secondary cases of *H. influenzae* disease. The study included day-care centers in which at least 75% of those present received chemoprophylaxis. Pilot studies had demonstrated that, if fewer than 75% participated, rates of new acquisition of *H. influenzae* carriage among

*Dose is halved for neonates—see below.

(Continued on page 679)

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

Disease	50th Week Ending			Cumulative, First 50 Weeks		
	December 18, 1982	December 19, 1981	Median 1977-1981	December 18, 1982	December 19, 1981	Median 1977-1981
Aseptic meningitis	160	157	149	8,859	9,265	7,569
Brucellosis	1	6	5	149	173	173
Encephalitis: Primary (arthropod-borne & unspec.)	29	24	19	1,405	1,478	1,150
Post-infectious	3	1	6	62	83	210
Gonorrhea: Civilian	20,856	20,470	21,315	920,101	963,060	967,245
Military	348	791	601	24,918	27,216	25,893
Hepatitis: Type A	447	576	625	21,949	24,507	28,175
Type B	429	428	395	20,785	19,957	15,842
Non A, Non B	50	N	N	2,292	N	N
Unspecified	158	214	206	8,475	10,411	10,089
Legionellosis	12	N	N	539	N	N
Leprosy	24	-	3	221	235	171
Malaria	9	16	16	990	1,313	788
Measles (rubeola)	19	42	166	1,649	2,947	13,354
Meningococcal infections: Total	55	77	46	2,810	3,356	2,482
Civilian	55	77	46	2,797	3,343	2,462
Military	-	-	-	13	13	19
Mumps	67	156	267	5,055	4,567	13,389
Pertussis	34	34	34	1,679	1,195	1,610
Rubella (German measles)	22	13	94	2,239	2,021	11,504
Syphilis (Primary & Secondary): Civilian	752	752	579	31,638	30,023	24,135
Military	9	2	3	426	357	307
Tuberculosis	579	616	678	24,782	26,238	26,604
Tularemia	6	12	9	244	276	188
Typhoid fever	11	10	5	389	559	506
Typhus fever, tick-borne (RMSF)	3	12	7	976	1,175	1,113
Rabies, animal	56	99	61	5,896	6,922	4,806

TABLE II. Notifiable diseases of low frequency, United States

	Cum. 1982		Cum. 1982
Anthrax	-	Poliomyelitis: Total	7
Botulism	76	Paralytic	7
Cholera	-	Psittacosis	116
Congenital rubella syndrome	6	Rabies, human	-
Diphtheria	3	Tetanus (Minn. 2, Iowa 1, Ala. 1, Tex. 1)	79
Leptospirosis (La. 1, Tex 2)	72	Trichinosis	83
Plague	18	Typhus fever, flea-borne (endemic, murine) (Tex. 1)	43

