CENTER FOR DISEASE CONTROL

July 2, 1976 / Vol. 25 / No. 25

MMWR

MORBIDITY AND MORTALITY WEEKLY REPORT

Epidemiological Notes and Reports

Relapsing Fever — North Carolina

The first known case of relapsing fever in North Carolina was reported in Durham on June 11, 1976. The patient is a 25-year-old male resident of Durham.

The man became ill on the morning of June 8 with symptoms of severe headache, myalgia, fever, and anorexia. The patient gradually became ataxic, very weak, and had chills that same evening. Symptoms continued, and the patient saw a physician on the afternoon of June 9. He was admitted to the hospital that day with a diagnosis of fever of undetermined origin. There was no rash, vomiting, or diarrhea.

The patient had left North Carolina on May 1 to drive to the West Coast. He and a companion camped out in Big Sur, California, on May 21. They left the next day and drove to San Francisco, remaining there for 4 days. On May 26, the 2 drove to Sun River, Oregon, where they remained until June 4. While in Sun River, the individuals spent a great deal of time in wooded areas but reportedly slept indoors. The patient denies noting ticks or lice on him, and on June 4 he flew back to Durham.

Physical examination on admission was unremarkable except for a temperature of 103°F and an ataxic gait. Laboratory work included chest X-ray, CBC and platelet count, lumbar puncture, urinalysis, sedimentation rate, febrile agglutinins, and other blood and urine tests. All of these were normal.

On the evening of June 9, the patient was unable to walk without falling and was incontinent of urine and feces. On June 10, a peripheral blood smear was taken to look for malaria parasites. None were found but spirochetes were seen. A dark-field examination of the patient's peripheral blood confirmed the presence of spirochetes; the organisms were thought to be *Borrelia,* species undetermined. At 2:00 PM on June 10, the patient was given 200 mg of doxycycline orally and 100 mg later that evening. On the evening of June 10, approximately 8 hours after the first dose of doxycycline, the patient became flushed, his blood pressure dropped to 90/50, and he became intractably hyperpyrexic with a fever of 105°F. This was felt to represent a Jarisch-Herxheimer reaction.

The next morning the patient's fever was down to 100°F. His platelet count on June 10 dropped to 39,000 per cubic millimeter, whereas the admission platelet count had been 186,000. No petechial rash developed, and there was no laboratory evidence of disseminated intravascular coagulation. Doxycycline was continued at a dose of 100 mg orally taken twice daily. The patient made a steady recovery and on June 14 was discharged from the hospital afebrile and with a normal platelet count. He continues to do well. His traveling companion remained well.

Reported by AJ Lester, MB ChB, Duke University; J Briggs, RN, M Felts, MT, K Grim, MD, L Harris, MD, Watts Hospital, Durham; MP Hines, DVM, State Epidemiologist, JN MacCormack, MD, North Carolina Dept of Human Resources; JA Googins, MD, State Epidemiologist, Oregon State Health Divison; and Field Services Div, Bur of Epidemiology, CDC.

Editorial Note: The patient spent the period of time from 12 days to 4 days before onset of illness in a wooded

In celebration of the nation's bicentennial, a companion issue of the *Morbidity and Mortality Weekly Report* was written as it might have been in the eighteenth century, except for an occasional twentieth-century editorial note, always so dated. (See insert.) The articles were written by Center for Disease Control experts on the various diseases and are based on historical accounts or trends.

Although there were registration laws in the Colonies, they were often ignored. As a result, there were no good bills of mortality kept by the Colonies. The best mortality data from this period came from private sources—often a physician or a clergyman who kept such figures for a town or for a congregation. The United States did not begin officially keeping federal mortality records until the 1850 Census. Morbidity statistics for this period are even scarcer; where they exist, they are very localized in nature, with the exception of data on smallpox and yellow fever.

Relapsing Fever — Continued

resort area in a high desert plateau on the eastern face of the Cascade Mountain range along the Sun River. Since the typical incubation period of tick-borne relapsing fever is 6 to 7 days, this was the patient's most likely source of exposure. Sporadic cases of relapsing fever have been reported from the mountainous regions of Oregon since 1940.

Tick-borne relapsing fever is known to be naturally transmitted only by the bite of ticks of the genus *Ornithodoros.* These ticks usually do not have a painful bite; they are frequently night feeders, and feed for only 10 to 30 minutes before dropping off their host. Therefore, a negative history of tick bite is common. Although most *Ornithodoros* ticks prefer to feed on rodents, they will feed on man, especially when the rodent population is low. The most likely vector in this case was *O. hermsi,* which is found in mountainous areas of the western states, particularly at altitudes of 5,000-8,000 feet. The tick lives in logs, stumps, rodent burrows, and rustic cabins accessible to rodents.

Cases of tick-borne relapsing fever occur in warm months when ticks are active. Most infections involve tourists, campers, hikers, and hunters who invade sparsely populated areas. Cases are uncommon in persons who are native to endemic areas, and when they do occur, such infections tend to be mild. This suggests some degree of acquired immunity.

Visitors to known endemic areas should consider using insect repellents. Control efforts should be directed toward elimination of the tick vectors rather than the rodent host.

Clostridium perfringens — Wisconsin

A family of 5 persons from Milwaukee became ill in January 1976 from gravy purchased with a carry-out chicken dinner. *Clostridium perfringens* was isolated from the gravy and from 2 patients.

