

MMWR

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MORBIDITY AND MORTALITY WEEKLY REPORT

Epidemiologic Notes and Reports

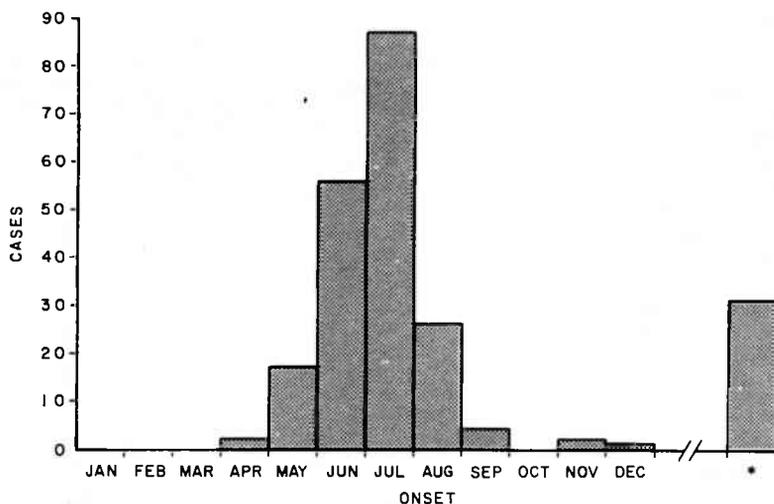
Lyme Disease — United States, 1980

A total of 226 cases of suspected Lyme disease with onset in 1980 were reported to CDC. Cases occurred in residents of 12 states, and infection was probably acquired in 11 states. Yale University School of Medicine reported 180 of the cases; 106 of these were detected through the university's active case-finding efforts in communities around Lyme, Connecticut, and 74 were reported to Yale by interested physicians elsewhere. State health authorities in New Jersey, Minnesota, and Wisconsin reported 11, 8, and 25 cases, respectively. Two cases were reported directly to CDC by physicians in private practice, in Georgia and California.

Of 195 cases with date of onset reported, 87% began in June, July, or August (Figure 1). Of 200 cases for which age was indicated, comparable numbers of persons were in the <18, 18-39, and \geq 40 year old groups. Males accounted for 57% of 216 persons for whom sex was reported. Both age and sex distributions varied by reporting source (Table 1).

By both residence of patient and suspected geographic area of exposure to infection, inferred from histories of tick exposure and/or travel before onset of illness, Connecticut accounted for most cases (Table 2). In 116 cases, area of suspected exposure could be localized

FIGURE 1. Lyme disease cases by month of onset, United States, 1980



*Date not reported.

Lyme Disease — Continued

by county, indicating that infections had been acquired in most Atlantic coastal counties from Cape Cod to the southern tip of New Jersey and in a broad band of forested counties across the upper half of Wisconsin and east-central Minnesota (Figure 2). One California resident had been infected in an unspecified mountainous area of Nevada along the California border, and a Georgia resident had been infected in a forested area of Georgia about 60 miles south of the North Carolina border. Of the 21 cases attributed to exposure in New York, Rhode Island, and Massachusetts, 12 were acquired on offshore islands, and 5 were thought to have been acquired on Cape Cod. As a result of travel, some illness occurred far from the source of infec-

TABLE 1. Number (%) of Lyme disease cases, by age, sex, and reporting source, United States, 1980

Reporting source	Number of cases	Age (yrs)					Total with age reported	Male	Female	Total with sex reported
		<6	7-18	19-39	40-59	>60				
Yale (Direct reports)	106	10 (9%)*	25 (24%)	43 (41%)	21 (20%)	7 (7%)	106	58 (55%)†	48 (45%)	106
Yale (Indirect reports)	74	12 (23%)	15 (29%)	9 (17%)	12 (23%)	4 (8%)	52	36 (55%)	29 (45%)	65
New Jersey Hlth Dept	11	0	2 (18%)	5 (45%)	3 (27%)	1 (9%)	11	8 (73%)	3 (27%)	11
Wisconsin Div of Hlth	25	0	2 (9%)	7 (30%)	9 (39%)	5 (22%)	23	16 (67%)	8 (33%)	24
Minnesota Dept of Hlth	8	1 (17%)	1 (17%)	1 (17%)	3 (50%)	0	6	5 (63%)	3 (38%)	8
Individual physicians	2	0	0	2	0	0	2	1 (50%)	1 (50%)	2
Total	226	23 (12%)	45 (23%)	67 (34%)	48 (24%)	17 (9%)	200	124 (57%)	92 (43%)	216

* (%) = Proportion of total with age reported.

† (%) = Proportion of total with sex reported.

TABLE 2. Distribution of Lyme disease cases by state of residence and suspected exposure, United States, 1980

State	Number of cases in residents of state	Number of cases with exposure in state
Massachusetts	6	11
Rhode Island	4	3
Connecticut	133	52
New York	11	7
New Jersey	12	10
Pennsylvania	0	1
Maryland	1	1
District of Columbia	2	0
Georgia	1	1
Wisconsin	25	25
Minnesota	8	8
Texas	1	0
California	2	0
Nevada	0	1
State not specified	20	106
Total	226	226

