

MMWR

MORBIDITY AND MORTALITY WEEKLY REPORT

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Surveillance Summary

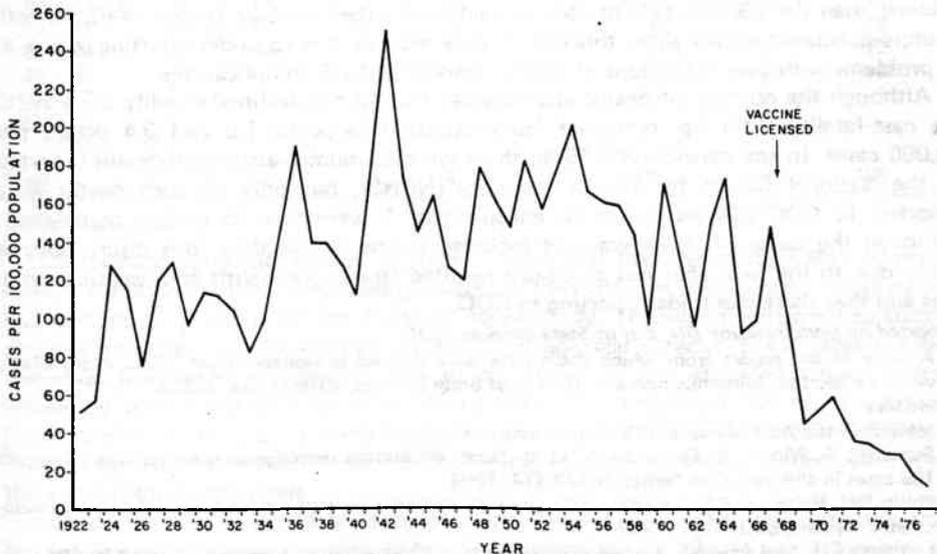
Mumps – United States

The incidence of mumps in the United States has reached its lowest point since reporting of this disease began in 1922 (Figure 1). There were 21,436 cases of mumps reported in the United States in 1977 (1). This represents a 44.3% decrease from 1976 and a 64.4% decrease from the average annual total for 1972-1976.

Analyses of surveillance data on mumps cases are available through 1976. Geographically, almost all areas of the country reported declining mumps activity in 1976, although there was considerable regional variation in incidence of reported illness. From 1973 through 1976, the 12 states with the highest average rates of mumps per 100,000 population under 18 years were Washington, Oregon, Kansas, Iowa, Wisconsin, Michigan, Tennessee, Kentucky, West Virginia, Connecticut, Rhode Island, and Maine. The seasonal pattern of mumps cases—a peak incidence in the winter and spring months—has remained unchanged.

Mumps remains predominantly a disease of young children. Over the past decade, incidence rates in 3 selected areas—California, Massachusetts, and New York City—have been highest in the 5- to 9-year-old group, followed by the <1-4, 10-14, and ≥15 age

FIGURE 1. Reported cases of mumps per 100,000 population, United States, 1922-1977



Mumps – Continued

groups. With increasing use of mumps vaccination, reported incidence of mumps in these same 3 areas has declined dramatically in all age groups. The most marked decrease (68.6%) has been in the 5- to 9-year age group.

Encephalitis and aseptic meningitis are the only complications of mumps officially reportable to CDC. The number of mumps encephalitis cases reported each year since 1968 has been consistently fewer than the number reported before mumps vaccine was licensed, and in 1975 it was 26% below the average number reported in the preceding 5 years. Provisional 1976 data indicate that this trend is continuing. Mumps encephalitis accounted for 3.9% of all reported encephalitis cases in 1976, compared with 35.8% of all cases in 1967. Even with this reduction, mumps was the most commonly diagnosed cause of encephalitis—primary and post-infectious—in the United States until 1975. In that year it was responsible for only 6.8% of all diagnosed encephalitis—due in part to the declining incidence of mumps, but primarily to the marked increase in arboviral encephalitis, especially St. Louis encephalitis. Although the ratio of reported mumps-associated encephalitis cases to reported mumps cases was somewhat variable before 1968, the rate thereafter has remained fairly stable at about 2.6 per 1,000 cases. This figure is lower than that cited by other authors, who report from 60 to 100 cases of encephalitis per 1,000 mumps cases (2,3).