The meal, consisting of roll and butter, fried chicken, cole slaw, mashed potatoes, and gravy, was eaten by the 5 family members on January 25 at 6:30 PM, about an hour after purchase. One child and the father both noted an off-taste to the gravy. The father phoned the restaurant about it and was told by the restaurant manager that the gravy had already been discarded following an earlier, similar complaint.

(Continued on page 203)

Table I. Summary—Cases of Specified Notifiable Diseases: United States

[Cumulative totals include revised and delayed reports through previous weeks]

DISEASE	25th WEEK ENDING		MEDIAN 1971–1975	CUMULATIVE, FIRST 25 WEEKS		
	June 26, 1976	June 21, 1975		June 26, 1976	June 21, 1975	MEDIAN 1971–1975
Aseptic meningitis	49	54	71	909	1,000	985
Brucellosis	4	7	6	110	95	75
Chickenpox	3,259	3,252	---	138,696	108,407	---
Diphtheria	5	-	2	110	189	98
Encephalitis: Primary	22	9	21	357	326	409
Encephalitis: Post-Infectious	10	6	9	144	148	147
Hepatitis, Viral: Type B	254	191	182	6,984	5,328	4,429
Hepatitis, Viral: Type A	577	625	949	16,925	17,099	24,697
Hepatitis, Viral: Type unspecified	169	147		4,317	3,851	
Malaria	9	8	8	173	137	137
Measles (rubeola)	1,134	723	723	30,541	18,522	21,939
Meningococcal infections, total	27	28	28	921	817	817
Civilian	27	28	28	914	800	800
Military	-	-	-	7	17	22
Mumps	575	1,581	1,215	29,644	41,468	48,845
Pertussis	17	39	---	446	608	---
Rubella (German measles)	245	290	453	9,684	13,726	18,791
Tetanus	-	3	3	20	33	37
Tuberculosis	686	610	---	15,969	15,495	---
Tularemia	3	3	5	60	54	54
Typhoid fever	4	8	8	144	136	148
Typhus, tick-borne (Rky. Mt. spotted fever)	33	38	38	251	255	219
Venereal Diseases:						
Gonorrhea: Civilian	19,572	17,547	---	462,549	450,677	---
Gonorrhea: Military	338	390	---	13,847	14,133	---
Syphilis, primary and secondary: Civilian	473	449	---	11,814	12,248	---
Syphilis, primary and secondary: Military	9	6	---	164	172	---
Rabies in animals	57	72	72	1,254	1,195	1,849

Table II. Notifiable Diseases of Low Frequency: United States

	CUM.		CUM.
Anthrax:	2	Poliomyelitis, total:	5
Botulism:	8	Paralytic:	5
Congenital rubella syndrome: Tex. 1, Calif. 1.	13	Psittacosis: Calif. 1	22
Leprosy: * NYC 2, Calif. 7, Hawaii 1	73	Rabies in man:	-
Leptospirosis: Mo. 1, Ark. 1.	21	Trichinosis: Conn. 1.	57
Plague:	7	Typhus, murine: Tex. 4.	13

