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MORBIDITY AND MORTALITY WEEKLY REPORT

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Epidemiologic Notes and Reports

Gastroenteritis Associated with Lake Swimming — Michigan

An outbreak of gastrointestinal illness involving at least 239 cases occurred among people who visited a recreational park in Macomb County, Michigan, during July (Figure 1). The illness, suspected to be viral in nature, was associated with swimming in a lake at the park.

On July 17, the Macomb County Health Department (MCHD) received a report that several members of a group that had visited a local recreational park on July 15 had become ill with gastroenteritis. From July 17-27, in response to requests of news media that park visitors who had become ill should notify the MCHD, 300 phone calls of illness were received at the health department. The predominant symptoms in these persons, who were from all age groups, were vomiting and/or diarrhea, with nausea, abdominal cramps, headache, low-grade fever, and sore throat as part of the syndrome. Most individuals recovered within 24 to 48 hours. For 52 persons who were the only cases in their respective households, the incubation period ranged from 6 hours to 8 days (median, 2 days). For 47 (90%) of these persons, incubation periods ranged from 6 hours to 3 days. A park-associated case was thus defined as one in which gastroenteritis occurred within 3 days of a July park visit. There were 191 such cases. Forty-eight additional park visitors developed gastroenteritis ≥ 4 days after their park visit, but each such case was associated with an earlier household case, suggesting secondary spread (Figure 1). Strong evidence that secondary transmission occurred also was provided by preliminary estimates of 20%-30% attack rates among household members who did not visit the park.

Bacterial cultures of stool specimens taken from 5 primary and secondary household cases were negative. Further studies of stool specimens and paired serum specimens are in progress.

Illness was not associated with consumption of water from the park's drinking facilities, nor with consumption of food or iced beverages purchased at the park's 2 concession stands. However, among 135 individuals from 3 groups who visited the park on July 15, gastroenteritis was documented in 11 of 38 individuals (29%) who waded or swam in the lake, but in only 1 of the 97 (1%) of those who did not ($p < .00001$). For those who went into the lake, risk increased with the amount of time spent in the water (Table 1). A case-control study showed that 44 of 47 park-associated cases (94%) were in persons who swam with their heads in or under the water, compared with only 26 of 35 swimming, family-matched controls (74%) ($.02 < p < .05$). Of the 191 persons who became ill within 3 days of their park visit, 187 had visited one or the other of the park's 2 beaches (Figure 2). Since these beaches were located on opposite sides of the lake and were separated by 3,500 feet of water, this suggested widespread contamination of the water from July 14 through July 16.

Gastroenteritis - Continued

FIGURE 1. Cases of gastroenteritis in visitors to a recreational park, by date of onset, Macomb County, Michigan, July 1979

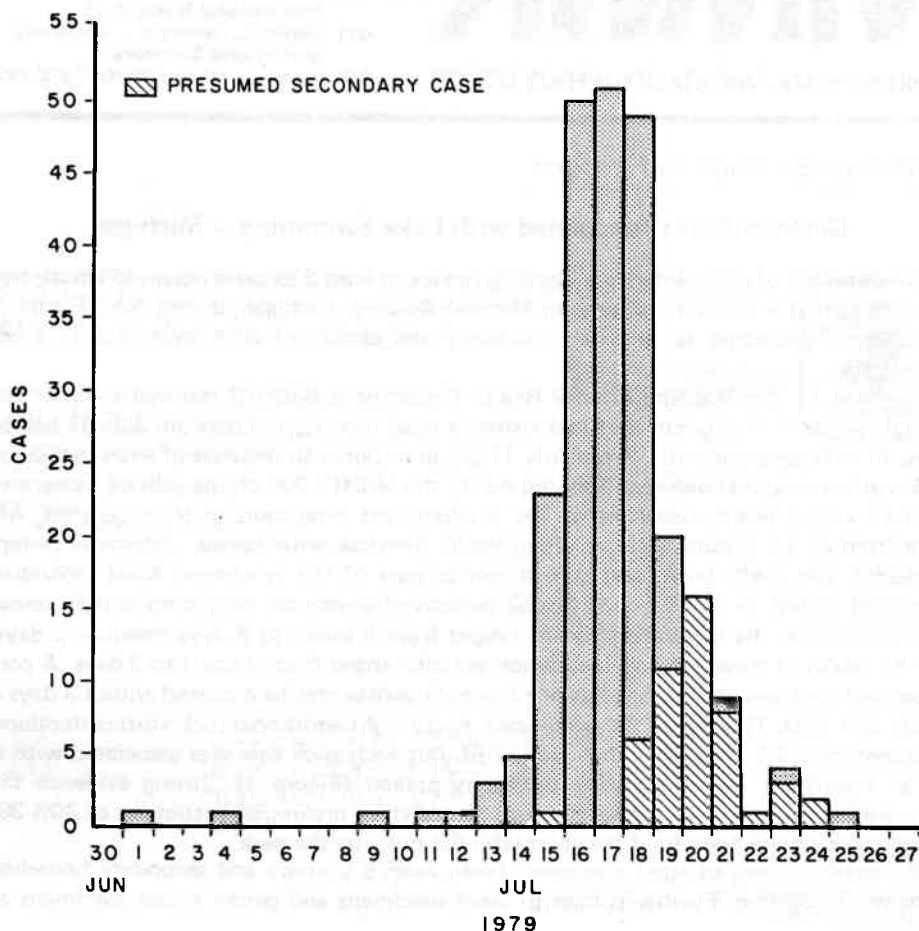


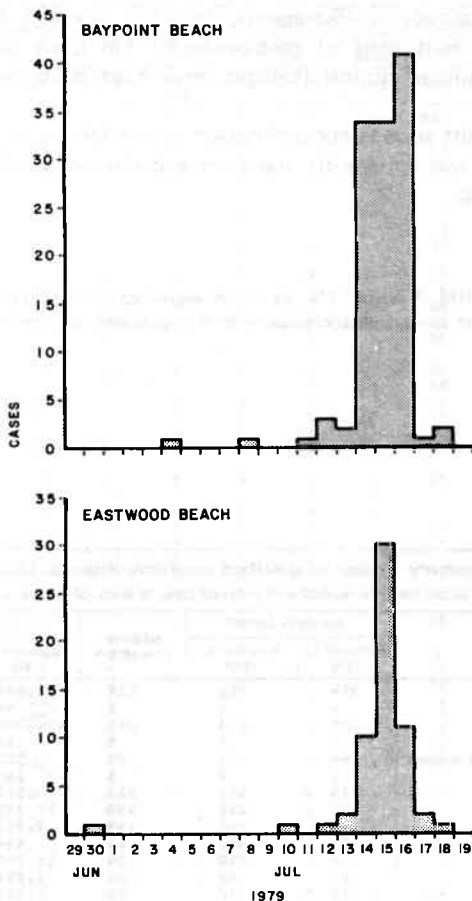
TABLE 1. Lake swimming associated with gastroenteritis, Michigan, July 15, 1979