Lyme Disease — Continued

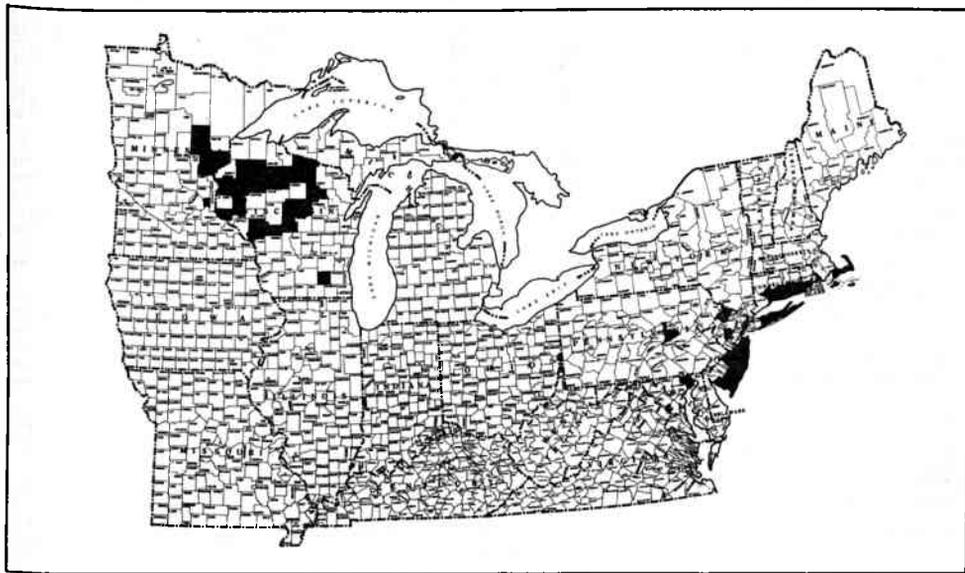
tion, with cases among residents of California, Texas, New Jersey, and the District of Columbia having been acquired during trips to Cuttyhunk, Nantucket, and Martha's Vineyard Islands in Massachusetts, and in Lyme, Connecticut.

A history of tick bites was given for 48% and was probable for 21% of 160 patients for whom such data were reported. Another 24% had a history of outdoor activities in areas known to be tick-infested, had household pets known to carry ticks, and/or had skin lesions consistent with tick bites. The frequency of specific clinical manifestations varied somewhat by reporting source. Overall, typical erythema chronicum migrans (ECM) skin lesions and joint abnormalities were reported in 86% and 48% of cases, respectively. The symptom complex of headache and stiff neck, commonly associated with meningitis, was noted without objective neurologic abnormalities in 14%; functional neurologic deficits indicating encephalitis or cranial or spinal nerve paresis were reported in 19%; and cardiac conduction disturbances, arrhythmias, and other electrocardiographic changes were reported in 10%. Hospitalization was reported in 13 (12%) Yale cases, 2 (18%) New Jersey Health Department cases, 4 (16%) Wisconsin Division of Health cases, and 2 (25%) Minnesota Department of Health cases.

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Editorial Note: Lyme disease is an illness of uncertain cause, manifested typically by ECM—a distinctive, expanding, annular, erythematous skin lesion—and recurrent bouts of arthritis or arthralgia (1). Although ECM and joint abnormalities sometimes occur independently, they are thought to be part of a single disease process caused by a penicillin-sensitive infectious agent transmitted by *Ixodes* spp. ticks (2,3). Aseptic meningitis, encephalitis, cranial or spinal neuropathies—especially unilateral or bilateral Bell's palsy—and cardiac abnor-

FIGURE 2. Counties with suspected Lyme disease exposures, United States, 1980



Lyme Disease — Continued

malities are associated with a minority of cases (4), and chronic arthritis has been reported as an infrequent residual outcome (5). ECM acquired in the United States, with or without arthritis, was first reported in 1970 in Wisconsin (6); unique foci were reported in Connecticut in 1976 and 1977 (1,7) and in Wisconsin in 1979 (8). A total of 512 cases occurring over 4 years in various parts of the country were summarized in 1979 (9).

The diagnosis of Lyme disease is based on recognition of typical ECM skin lesions; an association between neurologic, cardiac, and/or rheumatic abnormalities; and epidemiologic evidence (4). No specific diagnostic tests or examinations are available to determine whether all suspected cases are etiologically identical or whether atypical illness or asymptomatic infection occurs. The nature and distribution of clinical manifestations in the 1980 cases reported here, as well as the case distribution by age, sex, season, and locale of suspected exposure, are generally consistent with those in earlier reports (4,9,10). The suspected exposure locale in Georgia, however, is not an area previously associated with infection or with infestation by the recognized vectors of Lyme disease (9), suggesting that those vectors may be more widely distributed than previously reported or that additional vector species may harbor and transmit infection. The occurrence of illness in persons related to endemic areas only by travel suggests that Lyme disease may occasionally be found in any area of the country, as a result of infection acquired during travel to endemic areas.

(Continued on page 497)

TABLE I. Summary — cases of specified notifiable diseases, United States
[Cumulative totals include revised and delayed reports through previous weeks.]

DISEASE	39th WEEK ENDING		MEDIAN 1976-1980	CUMULATIVE, FIRST 39 WEEKS		
	October 3 1981	September 27 1980		October 3 1981	September 27 1980	MEDIAN 1976-1980
Aseptic meningitis	353	302	302	6,533	5,160	4,436
Brucellosis	2	3	3	115	141	141
Chickenpox	314	451	409	168,502	158,795	158,795
Diphtheria	-	-	-	3	2	61
Encephalitis: Primary (arthropod-borne & unsp.)	68	58	48	999	803	803
Post-infectious	-	1	2	62	163	170
Hepatitis, Viral: Type B	342	407	327	15,143	13,229	11,274
Type A	389	640	640	18,631	20,934	22,180
Type unspecified	209	257	197	8,162	8,532	6,623
Malaria	29	56	13	1,056	1,542	536
Measles (rubeola)	25	23	98	2,668	12,918	24,117
Meningococcal infections: Total	49	45	29	2,707	2,066	1,871
Civilian	49	45	29	2,696	2,051	1,848
Military	-	-	-	11	15	17
Mumps	57	45	132	3,266	7,229	13,657
Pertussis	18	59	47	902	1,273	1,252
Rubella (German measles)	15	28	54	1,786	3,321	10,791
Tetanus	1	2	1	44	67	55
Tuberculosis	597	549	585	20,318	20,196	21,931
Tularemia	3	4	3	194	167	126
Typhoid fever	36	16	11	391	373	373
Typhus fever, tick-borne (Rky. Mt. spotted)	25	45	23	1,090	1,037	942
Veneral diseases:						
Gonorrhea: Civilian	18,196	21,532	21,532	748,233	743,234	745,038
Military	281	425	504	21,117	20,491	20,500
Syphilis, primary & secondary: Civilian	605	607	537	22,736	19,903	18,144
Military	10	10	10	282	245	234
Rabies in animals	120	109	68	5,532	5,006	2,386