*Delayed Report: Leprosy: Mo. delete 1

Table III

Cases of Specified Notifiable Diseases: United States

Weeks Ending June 26, 1976 and June 21, 1975 – 25th Week

AREA REPORTING	ASEPTIC MENINGITIS	BRUCELLOSIS	CHICKENPOX	DIPHTHERIA		ENCEPHALITIS: Primary: Arthropod-borne and Unspecified		ENCEPHALITIS: Post Infectious	HEPATITIS, VIRAL: Type B	HEPATITIS, VIRAL: Type A	HEPATITIS, VIRAL: Type Unspecified	MALARIA	
	1976	1976	1976	1976	CUM. 1976	1976	1975	1976	1976	1976	1976	1976	CUM. 1976
UNITED STATES	49	4	3,259	5	110	22	9	10	254	577	169	9	173
NEW ENGLAND	1	1	608	–	–	1	–	1	6	17	10	–	8
Maine *	–	–	72	–	–	–	–	–	1	1	–	–	–
New Hampshire	–	–	9	–	–	–	–	–	1	–	–	–	–
Vermont	–	1	7	–	–	–	–	–	1	–	2	–	–
Massachusetts	–	–	286	–	–	–	–	–	1	1	8	–	4
Rhode Island	1	–	76	–	–	–	–	–	–	4	–	–	1
Connecticut	–	–	158	–	–	1	–	1	2	11	–	–	3
MIDDLE ATLANTIC	5	–	185	–	–	1	–	2	40	80	26	–	28
Upstate New York	–	–	116	–	–	1	–	2	5	8	1	–	5
New York City	2	–	62	–	–	–	–	–	18	39	–	–	15
New Jersey *	2	–	NN	–	–	–	–	–	13	18	25	–	1
Pennsylvania	1	–	7	–	–	–	–	–	4	15	–	–	7
EAST NORTH CENTRAL	4	–	1,596	–	–	4	5	2	36	69	13	1	13
Ohio	–	–	233	–	–	2	1	1	5	26	–	1	6
Indiana	–	–	88	–	–	–	–	–	–	1	4	–	–
Illinois	2	–	253	–	–	1	1	1	5	8	–	–	2
Michigan	2	–	577	–	–	1	3	–	19	25	8	–	5
Wisconsin	–	–	445	–	–	–	–	–	7	9	1	–	–
WEST NORTH CENTRAL	–	1	65	–	4	–	1	–	9	36	–	–	5
Minnesota	–	–	7	–	–	–	–	–	3	7	–	–	3
Iowa	–	–	19	–	–	–	1	–	2	3	–	–	–
Missouri*	–	1	4	–	1	–	–	–	2	13	–	–	–
North Dakota	–	–	1	–	–	–	–	–	–	–	–	–	–
South Dakota	–	–	9	–	3	–	–	–	–	1	–	–	1
Nebraska	–	–	13	–	–	–	–	–	–	4	–	–	1
Kansas	–	–	12	–	–	–	–	–	2	8	–	–	–
SOUTH ATLANTIC	2	1	308	–	–	4	2	–	43	95	21	–	24
Delaware *	–	–	6	–	–	–	–	–	–	–	–	–	–
Maryland *	–	–	27	–	–	1	–	–	19	12	4	–	3
District of Columbia	–	–	20	–	–	–	–	–	5	–	–	–	2
Virginia *	–	1	30	–	–	1	–	–	6	4	4	–	6
West Virginia*	–	–	180	–	–	–	1	–	–	10	–	–	1
North Carolina	1	–	NN	–	–	1	1	–	5	10	3	–	3
South Carolina	–	–	4	–	–	–	–	–	2	4	2	–	1
Georgia	–	–	–	–	–	–	–	–	–	26	–	–	1
Florida	1	–	41	–	–	1	–	–	6	29	8	–	7
EAST SOUTH CENTRAL	8	1	49	–	–	2	–	2	14	56	2	–	1
Kentucky	4	–	35	–	–	1	–	–	2	11	–	–	–
Tennessee	2	–	NN	–	–	–	–	–	6	24	2	–	–
Alabama	2	1	9	–	–	1	–	1	6	11	–	–	–
Mississippi	–	–	5	–	–	–	–	1	–	10	–	–	1
WEST SOUTH CENTRAL	7	–	118	–	1	3	1	–	29	44	42	4	10
Arkansas	1	–	–	–	–	–	–	–	–	–	9	3	3
Louisiana	2	–	NN	–	–	–	–	–	2	4	9	1	1
Oklahoma	–	–	5	–	–	–	–	–	4	7	2	–	–
Texas	4	–	113	–	1	3	1	–	23	33	22	–	6
MOUNTAIN	1	–	69	–	3	–	–	1	11	27	15	–	7
Montana	1	–	8	–	–	–	–	–	–	2	–	–	–
Idaho *	–	–	–	–	–	–	–	–	–	2	2	–	–
Wyoming	–	–	–	–	–	–	–	–	–	–	–	–	–
Colorado	–	–	49	–	3	–	–	–	8	5	6	–	4
New Mexico	–	–	–	–	–	–	–	–	2	6	3	–	1
Arizona	–	–	–	–	–	–	–	–	1	5	2	–	1
Utah	–	–	12	–	–	–	–	1	–	5	2	–	–
Nevada *	–	–	–	–	–	–	–	–	–	2	–	–	1
PACIFIC	21	–	261	5	102	7	–	2	66	153	40	4	77
Washington	–	–	190	5	100	2	–	–	6	12	2	–	2
Oregon	1	–	1	–	–	–	–	–	11	11	3	–	5
California *	13	–	–	–	1	4	–	2	49	130	33	4	69
Alaska	–	–	50	–	1	1	–	–	–	–	–	–	–
Hawaii	7	–	20	–	–	–	–	–	–	–	2	–	1
Guam	–	–	–	–	–	–	–	–	–	–	–	–	–
Puerto Rico	3	–	4	–	1	–	–	–	2	–	10	–	1
Virgin Islands	–	–	–	–	–	–	–	–	–	–	–	–	–

NN: Not Notifiable

*Delayed Reports: Chickenpox: Me. add 2, W. Va. add 12, Calif. add 48; Enceph: N.J. add 1; Hep B: Mo. delete 1, Dela. add 4, Idaho add 2; Hep A: Mo. delete 2, Dela. add 5, Va. delete 1, Idaho add 2, Nev. add 2; Hep Unsp.: Dela. add 3, Idaho add 2

Table III-Continued
Cases of Specified Notifiable Diseases: United States
Weeks Ending June 26, 1976 and June 21, 1975 — 25th Week