Time in water	Ill	Well	Total	Attack rate (%)
<½ hour	2	12	14	14
½-1 hour	4	9	13	31
>1 hour	5	6	11	45
TOTAL	11	27	38	29

Routine sampling of lake water on July 13 and July 17 failed to reveal abnormal coliform counts. A sanitary investigation conducted by the MCHD and the Michigan State Department of Natural Resources did not implicate faulty sewer lines or overflowing septic tanks as potential sources of fecal contamination. The lake, which was closed for swimming on July 18, was reopened on August 9; no further cases of illness have been reported.

Gastroenteritis — Continued

FIGURE 2. Cases of gastroenteritis, by beach* and date of exposure, Michigan, June 30-July 18, 1979†



*Excludes 9 patients who could not recall which beach they had visited.

†Beaches were closed at 4:00 pm on July 18.

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Editorial Note: Although no etiologic agent has yet been identified, the high secondary attack rate noted in this outbreak suggests an infectious agent, probably a virus. Several outbreaks of acute infectious non-bacterial gastroenteritis (AING) have been traced to potable water sources contaminated with human sewage, and a single epidemic of viral gastroenteritis has been related to swimming in an unchlorinated public swimming pool.

Gastroenteritis — Continued

The etiologic role of parvovirus-like agents, including Norwalk agent, in some of the more recent waterborne outbreaks of gastroenteritis has been established (7-3). This outbreak, based on its similar clinical features, may have been caused by one of these viruses.

The failure to document sewage contamination in the lake is not surprising since the period of maximum risk was apparently transient and did not overlap with the schedule for routine water sampling.

References

1. MMWR 26:13, 1977
2. MMWR 27:403, 1978
3. Morens DM, Zweighaft RM, Vernon TM, et al: A waterborne outbreak of gastroenteritis with secondary person-to-person spread. Association with a viral agent. Lancet 1:964, 1979

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

DISEASE	35th WEEK ENDING		MEDIAN 1974-1978**	CUMULATIVE, FIRST 35 WEEKS		
	September 1, 1978	September 2, 1978*		September 1, 1978	September 2, 1978*	MEDIAN 1974-1978**
Aseptic meningitis	374	293	127	3,888	3,278	2,058
Brucellosis	4	—	2	98	117	151
Chickenpox	229	243	243	170,784	123,687	123,687
Diphtheria	—	3	5	62	59	126
Encephalitis: Primary (arthropod-borne & unspec.)	44	74	59	533	697	697
Post-infectious	1	2	5	165	154	189
Hepatitis, Viral: Type B	223	301	282	9,567	10,134	10,019
Type A	468	538	598	19,360	19,190	23,080
Type unspecified	175	200	149	7,012	5,556	5,624
Malaria	10	22	11	434	499	299
Measles (rubella)	44	130	109	12,044	23,583	23,583
Meningococcal infections: Total	24	32	28	1,893	1,768	1,125
Civilian	24	32	24	1,883	1,746	1,113
Military	—	—	—	10	22	22
Mumps	60	87	127	11,075	13,298	32,373
Pertussis	26	44	46	912	1,398	1,022
Rubella (German measles)	31	154	63	10,594	16,685	14,705
Tetanus	4	5	2	44	59	58
Tuberculosis	399	587	590	18,892	19,668	20,668
Tularemia	7	1	3	138	78	95
Typhoid fever	8	19	16	303	348	263
Typhus fever, tick-borne (Rky. Mt. spotted)	50	44	36	810	819	681
Veneral diseases:						
Gonorrhea: Civilian	15,148	21,560	21,560	654,442	661,405	661,405
Military	528	631	631	18,333	17,384	18,178
Syphilis, primary & secondary: Civilian	320	321	373	16,011	13,942	13,942
Military	13	9	6	206	196	196
Rabies in animals	78	63	63	3,301	2,122	1,990

TABLE II. Notifiable diseases of low frequency, United States

	CUM. 1978		CUM. 1978
Anthrax	—	Poliomyelitis: Total	23
Botulism	15	Paralytic	20
Congenital rubella syndrome †	35	Psittacosis (Mo. 1)	74
Leprosy (Mass. 1)	112	Rabies in man	2
Leptospirosis	29	Trichinosis (N.J. 4)	109
Plague	9	Typhus fever, flea-borne (endemic, murine) † (Tex. 1)	34

*Delayed reports received for calendar year 1978 are used to update last year's weekly and cumulative totals.

**Medians for gonorrhea and syphilis are based on data for 1976-1978.

†The following delayed reports will be reflected in next week's cumulative totals: Cong. rubella syndrome: Okla. —1; Typhus murine: N.Mex. —1.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending September 1, 1979, and September 2, 1978 (35th week)