The case-fatality ratio for encephalitis has averaged 1.4% over this period (range 0-2.4%). Encephalitis was reported 3 times more frequently in males than in females. In older age groups, the male predominance is less apparent. Recent age data are available from only 6 reporting areas. Although only 10.5% of all mumps cases occurred in patients over 15 years of age, 15.4% of the encephalitis and 22.1% of the aseptic meningitis cases were from this age group, suggesting that involvement of the central nervous system (CNS) occurs more commonly with increasing age. The seasonal pattern of mumps encephalitis is similar to that of uncomplicated mumps, with a peak incidence in the spring.

The number of reported mumps aseptic meningitis cases has been relatively unchanged in recent years, accounting for approximately 1.1% of all viral aseptic meningitis and occurring at a rate ranging from 0.4 to 1.0 per 1,000 reported mumps cases. This rate is lower than the 5%-25% rate of aseptic meningitis cited in other studies (4-6). As with mumps-associated encephalitis, this discrepancy may be due to underreporting as well as to problems with case definitions of mumps-associated CNS complications.

Although the number of deaths attributed to mumps has declined steadily since 1966, the case-fatality ratio has remained fairly constant—between 1.0 and 3.4 deaths per 10,000 cases. In the period 1969-1975, there were 95 mumps-associated deaths reported to the National Center for Health Statistics (NCHS), but only 25 such deaths were reported to CDC (24 secondary to encephalitis, 1 secondary to aseptic meningitis). Although the cause of death was not included in the NCHS data, this discrepancy is likely due to the facts that not all deaths resulted from encephalitis and aseptic meningitis and that there was underreporting to CDC.

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

▲ A copy of the report from which these data were derived is available from: CDC, Attn: Chief, Surveillance Section, Immunization Div, Bureau of State Services, Atlanta, Ga. 30333.

References

1. MMWR 26(53 Annual Suppl), 1977 (in press)
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4. Lennette EH, Mayoffin NL, Knowf EG: Viral central nervous system disease. *JAMA* 179:687-695, 1962

Mumps — Continued

5. Adair CU, Gaulf RL, Smadel JE: Aseptic meningitis, a disease of diverse etiology: Clinical and etiologic studies on 854 cases. *Ann Intern Med* 39:675-704, 1953

6. Young NA: Chickenpox, measles, and mumps, in Remington JJ, Klein JO (ed.): *Infectious Diseases of the Fetus and Newborn Infant*. Philadelphia, WB Saunders Co, 1976, p 573

*International Notes***Follow-up on Poliomyelitis — Netherlands**

As of September 29, 1978, there have been a total of 108 cases of poliomyelitis reported to the Ministry of Health, Netherlands. The most recent case, in a person from the province of Gelderland, had onset of illness on September 20. There have been 4 cases reported for the month of September in contrast to 57 cases in June.

All cases to date continue to be among members of religious groups that have refused vaccination. The cases have been geographically confined to a belt that parallels the main population concentrations of these religious communities and runs from the province of Zeeland in the Southwest to the province of Overijssel in the Northeast.

Sixty-six of the cases occurred in males, 42 in females (Table 1) (1). Seventy-eight of the reported cases had paralysis; the remaining 30 had aseptic meningitis. The paralytic cases included 65 cases with spinal paralysis, 8 with bulbar paralysis, and 5 with both spinal and bulbar involvement. There was 1 death in a female infant 3 months of age.