REPORTING AREA	MEASLES (Rubeola)			MENINGOCOCCAL INFECTIONS TOTAL			MUMPS		PERTUSSIS	RUBELLA		TETANUS
	1976	CUMULATIVE		1976	CUMULATIVE		1976	CUM. 1976	1976	1976	CUM. 1976	CUM. 1976
		1976	1975		1976	1975						
UNITED STATES	1,134	30,541	18,522	27	921	817	575	29,644	17	245	9,684	20
NEW ENGLAND	27	261	242	-	38	46	50	1,130	-	4	256	-
Maine	-	3	10	-	-	5	13	102	-	-	3	-
New Hampshire	-	7	19	-	3	2	-	24	-	-	11	-
Vermont	3	3	44	-	3	-	-	6	-	-	1	-
Massachusetts	-	24	80	-	11	15	4	146	-	-	127	-
Rhode Island	-	14	1	-	4	3	17	412	-	-	5	-
Connecticut *	24	210	88	-	17	21	16	440	-	4	109	-
MIDDLE ATLANTIC	165	5,995	1,238	4	122	85	46	2,494	2	71	2,089	-
Upstate New York *	95	2,220	378	2	46	27	6	316	1	12	476	-
New York City	6	381	100	2	33	22	24	1,246	-	1	126	-
New Jersey	10	570	432	-	17	12	7	456	-	42	1,300	-
Pennsylvania	54	2,824	328	-	26	24	9	476	1	16	187	-
EAST NORTH CENTRAL	618	13,077	5,530	4	144	116	268	12,532	3	103	3,632	1
Ohio	30	489	91	-	78	24	65	1,814	1	2	267	1
Indiana	164	2,786	330	-	5	5	51	1,319	-	13	613	-
Illinois	165	1,395	1,365	1	12	18	17	1,683	-	50	1,131	-
Michigan	182	5,246	2,830	3	41	54	91	4,661	2	32	1,254	-
Wisconsin	77	3,161	914	-	8	15	44	3,055	-	6	367	-
WEST NORTH CENTRAL	50	1,077	4,757	-	60	45	15	3,187	2	1	374	3
Minnesota	42	385	180	-	12	9	1	543	-	-	25	-
Iowa*	-	30	436	-	8	5	10	1,135	-	1	80	-
Missouri *	2	14	249	-	19	21	3	288	2	-	29	1
North Dakota	-	3	1,031	-	3	-	-	119	-	-	1	1
South Dakota	-	2	351	-	1	1	-	6	-	-	18	-
Nebraska	-	54	376	-	3	1	-	90	-	-	3	-
Kansas	6	589	2,134	-	14	8	1	1,006	-	-	218	1
SOUTH ATLANTIC	35	1,778	239	7	172	167	42	2,237	1	15	1,197	7
Delaware *	2	124	31	-	2	6	3	36	-	-	6	-
Maryland	-	671	39	-	16	16	12	580	-	-	3	2
District of Columbia	2	7	1	-	2	5	-	95	-	-	45	-
Virginia	25	498	22	1	22	15	2	178	-	6	220	1
West Virginia*	6	169	116	-	4	5	16	693	-	7	263	-
North Carolina	-	-	-	1	33	32	7	362	1	2	17	-
South Carolina	-	4	-	1	31	27	-	37	-	-	586	-
Georgia	-	-	6	2	16	8	-	-	-	-	1	-
Florida	-	305	24	2	46	53	2	256	-	-	56	4
EAST SOUTH CENTRAL	31	741	255	4	76	121	65	2,462	2	12	302	2
Kentucky	17	703	81	-	14	52	7	906	1	7	145	1
Tennessee	14	23	164	2	34	40	49	1,286	1	5	153	1
Alabama	-	-	3	1	20	20	8	230	-	-	1	-
Mississippi	-	15	7	1	8	9	1	40	-	-	3	-
WEST SOUTH CENTRAL	13	626	233	4	145	127	46	2,065	5	-	474	5
Arkansas	-	-	-	3	8	7	-	68	-	-	189	-
Louisiana	5	179	-	-	28	24	1	20	-	-	85	2
Oklahoma	4	280	105	-	18	9	8	607	3	-	52	-
Texas	4	167	128	1	91	87	37	1,370	2	-	148	3
MOUNTAIN	75	4,961	1,169	1	33	31	9	1,024	-	1	451	1
Montana	5	199	34	-	3	5	1	20	-	-	228	-
Idaho	4	2,019	5	-	3	4	3	431	-	-	18	-
Wyoming	-	3	-	-	-	-	-	1	-	-	2	-
Colorado	17	285	1,017	-	11	9	5	198	-	-	19	-
New Mexico	-	14	7	1	3	4	-	124	-	-	31	-
Arizona	2	224	54	-	7	1	-	-	-	-	-	1
Utah	47	2,154	32	-	4	7	-	136	-	1	136	-
Nevada	-	63	20	-	2	1	-	114	-	-	17	-
PACIFIC	120	2,025	4,859	3	131	79	34	2,513	2	38	909	1
Washington	60	309	229	-	20	14	7	836	-	10	152	-
Oregon	-	132	187	2	13	4	4	310	-	11	123	1
California	60	1,582	4,391	1	87	60	23	1,330	2	16	619	-
Alaska	-	-	-	-	9	-	-	17	-	-	-	-
Hawaii	-	2	52	-	2	1	-	20	-	1	15	-
Guam	-	9	17	-	1	2	-	10	-	-	5	-
Puerto Rico	27	224	493	1	3	1	19	576	-	-	6	14
Virgin Islands	1	7	6	-	-	-	-	21	-	-	8	1

*Delayed Reports: Measles: Conn. add 70, NY State add 400, Iowa add 1, W. Va. add 2; Meng. Inf.: Conn. add 1, Mo. add 1; Rubella: Iowa add 1, Dela. add 23

Table III-Continued
Cases of Specified Notifiable Diseases: United States
Weeks Ending June 26, 1976 and June 21, 1975 – 25th Week