TABLE III. Cases of specified notifiable diseases, United States, weeks ending December 18, 1982 and December 19, 1981 (50th 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	160	149	1,405	62	920,101	963,060	447	429	50	158	12	221
NEW ENGLAND	6	3	56	6	22,212	23,236	8	17	1	3	-	2
Maine	-	-	-	-	1,174	1,278	-	-	-	-	-	-
N.H.	-	-	8	-	707	862	1	2	-	1	-	-
Vt.	-	-	-	-	408	419	1	2	-	-	-	-
Mass.	1	-	26	-	9,901	9,839	1	3	-	-	-	-
R.I.	-	-	-	1	1,517	1,443	3	4	-	-	-	-
Conn.	5	3	22	5	8,505	9,395	2	6	1	2	-	2
MID. ATLANTIC	21	3	147	14	117,625	116,194	56	68	2	17	3	29
Upstate N.Y.	3	3	62	3	19,692	20,362	6	16	2	2	-	3
N.Y. City	9	-	20	-	48,080	47,437	12	10	-	6	-	24
N.J.	4	-	24	-	21,375	21,790	5	14	-	1	-	1
Pa.	5	-	41	11	28,478	26,605	33	28	-	8	3	1
E.N. CENTRAL	22	5	348	12	129,125	143,295	45	52	3	13	3	10
Ohio	9	1	134	5	35,214	44,744	14	14	1	4	3	-
Ind.	-	-	95	3	15,738	11,805	3	1	-	5	-	-
Ill.	-	3	18	2	34,444	41,896	9	13	2	-	-	8
Mich.	13	1	72	-	32,015	31,709	19	24	-	4	-	-
Wis.	-	-	29	2	11,714	13,141	-	-	-	-	-	2
W.N. CENTRAL	11	17	101	4	43,155	46,061	5	19	1	2	-	8
Minn.	-	1	27	1	6,305	7,358	2	5	-	-	-	4
Iowa	5	5	54	1	4,654	5,041	1	4	-	1	-	-
Mo.	6	4	9	-	20,363	21,220	1	10	1	1	-	2
N. Dak.	-	1	-	-	556	589	-	-	-	-	-	-
S. Dak.	-	1	-	1	1,096	1,243	1	-	-	-	-	1
Nebr.	-	2	6	-	2,542	3,446	-	-	-	-	-	1
Kans.	-	3	5	1	7,639	7,164	-	-	-	-	-	-
S. ATLANTIC	22	28	198	9	240,702	236,832	57	104	16	17	6	11
Del.	-	-	-	-	4,013	3,812	-	-	-	1	-	-
Md.	-	-	25	-	30,181	28,215	7	13	3	-	1	4
D.C.	-	-	-	-	14,764	13,443	-	3	-	-	-	-
Va.	2	10	44	1	19,335	21,661	-	12	1	3	3	1
W. Va.	-	-	16	-	2,693	3,485	2	2	-	-	-	-
N.C.	2	-	30	1	37,811	36,387	-	10	-	4	-	-
S.C.	1	2	2	-	23,385	23,003	13	13	-	-	-	-
Ga.	2	3	14	-	47,311	49,177	17	30	5	5	-	1
Fla.	15	13	67	7	61,209	57,649	18	21	7	4	2	5
E.S. CENTRAL	31	13	68	6	80,274	80,313	27	33	2	6	-	-
Ky.	15	-	1	-	10,709	10,022	8	5	2	-	-	-
Tenn.	3	8	31	1	31,333	30,580	7	9	-	5	-	-
Ala.	10	4	18	5	23,972	24,046	7	16	-	1	-	-
Miss.	3	1	18	-	14,260	15,665	5	3	-	-	-	-
W.S. CENTRAL	15	45	224	1	127,969	128,026	122	40	2	61	-	28
Ark.	-	7	21	-	10,323	9,822	-	2	-	9	-	-
La.	2	8	29	-	23,864	22,504	49	14	1	11	-	-
Okla.	2	8	40	-	14,066	13,878	16	3	1	3	-	-
Tex.	11	22	134	1	79,716	81,822	57	21	-	38	-	28
MOUNTAIN	3	3	56	2	30,856	38,123	20	14	7	19	-	2
Mont.	-	2	-	-	1,294	1,396	-	1	1	-	-	-
Idaho	2	1	-	-	1,479	1,699	2	-	-	-	-	1
Wyo.	-	-	1	-	937	1,006	-	-	-	-	-	-
Colo.	-	-	19	1	8,300	10,151	4	2	-	1	-	-
N. Mex.	-	-	1	-	4,272	4,328	6	3	2	-	-	-
Ariz.	-	-	11	-	7,925	11,404	5	4	-	15	-	-
Utah	1	-	19	1	1,519	1,865	2	-	1	-	-	1
Nev.	-	-	5	-	5,130	6,274	1	4	3	3	-	-
PACIFIC	29	32	207	8	128,183	150,980	107	82	16	20	-	131
Wash.	-	1	13	1	11,026	12,732	-	4	1	2	-	15
Oreg.	-	-	4	-	7,594	9,005	15	3	1	-	-	2
Calif.	25	30	172	7	103,731	122,384	91	74	14	18	-	76
Alaska	2	1	12	-	3,308	3,930	1	1	-	-	-	1
Hawaii	2	-	6	-	2,524	2,929	-	-	-	-	-	37
Guam	U	-	-	1	118	116	U	U	U	U	U	1
P.R.	-	-	1	3	2,548	3,165	2	2	-	2	-	3
V.I.	-	-	-	-	241	251	-	-	-	-	-	-
Pac. Trust Terr.	U	-	-	-	388	437	U	U	U	U	U	44