TABLE 1. Poliomyelitis cases, by sex and age group, Netherlands, April 15-September 29, 1978**

Age group (years)	Number of cases			Confirmed virologically
	Male	Female	Total	
<1	2	1	3	3
1 - 4	5	5	10	10
5 - 9	21	7	28	27
10 - 14	12	12	24	23
15 - 19	12	6	18	18
20 - 24	6	6	12	12
25 - 34	7	3	10	10
35 - 44	1	2	3	3
45 - 54	-	-	-	-
≥55	-	-	-	-
Total	66	42	108	106

**provisional data (1)

The present epidemic, caused by type 1 virus, was first detected on May 3, when 2 cases were reported from neighboring villages in the center of the country. These patients had become ill on April 23 and April 24, respectively. Through a retrospective study in the involved regions, a 14-year-old girl from a village near Utrecht—presumably the index case—was discovered to have become ill on April 15. She attended a large, regional, secondary school attended by more than 1,000 pupils from over 100 municipalities. A large number of the pupils came from the few religious groups that refuse vaccination. Schools such as this are felt to have been the major means by which the poliovirus spread throughout the Netherlands.

Canada has reported 6 cases of paralytic poliomyelitis related to this outbreak. In the United States there have been no cases of polio that can be related to this ongoing outbreak.

Poliomyelitis — Continued

Reported by H Bijkerk, MD, Office of the Chief Medical Officer, Netherlands; Viral Diseases Div, Bur of Epidemiology, CDC.

Editorial Note: This situation is unique because a major outbreak of poliomyelitis has occurred in a country which exclusively uses the inactivated polio vaccine (IPV) and has an overall vaccine acceptance rate of 95%. In the past, outbreaks in the Netherlands were confined to areas of the country where relatively large numbers of persons were inadequately vaccinated. In well-vaccinated areas only sporadic cases, not outbreaks, were seen. In this outbreak no cases have occurred in fully vaccinated persons.

Reference

1. Bijkerk H: Poliomyelitis epidemic in some Protestant communities in the Netherlands. Paper given at the Fourth International Congress for Virology, The Hague, August 31, 1978. Updated and corrected through September 29, 1978.

Notice to Readers

Effective October 9, 1978, the main telephone number for the Center for Disease Control, Clifton Road Facility, will be (404) 329-3311. Individual parties within CDC can be dialed directly by using the 329 exchange plus extension. Persons at CDC's East Paces Ferry offices can be reached by dialing 262-plus extension, and parties at Chamblee offices by dialing 452-plus extension.

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

DISEASE	39th WEEK ENDING			CUMULATIVE, FIRST 39 WEEKS		
	September 30, 1978	October 1, 1977*	MEDIAN 1973-1977**	September 30, 1978	October 1, 1977*	MEDIAN 1973-1977**
Aseptic meningitis	274	166	166	4,030	3,385	2,748
Brucellosis	3	5	5	113	173	173
Chickenpox	324	665	364	123,332	161,701	145,751
Diphtheria	1	2	2	61	72	143
Encephalitis: Primary (arthropod-borne & unsp.)	33	47	47	686	773	1,069
Post-infectious	3	5	5	156	164	210
Hepatitis, Viral: Type B	299	327	253	11,060	12,373	8,663
Type A	607	627	747	21,506	23,085	26,162
Type unspecified	184	197		6,537	6,623	
Malaria	13	13	9	529	416	315
Measles (rubeola)	89	101	83	23,240	53,089	24,371
Meningococcal infections: Total	22	25	22	1,817	1,359	1,119
Civilian	22	29	22	1,793	1,350	1,094
Military	—	—	—	24	9	24
Mumps	130	197	292	13,471	16,388	45,126
Pertussis	48	91	—	1,487	1,252	—
Rubella (German measles)	66	102	84	15,326	18,770	14,962
Tetanus	2	1	1	61	55	68
Tuberculosis	637	567	627	22,582	22,581	23,589
Tularemia	4	5	2	95	126	115
Typhoid fever	7	6	11	369	284	307
Typhus fever, tick-borne (Rky. Mt. spotted)	44	23	22	898	1,025	732
Venereal diseases:						
Gonorrhea: Civilian	21,666	21,095	21,244	748,676	742,478	742,478
Military	387	552	552	18,915	20,500	22,454
Syphilis, primary & secondary: Civilian	519	450	484	15,838	15,439	18,144
Military	10	15	6	226	234	258
Rabies in animals	55	66	66	2,318	2,339	2,264