REPORTING AREA	TUBERCULOSIS		TULAREMIA	TYPHOID FEVER		TYPHUS FEVER TICK-BORNE (RMSF)		VENEREAL DISEASES (Civilian Cases Only)						RABIES IN ANIMALS
								GONORRHEA			SYPHILIS (Pri. & Sec.)			
	1976	CUM. 1976	CUM. 1976	1976	CUM. 1976	1976	CUM. 1976	1976	CUMULATIVE 1976	CUMULATIVE 1975	1976	CUMULATIVE 1976	CUMULATIVE 1975	CUM. 1976
UNITED STATES	686	15,969	60	4	144	33	251	19,572	462,549	450,677	473	11,814	12,248	1,254
NEW ENGLAND	22	589	–	–	17	1	3	541	12,617	12,386	13	353	426	19
Maine	1	42	–	–	–	–	–	45	1,077	839	–	8	9	13
New Hampshire *	1	25	–	–	2	–	–	21	336	345	1	5	10	–
Vermont	1	16	–	–	–	–	–	12	306	289	–	2	4	–
Massachusetts	15	351	–	–	13	–	2	254	5,999	5,886	8	258	277	5
Rhode Island	–	40	–	–	–	1	1	51	847	970	–	12	5	1
Connecticut	4	115	–	–	2	–	–	158	4,052	4,057	4	68	121	–
MIDDLE ATLANTIC	148	3,041	1	–	27	–	7	1,834	51,220	52,765	72	1,975	2,254	12
Upstate New York	10	488	1	–	5	–	1	320	8,028	9,393	7	120	211	4
New York City	68	1,223	–	–	15	–	1	837	22,878	23,007	36	1,229	1,269	–
New Jersey	28	584	–	–	5	–	5	151	7,794	7,140	15	286	359	3
Pennsylvania	42	746	–	–	2	–	–	526	12,520	13,225	14	340	415	5
EAST NORTH CENTRAL	65	2,116	–	–	12	–	6	2,660	73,755	73,886	24	1,050	1,029	67
Ohio	20	391	–	–	4	–	4	611	18,265	20,103	13	253	243	–
Indiana	7	275	–	–	–	–	–	452	6,931	6,935	1	53	66	14
Illinois	14	684	–	–	3	–	–	601	26,299	25,313	6	565	500	12
Michigan *	20	647	–	–	4	–	2	718	15,318	14,373	3	125	165	2
Wisconsin	4	119	–	–	1	–	–	278	6,942	7,162	1	54	55	39
WEST NORTH CENTRAL	35	594	14	1	6	–	4	1,083	23,830	21,963	8	205	274	308
Minnesota	3	112	3	1	3	–	–	288	4,395	4,673	–	44	54	71
Iowa *	2	50	1	–	–	–	–	197	3,038	3,076	1	21	12	70
Missouri	23	293	9	–	3	–	4	275	9,404	7,792	5	89	157	41
North Dakota	–	14	–	–	–	–	–	28	355	334	–	–	4	65
South Dakota	1	28	–	–	–	–	–	25	661	856	–	2	3	14
Nebraska	2	30	–	–	–	–	–	102	2,031	1,956	1	14	4	9
Kansas	4	67	1	–	–	–	–	168	3,946	3,276	1	35	40	38
SOUTH ATLANTIC	151	3,491	4	1	17	21	135	5,097	111,708	111,480	124	3,475	3,846	181
Delaware *	–	44	–	–	–	–	1	43	1,421	1,559	2	38	48	–
Maryland	22	503	1	–	–	2	9	593	15,444	12,621	15	298	293	11
District of Columbia	8	154	–	–	–	–	–	349	6,698	6,947	13	310	320	–
Virginia	19	566	–	–	3	3	44	354	11,711	11,058	5	313	276	31
West Virginia	6	147	–	–	2	1	2	82	1,485	1,295	–	17	12	8
North Carolina *	23	611	3	–	1	8	49	532	16,302	15,937	22	656	508	1
South Carolina	8	271	–	1	2	1	20	515	10,985	10,435	8	196	262	2
Georgia	19	434	–	–	2	6	10	1,155	20,730	20,223	8	373	520	101
Florida	46	761	–	–	7	–	–	1,474	26,932	31,405	51	1,274	1,607	27
EAST SOUTH CENTRAL	76	1,352	11	–	7	5	40	2,083	41,641	37,643	23	488	535	70
Kentucky	36	314	1	–	4	–	7	214	5,258	4,901	2	70	82	40
Tennessee	14	393	10	–	3	4	29	948	16,385	14,972	6	193	195	19
Alabama	17	399	–	–	–	1	2	568	11,892	10,274	6	95	128	11
Mississippi	9	246	–	–	–	–	2	353	8,106	7,496	9	130	130	–
WEST SOUTH CENTRAL	72	1,813	22	1	6	4	53	2,772	61,853	56,915	74	1,387	1,052	320
Arkansas	6	238	11	–	2	–	12	305	5,952	5,655	5	49	29	78
Louisiana *	9	272	2	1	1	–	–	477	9,099	10,791	13	299	251	2
Oklahoma	7	173	6	–	–	2	37	203	5,622	5,257	3	53	43	83
Texas *	50	1,130	3	–	3	2	4	1,787	41,180	35,212	53	986	729	157
MOUNTAIN	27	453	2	1	8	–	1	645	17,635	17,379	47	362	303	71
Montana	1	23	2	–	2	–	–	35	922	994	–	4	4	49
Idaho	1	15	–	–	1	–	1	32	932	843	1	22	9	–
Wyoming	1	9	–	–	–	–	–	6	373	427	1	7	6	1
Colorado	9	91	–	–	1	–	–	160	4,546	4,469	18	89	56	4
New Mexico	6	73	–	–	1	–	–	157	3,530	3,084	20	106	84	2
Arizona	5	205	–	–	2	–	–	225	5,154	4,599	7	96	105	15
Utah	1	20	–	1	1	–	–	18	904	1,083	–	16	9	–
Nevada	3	17	–	–	–	–	–	12	1,274	1,880	–	22	30	–
PACIFIC	90	2,520	6	–	44	2	2	2,857	68,290	66,260	88	2,519	2,529	206
Washington	13	246	2	–	2	2	2	298	5,817	6,048	–	62	85	1
Oregon	7	89	1	–	–	–	–	294	5,105	4,946	2	59	56	–
California	58	1,849	3	–	41	–	–	2,172	54,197	52,603	82	2,332	2,360	166
Alaska	–	25	–	–	–	–	–	35	1,874	1,638	–	11	2	39
Hawaii	12	311	–	–	1	–	–	58	1,297	1,025	4	55	26	–
Guam	–	24	–	–	–	–	–	–	159	214	–	1	3	–
Puerto Rico	11	156	–	–	–	–	–	42	1,281	1,441	16	279	361	27
Virgin Islands	–	2	–	–	–	–	–	8	130	79	1	35	17	–

