

MNWR

MORBIDITY AND MORTALITY WEEKLY REPORT

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Current Trends

Atypical Measles — California, 1974-1975

A review of over 177 laboratory records for the years 1974 and 1975 at the California Viral and Rickettsial Disease Laboratory and at those county health departments which perform viral serologic tests identified 56 cases of atypical measles. All cases had a rash consistent with atypical measles and either a 4-fold rise in measles complement fixation titers between acute and convalescent specimens or a single reciprocal convalescent titer of ≥ 256 .

The 56 cases, 35 males and 21 females, ranged in age from 2-24 years with 55 cases 8 years of age or older. A review of patient charts showed that fever was the most common prodromal symptom followed by cough, headache, nausea and/or vomiting, pleuritic chest pain, myalgia, malaise, coryza, and weakness (Table 1).

On physical examination, all patients were noted to have fever and rash (Table 2). Twenty-eight patients (50%) had exanthems, 25 had rales, and 13 had dyspnea. A pleural friction rub was detected in 2 patients. Forty-one of the 44 patients who had chest X-rays had pulmonary infiltrates, and 10 patients had eosinophilia. Seventy-five percent of the cases were hospitalized. In 48 patients the rash was first noticed on the extremities; 36 of these had initial involvement confined to the extremities, 11 had simultaneous trunk eruptions, and 1 had simultaneous head lesions.

Forty-seven of the 56 patients (84%) had a record of receiving prior killed measles vaccine; 28 (50%) of these 56 had also received live vaccine (Table 3). Twenty-six of the 28 patients who received both measles vaccines were immunized with live vaccine within 3 months of their last vaccination with killed vaccine. Twenty-six of the 28 patients who received combinations of killed and live vaccine received live vaccine at 1 year of age or older. The mean interval between killed measles vaccine and onset of atypical measles was 10.5 years; the longest interval was 12.5 years.

One of the 56 cases, a 2-year-old child, had a history of immunization with only live measles vaccine; this patient's rash resembled erythema multiforme rather than the rash of atypical measles. One case was unimmunized, and the vaccination status of the remaining cases could not be determined with certainty.

The clinical diagnosis of atypical measles was made by the patients' physicians in 16 of the 56 (29%) patients.

Other diagnoses included viral syndrome—type unknown (17 cases), pneumonitis of unknown etiology (5), Rocky Mountain Spotted Fever (5), influenza (5), staphylococcal pneumonia (2), fever of unknown origin (2), varicella (1), erythema multiforme (1), pharyngitis (1), and measles (1). Both viral and bacterial cultures, when performed, were negative.

Reported by EM Nichols, MD, Berkeley, Ca; J Chin, MD, State Epidemiologist, EH Lennette, MD, PhD, California State Dept of Health, in California Morbidity Weekly Report 15, April 23, 1976.

Editorial Note: In 1965, shortly after the introduction of killed measles vaccine, a new clinical syndrome called atypical measles was reported (1,2). Epidemiological studies

TABLE 1. Major prodromal symptoms of 56 cases of atypical measles from medical chart reviews, California, 1974-1975

Symptom	Number of Cases	% of Total
Fever	50	89
Cough	31	55
Headache	20	36
Nausea and/or Vomiting	19	34
Pleuritic Chest Pain	12	21
Myalgia	11	20
Malaise	11	20
Coryza	9	16
Weakness	8	14

TABLE 2. Major physical findings in 56 cases of atypical measles from medical chart reviews, California, 1974-1975

Sign	Number of Cases	% of Total
Fever	56	100
Exanthem	56	100
Enanthem	28	50
Rales	25	45
Dyspnea	13	23
Conjunctivitis	11	20

TABLE 3. Measles immunization status of 56 cases of atypical measles, California, 1974-1975

Status	Number of Patients	% of Total
Killed and Live Vaccine	28	50
Killed Vaccine Only	19	34
Live Vaccine Only	1	2
Vaccination Status Uncertain	8	14
Total	56	100

Atypical Measles - Continued

showed that this syndrome was associated with a measles virus infection and had the following signs: high fever, pneumonia, and an unusual rash which started on the arms and legs and spread up the trunk to the face. The rash differed from the typical measles rash in several other respects: It had mixed features of raised papules, blisters, wheals, and pinpoint hemorrhages into the skin. No Koplik spots were present. Children with this syndrome regularly had a history of previous immunization with inactivated (killed) measles vaccine.

The cases of atypical measles from California illustrate that this disease may occur following an extended interval after immunization with killed measles vaccine. Several of these patients were immunized more than 12 years before onset of atypical measles. Twenty-six cases had a history of receiving live measles vaccine within a few months of killed measles vaccine, raising the possibility that the temporary immunity conferred by the killed vaccine precluded an adequate immunologic response to the live measles virus vaccine.

There are at least 10 other cases of atypical measles reported in the literature in children who received both killed and live measles vaccine (2,3,4). All of these patients had received live vaccine within a 2-month period following their last dose of killed vaccine.

Current serologic follow-up of children who received combinations of killed and live measles vaccine is not available. The longest follow-up is 3 to 4 years after the last measles immunization. Of 15 patients, 8 (53%) had persistent seroimmunity to measles (HI titer ≥ 10) (5). In view of the risk of atypical measles in children immunized with live vaccine shortly after killed vaccine, as illustrated here, and the possible lack of persistent seroimmunity in these individuals, reimmunization of such individuals should be considered, particularly in outbreak situations, where exposure is imminent. Local and systemic reactions to reimmunization may be encountered.