TABLE II. Notifiable diseases of low frequency, United States

	CUM. 1981		CUM. 1981
Anthrax	-	Poliomyelitis: Total	3
Botulism (Alaska 9)	61	Paralytic	3
Cholera	3	Psittacosis (Upstate N.Y. 1, Calif. 1)	83
Congenital rubella syndrome	9	Rabies in man	1
Leprosy (Mass. 1, Tex. 7, Calif. 1)	194	Trichinosis	110
Leptospirosis (Va. 1)	34	Typhus fever, flea-borne (endemic, murine)	36
Plague	9		

All delayed reports and corrections will be included in the following week's cumulative totals.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending
October 3, 1981 and September 27, 1980 (39th week)

REPORTING AREA	ASEPTIC MENIN- GITIS	BRU- CEL- LOSIS	CHICKEN- POX	DIPHTHERIA		ENCEPHALITIS			HEPATITIS (VIRAL), BY TYPE			MALARIA	
	1981	1981	1981	1981	CUM. 1981	Primary		Post-in- fectious	B	A	Unspecified	1981	CUM. 1981
						1981	1980	1981	1981	1981	1981		
UNITED STATES	353	2	314	-	3	68	58	-	342	389	209	29	1,056
NEW ENGLAND	10	-	41	-	-	-	1	-	20	13	18	2	57
Maine	-	-	11	-	-	-	-	-	-	2	-	-	1
N.H.	-	-	1	-	-	-	1	-	2	2	1	-	3
Vt.	-	-	-	-	-	-	-	-	-	1	-	2	6
Mass.	5	-	19	-	-	-	-	-	3	5	17	-	31
R.I.	5	-	1	-	-	-	-	-	2	2	-	-	3
Conn.	-	-	9	-	-	-	-	-	13	1	-	-	13
MID. ATLANTIC	34	1	12	-	-	1	3	-	56	35	28	11	132
Upstate N.Y.	13	-	6	-	-	-	-	-	15	10	7	2	34
N.Y. City	4	1	6	-	-	-	-	-	13	11	5	8	48
N.J.	9	-	NN	-	-	-	1	-	28	14	16	-	36
Pa.	8	-	-	-	-	1	2	-	NA	NA	NA	1	14
E.N. CENTRAL	109	-	142	-	-	34	22	-	39	57	20	3	50
Ohio	65	-	4	-	-	21	6	-	16	17	10	1	8
Ind.	5	-	13	-	-	11	7	-	1	1	2	-	6
Ill.	-	-	18	-	-	-	3	-	10	28	4	-	15
Mich.	38	-	51	-	-	2	3	-	12	11	4	2	21
Wis.	1	-	56	-	-	-	3	-	-	-	-	-	-
W.N. CENTRAL	14	1	29	-	-	3	6	-	12	15	6	1	30
Minn.	1	-	-	-	-	1	-	-	2	5	1	1	11
Iowa	3	-	13	-	-	2	3	-	5	3	-	-	4
Mo.	5	1	-	-	-	-	1	-	1	3	2	-	3
N. Dak.	-	-	4	-	-	-	-	-	-	-	-	-	1
S. Dak.	-	-	-	-	-	-	-	-	-	-	-	-	1
Nebr.	2	-	-	-	-	-	2	-	3	1	3	-	2
Kans.	3	-	12	-	-	-	-	-	1	3	-	-	8
S. ATLANTIC	55	-	60	-	1	3	8	-	94	52	23	2	126
Del.	1	-	2	-	-	-	-	-	7	2	-	-	1
Md.	4	-	5	-	-	-	1	-	14	9	4	-	28
D.C.	-	-	-	-	-	-	-	-	1	-	-	-	9
Va.	16	-	2	-	-	1	4	-	11	3	3	1	25
W. Va.	3	-	3	-	-	1	-	-	3	-	2	-	4
N.C.	7	-	NN	-	-	-	3	-	6	5	1	1	10
S.C.	-	-	-	-	-	-	-	-	16	3	-	-	2
Ga.	4	-	1	-	-	-	-	-	10	5	-	-	8
Fla.	20	-	47	-	1	1	-	-	26	25	13	-	39
E.S. CENTRAL	62	-	2	-	-	21	3	-	20	33	3	-	10
Ky.	29	-	2	-	-	3	-	-	2	5	1	-	-
Tenn.	31	-	NN	-	-	17	1	-	16	22	1	-	-
Ala.	2	-	-	-	-	-	1	-	1	3	1	-	9
Miss.	-	-	-	-	-	1	1	-	1	3	-	-	1
W.S. CENTRAL	26	-	12	-	-	2	10	-	25	66	63	3	83
Ark.	1	-	-	-	-	-	-	-	2	4	1	-	5
La.	-	-	NN	-	-	-	-	-	2	12	3	-	5
Okla.	7	-	-	-	-	1	-	-	7	5	7	-	6
Tex.	18	-	12	-	-	1	10	-	14	45	52	3	67
MOUNTAIN	17	-	3	-	1	-	-	-	13	45	16	4	35
Mont.	-	-	-	-	1	-	-	-	-	2	-	-	1
Idaho	3	-	1	-	-	-	-	-	-	10	-	-	2
Wyo.	-	-	-	-	-	-	-	-	-	-	-	-	-
Colo.	-	-	2	-	-	-	-	-	2	6	-	3	18
N. Mex.	-	-	-	-	-	-	-	-	1	3	-	-	2
Ariz.	16	-	NN	-	-	-	-	-	7	16	13	1	5
Utah	1	-	-	-	-	-	-	-	-	2	-	-	4
Nev.	-	-	-	-	-	-	-	-	3	6	3	-	3
PACIFIC	26	-	13	-	1	4	5	-	63	73	32	3	533
Wash.	1	-	6	-	-	1	-	-	1	5	3	-	24
Oreg.	-	-	-	-	-	1	-	-	1	5	1	-	15
Calif.	23	-	3	-	-	4	3	-	55	55	28	3	485
Alaska	1	-	1	-	1	-	-	-	-	-	-	-	1
Hawaii	1	-	3	-	-	-	-	-	6	8	-	-	8
Guam	NA	NA	NA	NA	-	NA	-	-	NA	NA	NA	NA	2
P.R.	-	-	-	-	-	-	-	-	-	-	-	-	11
V.I.	-	-	-	-	-	-	-	-	-	-	-	-	4
Pac. Trust Terr.	NA	NA	NA	NA	-	NA	-	-	NA	NA	NA	NA	-

NN: Not notifiable.