TABLE II. Notifiable diseases of low frequency, United States

	CUM. 1978		CUM. 1978
Anthrax	5	Poliomyelitis: Total	2
Botulism (NYC 1, Ariz. 1)	61	Paralytic	1
Cholera † (La. 8)	8	Psittacosis †	82
Congenital rubella syndrome	23	Rabies in man	—
Leprosy (Tex. 1, Calif. 3, Hawaii 4)	122	Trichinosis †	42
Leptospirosis †	45	Typhus fever, flea-borne (endemic, murine) (Hawaii 1)	33
Plague †	6		

* Delayed reports received for calendar year 1977 are used to update last year's weekly and cumulative totals.

** Medians for gonorrhea and syphilis are based on data for 1975-1977.

† The following delayed reports will be reflected in next week's cumulative totals: Cholera: La. +1, Leptospirosis: Ill. +1, Plague: N. Mex. +1, Psittacosis: Ill. +1, Trichinosis: Fla. +1.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending September 30, 1978, and October 1, 1977 (39th week)

REPORTING AREA	ASEPTIC MENINGITIS	BRUCellosIS	CHICKENPOX	DIPHTHERIA		ENCEPHALITIS			HEPATITIS (VIRAL), BY TYPE			MALARIA	
						Primary		Post-infectious	B	A	Unspecified		
						1978	CUM. 1978	1978	1977*	1978	1978		
UNITED STATES	274	3	324	1	61	33	47	3	299	607	184	13	529
NEW ENGLAND	7	--	54	--	--	--	1	--	10	11	6	1	28
Maine	--	--	15	--	--	--	--	--	1	4	--	--	1
N.H. †	--	--	--	--	--	--	--	--	--	--	--	--	4
Vt.	--	--	--	--	--	--	--	--	--	1	--	--	--
Mass.	1	--	15	--	--	--	1	--	2	3	5	--	7
R.I.	2	--	20	--	--	--	--	--	1	--	--	--	5
Conn.	4	--	4	--	--	--	--	--	6	3	1	1	11
MID. ATLANTIC	73	--	23	--	1	8	4	--	50	39	21	3	112
Upstate N.Y.	8	--	10	--	--	4	--	--	11	17	9	--	17
N.Y. City	13	--	13	--	1	4	1	--	14	6	5	1	49
N.J. †	25	--	NN	--	--	--	1	--	17	13	7	2	22
Pa.	23	--	--	--	--	--	2	--	8	3	--	--	24
E.N. CENTRAL	26	1	119	--	--	8	15	1	50	109	18	2	29
Ohio	--	--	1	--	--	7	10	--	5	36	--	--	5
Ind. †	3	--	24	--	--	--	1	--	11	6	5	--	3
Ill. †	--	--	11	--	--	--	--	--	16	32	2	--	4
Mich.	27	--	54	--	--	1	2	1	16	31	8	2	15
Wis.	6	1	29	--	--	--	2	--	2	4	3	--	2
W.N. CENTRAL	7	--	27	--	2	3	--	--	13	50	5	--	21
Minn.	--	--	--	--	--	--	--	--	7	19	--	--	4
Iowa	--	--	18	--	--	--	--	--	2	2	1	--	--
Mo.	1	--	--	--	1	--	--	--	1	14	4	--	7
N. Dak. †	--	--	4	--	--	--	--	--	--	1	--	--	--
S. Dak.	1	--	--	--	--	--	--	--	1	1	--	--	1