Reported by Field Services Div, Bur of Epidemiology, Immunization Div, Bur of State Services, CDC.

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

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

DISEASE	31st WEEK ENDING		MEDIAN 1971-1975	CUMULATIVE, FIRST 31 WEEKS		
	August 7, 1976	August 2, 1975		August 7, 1976	August 2, 1975	MEDIAN 1971-1975
Aseptic meningitis	76	132	153	1,289	1,565	1,522
Brucellosis	8	4	4	146	137	102
Chickenpox	450	332	---	145,390	115,041	---
Diphtheria	1	1	1	119	198	112
Encephalitis	Primary	16	61	469	469	514
	Post-Infectious	8	6	177	203	187
Hepatitis, Viral	Type B	271	253	170	8,709	6,767
	Type A	581	672	875	20,632	20,834
	Type unspecified	147	185	---	5,291	4,830
Malaria	9	14	6	250	232	232
Measles (rubeola)	153	222	201	33,690	20,688	23,574
Meningococcal infections, total	23	22	19	1,071	971	970
Civilian	23	22	19	1,062	950	945
Military	---	---	---	9	21	24
Mumps	233	364	476	31,592	45,195	53,451
Pertussis	35	32	---	558	800	---
Rubella (German measles)	51	76	137	10,375	14,456	19,958
Tetanus	---	1	2	29	49	50
Tuberculosis	683	754	---	20,139	19,710	---
Tularemia	3	5	2	80	76	86
Typhoid fever	12	7	7	216	182	185
Typhus, tick-borne (Rky. Mt. spotted fever)	55	66	31	516	517	417
Veneral Diseases:						
Gonorrhea	Civilian	21,579	19,592	---	585,214	571,246
	Military	587	437	---	17,026	17,479
Syphilis, primary and secondary	Civilian	394	598	---	14,375	15,231
	Military	4	21	---	211	219
Rabies in animals	75	54	71	1,624	1,519	2,228

Table II. Notifiable Diseases of Low Frequency: United States

	CUM.		CUM.
Anthrax	2	Poliomyelitis, total:	7
Botulism	19	Paralytic: Ariz. 1	7
Congenital rubella syndrome: Calif. 1	15	Paattacosis: Calif. 1	29
Leprosy: NYC 1, Ky. 1, Calif. 2	86	Rabies in man:	1
Leptospirosis: Tex. 1	25	Trichinosis: N.J. 1, Pa. 1, Calif. 1	64
Plague:	12	Typhus, murine: Tex. 6	29

Table III
Cases of Specified Notifiable Diseases: United States
Weeks Ending August 7, 1976 and August 2, 1975 - 31st Week