NA: Not available.

All delayed reports and corrections will be included in the following week's cumulative totals.

TABLE III (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending
October 3, 1981 and September 27, 1980 (39th week)

REPORTING AREA	MEASLES (RUBEOLA)			MENINGOCOCCAL INFECTIONS TOTAL			MUMPS		PERTUSSIS	RUBELLA		TETANUS
	1981	CUM. 1981	CUM. 1980	1981	CUM. 1981	CUM. 1980	1981	CUM. 1981	1981	1981	CUM. 1981	CUM. 1981
UNITED STATES	25	2,668	12,918	49	2,707	2,066	57	3,266	18	15	1,786	44
NEW ENGLAND	-	80	674	1	177	112	7	165	1	-	115	2
Maine	-	5	33	-	21	5	3	32	1	-	33	-
N.H.	-	7	331	-	17	7	2	21	-	-	46	-
Vt.	-	3	226	1	7	13	-	6	-	-	-	-
Mass.	-	57	58	-	56	38	1	44	-	-	24	-
R.I.	-	-	2	-	16	7	-	21	-	-	-	-
Conn.	-	8	24	-	60	42	1	41	-	-	12	2
MID. ATLANTIC	7	819	3,787	9	379	363	11	567	1	4	215	3
Upstate N.Y.	-	214	693	5	127	112	2	110	-	3	105	1
N.Y. City	6	84	1,186	1	62	92	2	79	-	1	53	2
N.J.	1	57	833	2	85	79	6	89	-	-	46	-
Pa.	-	464	1,075	1	105	80	1	289	1	-	11	-
E.N. CENTRAL	-	79	2,417	7	321	263	15	904	4	4	366	7
Ohio	-	16	378	4	121	75	6	148	1	-	3	1
Ind.	-	8	91	-	43	40	3	109	-	1	130	2
Ill.	-	23	339	1	77	78	2	176	-	3	89	-
Mich.	-	30	235	2	75	57	4	303	-	-	34	3
Wis.	-	2	1,374	-	5	13	-	168	3	-	110	1
W.N. CENTRAL	-	6	1,333	-	119	78	1	174	-	1	76	3
Minn.	-	2	1,099	-	41	18	-	8	-	-	6	2
Iowa	-	1	20	-	20	9	-	46	-	-	4	-
Mo.	-	1	64	-	37	36	-	16	-	-	2	1
N. Dak.	-	-	-	-	2	1	-	-	-	-	-	-
S. Dak.	-	-	-	-	5	5	-	1	-	-	-	-
Nabr.	-	1	83	-	-	-	-	3	-	-	1	-
Kans.	-	1	67	-	14	9	1	100	-	1	63	-
S. ATLANTIC	12	418	1,902	10	625	499	13	476	3	-	139	8
Del.	-	-	3	-	4	2	-	10	-	-	1	-
Md.	-	5	82	1	43	45	2	85	-	-	1	-
D.C.	-	1	-	-	3	2	-	3	-	-	-	-
Va.	-	7	305	1	78	49	-	122	-	-	11	-
W. Va.	-	9	9	-	23	16	1	81	-	-	22	-
N.C.	-	3	129	1	90	92	2	17	-	-	5	-
S.C.	-	2	159	1	78	58	2	14	-	-	8	2
Ga.	-	112	811	3	105	83	3	38	3	-	36	1
Fla.	12	279	404	3	201	152	3	106	-	-	55	3
E.S. CENTRAL	-	4	330	2	192	179	-	77	-	-	37	2
Ky.	-	-	55	-	55	55	-	38	-	-	21	-
Tenn.	-	2	169	2	54	47	-	20	-	-	15	-
Ala.	-	2	22	-	59	50	-	16	-	-	1	2
Miss.	-	-	84	-	24	27	-	3	-	-	-	-
W.S. CENTRAL	4	862	943	9	436	214	5	197	2	4	154	10
Ark.	2	13	16	3	26	17	-	5	-	-	2	2
La.	-	4	11	-	105	75	-	5	-	-	9	2
Okla.	-	6	774	2	37	18	-	-	-	-	1	1
Tex.	2	839	142	4	268	104	5	187	2	4	142	5
MOUNTAIN	-	34	468	4	112	81	-	116	-	2	87	2
Mont.	-	-	2	1	8	3	-	10	-	-	4	-
Idaho	-	1	-	-	4	4	-	4	-	-	3	-
Wyo.	-	-	-	-	1	3	-	1	-	-	10	-
Colo.	-	10	24	2	40	21	-	45	-	-	27	-
N. Mex.	-	8	11	-	7	9	-	-	-	-	5	-
Ariz.	-	5	376	1	20	13	-	27	-	-	20	1
Utah	-	-	47	-	5	5	-	16	-	1	6	1
Nev.	-	10	8	-	27	23	-	13	-	1	12	-
PACIFIC	2	366	1,064	7	346	277	5	590	7	-	597	7
Wash.	-	3	177	-	61	50	1	142	1	-	89	-
Oreg.	-	5	-	-	51	47	-	62	-	-	51	-
Calif.	2	351	875	6	221	172	3	354	6	-	445	7
Alaska	-	-	6	1	9	8	1	11	-	-	1	-
Hawaii	-	7	6	-	4	-	-	21	-	-	11	-
Guam	NA	5	6	-	-	1	NA	6	NA	NA	1	-
P.R.	-	275	148	-	10	9	-	123	-	-	4	5
V.I.	-	25	6	-	1	1	-	5	-	-	1	-
Pac. Trust Terr.	NA	1	10	-	-	-	NA	10	NA	NA	1	-

NA: Not available.