N: Not notifiable U: Unavailable

TABLE III. (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending December 18, 1982 and December 19, 1981 (50th 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	9	990	19	1,649	2,947	55	2,810	67	5,055	34	22	2,239	2,021
NEW ENGLAND	1	51	-	16	86	3	156	1	194	5	-	19	123
Maine	-	-	-	-	5	1	12	-	43	-	-	-	33
N.H.	-	2	-	3	9	-	20	-	18	5	-	11	54
Vt.	-	-	-	2	3	-	11	-	7	-	-	-	-
Mass.	-	28	-	5	59	-	44	1	84	-	-	2	23
R.I.	-	3	-	-	-	-	16	-	18	-	-	1	-
Conn.	1	18	-	6	10	2	53	-	24	-	-	5	13
MID. ATLANTIC	2	173	1	170	992	11	504	6	339	10	-	109	229
Upstate N.Y.	-	33	-	113	226	2	172	3	97	-	-	53	114
N.Y. City	2	68	-	44	106	3	98	-	47	8	-	36	55
N.J.	-	35	-	6	59	-	104	2	54	-	-	18	47
Pa.	-	37	1	7	601	6	130	1	141	2	-	2	13
E.N. CENTRAL	-	85	2	79	92	7	377	28	2,511	7	1	197	432
Ohio	-	13	-	1	20	5	129	14	1,742	2	-	4	3
Ind.	-	4	-	2	9	2	41	1	46	3	-	29	137
Ill.	-	36	-	24	26	-	96	3	209	1	-	73	122
Mich.	-	26	2	52	34	-	80	9	391	1	1	50	43
Wis.	-	6	-	-	3	-	31	1	123	-	-	41	127
W.N. CENTRAL	-	32	-	49	10	2	142	8	639	-	-	62	81
Minn.	-	5	-	-	3	-	32	-	456	-	-	7	8
Iowa	-	8	-	-	1	-	12	8	61	-	-	-	5
Mo.	-	10	-	2	1	-	42	-	21	-	-	38	2
N. Dak.	-	2	-	-	-	-	6	-	-	-	-	-	-
S. Dak.	-	-	-	-	-	2	11	-	1	-	-	1	-
Nebr.	-	4	-	3	4	-	14	-	1	-	-	-	1
Kans.	-	3	-	44	1	-	25	-	99	-	-	16	65
S. ATLANTIC	5	132	11	227	493	12	582	3	317	8	-	96	148
Del.	-	4	-	-	-	-	1	-	12	-	-	1	2
Md.	-	20	-	4	5	1	43	1	34	-	-	34	1
D.C.	-	4	-	1	1	-	5	-	-	-	-	-	-
Va.	1	40	-	14	16	2	70	1	42	-	-	12	8
W. Va.	-	7	-	3	9	-	10	-	118	3	-	3	22
N.C.	-	8	-	2	3	1	111	1	22	-	-	2	5
S.C.	-	4	-	-	2	-	70	-	17	-	-	1	8
Ga.	1	17	-	-	111	1	112	-	26	-	-	18	39
Fla.	3	28	11	203	346	7	160	-	46	5	-	25	63
E.S. CENTRAL	-	10	-	9	6	2	168	1	67	2	2	49	40
Ky.	-	5	-	1	2	-	25	1	22	-	2	31	26
Tenn.	-	-	-	6	2	2	76	-	25	-	-	2	13
Ala.	-	2	-	2	2	-	54	-	10	-	-	-	1
Miss.	-	3	-	-	-	-	13	-	10	2	-	16	-
W.S. CENTRAL	-	67	-	170	877	8	324	6	262	-	6	127	192
Ark.	-	5	-	-	23	-	16	-	8	-	-	1	7
La.	-	5	-	14	4	4	67	-	6	-	-	1	9
Okla.	-	8	-	30	6	-	32	-	-	-	-	3	3
Tex.	-	49	-	126	844	4	209	6	248	-	6	122	173
MOUNTAIN	-	31	-	28	39	2	118	2	116	-	7	92	97
Mont.	-	1	-	-	-	-	7	-	7	-	-	6	3
Idaho	-	2	-	-	1	-	7	-	4	-	-	7	4
Wyo.	-	-	-	1	1	-	5	-	2	-	1	8	12
Colo.	-	12	-	7	11	1	49	-	19	-	-	6	30
N. Mex.	-	3	-	-	9	-	15	-	-	-	-	6	5
Ariz.	-	9	-	17	7	-	21	-	54	-	3	21	22
Utah	-	4	-	3	-	1	12	2	22	-	3	26	10
Nev.	-	-	-	-	10	-	2	-	8	-	-	12	11
PACIFIC	1	409	5	901	352	8	439	12	610	2	6	1,488	679
Wash.	-	24	-	42	3	2	52	3	102	-	1	58	106
Oreg.	-	15	-	24	5	3	82	-	-	-	-	7	53
Calif.	1	362	5	829	337	2	289	6	472	2	4	1,408	504
Alaska	-	1	-	1	-	1	12	3	15	-	-	5	1
Hawaii	-	7	-	5	7	-	4	-	21	-	1	10	15
Guam	U	1	U	6	6	U	2	U	5	U	U	2	3
P.R.	-	4	-	137	306	-	9	1	100	-	-	13	6
V.I.	-	-	-	-	24	-	2	-	3	-	-	2	1
Pac. Trust Terr.	U	-	U	1	1	U	5	U	6	U	U	-	2

U: Unavailable

TABLE III. (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending December 18, 1982 and December 19, 1981 (50th week)