AREA REPORTING	ASEPTIC MENIN- GITIS	BRUCEL- LOSIS	CHICKEN- POX	DIPHTHERIA		ENCEPHALITIS			HEPATITIS, VIRAL			MALARIA	
						Primary: Arthropod- borne and Unspecified		Post In- fectious	Type B	Type A	Type Unspecified		
						1976	1975	1976	1976	1976	1976		
UNITED STATES	76	8	450	1	119	16	61	8	271	581	147	9	250
NEW ENGLAND	3	-	40	-	-	-	1	1	4	10	16	1	13
Maine	-	-	9	-	-	-	-	-	-	3	1	-	-
New Hampshire	-	-	-	-	-	-	-	-	-	-	-	-	-
Vermont	-	-	1	-	-	-	-	-	-	-	-	-	-
Massachusetts	-	-	20	-	-	-	1	-	1	1	15	-	6
Rhode Island	2	-	7	-	-	-	-	1	-	-	-	-	3
Connecticut	1	-	3	-	-	-	-	-	3	6	-	1	4
MIDDLE ATLANTIC	10	1	35	-	-	6	6	-	56	94	31	2	49
Upstate New York	4	1	13	-	-	1	-	-	13	30	9	-	10
New York City	3	-	20	-	-	-	1	-	17	18	-	2	21
New Jersey	2	-	NN	-	-	2	3	-	18	30	20	-	9
Pennsylvania	1	-	2	-	-	3	2	-	8	16	2	-	9
EAST NORTH CENTRAL	1	-	161	-	-	3	6	4	46	107	14	-	16
Ohio*	-	-	22	-	-	2	5	2	8	40	-	-	7
Indiana	-	-	19	-	-	-	-	-	1	9	8	-	-
Illinois	-	-	26	-	-	-	-	1	16	20	4	-	2
Michigan	-	-	24	-	-	1	1	1	16	32	2	-	6
Wisconsin	1	-	70	-	-	-	-	-	5	6	-	-	1
WEST NORTH CENTRAL	3	2	13	-	4	-	6	-	11	41	7	-	14
Minnesota	1	-	-	-	-	-	-	-	3	5	-	-	3
Iowa	-	2	3	-	-	-	-	-	-	1	-	-	-
Missouri	2	-	1	-	1	-	-	-	1	15	4	-	8
North Dakota	-	-	7	-	-	-	5	-	-	7	-	-	-
South Dakota	-	-	1	-	3	-	-	-	-	2	-	-	2
Nebraska	-	-	1	-	-	-	-	-	1	-	-	-	1
Kansas	-	-	-	-	-	-	1	-	6	11	3	-	-
SOUTH ATLANTIC	5	4	110	-	-	1	1	-	22	86	14	1	39
Delaware	-	-	2	-	-	-	-	-	-	2	-	-	-
Maryland	-	-	4	-	-	-	-	-	9	12	5	-	5
District of Columbia	-	-	3	-	-	-	-	-	1	1	-	-	5
Virginia	2	3	10	-	-	-	-	-	1	2	2	-	8
West Virginia	-	-	63	-	-	-	-	-	-	3	-	-	1
North Carolina	1	-	NN	-	-	1	-	-	2	7	5	-	4
South Carolina	-	-	1	-	-	-	-	-	-	4	1	-	1
Georgia	-	1	-	-	-	-	-	-	-	20	-	-	4
Florida	2	-	27	-	-	-	1	-	9	35	1	1	11
EAST SOUTH CENTRAL	3	-	13	-	-	-	18	2	19	34	6	-	1
Kentucky	3	-	12	-	-	-	-	-	4	10	3	-	-
Tennessee	-	-	NN	-	-	-	3	-	13	16	3	-	-
Alabama	-	-	1	-	-	-	4	-	1	1	-	-	-
Mississippi	-	-	-	-	-	-	11	2	1	7	-	-	1
WEST SOUTH CENTRAL	26	1	29	-	1	1	18	-	27	24	22	1	10
Arkansas*	-	1	-	-	-	-	10	-	-	12	7	-	-
Louisiana	1	-	NN	-	-	1	2	-	7	9	2	-	1
Oklahoma	-	-	4	-	-	-	-	-	2	3	3	-	1
Texas	25	-	24	-	1	-	6	-	18	-	10	1	8
MOUNTAIN	-	-	29	-	4	-	2	-	8	35	7	-	10
Montana*	-	-	3	-	-	-	2	-	-	1	-	-	-
Idaho	-	-	-	-	-	-	-	-	1	1	-	-	-
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-	-
Colorado	-	-	9	-	3	-	-	-	7	9	4	-	7
New Mexico	-	-	2	-	1	-	-	-	-	7	1	-	1
Arizona	-	-	NN	-	-	-	-	-	-	13	1	-	1
Utah	-	-	15	-	-	-	-	-	-	4	1	-	-
Nevada*	-	-	-	-	-	-	-	-	-	-	-	-	1
PACIFIC	25	-	21	1	110	5	3	1	78	150	30	4	98
Washington	3	-	2	-	106	3	1	-	2	8	5	-	2
Oregon	1	-	1	-	-	-	1	-	4	14	3	-	5
California*	20	-	-	-	1	-	-	1	71	125	22	4	90
Alaska	-	-	4	1	3	2	-	-	-	-	-	-	-
Hawaii	1	-	14	-	-	-	1	-	1	3	-	-	1
Guam	-	-	-	-	-	-	-	-	-	-	-	-	-
Puerto Rico	-	-	12	-	1	-	-	-	1	21	-	-	1
Virgin Islands*	-	-	-	-	-	-	-	-	-	-	-	-	-

NN: Not notifiable

*Delayed Reports: Brucellosis: Ark. add 1; Chickenpox: Mont. add 4, Calif. add 9; Hep B: Ohio add 1; Hep A: Ohio delete 1, Nev. add 3; Hep Unsp.: V.I. add 1

Table III-Continued
Cases of Specified Notifiable Diseases: United States
Weeks Ending August 7, 1976 and August 2, 1975 - 31st Week