All delayed reports and corrections will be included in the following week's cumulative totals.

TABLE III (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending
October 3, 1981 and September 27, 1980 (39th week)

REPORTING AREA	TUBERCULOSIS		TULA- REMI	TYPHOID FEVER		TYPHUS FEVER (Tick-borne) (RMSF)		VENEREAL DISEASES (Civilian)						RABIES (in Animals)	
								GONORRHEA			SYPHILIS (Pri. & Sec.)				
	1981	CUM. 1981	CUM. 1981	1981	CUM. 1981	1981	CUM. 1981	1981	CUM. 1981	CUM. 1980	1981	CUM. 1981	CUM. 1980	CUM. 1981	
UNITED STATES	597	20,318	194	36	391	25	1,090	18,196	748,233	743,234	605	22,736	19,903	5,532	
NEW ENGLAND	6	574	2	1	16	-	9	575	18,764	18,807	10	450	391	35	
Maine	1	38	-	-	1	-	-	33	971	1,078	-	5	5	13	
N.H.	-	17	-	-	-	-	-	NA	648	672	NA	11	3	6	
Vt.	-	19	1	-	-	-	-	11	314	436	-	13	5	-	
Mass.	4	330	-	-	8	-	5	247	7,816	7,859	10	292	230	11	
R.I.	-	42	-	-	-	-	2	34	1,090	1,214	-	24	26	-	
Conn.	1	128	1	1	7	-	2	250	7,925	7,548	-	105	122	5	
MID. ATLANTIC	91	3,187	10	5	65	1	39	2,450	90,355	80,474	57	3,283	2,789	92	
Upstate N.Y.	13	562	10	1	12	-	14	504	15,522	16,594	7	303	246	63	
N.Y. City	26	1,202	-	2	35	-	3	1,150	37,592	31,417	26	1,946	1,810	-	
N.J.	26	698	-	-	11	-	9	197	16,641	14,507	16	468	335	21	
Pa.	26	725	-	2	7	1	13	599	20,600	19,956	8	566	398	8	
E.N. CENTRAL	123	2,732	1	1	29	1	46	2,123	109,716	115,142	45	1,603	1,874	744	
Ohio	24	513	-	1	9	1	37	398	35,090	30,685	-	222	277	58	
Ind.	13	316	-	-	-	-	2	278	9,730	11,556	15	220	146	82	
Ill.	51	1,089	-	-	11	-	6	378	29,882	35,893	26	822	1,086	477	
Mich.	31	666	1	-	7	-	1	739	24,697	26,202	3	268	294	13	
Wis.	4	144	-	-	2	-	-	330	10,317	10,806	1	71	71	114	
W.N. CENTRAL	19	703	27	-	17	2	49	944	35,720	35,155	20	490	250	2,236	
Minn.	-	119	-	-	2	1	2	322	5,556	5,787	1	156	86	389	
Iowa	-	71	-	-	3	-	7	104	3,928	3,830	2	21	14	731	
Mo.	14	320	22	-	7	-	26	365	16,641	15,472	13	270	122	199	
N. Dak.	-	26	-	-	-	-	-	13	450	512	-	7	3	325	
S. Dak.	1	52	1	-	1	-	-	9	977	1,071	-	2	4	259	
Nebr.	-	20	3	-	2	-	3	-	2,604	2,753	-	7	7	165	
Kans.	4	95	1	-	2	1	11	131	5,564	5,730	4	27	14	168	
S. ATLANTIC	136	4,419	15	4	55	11	627	4,317	184,930	186,678	165	6,057	4,792	451	
Del.	3	53	1	-	-	-	2	53	2,939	2,644	1	12	10	1	
Md.	4	448	-	-	14	-	56	312	21,442	19,913	11	447	342	34	
D.C.	6	268	-	-	1	-	-	262	10,583	13,134	13	497	359	-	
Va.	12	453	3	-	1	2	104	447	17,096	16,955	9	523	425	91	
W. Va.	3	136	-	1	6	-	5	100	2,817	2,477	-	17	15	22	
N.C.	17	774	4	1	2	4	278	647	28,461	26,941	5	468	327	11	
S.C.	11	410	3	-	1	1	100	501	18,068	17,544	30	424	277	33	
Ga.	28	729	4	-	4	3	72	1,020	38,532	36,532	33	1,520	1,375	181	
Fla.	52	1,148	-	2	26	1	10	975	44,992	50,538	63	2,149	1,662	78	
E.S. CENTRAL	62	1,792	8	-	7	5	125	2,402	62,949	60,745	39	1,514	1,648	352	
Ky.	13	445	3	-	-	-	2	311	7,786	8,990	4	73	108	105	
Tenn.	19	597	5	-	3	2	77	705	23,813	21,840	13	560	693	170	
Ala.	21	480	-	-	2	1	20	1,022	19,270	17,959	9	441	354	77	
Miss.	9	270	-	-	2	2	26	364	12,080	11,956	13	440	493	-	
W.S. CENTRAL	74	2,292	89	23	71	3	161	2,573	99,472	94,533	178	5,548	3,993	925	
Ark.	7	250	51	-	4	3	36	288	7,501	7,354	4	121	138	128	
La.	26	424	2	-	2	-	-	477	17,302	17,206	13	1,261	983	31	
Okla.	2	263	24	-	4	-	93	237	10,648	9,555	1	119	80	183	
Tex.	39	1,355	12	23	61	-	32	1,571	64,021	60,418	160	4,047	2,792	583	
MOUNTAIN	6	564	35	-	22	2	28	608	29,138	28,766	16	576	458	218	
Mont.	-	28	5	-	4	-	12	49	1,078	1,096	-	11	2	100	
Idaho	-	7	4	-	-	-	5	11	1,316	1,274	-	17	15	6	
Wyo.	-	9	1	-	-	-	5	18	698	838	-	7	10	16	
Colo.	-	66	8	-	8	1	1	NA	7,659	7,769	NA	170	121	34	
N. Mex.	2	108	3	-	-	-	-	102	3,182	3,524	-	103	79	26	
Ariz.	3	260	-	-	9	-	-	219	8,741	7,682	10	145	154	24	
Utah	1	45	13	-	1	1	2	52	1,466	1,444	1	22	13	8	
Nev.	-	41	1	-	-	-	3	157	4,998	5,139	5	101	64	4	
PACIFIC	80	4,055	7	2	109	-	6	2,204	117,189	122,934	75	3,215	3,708	479	
Wash.	10	291	1	-	3	-	1	210	9,556	10,462	-	112	189	13	
Oreg.	3	143	-	-	4	-	-	275	7,034	8,431	8	82	84	9	
Calif.	60	3,455	6	2	101	-	5	1,544	95,248	98,617	66	2,954	3,303	441	
Alaska	1	48	-	-	-	-	-	103	3,002	2,982	-	12	7	16	
Hawaii	6	118	-	-	1	-	-	72	2,349	2,442	1	55	125	-	
Guam	NA	25	-	NA	-	NA	-	NA	66	99	NA	-	5	-	
P.R.	5	316	-	-	4	-	-	-	2,465	2,032	-	505	458	61	
V.I.	-	1	-	-	6	-	-	7	175	108	-	16	10	-	
Pac. Trust Terr.	NA	43	-	NA	-	NA	-	NA	293	310	NA	-	-	-	