REPORTING AREA	ASEPTIC MENINGITIS	BRUCELLOSIS	CHICKENPOX	DIPHTHERIA		ENCEPHALITIS			HEPATITIS (VIRAL), BY TYPE			MALARIA	
	1978	1978	1978	1978	CUM. 1978	Primary		Post-infectious	B	A	Unspecified	1978	CUM. 1978
						1978	1978*	1978	1978	1978	1978		
UNITED STATES	374	4	229	-	62	64	74	1	223	468	175	10	434
NEW ENGLAND	39	-	28	-	-	3	-	-	22	13	8	1	26
Maine	2	-	2	-	-	-	-	-	1	1	-	-	1
N.H. †	7	-	-	-	-	-	-	-	-	-	-	-	-
Vt.	-	-	-	-	-	-	-	-	-	-	-	-	-
Mass.	21	-	9	-	-	2	-	-	7	1	7	-	7
R.I.	5	-	3	-	-	-	-	-	2	3	-	-	6
Conn.	4	-	14	-	-	1	-	-	12	8	1	1	12
MID. ATLANTIC	87	-	35	-	-	7	15	-	39	34	22	2	63
Upstate N.Y.	40	-	20	-	-	3	4	-	8	11	9	-	13
N.Y. City	5	-	14	-	-	1	-	-	14	8	1	2	30
N.J. †	33	-	NN	-	-	-	2	-	17	15	12	-	8
Pa. †	9	-	1	-	-	3	9	-	NA	NA	NA	-	12
E.N. CENTRAL	61	-	61	-	2	9	34	1	38	82	9	3	36
Ohio †	-	-	3	-	-	1	8	1	12	29	-	-	7
Ind.	10	-	14	-	1	3	4	-	1	5	5	-	1
Ill.	9	-	12	-	-	4	8	-	7	16	1	3	17
Mich.	37	-	7	-	-	1	3	-	16	31	3	-	9
Wis. †	5	-	25	-	1	-	11	-	2	1	-	-	2
W.N. CENTRAL	19	1	7	-	1	4	4	-	15	25	6	1	15
Minn.	-	-	-	-	-	-	4	-	3	9	-	1	5
Iowa	5	1	2	-	-	3	-	-	-	2	1	-	2
Mo.	2	-	-	-	1	-	-	-	11	4	4	-	3
N. Dak.	-	-	-	-	-	-	-	-	-	-	-	-	-
S. Dak.	-	-	-	-	-	-	-	-	-	8	-	-	1
Nebr.	2	-	5	-	-	1	-	-	1	-	1	-	2
Kans.	10	-	-	-	-	-	-	-	-	2	-	-	2
S. ATLANTIC	54	1	48	-	1	6	7	-	58	68	29	1	53
Del.	-	-	-	-	-	-	-	-	-	-	2	-	1
Md.	13	-	6	-	-	1	1	-	6	4	6	-	8
D.C.	3	-	2	-	-	-	-	-	4	1	1	-	5
Va.	16	-	-	-	1	2	3	-	11	7	6	1	18
W. Va.	2	-	20	-	-	3	3	-	2	1	-	-	2
N.C.	16	-	NN	-	-	-	-	-	7	6	7	-	4
S.C.	-	-	-	-	-	-	-	-	2	1	-	-	1
Ge.	-	-	-	-	-	-	-	-	11	21	-	-	2
Fla.	4	1	20	-	-	-	-	-	15	27	7	-	12
E.S. CENTRAL	14	-	18	-	-	4	6	-	14	21	7	-	8
Ky.	3	-	17	-	-	-	4	-	-	-	-	-	-
Tenn. †	8	-	NN	-	-	3	-	-	7	14	4	-	-
Ala.	3	-	-	-	-	1	1	-	5	3	3	-	3
Miss.	-	-	1	-	-	-	1	-	2	4	-	-	5
W.S. CENTRAL	63	1	19	-	-	3	6	-	17	95	35	1	26
Ark.	-	-	-	-	-	-	-	-	-	5	4	-	-
La.	2	-	NN	-	-	3	1	-	2	33	9	-	2
Okla. †	7	-	-	-	-	-	4	-	1	2	2	-	3
Tex.	54	1	19	-	-	-	1	-	14	55	20	1	21
MOUNTAIN	14	1	9	-	1	3	-	-	11	97	55	-	12
Mont. †	-	1	6	-	-	1	-	-	-	1	-	-	1
Idaho	-	-	-	-	-	-	-	-	-	5	-	-	-
Wyo.	-	-	-	-	-	-	-	-	-	1	-	-	1
Colo.	-	-	-	-	-	-	-	-	-	-	-	-	-
N. Mex. †	14	-	3	-	-	1	-	-	5	18	2	-	5
Ariz.	-	-	-	-	-	-	-	-	1	1	-	-	1
Utah	-	-	NN	-	-	1	-	-	2	68	44	-	4
Nev.	-	-	-	-	-	-	-	-	1	2	8	-	-
PACIFIC	-	-	-	-	-	1	-	-	2	1	1	-	-
Wash.	23	-	4	-	57	5	2	-	9	33	4	1	195
Oreg.	13	-	-	-	55	4	1	-	4	15	2	1	10
Calif.	4	-	1	-	-	-	-	-	3	7	2	-	9
Alaska	NA	NA	NA	NA	2	NA	-	-	NA	NA	NA	NA	174
Hawaii	6	-	2	-	-	1	1	-	-	4	-	-	-
Guam	-	-	1	-	-	-	-	-	2	7	-	-	2
P.R.	NA	NA	NA	NA	-	NA	-	-	NA	NA	NA	NA	-
V.I.	NA	NA	NA	NA	-	NA	1	-	NA	NA	NA	NA	1
Pac. Trust Terr. †	NA	NA	NA	NA	-	NA	-	-	NA	NA	NA	NA	-

NA: Not notifiable.

NA: Not available.

*Delayed reports received for 1978 are not shown below but are used to update last year's weekly and cumulative totals.

†The following delayed reports will be reflected in next week's cumulative totals: Aseptic meningitis: Ohio +2, Wis. -2; Chickenpox: Pac.Tr.Terr.: +17; Encephalitis: Wis. +1; Encephalitis, post: Pa. -1; Hep. B: N.H. +1, Wis. -1, Tenn. +4, Okla. -1, Mont. +3, N.Mex. +1; Hep. A: N.H. +1, N.J. -2, Wis. -1, Tenn. -3, Okla. -1, Mont. -3, N.Mex. +90, Pac.Tr.Terr. +2; Hep. unsp: N.J. -1, Tenn. -2, Okla. -1, N.Mex. -3.