Reporting Area	Syphilis (Civilian) (Primary & Secondary)		Tuberculosis		Tularemia	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	31,638	30,023	579	24,782	244	11	389	3	976	5,896
NEW ENGLAND	591	579	15	717	7	-	18	1	12	42
Maine	8	5	1	54	-	-	-	-	-	26
N.H.	5	16	-	30	-	-	-	-	1	1
Vt.	4	17	1	11	-	-	2	-	-	2
Mass.	396	366	5	453	7	-	14	-	6	7
R.I.	27	35	5	36	-	-	-	-	2	-
Conn.	151	140	3	133	-	-	2	1	3	6
MID. ATLANTIC	4,251	4,292	63	4,150	7	2	69	-	45	200
Upstate N.Y.	420	431	13	722	7	1	12	-	16	110
N.Y. City	2,527	2,548	16	1,568	-	-	36	-	3	-
N.J.	618	597	7	810	-	1	13	-	14	17
Pa.	686	716	27	1,050	-	-	8	-	12	73
E.N. CENTRAL	1,769	2,259	100	3,701	1	-	37	-	88	587
Ohio	319	319	13	593	-	-	13	-	77	79
Ind.	195	286	12	451	-	-	2	-	2	73
Ill.	880	1,205	48	1,597	-	-	8	-	8	297
Mich.	276	359	23	849	-	-	11	-	-	7
Wis.	99	90	4	211	1	-	3	-	1	131
W.N. CENTRAL	531	657	24	749	40	1	17	-	34	1,172
Minn.	142	186	2	141	-	-	8	-	-	209
Iowa	34	29	-	73	3	-	1	-	4	380
Mo.	279	384	20	364	27	1	5	-	13	121
N. Dak.	7	12	-	15	-	-	-	-	-	95
S. Dak.	2	2	-	33	1	-	-	-	4	101
Nebr.	15	10	1	30	4	-	2	-	2	122
Kans.	52	34	1	93	5	-	1	-	11	144
S. ATLANTIC	8,654	7,925	133	5,185	13	-	46	1	520	1,257
Del.	25	16	2	47	-	-	-	-	-	2
Md.	481	557	18	604	1	-	10	-	50	92
D.C.	469	635	6	246	-	-	-	-	-	-
Va.	598	679	5	584	5	-	4	1	74	706
W. Va.	30	32	4	152	-	-	4	-	8	50
N.C.	709	628	34	775	-	-	3	-	224	65
S.C.	554	545	17	514	6	-	3	-	106	65
Ga.	1,759	1,907	21	848	-	-	1	-	51	209
Fla.	4,029	2,926	26	1,415	1	-	21	-	7	68
E.S. CENTRAL	2,174	1,955	74	2,270	8	-	20	-	97	633
Ky.	127	106	20	595	-	-	4	-	1	128
Tenn.	619	672	42	750	6	-	4	-	59	354
Ala.	829	597	8	608	-	-	9	-	17	144
Miss.	599	580	4	317	2	-	3	-	20	7
W.S. CENTRAL	8,397	7,304	46	2,978	124	5	46	1	160	1,143
Ark.	217	159	3	345	73	-	8	-	22	154
La.	1,806	1,647	-	447	4	-	3	-	2	32
Okla.	181	170	16	332	35	-	3	-	76	189
Tex.	6,193	5,328	27	1,854	12	5	32	1	60	768
MOUNTAIN	806	731	20	687	34	-	14	-	14	277
Mont.	5	11	3	42	4	-	-	-	5	93
Idaho	25	19	-	29	1	-	-	-	4	11
Wyo.	16	18	-	6	5	-	-	-	1	21
Colo.	230	231	5	97	7	-	3	-	1	48
N. Mex.	187	125	2	115	5	-	-	-	1	23
Ariz.	215	173	10	290	-	-	8	-	-	59
Utah	23	29	-	43	12	-	2	-	-	18
Nev.	105	125	-	65	-	-	1	-	2	4
PACIFIC	4,465	4,321	104	4,345	10	3	122	-	6	585
Wash.	160	188	6	277	1	-	9	-	-	8
Oreg.	111	113	5	191	2	-	4	-	1	5
Calif.	4,072	3,933	89	3,536	6	3	105	-	5	487
Alaska	15	14	-	89	1	-	1	-	-	85
Hawaii	107	73	4	252	-	-	3	-	-	-
Guam	1	-	U	39	-	U	-	U	-	-
P.R.	784	627	2	454	-	-	3	-	-	50
V.I.	25	16	-	1	-	-	-	-	-	-
Pac. Trust Terr.	-	-	U	114	-	U	1	U	-	-

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending December 18, 1982 (50th week)