NA: Not available.

All delayed reports and corrections will be included in the following week's cumulative totals.

TABLE IV. Deaths in 121 U.S. cities,* week ending October 3, 1981 (39th week)

REPORTING AREA	ALL CAUSES, BY AGE (YEARS)						P & I** TOTAL	REPORTING AREA	ALL CAUSES, BY AGE (YEARS)						P & I** TOTAL
	ALL AGES	≥65	45-64	25-44	1-24	<1			ALL AGES	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	682	467	147	37	11	20	48	S. ATLANTIC	1,076	647	266	78	40	45	40
Boston, Mass.	185	110	50	15	3	7	21	Atlanta, Ga.	126	70	31	12	2	11	5
Bridgeport, Conn.	72	50	15	3	2	2	7	Baltimore, Md.	203	130	51	13	6	3	3
Cambridge, Mass.	23	21	1	1	—	—	4	Charlotte, N.C.	59	33	14	3	3	4	5
Fall River, Mass.	28	20	8	—	—	—	2	Jacksonville, Fla.	119	75	24	7	7	6	5
Hartford, Conn.	53	38	10	1	1	3	—	Miami, Fla.	115	69	23	13	6	4	3
Lowell, Mass.	17	7	8	1	1	—	—	Norfolk, Va.	49	26	11	3	4	5	5
Lynn, Mass.	19	15	3	1	—	—	—	Richmond, Va.	51	23	20	3	1	4	4
New Bedford, Mass.	21	18	3	—	—	—	—	Savannah, Ga.	32	21	9	1	—	1	1
New Haven, Conn.	53	35	12	4	1	1	—	St. Petersburg, Fla.	75	62	8	1	—	4	—
Providence, R.I. †	49	47	—	1	—	1	3	Tampa, Fla.	59	41	10	4	4	—	5
Somerville, Mass.	15	13	2	—	—	—	3	Washington, D.C.	137	68	44	16	6	3	4
Springfield, Mass.	70	42	19	4	2	3	1	Wilmington, Del.	51	29	19	2	1	—	—
Waterbury, Conn.	31	21	8	1	1	—	—								
Worcester, Mass.	46	30	8	5	—	3	5								
MID. ATLANTIC	2,644	1,716	619	170	72	65	104	E.S. CENTRAL	630	378	162	43	19	28	31
Albany, N.Y.	56	32	7	3	7	7	—	Birmingham, Ala.	115	68	29	4	3	11	2
Allentown, Pa.	22	14	7	1	—	—	—	Chattanooga, Tenn.	44	26	10	5	2	1	2
Buffalo, N.Y.	100	72	18	5	2	3	6	Knoxville, Tenn.	54	38	10	3	2	1	1
Camden, N.J.	42	29	9	1	2	1	2	Louisville, Ky.	101	48	35	8	2	8	—
Elizabeth, N.J.	30	16	11	3	—	—	3	Memphis, Tenn.	132	81	33	12	4	2	13
Erie, Pa. †	34	27	7	—	—	—	—	Mobile, Ala.	27	18	5	4	—	—	1
Jersey City, N.J.	46	29	10	3	—	4	1	Montgomery, Ala.	57	36	17	3	1	—	1
N.Y. City, N.Y.	1,374	891	320	96	45	22	42	Nashville, Tenn.	100	63	23	4	5	5	2
Newark, N.J.	68	31	19	10	2	4	8								
Paterson, N.J.	26	18	4	2	—	2	2	W.S. CENTRAL	1,396	765	350	119	84	78	37
Philadelphia, Pa. †	300	181	80	18	9	12	11	Austin, Tex.	40	30	5	3	2	—	3
Pittsburgh, Pa. †	183	119	50	8	1	5	7	Baton Rouge, La.	47	23	12	6	4	2	—
Reading, Pa.	26	21	4	1	—	—	1	Corpus Christi, Tex.	41	29	4	4	1	3	1
Rochester, N.Y.	110	76	23	8	3	—	13	Dallas, Tex.	190	103	52	12	12	11	6
Schenectady, N.Y.	24	16	5	3	—	—	1	El Paso, Tex.	40	20	11	3	5	1	8
Scranton, Pa. †	30	24	4	2	—	—	2	Fort Worth, Tex.	72	42	21	2	5	2	4
Syracuse, N.Y.	85	52	24	5	—	4	—	Houston, Tex.	428	195	118	53	33	29	4
Trenton, N.J.	37	27	9	—	—	1	1	Little Rock, Ark.	75	47	12	7	3	6	5
Utica, N.Y.	18	16	1	—	—	—	—	New Orleans, La.	119	69	41	5	3	1	2
Yonkers, N.Y.	33	25	7	1	—	—	3	San Antonio, Tex.	143	78	34	11	7	13	3
								Shreveport, La.	112	74	22	7	2	7	3
								Tulsa, Okla.	89	55	18	6	7	3	3
E.N. CENTRAL	2,137	1,280	565	137	73	82	50	MOUNTAIN	589	322	164	43	43	17	20
Akron, Ohio	66	43	11	5	4	3	3	Albuquerque, N. Mex.	94	31	29	12	22	—	1
Canton, Ohio	38	28	9	1	—	—	—	Colo. Springs, Colo.	29	20	5	2	1	1	3
Chicago, Ill.	476	278	135	29	21	13	8	Denver, Colo.	108	68	26	7	5	2	1
Cincinnati, Ohio	145	76	50	7	5	7	5	Las Vegas, Nev.	78	34	26	10	7	1	1
Cleveland, Ohio	182	108	52	9	2	11	4	Ogden, Utah	12	9	2	1	—	—	4
Columbus, Ohio	89	57	24	5	2	1	4	Phoenix, Ariz.	132	80	35	3	5	9	2
Dayton, Ohio	102	71	18	10	3	—	—	Pueblo, Colo.	18	13	3	1	—	—	2
Detroit, Mich.	273	151	75	26	11	10	3	Salt Lake City, Utah	41	24	10	3	2	2	7
Evansville, Ind.	39	28	8	—	2	1	2	Tucson, Ariz.	77	43	28	4	1	1	—
Fort Wayne, Ind.	45	29	10	2	2	2	5								
Gary, Ind.	8	2	4	2	—	—	—	PACIFIC	1,647	1,071	365	95	59	56	76
Grand Rapids, Mich.	56	35	14	1	2	4	1	Berkeley, Calif.	21	15	4	1	1	—	4
Indianapolis, Ind.	180	89	58	16	5	12	1	Fresno, Calif.	62	38	15	6	2	1	3
Madison, Wis.	43	25	8	1	4	5	3	Glendale, Calif.	32	23	6	1	1	1	4
Milwaukee, Wis.	133	93	24	10	1	5	1	Honolulu, Hawaii	56	38	12	3	2	1	4
Peoria, Ill.	36	20	12	1	1	2	4	Long Beach, Calif.	78	50	16	2	7	3	16
Rockford, Ill.	46	32	8	1	4	1	2	Los Angeles, Calif.	475	287	118	33	17	20	3
South Bend, Ind.	38	21	11	3	2	1	2	Oakland, Calif.	65	38	18	4	3	2	2
Toledo, Ohio	97	64	25	3	2	3	2	Pasadena, Calif.	33	28	4	—	1	—	—
Youngstown, Ohio	45	30	9	5	—	1	—	Portland, Ore.	95	67	20	2	1	5	7
								Sacramento, Calif.	77	52	16	5	1	3	8
W.N. CENTRAL	749	525	141	39	19	25	21	San Diego, Calif.	161	103	33	13	7	5	8
Des Moines, Iowa	59	42	13	2	1	1	—	San Francisco, Calif.	161	109	37	8	4	3	3
Duluth, Minn.	22	14	5	2	1	—	2	San Jose, Calif.	144	93	32	6	6	4	13
Kansas City, Kans.	39	22	12	3	—	—	7	Seattle, Wash.	98	70	16	6	2	4	2
Kansas City, Mo.	126	87	23	9	2	5	7	Spokane, Wash.	51	37	9	4	1	—	6
Lincoln, Neb.	39	29	4	2	1	—	1	Tacoma, Wash.	38	23	9	1	3	2	1
Minneapolis, Minn.	37	24	14	5	1	3	2								
Omaha, Neb.	66	44	15	4	1	2	—								
St. Louis, Mo.	183	127	33	8	6	9	—								
St. Paul, Minn.	57	42	11	1	2	1	1								
Wichita, Kans.	74	54	11	3	2	4	7								
TOTAL	11,550	7,171	2,779	761	420	416	427								