TABLE III (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending September 1, 1979, and September 2, 1978 (35th week)

REPORTING AREA	MEASLES (RUBEOLA)			MENINGOCOCCAL INFECTIONS TOTAL			MUMPS		PERTUSSIS	RUBELLA		TETANUS
	1979	CUM. 1979	CUM. 1978*	1979	CUM. 1979	CUM. 1978*	1979	CUM. 1979	1979	1979	CUM. 1979	CUM. 1979
UNITED STATES	44	12,044	23,583	24	1,893	1,768	60	11,075	26	31	10,594	44
NEW ENGLAND	-	286	1,957	-	93	97	5	391	-	3	1,435	4
Maine	-	17	1,314	-	6	5	1	133	-	-	61	-
N.H.	-	32	45	-	9	7	-	4	-	-	124	-
Vt. †	-	118	25	-	6	2	-	8	-	-	397	-
Mass.	-	13	241	-	27	42	2	38	-	2	505	3
R.I.	-	102	8	-	7	15	2	31	-	1	93	-
Conn.	-	4	324	-	38	26	-	177	-	-	255	1
MID. ATLANTIC	7	1,497	2,155	4	286	282	3	1,080	3	9	1,890	8
Upstate N.Y.	1	651	1,384	2	98	91	1	157	2	8	1,049	2
N.Y. City	4	742	342	-	70	68	2	119	1	-	256	4
N.J. †	2	59	74	-	70	53	-	527	-	1	322	1
Pa.	-	45	355	2	48	70	-	277	-	-	263	1
E.N. CENTRAL	15	3,129	10,631	4	189	236	27	4,827	4	10	2,459	3
Ohio	-	262	474	3	72	62	2	1,744	-	-	135	2
Ind. †	1	202	187	1	40	37	-	271	1	1	718	-
Ill.	1	1,388	1,064	-	9	77	17	861	-	1	176	-
Mich.	5	820	7,448	-	52	49	-	882	3	3	1,189	1
Wis. †	8	457	1,458	-	16	11	8	1,069	-	5	241	-
W.N. CENTRAL	3	1,728	382	-	51	60	1	643	5	4	439	2
Minn.	1	1,209	36	-	10	14	-	10	-	1	38	-
Iowa	-	16	55	-	9	9	1	228	-	-	52	-
Mo.	2	420	9	-	24	23	-	189	1	2	50	1
N. Dak.	-	20	191	-	1	3	-	2	-	-	8	1
S. Dak.	-	2	-	-	2	2	-	5	-	-	5	-
Nebr.	-	-	5	-	-	-	-	7	-	-	200	-
Kans.	-	61	86	-	5	9	-	232	4	1	86	-
S. ATLANTIC	7	1,800	4,971	7	475	416	8	552	8	-	1,214	8
Del.	-	1	6	-	3	2	2	39	-	-	4	-
Md.	-	15	52	1	43	28	3	152	1	-	28	-
D.C.	-	1	48	-	2	1	-	1	-	-	1	-
Va. †	1	267	2,819	1	69	53	1	82	-	-	200	1
W. Va.	1	53	1,033	-	8	9	1	97	-	-	106	-
N.C.	1	111	116	3	75	88	-	67	2	-	527	3
S.C.	-	151	197	-	57	23	-	3	-	-	61	-
Ga.	-	435	17	-	68	47	-	3	5	-	11	-
Fla.	4	766	683	2	150	165	1	108	-	-	276	4
E.S. CENTRAL	1	200	1,387	3	145	137	3	1,321	1	2	294	7
Ky.	-	37	118	-	29	28	2	1,087	-	-	68	-
Tenn.	-	51	934	2	40	32	1	97	1	1	92	-
Ala.	1	84	101	-	37	43	-	22	-	1	43	5
Miss. †	-	28	234	1	39	34	-	115	-	-	91	2
W.S. CENTRAL	5	894	1,034	1	306	265	4	1,332	3	2	227	11
Ark.	-	9	14	-	26	21	-	480	-	-	6	2
La.	-	245	341	-	115	109	-	36	-	-	26	2
Okla.	-	22	12	-	25	16	-	-	-	-	22	-
Tex.	5	618	667	1	140	119	4	816	3	2	173	7
MOUNTAIN	3	309	250	3	75	38	4	258	1	-	504	-
Mont.	-	57	106	-	7	3	-	10	-	-	68	-
Idaho	3	21	1	1	6	3	-	8	-	-	199	-
Wyo.	-	36	-	-	1	-	-	-	-	-	-	-
Colo.	-	60	30	-	5	3	1	72	1	-	64	-
N. Mex. †	-	35	-	-	4	7	-	12	-	-	11	-
Ariz.	-	72	50	2	33	13	2	51	-	-	126	-
Utah	-	17	44	-	8	5	1	94	-	-	34	-
Nev.	-	11	19	-	11	4	-	11	-	-	2	-
PACIFIC	3	2,201	816	2	273	237	5	671	1	1	2,132	1
Wash.	2	1,126	157	1	45	39	-	186	-	-	172	-
Oreg.	-	58	145	-	22	27	2	74	1	-	91	-
Calif.	NA	935	507	-	191	162	NA	307	NA	NA	1,845	1
Alaska	-	17	-	-	5	6	-	9	-	-	3	-
Hawaii	1	65	7	1	10	3	3	95	-	1	21	-
Guam	NA	3	25	-	1	-	NA	8	NA	NA	4	-
P.R.	NA	324	236	-	3	6	NA	527	NA	NA	33	6
V.I.	NA	4	6	-	3	1	NA	15	NA	NA	-	-
Pac. Trust Terr. †	NA	6	587	-	1	2	NA	26	NA	NA	1	-

NA: Not available.

*Delayed reports received for 1978 are not shown below but are used to update last year's weekly and cumulative totals.

†The following delayed reports will be reflected in next week's cumulative totals: Measles: Ind. -1, Wis. -1, Miss. -4, N.Mex. +4, Pac.Tr.Terr. +1; Men. -1; N.J. -1, Va. -1; Mumps: Pac.Tr.Terr. +2; Pertussis: N.Mex. -1; Rubella: Vt. -1.