Reporting Area	All Causes, By Age (Years)						P&I** Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	666	465	153	26	8	14	55
Boston, Mass.	168	113	39	10	2	4	29
Bridgeport, Conn.	49	36	10	2	-	1	4
Cambridge, Mass.	23	18	5	-	-	-	1
Fall River, Mass.	29	22	7	-	-	-	-
Hartford, Conn.	65	46	12	5	-	2	4
Lowell, Mass.	27	16	10	1	-	-	2
Lynn, Mass.	14	10	3	1	-	-	-
New Bedford, Mass.	25	15	7	2	1	-	-
New Haven, Conn.	37	22	11	1	2	1	3
Providence, R.I.	74	53	18	-	1	2	2
Somerville, Mass.	7	7	-	-	-	-	-
Springfield, Mass.	48	36	10	1	-	1	4
Waterbury, Conn.	27	17	7	1	1	1	1
Worcester, Mass.	73	54	14	2	1	2	5
MID. ATLANTIC	2,803	1,845	618	194	63	83	109
Albany, N.Y.	40	27	6	5	1	1	1
Allentown, Pa.	22	20	2	-	-	-	2
Buffalo, N.Y.	150	103	30	8	4	5	10
Camden, N.J.	53	34	13	3	2	1	-
Elizabeth, N.J.	25	20	3	2	-	-	-
Erie, Pa.†	31	18	8	5	-	-	3
Jersey City, N.J.	44	33	7	2	-	2	1
N.Y. City, N.Y.	1,507	999	332	115	33	28	56
Newark, N.J.	58	32	17	5	1	3	3
Paterson, N.J.	40	22	10	2	2	4	1
Philadelphia, Pa.†	373	201	98	30	14	30	15
Pittsburgh, Pa.†	74	45	23	2	1	3	-
Reading, Pa.	18	14	1	2	1	-	2
Rochester, N.Y.	142	111	22	3	3	3	6
Schenectady, N.Y.	24	16	6	1	-	1	-
Scranton, Pa.†	31	28	3	-	-	-	3
Syracuse, N.Y.	86	62	18	3	1	2	1
Trenton, N.J.	32	20	10	2	-	-	1
Utica, N.Y.	22	19	3	-	-	-	1
Yonkers, N.Y.	31	21	6	4	-	-	3
E.N. CENTRAL	2,175	1,410	499	134	48	84	68
Akron, Ohio	61	46	10	1	2	2	-
Canton, Ohio	58	41	15	1	-	1	3
Chicago, Ill.	491	304	128	31	9	19	7
Cincinnati, Ohio	152	100	29	12	7	4	11
Cleveland, Ohio	164	97	54	7	1	5	6
Columbus, Ohio	135	82	31	3	9	10	2
Dayton, Ohio	91	59	21	6	1	4	-
Detroit, Mich.	278	172	66	28	4	8	6
Evansville, Ind.	38	28	8	1	1	-	1
Fort Wayne, Ind.	46	27	11	4	2	2	1
Gary, Ind.	16	7	8	1	-	-	1
Grand Rapids, Mich.	35	27	5	2	1	-	1
Indianapolis, Ind.	162	100	29	16	4	13	5
Madison, Wis.	49	37	8	2	1	1	3
Milwaukee, Wis.	141	97	29	5	3	7	4
Peoria, Ill.	42	32	7	1	1	1	9
Rockford, Ill.	44	31	8	3	-	2	1
South Bend, Ind.	44	26	12	4	-	2	3
Toledo, Ohio	81	65	7	4	2	3	3
Youngstown, Ohio	47	32	13	2	-	-	1
W.N. CENTRAL	710	486	155	28	15	25	31
Des Moines, Iowa	62	40	13	4	2	3	7
Duluth, Minn.	26	18	5	2	1	-	1
Kansas City, Kans.	39	33	2	1	1	1	-
Kansas City, Mo.	116	76	29	3	1	7	4
Lincoln, Nebr.	36	22	10	2	2	-	2
Minneapolis, Minn.	77	57	10	5	3	2	-
Omaha, Nebr.	91	60	24	3	-	4	7
St. Louis, Mo.	142	90	38	8	3	3	4
St. Paul, Minn.	69	51	14	-	2	2	3
Wichita, Kans.	52	39	10	-	-	3	3

Reporting Area	All Causes, By Age (Years)						P&I** Total
	All Ages	≥65	45-64	25-44	1-24	<1	
S. ATLANTIC	1,190	702	311	92	38	47	47
Atlanta, Ga.	136	77	37	16	1	5	9
Baltimore, Md.	212	121	65	11	7	8	4
Charlotte, N.C.	71	49	13	5	4	-	1
Jacksonville, Fla.	97	54	29	5	7	2	5
Miami, Fla.	106	63	25	10	7	1	3
Norfolk, Va.	47	30	11	4	1	1	7
Richmond, Va.	61	38	13	5	2	3	2
Savannah, Ga.	53	33	13	2	3	2	3
St. Petersburg, Fla.	95	81	8	4	-	2	4
Tampa, Fla.	79	45	18	6	2	8	4
Washington, D.C.	182	89	62	20	3	8	1
Wilmington, Del.	51	22	17	4	1	7	4
E.S. CENTRAL	768	479	194	49	20	26	26
Birmingham, Ala.	109	71	24	3	4	7	2
Chattanooga, Tenn.	51	32	17	-	2	-	7
Knoxville, Tenn.	47	34	10	1	-	2	-
Louisville, Ky.	134	78	35	14	5	2	4
Memphis, Tenn.	179	116	41	14	5	3	7
Mobile, Ala.	69	42	19	5	1	2	3
Montgomery, Ala.	51	38	7	2	2	2	-
Nashville, Tenn.	128	68	41	10	1	8	3
W.S. CENTRAL	1,244	741	291	94	54	64	41
Austin, Tex.	77	45	16	9	5	2	3
Baton Rouge, La.	44	29	10	4	1	-	-
Corpus Christi, Tex.	34	23	4	3	3	1	-
Dallas, Tex.	206	111	63	14	9	9	4
El Paso, Tex.	57	34	15	2	4	2	4
Fort Worth, Tex.	95	58	15	6	5	11	5
Houston, Tex.	200	117	48	19	10	6	3
Little Rock, Ark.	46	23	19	2	-	2	4
New Orleans, La.	142	90	37	6	3	6	-
San Antonio, Tex.	185	111	37	15	10	12	11
Shreveport, La.	70	42	13	9	2	4	-
Tulsa, Okla.	88	58	14	5	2	9	7
MOUNTAIN	644	433	132	45	19	15	38
Albuquerque, N.Mex.	86	64	19	1	-	2	5
Colo. Springs, Colo.	48	31	12	3	1	1	7
Denver, Colo.	118	78	25	8	6	1	5
Las Vegas, Nev.	73	41	18	9	4	1	5
Ogden, Utah	14	7	4	2	1	-	-
Phoenix, Ariz.	130	88	28	6	3	5	5
Pueblo, Colo.	22	13	4	4	1	-	1
Salt Lake City, Utah	40	31	2	3	1	3	1
Tucson, Ariz.	113	80	20	9	2	2	9
PACIFIC	2,070	1,352	446	147	53	71	92
Berkeley, Calif.	23	18	4	1	-	-	-
Fresno, Calif.	63	40	14	2	2	5	1
Glendale, Calif.	29	24	3	2	-	-	1
Honolulu, Hawaii	68	40	15	7	4	2	6
Long Beach, Calif.	106	69	23	8	2	4	1
Los Angeles, Calif.	763	501	167	59	17	18	22
Oakland, Calif.	68	49	12	4	1	2	2
Pasadena, Calif.	29	23	4	1	1	-	5
Portland, Oreg.	121	73	35	7	3	3	7
Sacramento, Calif.	76	45	19	7	-	5	4
San Diego, Calif.	207	123	44	14	9	17	18
San Francisco, Calif.	147	89	36	5	6	11	3
San Jose, Calif.	142	93	29	13	6	1	10
Seattle, Wash.	134	97	28	7	1	1	7
Spokane, Wash.	50	40	5	5	-	-	-
Tacoma, Wash.	44	28	8	5	1	2	5
TOTAL	12,270††	7,913	2,799	809	318	429	507