*Delayed Reports: TB: N. Hamp. delete 1, Mich. delete 2, Iowa delete 2, N. Carol. delete 2, Dela. delete1; Typhoid Fever: Iowa add 1, Tex. delete 1; RMSF: Tex. delete 1; GC: La. delete 1, Nev. add 40; Syphilis: La. delete 1, Tex. delete 1 (mil.), Ariz. add 22; An. Rabies: Dela. add 2

Table IV
Deaths in 121 United States Cities*
Week Ending June 26, 1976 – 25th Week

REPORTING AREA	ALL CAUSES					Pneumonia and Influenza
	ALL AGES	65 Years and Over	45-64 Years	25-44 Years	Under 1 Year	ALL AGES
NEW ENGLAND	620	404	160	24	18	26
Boston, Mass.	207	121	62	11	7	7
Bridgeport, Conn.	41	28	12	–	–	2
Cambridge, Mass.	19	15	3	1	–	1
Fall River, Mass.	32	27	5	–	–	2
Hartford, Conn.	54	41	10	3	–	3
Lowell, Mass.	21	15	4	2	–	4
Lynn, Mass.	17	11	5	–	–	–
New Bedford, Mass.	19	15	3	1	–	1
New Haven, Conn.	42	25	14	–	3	–
Providence, R.I.	55	35	16	2	1	3
Somerville, Mass.	6	5	1	–	–	1
Springfield, Mass.	39	28	5	2	3	1
Waterbury, Conn.	21	12	8	1	–	1
Worcester, Mass.	47	26	12	1	4	–
MIDDLE ATLANTIC	2,748	1,679	716	191	77	147
Albany, N. Y.	32	18	7	3	2	–
Allentown, Pa.	21	17	4	–	–	4
Buffalo, N. Y.	118	69	36	7	3	9
Camden, N. J.	38	24	10	1	–	2
Elizabeth, N. J.	32	23	4	2	–	1
Erie, Pa.	35	19	10	3	3	2
Jersey City, N. J.	25	15	6	2	1	–
Newark, N. J.	55	30	18	3	–	3
New York City, N. Y†	1,369	843	332	111	44	59
Paterson, N. J.	27	13	9	1	4	2
Philadelphia, Pa.	404	231	122	32	8	29
Pittsburgh, Pa.	182	105	59	8	3	13
Reading, Pa.	31	19	8	2	–	–
Rochester, N. Y.	125	86	25	5	5	14
Schenectady, N. Y.	29	21	5	3	–	1
Scranton, Pa.	40	29	9	1	–	1
Syracuse, N. Y.	66	42	19	1	3	–
Trenton, N. J.	53	29	15	5	1	1
Utica, N. Y.	30	23	7	–	–	4
Yonkers, N. Y.	36	23	11	1	–	2
EAST NORTH CENTRAL	2,323	1,370	619	140	98	82
Akron, Ohio	89	49	30	3	3	–
Canton, Ohio	45	32	10	2	–	7
Chicago, Ill.	540	300	157	36	26	13
Cincinnati, Ohio	141	82	36	10	9	2
Cleveland, Ohio	175	90	53	16	9	4
Columbus, Ohio	136	74	40	8	7	7
Dayton, Ohio	84	51	21	3	7	2
Detroit, Mich.	337	199	94	15	15	9
Evansville, Ind.	41	34	3	2	1	2
Fort Wayne, Ind.	39	24	8	4	1	4
Gary, Ind.	37	25	8	2	1	2
Grand Rapids, Mich.	59	35	16	3	1	6
Indianapolis, Ind.	164	102	37	9	6	3
Madison, Wis.	48	33	9	4	1	8
Milwaukee, Wis.	123	71	39	9	3	3
Peoria, Ill.	28	14	9	1	–	–
Rockford, Ill.	29	21	6	–	1	1
South Bend, Ind.	39	24	12	2	–	5
Toledo, Ohio	112	68	25	7	4	3
Youngstown, Ohio	57	42	6	4	3	1
WEST NORTH CENTRAL	719	444	172	37	36	21
Des Moines, Iowa	64	37	19	4	3	2
Duluth, Minn.	30	17	5	2	3	2
Kansas City, Kans.	33	22	6	4	–	1
Kansas City, Mo.	135	83	30	9	5	3
Lincoln, Nebr.	21	14	5	1	–	1
Minneapolis, Minn.	97	57	24	2	10	3
Omaha, Nebr.	82	44	28	3	3	–
St. Louis, Mo.	141	85	33	8	9	4
St. Paul, Minn.	65	54	7	3	1	–
Wichita, Kans.	51	31	15	1	2	5
SOUTH ATLANTIC	1,110	622	320	85	45	34
Atlanta, Ga.	121	60	38	11	8	2
Baltimore, Md.	233	125	70	19	9	4
Charlotte, N. C.	60	24	20	5	6	3
Jacksonville, Fla.	48	26	19	2	–	–
Miami, Fla.	114	63	36	8	5	2
Norfolk, Va.	79	40	20	13	3	3
Richmond, Va.	67	34	21	5	3	8
Savannah, Ga.	25	19	4	1	–	3
St. Petersburg, Fla.	65	54	10	1	–	2
Tampa, Fla.	76	52	13	4	4	3
Washington, D. C.	173	97	55	11	6	4
Wilmington, Del.	49	28	14	5	1	–
EAST SOUTH CENTRAL	663	393	167	44	32	26
Birmingham, Ala.	120	68	32	10	9	3
Chattanooga, Tenn.	46	27	8	6	3	2
Knoxville, Tenn.	44	27	11	1	2	1
Louisville, Ky.	139	86	36	7	5	7
Memphis, Tenn.	140	90	28	7	3	7
Mobile, Ala.	50	26	15	4	5	–
Montgomery, Ala.	26	16	7	1	2	3
Nashville, Tenn.	98	53	30	8	3	3
WEST SOUTH CENTRAL	1,074	559	290	96	71	28
Austin, Tex.	38	22	14	–	2	5
Baton Rouge, La.	50	25	15	7	–	3
Corpus Christi, Tex.	34	22	3	4	4	1
Dallas, Tex.	165	83	52	12	6	2
El Paso, Tex.	50	29	11	5	4	6
Fort Worth, Tex.	78	44	20	8	4	–
Houston, Tex.	243	118	68	28	12	–
Little Rock, Ark.	61	20	18	6	9	2
New Orleans, La.	109	55	28	9	15	2
San Antonio, Tex.	113	65	27	9	7	1
Shreveport, La.	57	31	15	5	2	3
Tulsa, Okla.	76	45	19	3	6	3
MOUNTAIN	521	298	144	32	26	13
Albuquerque, N. Mex.	41	18	15	4	2	3
Colorado Springs, Colo.	34	17	10	3	4	2
Denver, Colo.	127	66	45	6	6	2
Las Vegas, Nev.	41	17	11	7	1	1
Ogden, Utah	15	12	1	1	1	3
Phoenix, Ariz.	129	76	35	7	4	–
Pueblo, Colo.	18	13	2	1	1	1
Salt Lake City, Utah	42	27	11	1	2	1
Tucson, Ariz.	74	52	14	2	5	–
PACIFIC	1,474	881	365	106	59	37
Berkeley, Calif.	24	16	6	2	–	–
Fresno, Calif.	55	33	10	2	8	1
Glendale, Calif.	19	15	2	–	–	–
Honolulu, Hawaii	49	30	13	3	1	4
Long Beach, Calif.	126	79	35	8	2	2
Los Angeles, Calif.	392	237	86	38	15	16
Oakland, Calif.	71	41	17	4	6	–
Pasadena, Calif.	28	17	9	2	–	–
Portland, Oreg.	101	64	23	10	1	–
Sacramento, Calif.	69	32	22	4	3	2
San Diego, Calif.	94	50	26	7	3	1
San Francisco, Calif.	147	87	38	9	7	2
San Jose, Calif.	51	35	9	4	–	3
Seattle, Wash.	159	90	46	6	12	3
Spokane, Wash.	51	31	15	4	1	2
Tacoma, Wash.	38	24	8	3	–	1
TOTAL	11,252	6,650	2,953	755	462	414
Expected Number	11,617	6,935	3,056	768	369	347