REPORTING AREA	MEASLES (Rubella)			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	153	33,690	20,688	23	1,071	971	233	31,592	35	51	10,375	29
NEW ENGLAND	2	375	295	2	44	56	7	1,242	-	-	269	-
Maine	-	6	12	1	1	6	-	109	-	-	3	-
New Hampshire	-	11	21	-	3	2	-	25	-	-	11	-
Vermont	2	34	49	-	3	-	-	8	-	-	1	-
Massachusetts	-	37	110	-	12	19	-	148	-	-	135	-
Rhode Island	-	14	3	-	4	3	5	441	-	-	5	-
Connecticut	-	273	100	1	21	26	2	511	-	-	114	-
MIDDLE ATLANTIC	21	6,883	1,678	3	145	99	40	2,917	-	9	2,259	3
Upstate New York	8	2,882	522	1	58	28	2	361	-	1	597	2
New York City	2	437	132	1	38	28	30	1,548	-	-	137	-
New Jersey	3	589	456	-	19	17	3	483	-	3	1,330	-
Pennsylvania *	8	2,975	568	1	30	26	5	525	-	5	195	1
EAST NORTH CENTRAL	55	14,244	6,124	-	162	133	58	13,141	2	17	3,866	1
Ohio	-	562	104	-	84	32	8	1,884	-	3	275	1
Indiana	13	3,240	347	-	6	6	8	1,418	-	5	689	-
Illinois	11	1,509	1,709	-	16	19	4	1,735	1	4	1,157	-
Michigan	19	5,616	2,981	-	47	58	15	4,806	1	2	1,348	-
Wisconsin	12	3,317	983	-	9	18	23	3,298	-	3	397	-
WEST NORTH CENTRAL	1	1,096	4,946	1	64	57	5	3,232	1	5	383	4
Minnesota	-	388	180	-	12	14	-	543	-	-	26	1
Iowa	1	33	563	-	8	5	2	1,146	-	3	84	-
Missouri *	-	17	262	1	24	27	1	309	1	1	31	1
North Dakota	-	3	1,046	-	3	-	-	121	-	1	3	1
South Dakota	-	4	356	-	1	1	1	7	-	-	18	-
Nebraska	-	55	394	-	3	2	1	99	-	-	3	-
Kansas	-	596	2,145	-	13	8	-	1,007	-	-	218	1
SOUTH ATLANTIC	18	2,232	308	4	197	196	22	2,397	16	3	1,262	7
Delaware	-	128	35	-	6	6	6	49	-	-	33	-
Maryland	-	829	48	-	16	21	7	646	-	-	3	2
District of Columbia	-	12	1	-	2	5	-	100	-	-	45	-
Virginia	12	742	34	1	24	17	4	192	-	-	233	1
West Virginia	-	183	134	-	6	5	3	737	2	2	279	-
North Carolina	6	15	2	1	37	36	-	369	1	-	17	-
South Carolina	-	4	-	1	35	32	-	39	6	-	590	-
Georgia	-	1	29	-	19	10	-	-	-	-	2	-
Florida	-	318	25	1	52	64	2	265	7	1	60	4
EAST SOUTH CENTRAL	9	802	269	6	96	147	38	2,687	11	8	342	4
Kentucky	3	737	83	3	17	60	3	940	7	2	152	1
Tennessee	6	49	175	1	41	47	27	1,440	3	6	178	2
Alabama	-	-	3	2	27	28	5	255	-	-	1	1
Mississippi	-	16	8	-	11	12	3	52	1	-	11	-
WEST SOUTH CENTRAL	2	667	281	5	165	155	15	2,205	1	2	490	7
Arkansas	-	-	-	1	11	8	-	71	-	1	190	-
Louisiana	2	187	-	1	29	26	-	22	-	-	85	2
Oklahoma	-	289	125	-	18	9	5	625	1	1	59	-
Texas	-	151	156	3	107	112	10	1,487	-	-	156	5
MOUNTAIN	9	5,062	1,376	-	37	34	11	1,085	-	1	462	1
Montana	-	202	41	-	4	7	-	20	-	-	232	-
Idaho	-	2,020	7	-	4	5	-	440	-	-	18	-
Wyoming	-	3	1	-	-	-	-	1	-	-	2	-
Colorado	-	305	1,153	-	11	9	3	216	-	-	21	-
New Mexico	-	15	13	-	3	4	-	127	-	-	31	-
Arizona	1	226	69	-	9	1	-	-	-	-	-	1
Utah	8	2,228	66	-	4	7	8	167	-	1	140	-
Nevada	-	63	26	-	2	1	-	114	-	-	18	-
PACIFIC	36	2,329	5,411	2	161	94	37	2,686	4	6	1,042	2
Washington	-	333	284	-	27	16	4	846	-	-	161	-
Oregon	1	151	196	-	14	4	6	340	-	3	133	1
California	35	1,842	4,868	1	102	71	26	1,455	4	3	730	1
Alaska	-	-	-	1	15	2	-	19	-	-	1	-
Hawaii	-	3	63	-	3	1	1	26	-	-	17	-
Guam	-	12	31	-	1	2	-	13	-	-	5	-
Puerto Rico	17	315	493	-	3	1	2	617	-	1	9	3
Virgin Islands	-	9	8	-	-	-	-	22	-	-	8	1

*Delayed Reports: Measles: Pa. add 1; Pertussis: Mo. add 1

Table III-Continued
 Cases of Specified Notifiable Diseases: United States
 Weeks Ending August 7, 1976 and August 2, 1975 - 31st Week