*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 this week. Figures are estimates based on average percent of regional totals.

Lyme Disease — Continued

The reporting of cases by 3 state health authorities suggests a growing public health interest in Lyme disease, which has not been a subject of regular, official surveillance. Increased awareness and reporting may show this illness to be more common and widespread than previously described. Continuing surveillance should help in describing its epidemiologic characteristics and associated morbidity, and in assessing the need for and feasibility of control measures.

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Isolation of Enterovirus 70 from Patient with Acute Hemorrhagic Conjunctivitis — Key West, Florida

The first isolation of an enterovirus 70 (EV 70) transmitted in the Western Hemisphere has been made at CDC from an eye swab obtained from a 16-year-old female Key West High School student associated with an outbreak of acute hemorrhagic conjunctivitis reported earlier (1,2). The virus was isolated by direct inoculation of the specimen into human embryonic lung fibroblast cells and identified by serum neutralization and immunoelectron microscopy. The swab specimen was obtained approximately 12 hours after the acute onset of bilateral conjunctivitis, subconjunctival hemorrhage, and profuse watery discharge. The illness resolved in 6 days.

Reported by Monroe County (Florida) Health Unit, RA Gunn, MD, MPH, State Epidemiologist, Florida Dept of Health and Rehabilitative Svcs; Viral Diseases Div, Center for Infectious Diseases, CDC.

References

1. CDC. Acute hemorrhagic conjunctivitis—Key West, Florida. *MMWR* 1981;30:463-4.
2. CDC. Acute hemorrhagic conjunctivitis—Florida. *MMWR* 1981;30:465-6.

International Notes

Acute Hemorrhagic Conjunctivitis — Panama and Belize, 1981

The following 2 reports are the first detailed descriptions of recent outbreaks of acute hemorrhagic conjunctivitis (AHC) reported from Latin America.