TABLE III (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending September 1, 1979, and September 2, 1978 (35th week)

REPORTING AREA	TUBERCULOSIS		TULA- REMIA	TYPHOID FEVER		TYPHUS FEVER (Tick-borne) (RMSF)		VENEREAL DISEASES (Civilian)						RACIES (In Animals)
								GONORRHEA			SYPHILIS (Pri. & Sec.)			
	1979	CUM. 1979	CUM. 1979	1979	CUM. 1979	1979	CUM. 1979	1978	CUM. 1979	CUM. 1978*	1979	CUM. 1979	CUM. 1978*	
UNITED STATES	399	18,892	138	8	303	50	810	15,148	654,442	661,405	320	16,011	13,942	3,301
NEW ENGLAND	8	506	3	-	18	-	6	520	16,527	17,143	8	317	391	35
Maine	-	38	-	-	1	-	-	28	1,150	1,322	-	7	7	22
N.H.†	1	9	-	-	-	-	-	25	617	803	-	18	5	3
Vt.	2	24	-	-	-	-	-	12	387	400	-	1	3	-
Mass.	2	270	3	-	11	-	3	221	6,546	7,513	7	178	239	9
R.I.	3	43	-	-	2	-	-	28	1,355	1,234	-	11	16	-
Conn.	-	122	-	-	4	-	3	206	6,472	5,871	1	102	121	1
MID. ATLANTIC	77	2,979	1	3	50	4	34	1,109	70,604	7,101	19	2,406	1,851	45
Upstate N.Y.	8	551	1	1	9	2	22	319	11,778	11,849	9	179	135	32
N.Y. City	32	1,098	-	1	23	-	1	NA	27,233	27,232	NA	1,621	1,294	-
N.J.	17	542	-	1	12	-	5	250	12,839	13,148	6	323	215	5
Pa.	20	788	-	-	6	2	6	540	18,754	18,856	4	283	207	8
E.N. CENTRAL	87	2,778	-	-	23	2	49	2,605	101,419	99,071	30	2,104	1,516	283
Ohio†	17	495	-	-	3	-	14	484	28,112	25,756	-	395	291	26
Ind.	17	358	-	-	-	-	2	NA	8,637	9,887	NA	154	94	59
Ill.	25	1,104	-	-	7	2	29	1,066	31,354	31,341	23	1,186	938	151
Mich.	27	694	-	-	10	-	3	758	24,024	23,136	5	306	146	10
Wis.†	1	127	-	-	3	-	1	297	9,292	8,951	2	63	47	57
W.N. CENTRAL	26	645	19	-	10	3	41	1,179	32,321	33,233	3	215	306	660
Minn.	-	102	-	-	2	-	2	235	5,464	5,693	2	57	130	120
Iowa	2	52	-	-	2	-	13	170	3,963	3,684	-	27	28	128
Mo.	13	347	16	-	4	2	17	571	13,959	14,500	1	100	84	206
N. Dak.	-	14	-	-	-	-	-	14	540	614	-	2	2	49
S. Dak.	-	38	2	-	-	-	-	31	1,090	1,171	-	1	2	66
Nebr.	5	11	1	-	1	-	1	102	2,269	2,451	-	2	11	-
Kans.	6	81	-	-	1	1	8	56	5,036	5,120	-	26	49	91
S. ATLANTIC	83	4,326	8	2	35	33	471	4,023	158,893	161,930	78	3,844	3,707	465
Del.	-	34	-	-	-	-	3	67	2,624	2,260	1	21	6	-
Md.	13	567	-	-	8	4	52	588	19,584	20,432	6	255	277	9
D.C.	-	216	2	-	1	-	2	434	10,437	10,900	8	302	287	-
W. Va.	15	497	1	1	5	-	76	616	15,425	15,540	9	326	313	13
N. C.†	3	161	-	-	3	1	9	73	2,202	2,244	-	41	13	-
S. C.†	25	691	-	1	1	16	182	807	22,937	23,159	3	316	378	9
Ga.	10	321	1	-	3	4	68	383	14,905	15,851	6	201	188	148
Fla.†	17	689	4	-	-	7	75	1,055	30,415	31,363	45	1,074	915	245
	NA	1,150	-	-	14	1	4	NA	40,364	42,181	NA	1,308	1,330	41
E.S. CENTRAL	34	1,758	14	1	15	3	114	1,346	56,249	57,038	33	1,060	717	234
Ky.†	9	454	2	-	5	-	18	321	7,439	7,237	9	114	95	93
Tenn.†	14	509	12	-	2	2	69	506	20,335	21,132	10	443	239	84
Ala.	7	405	-	1	6	1	17	284	16,510	16,408	6	200	124	56
Miss.	4	390	-	-	2	-	10	235	11,965	12,261	8	303	259	1
W.S. CENTRAL	58	2,301	57	-	44	4	77	2,572	85,039	89,885	127	2,943	2,215	1,280
Ark.	-	200	36	-	1	-	16	199	6,720	6,484	4	97	47	258
La.	5	466	4	-	4	-	1	360	14,997	14,632	32	708	469	20
Okla.†	6	245	12	-	-	4	47	326	8,156	8,479	6	63	66	198
Tex.	47	1,390	5	-	39	-	13	1,687	55,166	60,290	85	2,075	1,633	804
MOUNTAIN	8	570	32	-	21	1	14	1,292	26,356	25,072	19	314	280	78
Mont.†	1	27	7	-	-	1	4	34	1,233	1,417	-	6	7	8
Idaho†	-	10	1	-	1	-	2	52	1,166	986	1	21	9	3
Wyo.	-	4	-	-	1	-	-	12	694	582	-	5	8	-
Colo.	2	86	12	-	12	-	4	396	6,955	6,972	1	64	81	21
N. Mex.†	-	98	2	-	2	-	1	124	3,301	3,569	3	62	65	27
Ariz.	2	276	-	-	3	-	-	526	7,473	6,539	10	94	67	17
Utah	-	24	8	-	-	-	-	44	1,351	1,354	-	3	11	2
Nev.	3	45	2	-	2	-	3	104	4,183	3,653	4	59	32	-
PACIFIC	18	3,029	4	2	87	-	4	502	107,034	106,932	3	2,808	2,959	221
Wash.†	10	183	3	2	4	-	-	193	9,351	8,477	NA	133	151	-
Oreg.	4	131	-	-	1	-	-	183	6,982	7,362	1	115	103	9
Calif.	NA	2,454	1	NA	74	NA	4	NA	85,302	85,839	NA	2,471	2,669	210
Alaska	-	52	-	-	1	-	-	54	3,398	3,318	2	21	8	2
Hawaii	4	209	-	-	7	-	-	72	2,001	1,936	-	68	28	-
Guam	NA	42	-	NA	-	NA	-	NA	62	85	NA	-	-	-
P.R.	NA	215	-	NA	4	NA	-	NA	1,342	1,535	NA	322	329	15
V.I.	NA	3	-	NA	1	NA	-	NA	115	142	NA	6	12	-
Pac. Trust Terr.†	NA	18	-	NA	-	NA	-	NA	242	330	NA	1	-	-

NA: Not available.