Nebr.	1	--	1	--	1	--	--	--	--	2	--	--	4
Kans.	4	--	4	--	--	3	--	--	2	11	--	--	5
S. ATLANTIC	53	--	39	--	--	6	11	2	68	77	31	2	94
Del.	--	--	1	--	--	1	--	--	2	--	1	--	1
Md.	35	--	--	--	--	4	--	--	10	3	4	--	21
D.C.	--	--	--	--	--	--	--	--	2	--	--	--	2
Va. †	2	--	13	--	--	1	--	--	3	7	4	--	20
W. Va.	--	--	3	--	--	--	1	--	2	1	--	--	1
N.C.	9	--	NN	--	--	--	--	1	5	3	5	1	9
S.C.	3	--	--	--	--	--	--	--	2	--	--	--	4
Ga. †	--	--	2	--	--	--	--	--	10	14	--	--	7
Fla.	4	--	20	--	--	--	10	1	32	49	17	1	29
E.S. CENTRAL	21	--	2	--	--	1	7	--	4	21	1	1	6
Ky.	4	--	2	--	--	--	--	--	--	--	--	--	2
Tenn.	3	--	NN	--	--	--	6	--	3	3	1	--	1
Ala.	12	--	--	--	--	--	--	--	1	7	--	--	1
Miss. †	2	--	--	--	--	1	1	--	--	11	--	--	2
W.S. CENTRAL	20	1	9	--	1	6	5	--	28	114	46	1	26
Ark.	1	1	--	--	1	1	--	--	2	1	3	--	1
La. †	4	--	NN	--	--	1	--	--	10	19	4	--	3
Okla. †	2	--	--	--	--	--	1	--	--	5	5	--	--
Tex. †	13	--	9	--	--	4	4	--	16	89	34	1	22
MOUNTAIN	7	1	17	1	4	--	1	--	18	42	9	--	4
Mont.	1	--	7	--	--	--	--	--	1	--	--	--	--
Idaho	1	1	1	--	--	--	--	--	1	1	--	--	--
Wyo.	--	--	--	--	--	--	--	--	--	--	1	--	--
Colo.	5	--	8	--	2	--	1	--	11	20	4	--	1
N. Mex. †	--	--	--	--	--	--	--	--	--	3	--	--	1
Ariz.	--	--	NN	1	1	--	--	--	1	5	2	--	1
Utah	--	--	--	--	--	--	--	--	1	8	1	--	--
Nev.	--	--	1	--	1	--	--	--	3	5	1	--	1
PACIFIC	50	--	34	--	53	1	3	--	58	144	47	3	209
Wash. †	8	--	27	--	49	--	1	--	3	15	4	--	7
Oreg.	14	--	--	--	--	--	1	--	6	19	4	--	5
Calif. †	26	--	--	--	1	1	1	--	47	102	37	3	175
Alaska	1	--	3	--	3	--	--	--	--	1	--	--	4
Hawaii	1	--	4	--	--	--	--	--	2	7	2	--	18
Guam †	NA	NA	NA	NA	--	NA	--	--	NA	NA	NA	NA	--
Pac. Trust Terr.	--	--	13	--	--	--	--	--	--	--	5	--	--
P.R.	--	--	5	--	--	--	--	--	--	4	9	--	4
V.I.	NA	NA	NA	NA	--	NA	--	--	NA	NA	NA	NA	1

NN: Not notifiable. NA: Not available.

*Delayed reports received for 1977 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: Asep. meng.: Ind. +2, Ill. +12, Va. +13, La. -3; Bruc.: Ill. +1; Chickenpox: Ill. +1121, Calif. +4, Guam +3; Enceph.: N.H. +1, Ind. +6, Miss. +1, Wash. -1; Hep. B: N.J. -7, Ill. +95, N.Dak. +1, Ga. +1, La. -1; Hep. A: Ill. +142, N. Dak. +1, Ga. +17, La. -4, Okla. -3, Tex. -2, N. Mex. +2, Guam +2; Hep. Unsp.: N.J. -3, Ill. +48; Malaria: Ill. +8.