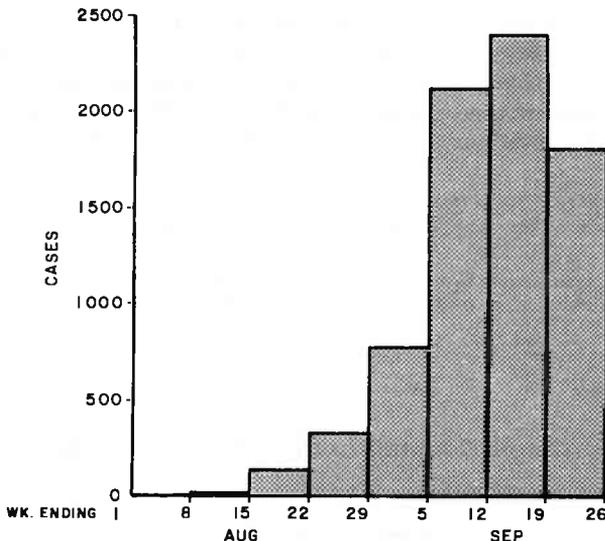
Conjunctivitis — Continued

Panama: Beginning the week of August 2, 1981, AHC was reported from Colón, at the Caribbean terminus of the Panama Canal. Between August 2 and September 26, 7,590 cases of AHC were reported to the Panamanian Ministry of Health in Colón province (Figure 3). Although sporadic cases have been reported from Panama City, the epidemic has largely been limited to the city of Colón. After an incubation period of 24 to 48 hours, symptoms began, primarily in the eyes, and included scratchiness, pain or foreign-body sensation, and excessive tearing. Within a short period of time, conjunctival hyperemia, palpebral edema, conjunctival hemorrhage, and seropurulent discharge appeared. Some patients have also had a mild influenza-like syndrome. Associated neurologic complications have not been reported for patients with AHC. Ninety-eight percent of the cases have occurred in the Colón metropolitan area, for an overall attack rate of 4.7% and a male:female ratio of 1.4:1. Table 3 shows AHC attack rates by age and sex. Eye-swab specimens from acutely ill individuals were inoculated into VERO cells, human-fetus tonsil cells, and suckling mice at the Gorgas Memorial Laboratory in Panama.

TABLE 3. Age- and sex-specific attack rates of acute hemorrhagic conjunctivitis in Colón, Republic of Panama, August 2-September 18, 1981

Age (years)	Attack rate (as a percentage of total population)		
	Male	Female	Total
<1	3.8	3.3	3.6
1-4	3.3	2.3	2.6
5-14	2.5	2.7	2.6
15-44	7.2	4.9	6.1
45-64	4.3	3.3	3.8
≥65	2.5	1.4	1.9

FIGURE 3. Cases of acute hemorrhagic conjunctivitis, by week, Colón, Panama, August 2-September 26, 1981



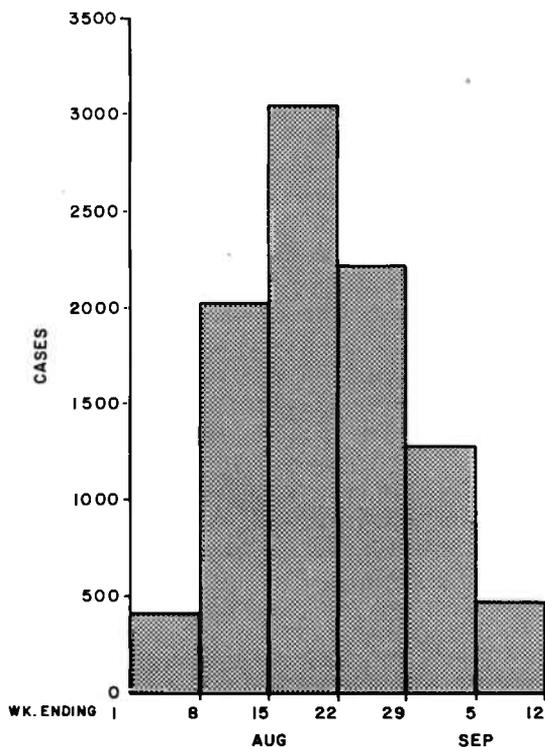
Conjunctivitis — Continued

Belize: As part of the wider Caribbean epidemic in 1981, Belize has had outbreaks of AHC with over 12,000 cases reported (Figure 4). The first known introduction of the illness was in the small, isolated fishing village of Sarteneja on the northeast coast. Preliminary reports indicate that fishermen introduced the infection into the village in late July. In early August, the first cases were seen in the western Cayo District and in Belize City. The isolated district of Toledo in the South was apparently the last to experience the outbreak despite its geographic proximity to the north coast of Honduras, where extensive outbreaks of AHC had been occurring for several months. The incidence of new cases in each district peaked approximately 3 weeks after the first case was identified, and new cases continued to be seen for approximately a month. The beginning of the school term on August 31 did not affect the general decline of the epidemic curve (Figure 4).

Although virus isolates have not yet been identified, the responsible agent is suspected to be enterovirus 70 because of the marked subconjunctival hemorrhages most patients have. The illness appears to be spread primarily by hand-eye contact and spreads particularly rapidly in families in poor, crowded urban areas. Most children have mild cases that last 3-4 days, but many adults have eye inflammation for as long as 2 weeks. Permanent eye damage from secondary infection has been rare.

Reported by J Palacios, MD, Colón Province, G Campos, MD, C Brandaris, MD, Subdirector General of Public Health, and Director of Epidemiology, Ministry of Health, Republic of Panama; WC Reeves, MD, R

FIGURE 4. Persons with conjunctivitis reporting to government clinics, by week, Belize, August 1-September 12, 1981



Conjunctivitis — Continued

Saenz, MD, Gorgas Memorial Laboratory, Panama; D Shanks, MD, Tulane School of Public Health and Tropical Medicine, (Panama); S Goonesinghe, MD, G Hoy, MD, Medical Department, Belize City, A Casas, MD, Chief Medical Officer, Ministry of Health, Belize, Central America; Viral Diseases Div, Center for Infectious Diseases, CDC.

Editorial Note: These reports are similar in many clinical and epidemiologic features, and are compatible with previously reported epidemics of AHC in Asia, Latin America, and the United States (1-3).

References

1. CDC. Acute hemorrhagic conjunctivitis—Latin America. MMWR 1981;30:450-1.
2. CDC. Acute hemorrhagic conjunctivitis—Key West, Florida. MMWR 1981;30:463-4.
3. CDC. Acute hemorrhagic conjunctivitis—Florida. MMWR 1981;30:465-6.

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The editor welcomes accounts of 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.

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