* 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.

Haemophilus influenzae — Continued

those receiving either rifampin or placebo were similar. Four secondary cases occurred among the 800 placebo-treated contacts in contrast to no cases among the 1,166 rifampin-treated contacts ($p = 0.03$). Analysis of attack rates among children under 4 years old by place of exposure showed a trend toward efficacy in both households (3/131 placebo recipients vs. 0/173 rifampin recipients, $p = 0.08$) and day-care centers (1/91 placebo recipients vs. 0/264 rifampin recipients, $p = 0.26$), but the small number of secondary cases precluded detailed analysis of subgroups (*9*). Anecdotal reports have appeared about the failure of rifampin to prevent secondary cases (*13*).

Implementation of chemoprophylaxis: Mixing rifampin with applesauce results in peak serum and salivary concentrations that are not significantly different from those obtained with a specially prepared suspension (*14*). The applesauce mixture is the formulation used in the multicenter trial examining the prevention of secondary cases (*9*). A suspension of rifampin can also be prepared in United States Pharmacopeia (USP) syrup.

Side effects of rifampin in the 20 mg/kg dosage occurred in 20% of recipients, compared with 11% of placebo recipients. Side effects included nausea, vomiting, diarrhea, headache, and dizziness. The rate was similar to the 24% rate of adverse effects in recipients of rifampin at a dosage of 10 mg/kg. No serious adverse reactions occurred (*9*). Orange discoloration of urine was noted in 84% of rifampin recipients. Rifampin usage may also cause discoloration of soft contact lenses or ineffectiveness of oral contraceptives.

Concern has been raised about the possibility of developing rifampin-resistant *H. influenzae* isolates. None of the isolates from index patients or contacts was rifampin-resistant in the multicenter chemoprophylaxis trial (*9*), although an occasional rifampin-resistant strain has been reported. Monitoring strains causing invasive disease for development of rifampin resistance will be important for assessing the continued usefulness of rifampin as a chemoprophylactic agent.

Questions have been raised about the difficulties of coordinating and implementing chemoprophylaxis in a day-care center. These concerns are especially relevant in view of the observation noted previously that chemoprophylaxis is unlikely to be effective if fewer than 75% of contacts actually receive rifampin. Several approaches have been successfully used. The local health department in Sarasota, Florida provided rifampin following consultation with private physicians. The Oklahoma State Health Department distributed a letter from the health department to contacts containing information about the disease and the risk of secondary spread, and recommending that parents contact their physicians for a rifampin prescription. State and local health departments should collaborate with private practitioners to monitor the completeness and timeliness of participation in chemoprophylaxis. Studies to document the risk of secondary cases with and without chemoprophylaxis and to evaluate the rifampin sensitivity of isolates causing invasive disease should also be considered. As such data become available, appropriate changes in these recommendations can be made.

Recommendations: In view of the increased risk of disease in household contacts less than 4 years of age and the efficacy of rifampin in eliminating carriage of *H. influenzae* organisms and preventing secondary cases of disease, it is recommended that:

1. Contacts who develop symptoms suggestive of *H. influenzae* type b disease, such as fever or headache, should be evaluated promptly by a physician.

2. In any household in which a case of invasive *H. influenzae* disease has occurred and in which another child less than 4 years of age resides, all members of the household, including adults, should receive rifampin in a dosage of 20 mg/kg per dose once daily (maximum dose 600 mg/day) for 4 days; dose for neonates (< 1 month) is 10 mg/kg once daily for 4 days.

3. In day-care center classrooms in which a case of *H. influenzae* disease has occurred

Haemophilus influenzae – Continued

and in which children less than 4 years of age are present, all parents should be notified (preferably in writing) regarding occurrence of a case and the possibility of increased risk to their children. The symptoms to look for, the usefulness of rifampin chemoprophylaxis, and the need for prompt medical evaluation if symptoms occur should be stated. All students and staff in the classroom should be considered for chemoprophylaxis according to the above regimen. It should be noted, however, that the data on risk of secondary spread and efficacy of chemoprophylaxis in day-care centers are less complete than for household contacts.