REPORTING AREA	TUBERCULOSIS		TULA-REMIA	TYPHOID FEVER		TYPHUS-FEVER TICK-BORNE (RMSF)		VENEREAL DISEASES (Civilian Cases Only)						RABIES IN ANIMALS
	1976	CUM. 1976	CUM. 1976	1976	CUM. 1976	1976	CUM. 1976	GONORRHEA			SYPHILIS (Pri. & Sec.)			CUM. 1976
								1976	CUMULATIVE		1976	CUMULATIVE		
									1976	1975		1976	1975	
UNITED STATES	683	20,139	80	12	216	55	516	21,579	585,214	571,246	394	14,375	15,231	1,624
NEW ENGLAND	29	723	1	-	17	-	7	738	16,215	15,690	18	448	523	29
Maine	2	48	-	-	-	-	-	58	1,362	1,189	3	13	17	17
New Hampshire*	3	30	-	-	2	-	-	17	437	440	1	8	11	-
Vermont	3	21	-	-	-	-	-	22	403	374	-	5	5	-
Massachusetts	13	439	1	-	13	-	4	385	7,874	7,266	8	314	332	11
Rhode Island	4	51	-	-	-	-	2	16	1,031	1,261	1	16	9	1
Connecticut	4	134	-	-	2	-	1	240	5,108	5,160	5	92	149	-
MIDDLE ATLANTIC	144	3,829	2	1	34	4	30	2,970	68,045	66,314	76	2,403	2,785	21
Upstate New York	26	591	2	-	5	3	18	424	10,607	11,826	5	147	268	6
New York City	28	1,578	-	-	18	-	3	1,131	30,858	28,485	57	1,486	1,592	-
New Jersey	34	731	-	1	8	-	7	740	10,433	8,998	3	356	431	3
Pennsylvania*	56	929	-	-	3	1	2	675	16,147	17,005	11	414	494	12
EAST NORTH CENTRAL	95	2,796	1	2	20	2	9	3,733	92,710	93,246	32	1,287	1,254	99
Ohio*	18	521	-	-	6	2	7	851	22,548	25,791	11	302	291	12
Indiana	9	342	-	-	-	-	-	581	9,435	8,131	8	72	90	18
Illinois	33	947	1	-	5	-	-	1,197	32,461	32,162	8	700	609	17
Michigan*	29	822	-	2	8	-	2	772	19,466	18,121	2	145	207	4
Wisconsin	6	164	-	-	1	-	-	332	8,800	9,041	3	68	57	48
WEST NORTH CENTRAL	19	721	19	-	11	-	7	811	29,971	28,342	12	249	377	422
Minnesota	3	130	3	-	6	-	-	141	5,460	5,904	2	57	70	96
Iowa	1	60	1	-	1	-	-	88	3,772	3,976	1	24	22	85
Missouri	7	355	14	-	3	-	7	302	11,846	10,167	7	105	182	44
North Dakota	-	20	-	-	-	-	-	12	447	427	-	-	5	83
South Dakota	2	33	-	-	-	-	-	38	854	1,083	-	4	4	55
Nebraska	-	36	-	-	-	-	-	31	2,586	2,527	-	18	11	11
Kansas*	6	87	1	-	1	-	-	199	5,006	4,258	2	41	83	48
SOUTH ATLANTIC	125	4,375	5	5	29	24	267	4,456	141,210	142,006	73	4,206	4,774	245
Delaware	2	49	-	-	-	-	1	65	1,916	2,030	3	42	62	8
Maryland	17	627	1	-	-	3	15	762	19,046	16,525	1	349	353	11
District of Columbia	4	182	-	-	-	-	-	241	8,339	8,473	7	381	411	-
Virginia	25	727	1	-	3	4	67	408	14,723	13,914	15	407	357	41
West Virginia	3	178	-	-	3	4	6	48	1,811	1,747	1	19	36	10
North Carolina*	30	781	3	-	1	10	118	750	20,472	19,933	5	781	593	6
South Carolina	12	328	-	-	3	-	32	604	13,511	13,506	3	230	320	2
Georgia	-	521	-	-	2	3	27	708	26,581	26,511	8	455	620	124
Florida	32	982	-	5	17	-	1	870	34,811	39,367	30	1,542	2,022	43
EAST SOUTH CENTRAL	48	1,657	13	1	8	17	90	2,161	52,161	48,560	17	584	668	80
Kentucky	14	360	1	-	4	9	22	305	6,604	6,326	1	84	105	42
Tennessee	13	498	12	1	4	6	54	1,149	20,778	19,250	3	207	252	26
Alabama	10	496	-	-	-	-	4	347	14,761	13,314	8	119	150	12
Mississippi	11	303	-	-	-	2	10	360	10,018	9,670	5	174	161	-
WEST SOUTH CENTRAL	81	2,296	29	1	10	8	98	2,756	76,510	70,270	50	1,707	1,307	386
Arkansas	9	294	14	-	2	2	16	216	7,255	7,414	-	53	39	100
Louisiana*	9	327	2	-	2	-	-	337	11,263	13,092	7	369	306	3
Oklahoma	8	213	7	1	1	4	73	303	7,227	6,737	4	68	47	90
Texas	55	1,462	6	-	5	2	9	1,900	50,765	43,027	39	1,217	915	193
MOUNTAIN	15	554	2	-	18	-	3	756	22,461	22,169	4	474	360	92
Montana*	5	35	2	-	2	-	-	56	1,159	1,209	-	4	4	60
Idaho*	-	16	-	-	1	-	1	47	1,211	1,062	-	23	9	-
Wyoming	1	12	-	-	-	-	-	12	445	505	-	8	9	1
Colorado*	-	97	-	-	4	-	1	199	5,823	5,501	1	104	65	4
New Mexico	6	100	-	-	1	-	1	132	4,475	4,041	-	148	102	3
Arizona	3	248	-	-	9	-	-	208	6,587	6,086	2	144	127	18
Utah	-	23	-	-	1	-	-	102	1,175	1,424	1	17	11	6
Nevada*	-	23	-	-	-	-	-	-	1,586	2,341	-	26	33	-
PACIFIC	127	3,188	8	2	69	-	5	3,198	85,931	84,649	112	3,017	3,183	250
Washington*	7	304	2	-	3	-	4	224	7,187	7,728	17	79	94	2
Oregon	1	113	1	-	-	-	-	235	6,389	6,321	-	62	75	5
California	105	2,324	5	2	64	-	1	2,544	68,276	66,940	92	2,801	2,979	203
Alaska*	-	61	-	-	-	-	-	151	2,434	2,116	-	10	3	40
Hawaii	14	386	-	-	2	-	-	44	1,645	1,544	3	65	32	-
Guam*	-	27	-	-	-	-	-	-	192	260	-	1	8	-
Puerto Rico	6	208	-	-	1	-	-	84	1,677	1,441	12	352	361	28
Virgin Islands*	-	5	-	-	-	-	-	5	150	98	2	44	20	-