*Delayed reports received for 1978 are not shown below but are used to update last year's weekly and cumulative totals.

†The following delayed reports will be reflected in next week's cumulative totals: TB: N.H.+1, N.C.-3, Ky.-1, Tenn.-10, Mont.+1, N.Mex.+2, Wash.-2, Pac.Tr.Terr.+2; Tularemia: N.Mex.+1, T.Fever: N.Mex.+2; RMSF: Ohio+3, Tenn.-2, N.Mex.-1; GC: Wis.-1, Tenn.-2, Mont.+8, Pac.Tr.Terr.+31; An. rabies: S.C.-3, Fla.+1, Okla.-1, Idaho+1, N.Mex.+3.

TABLE IV. Deaths in 121 U.S. cities,* week ending
September 1, 1979 (35th 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			ALL AGES	>65	45-64	25-44	<1	
NEW ENGLAND	686	434	161	33	34	38	S. ATLANTIC	1,022	593	264	71	49	39
Boston, Mass.	173	99	45	14	7	8	Atlanta, Ga.	170	107	41	13	-	2
Bridgeport, Conn.	47	29	15	2	-	3	Baltimore, Md.	126	63	40	11	5	-
Cambridge, Mass.	34	25	7	2	-	3	Charlotte, N.C.	51	28	17	5	-	2
Fall River, Mass.	27	25	-	1	-	-	Jacksonville, Fla.††	77	45	19	5	3	4
Hartford, Conn.	44	28	10	-	2	1	Miami, Fla.	114	54	28	11	18	2
Lowell, Mass.	39	30	5	3	-	3	Norfolk, Va.	58	29	16	4	5	5
Lynn, Mass.	15	11	4	-	-	-	Richmond, Va.	79	47	24	3	3	8
New Bedford, Mass.	33	24	9	-	-	-	Savannah, Ga. ††	35	20	9	2	2	3
New Haven, Conn.	75	37	8	3	23	-	St. Petersburg, Fla.	96	85	9	1	-	5
Providence, R.I.	65	40	20	2	1	6	Tampa, Fla.	63	36	16	4	6	3
Somerville, Mass.	10	8	1	1	-	-	Washington, D.C.	101	52	31	11	3	4
Springfield, Mass.	51	28	19	2	-	5	Wilmington, Del.	52	27	14	1	4	1
Waterbury, Conn.	23	20	3	-	-	5							
Worcester, Mass.	50	30	15	3	1	3							
MID. ATLANTIC	2,526	1,652	613	137	58	100	E.S. CENTRAL	686	395	164	60	30	25
Albany, N.Y.	39	27	10	2	-	1	Birmingham, Ala.	116	70	26	11	3	1
Allentown, Pa.	19	8	11	-	-	1	Chattanooga, Tenn.	60	36	14	5	-	3
Buffalo, N.Y.	102	66	27	2	4	5	Knoxville, Tenn.	35	28	4	3	-	1
Camden, N.J.	22	12	5	4	1	2	Louisville, Ky.	104	56	28	9	6	8
Elizabeth, N.J.	26	20	5	1	-	1	Memphis, Tenn.	184	102	49	12	11	3
Erie, Pa.†	24	17	6	1	-	2	Mobile, Ala.	38	22	10	3	-	2
Jersey City, N.J.	56	30	23	2	1	1	Montgomery, Ala.	46	27	8	4	3	-
Newark, N.J.	54	29	10	5	6	1	Nashville, Tenn.	103	54	25	13	7	7
N.Y. City, N.Y.	1,322	863	307	80	29	44							
Paterson, N.J.	27	22	3	2	-	2	W.S. CENTRAL	960	525	245	94	34	28
Philadelphia, Pa.†	412	264	106	21	12	25	Austin, Tex.	43	27	9	1	3	1
Pittsburgh, Pa.†	64	38	24	2	-	1	Baton Rouge, La.	35	17	6	5	3	-
Reading, Pa.	30	28	2	-	-	1	Corpus Christi, Tex.	23	13	6	2	-	1
Rochester, N.Y.	111	82	21	4	2	7	Dallas, Tex.	135	76	33	16	4	2
Schenectady, N.Y.	27	20	6	1	-	-	El Paso, Tex.	37	18	9	5	3	4
Scranton, Pa.†	28	17	8	3	-	-	Fort Worth, Tex.	91	52	30	4	2	3
Syracuse, N.Y.	79	47	23	4	2	2	Houston, Tex.	202	84	57	29	6	3
Trenton, N.J.	31	19	8	2	1	-	Little Rock, Ark.	73	39	18	7	3	-
Utica, N.Y.	19	16	2	-	-	1	New Orleans, La.	82	44	25	10	1	-
Yonkers, N.Y.	34	27	6	1	-	3	San Antonio, Tex.	111	64	29	6	7	3
							Shreveport, La.	38	29	7	2	-	2
							Tulsa, Okla.	90	62	16	7	2	9
E.N. CENTRAL	2,201	1,338	538	157	91	47	MOUNTAIN	510	287	122	41	28	14
Akron, Ohio	70	49	17	2	1	-	Albuquerque, N. Mex.	48	26	15	1	2	3
Canton, Ohio	18	13	4	-	1	-	Colo. Springs, Colo.	27	12	10	3	-	1
Chicago, Ill.	541	313	139	45	20	12	Denver, Colo.	118	69	28	9	6	4
Cincinnati, Ohio	152	101	35	8	3	1	Las Vegas, Nev.	46	23	12	5	2	3
Cleveland, Ohio	138	85	29	13	9	4	Ogden, Utah	20	15	-	1	3	-
Columbus, Ohio	131	71	36	10	8	5	Phoenix, Ariz.	116	66	25	12	5	-
Dayton, Ohio	105	60	31	7	5	1	Pueblo, Colo.	20	13	6	-	-	2
Detroit, Mich.	242	127	61	25	18	4	Salt Lake City, Utah	44	26	6	6	2	1
Evansville, Ind.	42	25	13	3	-	2	Tucson, Ariz.	71	37	20	4	8	-
Fort Wayne, Ind.	50	31	11	4	2	1							
Gary, Ind.	19	8	7	2	-	-	PACIFIC	1,697	1,075	395	123	42	47
Grand Rapids, Mich.	60	33	21	2	1	1	Berkeley, Calif.	15	10	4	1	-	1
Indianapolis, Ind.	152	84	40	16	6	1	Fresno, Calif.	44	28	7	4	1	2
Madison, Wis.	29	20	5	-	1	7	Glendale, Calif.	26	20	3	2	1	2
Milwaukee, Wis.	136	93	33	6	4	1	Honolulu, Hawaii	60	28	18	6	5	3
Peoria, Ill.	41	25	10	3	2	1	Long Beach, Calif.	76	50	18	7	-	3
Rockford, Ill.	35	27	4	1	3	1	Los Angeles, Calif.	625	400	129	50	17	16
South Bend, Ind.	56	43	7	3	3	3	Oakland, Calif.	75	53	17	3	2	1
Toledo, Ohio	106	81	17	2	2	2	Pasadena, Calif.	22	15	4	-	2	1
Youngstown, Ohio	78	49	18	5	2	-	Portland, Ore.	116	80	25	6	3	1
							Sacramento, Calif.	81	38	25	8	3	5
W.N. CENTRAL	720	465	165	28	27	19	San Diego, Calif.	108	71	29	6	-	1
Des Moines, Iowa	52	38	10	1	1	1	San Francisco, Calif.	137	88	33	11	4	4
Duluth, Minn.	24	18	5	-	1	3	San Jose, Calif.	109	65	32	8	-	2
Kansas City, Kans.	29	12	10	1	3	2	Seattle, Wash.	126	77	34	8	2	2
Kansas City, Mo.	109	73	27	4	2	4	Spokane, Wash.	46	28	14	1	1	4
Lincoln, Neb.	33	21	10	-	-	3	Tacoma, Wash.	31	24	3	2	1	2
Minneapolis, Minn.	105	77	15	2	8	2							
Omaha, Neb.	85	48	24	4	5	-							
St. Louis, Mo.	157	104	35	9	3	1							
St. Paul, Minn.	48	44	15	4	1	1							
Wichita, Kans.	58	30	14	3	3	2							
TOTAL	11,008	6,764	2,667	744	393	357							