†Delayed Report for Week Ending of filing 6/19/76

The Morbidity and Mortality Weekly Report, circulation 52,000, is published by the Center for Disease Control, Atlanta, Georgia. The data in this report are provisional, based on weekly telegraphs to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the succeeding Friday.

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Clostridium perfringens – Continued

At 3:00 AM January 26, 4 family members became ill; the father's illness began 4 hours later. Symptoms included diarrhea and abdominal cramps (100%) and nausea (60%).

Remaining portions of each meal item were obtained from the family's refrigerator on January 26. Cultures were made of all food items except the roli and butter; all were negative except for the gravy, which had 5.8×10^5 *Clostridium perfringens* per gram. A package of chicken gravy mix, obtained from the restaurant, contained $<10^2$ *C. perfringens* per gram. Since the dry gravy mix is combined at the restaurant with water and cracklings, a sample of cracklings was also tested and found to contain $<10^2$ *C. perfringens* per gram.

Stool specimens from 2 patients were negative for salmonella and shigella but both contained *C. perfringens.* These organisms and those from the gravy were non-typable by CDC's laboratory. *C. perfringens* organisms from the gravy and from 1 patient sporulated sufficiently *in vitro* to produce enterotoxin.

It was the restaurant's practice to save remaining gravy for use the next day. Failure to properly reheat the gravy before placing it on the steam table presumably led to this outbreak.

Reported by PJ Pace, City of Milwaukee Health Dept; CL Duncan, PhD, Food Research Institute, University of Wisconsin, Madison; KO Bjorklund, HG Skinner, MD, State Epidemiologist, Wisconsin State Dept of Health and Social Services; Enterobacteriology Br, Bacteriology Div, Bur of Laboratories, and Enteric Diseases Br, Bacterial Diseases Div, Bur of Epidemiology, CDC.