*Delayed Reports: TB: Ohio delete 2, Mich. delete 1, Kansas 1, N. Car. delete 4, Idaho add 2, Colo. delete 1, Wash. add 5; GC (Civ.): La. delete 1, Mont. add 31, Nev. add 43, Guam add 7, V.I. add 5; GC (Mil.): N. Hamp. add 5; Syphilis (Civ.): Pa. delete 1, La. delete 1, Mont. add 2, Alaska add 1; Syphilis (Mil.): N. Hamp. add 1, Alaska add 1

Table IV
Deaths in 121 United States Cities*
Week Ending August 7, 1976 — 31st Week

REPORTING AREA	ALL CAUSES					Pneumonia and Influenza ALL AGES	REPORTING AREA	ALL CAUSES					Pneumonia and Influenza ALL AGES
	ALL AGES	65 Years and Over	45-64 Years	25-44 Years	Under 1 Year			ALL AGES	65 Years and Over	45-64 Years	25-44 Years	Under 1 Year	
NEW ENGLAND	618	373	167	28	23	29	SOUTH ATLANTIC	1,101	608	306	80	54	32
Boston, Mass.	194	108	57	10	9	7	Atlanta, Ga.	124	63	38	6	12	1
Bridgeport, Conn.	36	23	9	-	1	3	Baltimore, Md.	260	98	64	15	7	4
Cambridge, Mass.	27	16	9	1	-	-	Charlotte, N. C.	73	40	18	11	4	3
Fall River, Mass.	24	15	7	-	1	-	Jacksonville, Fla.	61	32	18	5	3	1
Hartford, Conn.	63	38	10	8	3	1	Miami, Fla.	120	72	31	7	4	1
Lowell, Mass.	25	17	7	1	-	2	Norfolk, Va.	47	24	21	1	-	1
Lynn, Mass.	14	11	2	-	-	-	Richmond, Va.	78	47	19	8	1	6
New Bedford, Mass.	21	14	6	-	1	-	Savannah, Ga.	33	21	6	2	-	4
New Haven, Conn.	43	21	15	2	2	1	St. Petersburg, Fla.	77	65	9	1	1	4
Providence, R.I.	65	37	19	3	3	6	Tampa, Fla.	54	30	13	6	3	2
Somerville, Mass.	8	6	1	-	-	-	Washington, D. C.	182	91	46	16	19	3
Springfield, Mass.	34	24	8	1	1	3	Wilmington, Del.	52	25	23	2	-	2
Waterbury, Conn.	24	16	5	2	1	1	EAST SOUTH CENTRAL	587	333	169	42	21	30
Worcester, Mass.	40	27	12	-	1	5	Birmingham, Ala.	87	42	22	13	8	4
MIDDLE ATLANTIC	2,642	1,608	687	180	80	121	Charlottesville, Va.	39	20	14	2	1	6
Albany, N. Y.	61	37	14	3	4	4	Knoxville, Tenn.	41	23	13	1	1	-
Allentown, Pa.	26	18	8	-	-	1	Louisville, Ky.	77	45	23	7	1	4
Buffalo, N. Y.	109	65	29	7	-	7	Memphis, Tenn.	148	94	42	5	2	5
Camden, N. J.	32	17	9	1	5	-	Mobile, Ala.	62	29	20	4	5	1
Elizabeth, N. J.	21	15	5	-	1	1	Montgomery, Ala.	33	24	6	3	-	2
Erie, Pa.	33	30	3	-	-	3	Nashville, Tenn.	100	56	29	7	3	8
Jersey City, N. J.	36	19	12	3	1	2	WEST SOUTH CENTRAL	1,128	569	323	98	63	23
Newark, N. J.	83	33	28	12	7	7	Austin, Tex.	22	13	4	1	4	1
New York City, N. Y.†	1,311	826	311	100	23	42	Baton Rouge, La.	24	14	4	3	2	-
Paterson, N. J.	37	24	7	2	4	2	Corpus Christi, Tex.	34	17	8	3	5	-
Philadelphia, Pa.	401	224	117	30	17	27	Dallas, Tex.	139	75	38	11	3	1
Pittsburgh, Pa.	154	76	54	14	6	13	El Paso, Tex.	32	21	8	1	1	2
Reading, Pa.	33	24	8	1	-	1	Fort Worth, Tex.	62	29	24	5	3	1
Rochester, N. Y.	106	67	29	3	5	5	Houston, Tex.	344	148	114	37	14	5
Schenectady, N. Y.	26	18	8	-	-	1	Little Rock, Ark.	57	27	10	7	9	3
Scranton, Pa.	40	29	8	3	-	-	New Orleans, La.	139	79	39	11	5	1
Syracuse, N. Y.	58	36	17	-	5	2	San Antonio, Tex.	122	67	35	8	5	5
Trenton, N. J.	31	17	12	1	1	1	Shreveport, La.	45	20	14	5	1	-
Utica, N. Y.	13	10	2	-	-	-	Tulsa, Okla.	108	59	25	6	11	4
Yonkers, N. Y.	31	23	6	-	1	2	MOUNTAIN	464	265	123	36	22	11
EAST NORTH CENTRAL	2,103	1,126	591	146	141	43	Albuquerque, N. Mex.	51	28	9	9	-	3
Akron, Ohio	29	17	9	-	3	-	Colorado Springs, Colo.	30	19	7	3	1	2
Canton, Ohio	49	22	23	1	1	-	Denver, Colo.	101	44	36	9	6	1
Chicago, Ill.	519	278	139	51	24	5	Las Vegas, Nev.	22	13	7	-	1	1
Cincinnati, Ohio	182	109	42	13	5	3	Ogden, Utah	21	12	6	1	1	1
Cleveland, Ohio	138	69	49	10	4	-	Phoenix, Ariz.	89	56	20	4	6	-
Columbus, Ohio	94	50	25	5	6	5	Pueblo, Colo.	16	10	6	-	-	1
Dayton, Ohio	87	44	29	7	3	1	Salt Lake City, Utah	56	32	12	5	6	1
Detroit, Mich.	333	139	77	25	74	6	Tucson, Ariz.	78	51	20	5	1	1
Evansville, Ind.	28	18	6	3	-	1	PACIFIC	1,359	814	358	90	50	20
Fort Wayne, Ind.	47	28	15	1	2	6	Berkeley, Calif.	17	12	4	1	-	1
Gary, Ind.	9	4	5	-	-	-	Fresno, Calif.	45	25	10	4	3	1
Grand Rapids, Mich.	61	39	16	1	4	9	Glendale, Calif.	21	12	7	2	-	1
Indianapolis, Ind.	136	72	43	10	5	1	Honolulu, Hawaii	56	32	14	2	6	1
Madison, Wis.	34	15	12	2	2	3	Long Beach, Calif.	90	53	26	6	3	-
Milwaukee, Wis.	128	75	42	7	3	-	Los Angeles, Calif.	377	218	96	41	9	3
Peoria, Ill.	29	16	9	-	2	1	Oakland, Calif.	75	36	28	4	4	-
Rockford, Ill.	30	18	9	2	1	-	Pasadena, Calif.	22	14	4	2	2	-
South Bend, Ind.	32	21	7	1	1	1	Portland, Oreg.	99	63	26	3	5	-
Toledo, Ohio	90	61	22	4	1	1	Sacramento, Calif.	58	39	13	1	3	2
Youngstown, Ohio	48	31	12	3	-	-	San Diego, Calif.	111	62	26	10	5	-
WEST NORTH CENTRAL	717	436	166	39	39	18	San Francisco, Calif.	158	95	53	4	4	5
Des Moines, Iowa	51	34	12	2	3	2	San Jose, Calif.	45	29	12	-	2	1
Duluth, Minn.	22	16	4	1	1	1	Seattle, Wash.	107	67	26	6	2	2
Kansas City, Kans.	38	19	11	3	1	2	Spokane, Wash.	41	28	10	-	2	3
Kansas City, Mo.	116	68	29	6	11	2	Tacoma, Wash.	37	29	3	4	-	-
Lincoln, Neb.	29	19	7	-	2	1	TOTAL	10,719	6,132	2,890	739	493	327
Minneapolis, Minn.	98	64	20	4	6	1	Expected Number	11,567	6,875	3,032	782	380	351
Omaha, Neb.	94	54	24	7	3	1							
St. Louis, Mo.	127	82	21	9	6	2							
St. Paul, Minn.	75	45	21	3	3	1							
Wichita, Kans.	67	35	17	4	3	5							