*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.

†† Data not available this week. Figures are estimates based on average percent of regional totals.

International Notes**Rabies Surveillance — Venezuela**

During 1978 and the first 8 weeks of 1979, canine rabies continued to be endemic in Venezuela with frequent epizootic outbreaks. In 1978, 744 cases of canine and feline rabies were reported there; in 1977, 509 had been reported.

Several major vaccination campaigns were undertaken in affected states last year. A total of 409,211 dogs were vaccinated, and 102,194 were eliminated. Eight human rabies cases were found in the epizootic areas of Maracaibo (3), Acarigua (3), Barquisimeto (1), and Puerto Cabello (1).

During the first 8 weeks of 1979, the foci of Zulia, Carabobo, Lara, Portuguesa, and Yaracuy were active. A case in a dog coming from Carabobo was diagnosed during the first week of March in Miranda state, where no cases of canine rabies had been reported for the past 3 years. There have been 2 human cases: 1 in Acarigua and the other in Puerto Cabello.

During March 1979 a vast campaign was initiated in Zulia state; the vaccination target was 100,000 dogs during March and April. A large budget and 5 additional veterinarians were made available for this operation.

Reported by the World Health Organization in the Weekly Epidemiological Record 54:218-219, 1979.

Epidemiologic Notes and Reports**Tuberculosis in Children and Young Adults — Tennessee**

On July 20, 1978, a case of infectious pulmonary tuberculosis was diagnosed in a Tennessee resident. Contact investigation revealed 7 more cases of tuberculosis and 51 tuberculous infections (positive skin-test reactors). The 8 cases of clinical disease and 45 of the 51 tuberculous infections were in persons less than 25 years of age. Four of the 7 cases in contacts occurred in children less than 5 years old. The index patient and the 7 other patients were started on appropriate therapy. Forty-three reactors (3 previously known) and 12 close contacts who had negative skin tests were started on preventive therapy with isoniazid (INH).

The index patient, a 20-year-old man, was admitted to a general hospital in west Tennessee on July 19 with a history of productive cough of 3 weeks' duration, a weight loss of 20 pounds, fever, and night sweats. Subsequent evaluation revealed infiltration with cavitation on chest X ray, confirmed bacteriologically as tuberculosis. (The smear and culture were positive.) He was discharged from the hospital, under therapy, on August 2.

The patient lived in 2 households in the community and had social contacts in 7 other households. Initial investigation of the first 3 households identified 23 close contacts, 21 (91%) of which were found to be infected. Five more patients with clinical tuberculosis were found among these contacts—3 children less than 5 years of age and 2 young adults less than 21 years of age.

Investigation of contacts of the 2 new infectious young adult cases, which involved 6 households, revealed 32 more persons needing examination. All of these contacts received Mantoux tuberculin tests and chest X rays; 10 (31%) were infected, and 1 more patient with clinical tuberculosis was identified—a 2-year-old. The seventh new case, a

Tuberculosis — Continued

22-year-old man, was reported by a physician in the community and was not known to be associated with the outbreak until he named the index patient as one of his contacts.

Because one of the infectious patients in this outbreak was attending public school, the investigation was extended to include 38 students riding a school bus, the bus driver, 72 homeroom students in a high school, 51 students attending classes in a vocational school, and the faculty from both schools. The testing of the 72 homeroom students resulted in an 8.3% reactor rate; therefore, 250 other students and faculty were tuberculin tested. A total of 405 students and faculty of the 2 schools were tuberculin tested. Seventeen tuberculin reactors were identified, and 14 were started on INH; 3 had received INH previously. Three months later the schools were retested, and 3 additional reactors were found and started on INH. One of the converters was the best friend of the patient who was attending school.