4. Chemoprophylaxis should be instituted as rapidly as possible following onset of disease in the index case. If more than 7 days have passed since the last contact with the index case, chemoprophylaxis is probably not indicated.

5. The index case should be treated with the same rifampin regimen before discharge from the hospital.

6. Nasopharyngeal carriage studies should not be employed as a guide for chemoprophylaxis because of the lack of correlation of carriage with risk of disease and because the time required to complete such studies would delay implementation of chemoprophylaxis.

7. Rifampin should not be used in pregnant women, because it is teratogenic in laboratory animals.

Reported by Respiratory and Special Pathogens Epidemiology Br, Bacterial Diseases Div, Center for Infectious Diseases, CDC.

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Shigellosis — United States, 1981

In 1981, 15,006 *Shigella* isolations from humans were reported to CDC. While this represented a 6% increase over the 14,168 isolates reported in 1980, it remained 2% below the 15,334 reported during the peak year, 1978 (Figure 4).

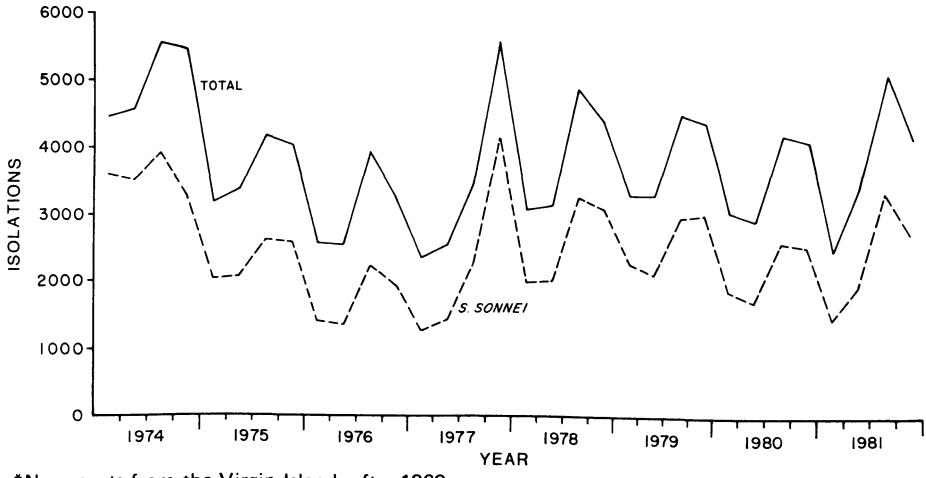
Shigella serotypes were reported for 14,278 of the 15,006 isolates and were distributed by serotype as follows: *S. sonnei* —9,423 (66%), *S. flexneri* —4,141 (29%), *S. boydii* —510 (3.6%), and *S. dysenteriae* —204 (1.4%). When compared with 1980, this represented increases of 46% for *S. boydii*, 39% for *S. dysenteriae*, and 9% for *S. sonnei*, and a decrease of 5% for *S. flexneri*. The increases were not confined to one state or region. From 1980 to 1981 *S. sonnei* increased notably in Connecticut (67 to 337), Missouri (50 to 128), Virginia (83 to 889), and Washington (161 to 307); *S. boydii* increased in Texas (43 to 82).

The reported age distribution* of persons from whom isolates were obtained is shown in Figure 5. The rate, highest for 2-year-old children, decreased abruptly for older children and decreased more gradually for adults, except for a slight increase for 20-29 year-olds. Although in the 20-29-year age group a slightly higher isolation rate was reported for women, the isolation rates by sex were similar. The median ages in years of persons from whom isolates were reported were *S. boydii*—9.0, *S. dysenteriae*—16.5, S. *flexneri*—10.0, and *S. sonnei*—6.0.

Since shigellosis is a more significant problem for some population groups than for others, data were tabulated separately for patients residing in certain institutions (e.g., nursing homes, facilities for the mentally ill, and other resident-care centers), and on American Indian reservations. Twenty-nine percent of the reports included data on patient residence at the time of illness onset: 0.9% lived in institutions and 1.5% on Indian reservations. Seventy-four percent of the reported isolates from residents of institutions were *S. flexneri*, and 26% were

*Age, sex, and type of residence were unavailable for California.

FIGURE 4. *Shigella* — **reported isolations from humans, by quarter — United States,* 1974-1981**



*No reports from the Virgin Islands after 1969.