†Delayed Report for Week Ending 7/31/76

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.

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

Send mailing list additions, deletions, and address changes to: Center for Disease Control, Attn.: Distribution Services, GSO, 1-SB-36, Atlanta, Georgia 30333. When requesting changes be sure to give your former address, including zip code and mailing list code number, or send an old address label.

Epidemiologic Notes and Reports**Diarrhea in Bicyclers — Idaho and Montana**

An outbreak of diarrheal disease among bicyclers participating in the "Bikecentennial" was reported to the Montana Department of Health and Environmental Sciences on June 11, 1976. This cycling trip, in which over 4,000 bicyclers are participating this summer, covers a 4,250-mile route which passes through Oregon, Idaho, Montana, Wyoming, Colorado, Kansas, Missouri, Illinois, Kentucky, and Virginia.

An investigation conducted by interviewing bicyclers along the route from Missoula, Montana, to Yellowstone National Park showed 64 of 249 cyclists (26%) had had diarrhea with the following associated symptoms: excess gas (70%), cramps (64%), chills (55%), headache (53%), fever (47%), nausea (44%), rectal pain (19%), vomiting (9%), and bloody stools (5%). The median duration was 3 days. Twenty-five bicyclists interrupted their trip because of illness, and one was hospitalized for dehydration. All have recovered without antimicrobial therapy.