Reported by JS Levy, MD, Memphis-Shelby County Health Dept; J Larkin Jr, MD, M Woloshyn, RN, D Zaino, RN, RH Hutcheson Jr, MD, State Epidemiologist, Tennessee State Dept of Public Health; and the Tuberculosis Control Div, Bur of State Services, CDC.

Editorial Note: Tuberculosis in the pre-chemotherapy era was a common disease of children, adolescents, and young adults. Because transmission of tuberculous infection has declined markedly since chemotherapy was introduced 3 decades ago, disease in young people is much less common now. Most tuberculosis in the United States is found in older age groups and represents recrudescence of infection that occurred many years before.

This report describes an outbreak with 8 cases of tuberculosis in persons less than 25 years of age. Tuberculosis in young people is usually an indication that recent transmission has been occurring in their environment. Although the number of cases in young people is much less than that in older age groups, tuberculosis is not rare under age 25. In 1978, 70 cases (8.3%) out of the 842 cases reported to CDC by Tennessee were in persons under age 25. For the whole country, 3,585 (12.6%) cases out of a total of 28,521 were in persons under 25.

Cases of clinical disease represent only a portion of infections transmitted in an outbreak. In this instance 51 persons—more than 6 times the number of diagnosed cases—were found to have tuberculous infection. Forty-five of these were in young persons. If left untreated, some of these infected persons were destined to become clinical cases and potential sources of transmission years later. For that reason, prompt and thorough contact examination, followed by preventive treatment with INH for infected contacts, is a critical component of the containment process in tuberculosis control.

Surveillance Summary

Mumps — United States, 1978-1979

As of August 25 (the 34th week of 1979), 11,015 cases of mumps were reported to CDC. This represents a 16.6% decrease in mumps activity compared to the same time period in 1978.

The 1978 total of mumps cases (16,817) was 21.5% less than the 1977 total (21,436) (Figure 3). Thirty-three reporting areas provided age data on 6,173 (36.7%) of the cases. Between 1977 and 1978, there were declines in reports of mumps for all age groups except for the ≥ 20 -year group, which experienced no change. Mumps continues to be a disease primarily of elementary school children (Table 2). Children 5-9 years of age accounted for 50% of the cases and had the highest incidence rate (49.1 cases per 100,000 population). Approximately one-fourth of the cases occurred in the 10- to 14-year age group, which had the next highest incidence rate (21.8 cases per 100,000 population).

Mumps — Continued

FIGURE 3. Reported cases of mumps, United States, 1922-1978

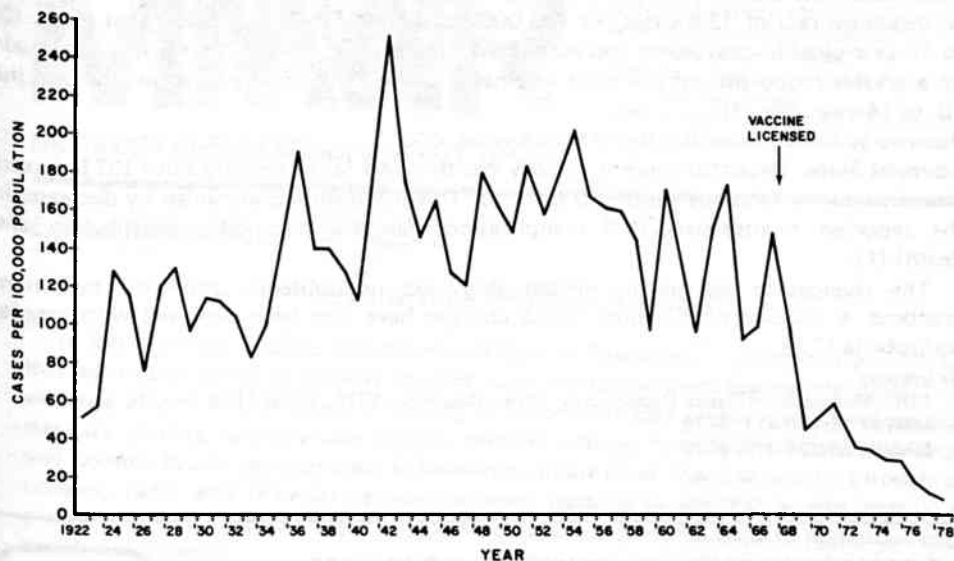


TABLE 2. Percent distribution of reported mumps cases and incidence rate,* by age group, United States, 1978†

Age group (yrs)	Number of cases	Percent distribution	Incidence rate
<5	774	12.5	13.8
5-9	3,092	50.1	49.1
10-14	1,526	24.7	21.8
15-19	400	6.5	5.2
20+	381	6.2	0.7
Total with age known	6,173	36.7	—
Total with age unknown	10,644	63.3	—
TOTAL	16,817	100.00	7.8

*Incidence rate = cases per 100,000 population extrapolated from the age distribution of known cases from 33 reporting areas.

†Provisional total.

(Continued on page 424)

The Morbidity and Mortality Weekly Report, circulation 87,803, 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.

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Mumps – Continued

Children less than 5 years old made up only approximately 10% of the cases and had an incidence rate of 13.8 cases per 100,000 population, which was below that of the 10- to 14-year-olds. In prevaccine and early postvaccine years, the less than 5-year-olds made up a greater proportion of the cases and had a greater risk of acquiring mumps than the 10- to 14-year-olds (1).

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

Editorial Note: Reported mumps activity has declined fairly steadily since 1971, 4 years after licensure of mumps vaccine (Figure 3). This has been accompanied by decreases in the reported mumps-associated complications (aseptic meningitis, encephalitis, and death) (1).

The changes in age-specific epidemiology are undoubtedly secondary to current practices of vaccine distribution. These changes have also been observed with measles and rubella (2,3).

References

1. CDC: Mumps Surveillance Report, July 1974 - December 1976. Issued 1978
2. MMWR 28:410-411, 1979
3. MMWR 28:374-375, 1979

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