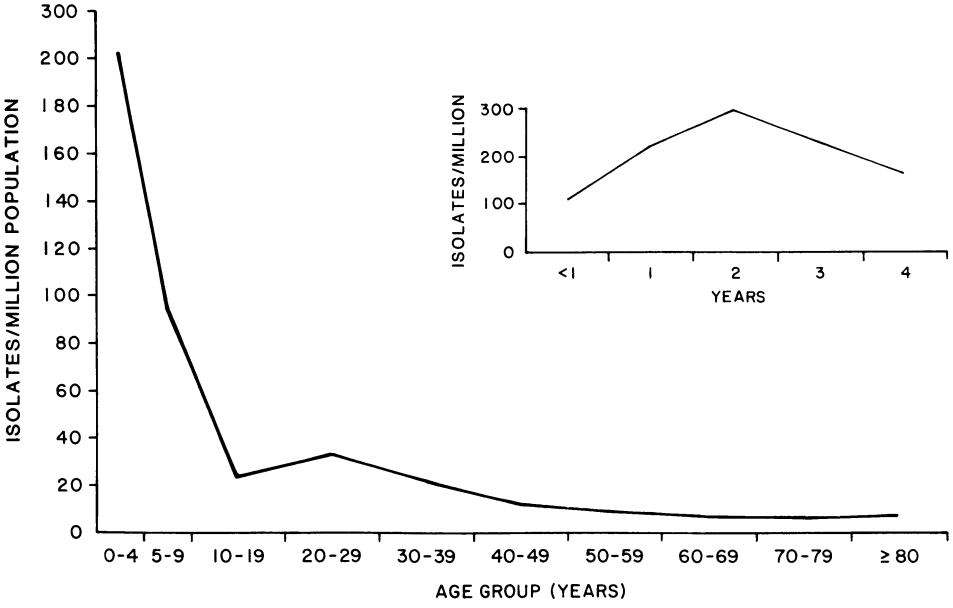
Shigellosis – Continued

S. sonnei. Similarly, 69% of the isolates from residents of Indian reservations were *S. flexneri*, and 31% were *S. sonnei*. This contrasts with the remainder of *Shigella* cases with known residence in which *S. sonnei* represented 75% of isolates and *S. flexneri* represented 22.5%.

Reported by Statistical Svcs Activity, Enteric Diseases Br, Div of Bacterial Diseases, Center for Infectious Diseases, CDC.

Editorial Note: This report is based on CDC's Shigella Surveillance Activity, a passive, laboratory-based system that receives reports from the 50 states and the District of Columbia. These reports do not distinguish between clinical or sub-clinical infections or between chronic or convalescent carriers.

FIGURE 5. Rate of reported isolates of *Shigella*, by age – United States,* 1981



*Age data unavailable for California.

Epidemiologic Notes and Reports

Disseminated Vaccinia Infection in a College Student – Tennessee

On October 12, 1982, the University of Tennessee Student Health Service notified the Tennessee Department of Public Health that a 19-year-old male undergraduate had been hospitalized that day for disseminated vaccinia infection.

The student was vaccinated for the first time in his life at an Air National Guard meeting in Nashville on October 3, 1982. A primary "take" appeared at the vaccination site on October 5, after his return to the university in Knoxville. On October 9, multiple pustules developed on

Vaccinia Infection — Continued

his face. On October 12, the patient's right upper arm was swollen and erythematous, with a 2-3 cm vaccinial lesion and exquisitely tender right axillary nodes. He had numerous confluent facial lesions compatible with vaccinia on both cheeks in areas of active acne. He also had anterior cervical and submandibular lymphadenopathy. The patient appeared acutely ill with chills and a temperature of 38.7 C (101.7 F). Laboratory studies were unremarkable. Vaccinia immune globulin (VIG) was obtained from CDC, and 25 ml, half the indicated dose, was administered intramuscularly that evening. By morning, the patient appeared much improved; he was afebrile, and axillary tenderness was markedly decreased. No additional VIG was given. The patient continued to improve over the next 5 days and returned to class on October 18. No secondary cases were identified.

Reported by J Sweet, MD, L Bushkell, MD, University of Tennessee Health Svc, RH Hutcheson, Jr, MD, State Epidemiologist, Tennessee State Dept of Public Health; Field Svcs Div, Epidemiology Program Office, CDC.

Editorial Note: This student probably inoculated vaccinia virus from the smallpox vaccination site to the acne on his face. Normal skin is rarely infected by vaccinia virus shed from smallpox vaccination. Abnormal skin such as atopic dermatitis is more susceptible to infection by inoculation.

Because of concern about the possible use of variola as a biological weapon, all U.S. military personnel continue to be routinely vaccinated against smallpox. Active duty military personnel and members of the reserves and National Guard are vaccinated on entry into service and every 5 years thereafter. Person-to-person spread of vaccinia from vaccinated military personnel to civilian contacts has been reported in England and Canada (*1*).

Smallpox vaccination of civilians is recommended only for laboratory workers exposed to variola or other orthopox viruses (e.g. monkeypox, vaccinia) (*2*). Even so, smallpox vaccine continues to be misused in attempts to treat illnesses, particularly herpes (both "cold sores" and genital herpes). A case of severe vaccinia necrosum resulting from an attempt to treat genital herpes was recently reported from Michigan (*3*). In November 1982, after three hospitalizations and 7 months of treatment with a wide variety of antiviral agents (including VIG, interferon, Marboran, thiosemicarbazone, thymosin), the Michigan patient still has large, unhealed, vaccinia-positive ulcers at the vaccination site and on the thigh.

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The *Morbidity and Mortality Weekly Report* is prepared by the Centers for Disease Control, Atlanta, Georgia, and distributed by the National Technical Information Service, Springfield, Virginia. The data in this report are provisional, based on weekly telegrams 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.

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