Trips were offered in 3 categories: Bike-Inn (bicyclers traveling in groups of 10 and staying in pre-designated shelters), Camping (bicyclers traveling in groups of 10 and camping in campgrounds), and Independent (bicyclers traveling alone and staying in either the Bike-Inns or campgrounds). Illness was strongly associated with the camping groups ($P < .001$), and, specifically, with the individuals in these groups drinking well water at 2 Idaho campgrounds ($P < .001$). The water

at one of the campgrounds had an excessive coliform count (190 per 100 cc) when tested on June 13. Although more than 50% of the bicyclers also drank unapproved surface water, this water was not significantly associated with illness. Beginning June 12, bicyclers were instructed to boil or iodinate all drinking water.

Stool samples from 18 ill persons were negative for salmonella, shigella, toxigenic or invasive *Escherichia coli*; 9 examined for parasites also were negative.

Reported by J Mather, MD, State Epidemiologist, R Wainwright, MD, North Central District Health Dept, and W Kaufman, Southwestern District Health Dept, Idaho Dept of Health; CG McCarthy, MD, L Fisher, and D Carlson, Missoula, Montana; B Desonia, MR Nelson, and MD Skinner, MD, State Epidemiologist, Montana State Dept of Health and Environmental Sciences; K Vaughn, Lolo National Forest, Montana; and Enteric Diseases Br, Enteric Diseases Laboratory Section, Bacterial Diseases Div, and Field Services Div, Bur of Epidemiology, CDC.

Editorial Note: Epidemiologic evidence incriminated 2 wells as the source of this outbreak, and analysis of water from one Idaho campground suggested fecal contamination. In 1974, 8 (29%) of 28 waterborne outbreaks occurred among visitors to recreational areas (7). Most of these outbreaks occurred in the summer months.

Reference

1. Horwitz MA, Hughes JM, Craun GF: Outbreaks of water-borne disease in the United States, 1974. *J Infect Dis* 133:588-593, 1976

Update on Respiratory Illness — Pennsylvania

The investigation of the outbreak of respiratory illness in Pennsylvania apparently related to the American Legion Convention in Philadelphia July 21-24, 1976, continues. There have been 158 cases reported, with 27 deaths. No new cases with onset after August 3 have been reported. The last death occurred on August 8. Several patients remain critically ill. The laboratory investigations have not

identified any etiologic agent as yet; they are continuing. Investigations of environmental factors and possible exposure to toxic substances are underway.

Reported by RG Sharrar, MD, City of Philadelphia Dept of Public Health; E Streiff, RN, MPH, Allegheny County Dept of Health; WE Parkin, DVM, Acting State Epidemiologist, Pennsylvania State Dept of Health; Bur of Epidemiology and Bur of Laboratories, CDC.

Correction of Mortality Statistics — Philadelphia

In Table IV, "Deaths in 121 United States Cities," in MMWR issues 28 and 29 of Volume 25, the numbers of deaths from all causes, all ages, for Philadelphia were reported as 294 and 605, respectively. The numbers should read 394 and 505, respectively. The incorrect figures were caused by data processing problems in Philadelphia. In the 2 subsequent issues (30 and 31) the totals are correctly listed as 406 and 401, respectively.

The figure of 25 pneumonia and influenza (P & I) deaths for Philadelphia reported in Table IV MMWR 25 (14) also was an error; the correct figure is 5.

It should also be noted that data for the week ending May 15, 1976, (MMWR 25[19]), showed a substantial increase in total P & I deaths from Philadelphia. That increase was the result of a change in CDC's tabulating methods and not an actual increase in P & I deaths. The change, made at the end of the influenza season, was done to establish a baseline of P & I deaths for Philadelphia that would be consistent with that for all other cities.

Current Trends**Influenza — Worldwide**

United States: Anecdotal reports of isolated cases of influenza-like illness have been received by CDC from 18 states as a result of national publicity concerning the respiratory illness associated with the American Legion Convention in Philadelphia (MMWR 25[30]). To date, no laboratory evidence of influenza has been obtained in any of these cases. A/Victoria-like isolates from sporadic cases in the Pittsburgh area were reported in mid-June. Evidence of A/Victoria-like and B/Hong Kong infection from isolated cases in mid-July have been reported from South Carolina.

Reported by R Michaels, MD, Pittsburgh; E Streiff, RN, MPH, Allegheny County Dept of Health, Pittsburgh; WE Parkin, DVM, Act-

ing State Epidemiologist, Pennsylvania State Dept of Health; R Parker, DVM, State Epidemiologist, South Carolina State Dept of Health and Environmental Control; and the National Influenza Immunization Program, CDC.

Worldwide: Outbreaks of influenza were still being reported in Australia and in New Zealand as of July 20, with sporadic cases being reported from Argentina, Thailand, and Scotland. All isolates have resembled A/Victoria/3/75.

Reported by the World Health Organization in the Weekly Epidemiologic Record 51(30,31):243, 251, July 23 and 30, 1976, and the Weekly Report of Communicable Diseases Scotland, Nos. 29, 30, July 17 and 24, 1976.

Errata, Vol. 25**No. 22**

p 174 In the article "*Haemophilus influenzae* Infections—United Kingdom," the 4th sentence of paragraph 2 should read: "This is higher than the case fatality rate of about 10% reported in the United States (2) and Sweden (3)."

No. 30

p 237 In the article, "Cigarette Smoking in the United States — 1975," delete sentence 2 of paragraph 3 and insert: "Widowed persons smoke the least, the survey showed. Married men and women smoke less than single or divorced/separated persons."

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