International Notes

Milk-borne Salmonella Infection – United Kingdom

Three episodes of milk-borne *Salmonella virchow* infection occurred in 1 local authority area of England in a 12-month period.

In June 1974 a veterinary surgeon reported that he suspected that a specimen of bovine feces contained salmonellae. Examination of milk filters from the farm showed *S. virchow.* The farmer had a herd of 55 milk-producing cows, which produced 120 gallons per day; 48 untreated (unpasteurized) gallons were bottled daily on the farm and sold retail by the farmer's son. The farmer, his wife, and their 2 sons submitted fecal specimens, and all were positive for *S. virchow*, although none of these people gave a history of any bowel upset. It was reported that 18 cows had been ill with diarrhea, but the farmer did not agree to fecal swabs being taken from the herd until October, at which time 3 swabs were positive for *S. virchow.* Fecal specimens were again taken from the family. One young boy's specimen was positive for *S. virchow*; those from the other members of the family were negative. Again, none gave a history of bowel upsets. However, the farmer's grandchild, who lived nearby, had been ill with gastroenteritis, and *S. virchow* was recovered from her feces. The farmer made no attempt to clear the herd of infected animals but agreed to send all his own milk for heat treatment and not to supply his son again with untreated milk.

In March 1975 a married couple in the area was reported to be suffering from diarrhea and vomiting. *S. virchow* was isolated from the feces of both patients. They were found to drink untreated milk from a local farmer. An examination of milk filters on the farm revealed *S. virchow* and *S. saint-paul.* The dairy herd consisted of 75 cattle, and rectal swabs were positive for *S. virchow* in 11 and for *S. saint-paul* in 1. The farmer himself was found to have *S. virchow* in a fecal specimens but denied having had symptoms.

In April 1975 notification was received that *S. virchow* had been isolated from the feces of an 83-year-old man, a patient at a hospital. On investigation it was found that he also was supplied with untreated milk at his home. Subsequently, *S. virchow* was isolated from milk filters taken from the farm that supplied the milk. The farmer was found to have *S. virchow* in a fecal specimen, but all rectal swabs taken from the herd were negative. *S. virchow* was later isolated from 3 customers who had been ill with gastroenteritis. The 83-year-old man died in the hospital; the cause of death was stated to be bronchopneumonia.

Subsequent investigation of these 3 separate outbreaks of milk-borne *S. virchow* infection by staff of the veterinary service failed to show any common source of infection.

From notes based on reports to the Public Health Laboratory Service from public health and hospital laboratories in the United Kingdom and the Republic of Ireland, published in the British Medical Journal, *October 18, 1975.*

Monkeypox Virus Infections – Africa

Three cases of human infection caused by monkeypox virus were detected in Zaire during 1975-1976. Since discovery of the first human case in August 1970, 21 cases have been diagnosed; 13 occurred in Zaire, 4 in Liberia, 2 in Nigeria, and 1 each in Ivory Coast and Sierra Leone. The reservoir of this virus is still unknown. Despite the fact that the patients were in contact with large numbers of susceptible persons, a secondary case occurred on only 2 occasions, once in Nigeria and once in Zaire. In 2 other instances, cases occurred simultaneously in one locale, 3 in one outbreak in Liberia (1970) and 2 in Zaire (1972).

In the belief that perhaps additional cases of monkeypox have been occurring but are not being detected, special surveys were undertaken during 1975 by joint national-WHO teams in Liberia, Nigeria, Sierra Leone, and Ivory Coast. All inhabitants of villages where a monkeypox case had occurred and residents of surrounding villages were carefully examined for vaccination scars and for facial pockmarks,

Monkeypox — Continued

the residual evidence of pox virus infection. Surveys in the different areas provided similar results. Vaccination scars were present in 80% or more of those persons 5 years and older but were present in less than half of those under 5 years of age. A large susceptible population was thus present in each of the areas, since 13 of the 21 known monkeypox cases had occurred among children 5 years of age and younger [and only 2 cases, ages 24 and 30, had ever been vaccinated; in these 2 individuals, however, vaccination protection had elapsed. It appears that immunization against smallpox is cross-protection for monkeypox.] No pockmarks datable to the period since 1971 were detected. Similar studies will be conducted in Zaire in the near future.

Although naturally occurring outbreaks of monkeypox in primates have never been documented, outbreaks of monkeypox infection in captive monkey colonies have occurred on 10 occasions since description of the first outbreak in 1958. The last known outbreak of monkeypox among captive monkeys occurred in 1968. There is no ready explanation for the apparent cessation of such outbreaks.

During February 1976, 24 epidemiologists and virologists from 10 countries met in Geneva to discuss in depth the present status of knowledge of monkeypox virus and other smallpox-related viruses, and to advise on future studies. The group endorsed the conclusions of a previous group convened in 1972—specifically, that available evidence so far indicates that there is no animal reservoir for smallpox. Further, none of the smallpox-related viruses has demonstrated a capability to infect and to sustain transmission in man. However, because so little is known about these viruses, the group strongly recommended that surveillance for human cases of smallpox-like illness be continued and strengthened, especially in tropical rain forest areas in Africa, where all previous cases of monkeypox have occurred.

Reported by the World Health Organization in the Weekly Epidemiological Record *51(19):149-150, May 7, 1976.*

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
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