TABLE III (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending September 30, 1978, and October 1, 1977 (39th week)

REPORTING AREA	MEASLES (RUBEOLA)			MENINGOCOCCAL INFECTIONS TOTAL			MUMPS		PERTUSSIS	RUBELLA		TETANUS
	1978	CUM. 1978	CUM. 1977*	1978	CUM. 1978	CUM. 1977*	1978	CUM. 1978	1978	1978	CUM. 1978	CUM. 1978
UNITED STATES	89	23,240	53,089	22	1,817	1,359	130	13,471	48	66	15,326	61
NEW ENGLAND	—	1,966	2,451	—	101	56	8	736	1	5	744	2
Maine	—	1,314	170	—	8	3	—	486	—	2	151	—
N.H.	—	46	511	—	7	3	—	15	—	—	101	—
Vt.	—	27	293	—	2	6	—	5	—	—	27	2
Mass.†	—	244	623	—	40	17	3	88	—	2	219	—
R.I.	—	8	64	—	17	1	3	38	—	—	42	—
Conn.	—	327	830	—	27	26	2	104	1	1	204	—
MID. ATLANTIC	5	2,180	8,346	2	308	176	12	627	2	6	2,997	4
Upstate N.Y.	2	1,396	3,810	—	97	42	6	206	1	2	523	1
N.Y. City	3	354	721	1	72	47	1	150	—	3	131	—
N.J.	—	74	155	—	58	39	1	135	—	1	1,605	—
Pa.	—	356	3,614	1	81	48	4	136	1	—	738	3
E.N. CENTRAL	34	10,155	11,272	4	169	152	34	5,365	15	22	7,095	2
Ohio	1	484	1,852	—	66	56	5	937	7	3	1,368	1
Ind.	4	158	4,325	1	32	9	4	319	5	3	592	1
Ill.†	2	641	1,732	2	9	36	3	1,678	—	1	425	—
Mich.†	24	7,360	948	1	51	38	15	1,371	3	10	3,171	—
Wis.†	3	1,476	2,415	—	11	13	7	1,060	—	5	1,539	—
W.N. CENTRAL	2	388	5,455	2	60	58	7	1,926	10	4	667	6
Minn.	—	34	2,620	—	14	19	1	21	3	—	128	1
Iowa	—	53	4,277	—	5	8	3	124	—	2	55	—
Mo.	2	13	1,043	—	24	19	1	1,168	—	2	105	—
N. Dak.	—	193	23	—	3	1	—	15	—	—	81	—
S. Dak.	—	—	67	—	3	4	—	7	7	—	111	1
Nebr.	—	5	214	—	—	2	1	24	—	—	34	—
Kans.	—	90	1,211	2	11	5	1	567	—	—	153	4
S. ATLANTIC	15	4,980	4,617	5	458	304	42	811	4	7	1,020	14
Del.	1	7	22	—	16	21	—	56	—	—	35	—
Md.	—	51	371	2	30	20	1	69	—	—	7	2
D.C.	—	—	14	—	1	—	—	2	—	—	1	—
Va.	2	2,827	2,725	1	54	26	32	167	1	2	245	1
W. Va.	3	1,046	246	1	13	9	4	174	—	5	317	—
N.C.	1	120	64	—	89	62	1	69	2	—	180	3
S.C.	1	156	152	—	26	29	—	17	—	—	28	1
Ga.†	1	29	768	—	47	47	—	68	1	—	24	—
Fla.†	6	702	255	1	182	90	4	189	—	—	183	7
E.S. CENTRAL	1	1,384	2,032	2	148	138	6	1,141	—	1	503	3
Ky.	—	119	1,190	—	28	26	2	190	—	1	130	2
Tenn.	1	950	726	1	38	35	1	451	—	—	201	—
Ala.	—	89	78	1	45	51	1	420	—	—	22	—
Miss.	—	226	38	—	37	26	2	80	—	—	150	1
W.S. CENTRAL	17	1,070	2,089	4	276	269	5	1,696	4	10	930	14
Ark.	—	16	25	—	22	13	—	600	—	—	58	1
La.	—	343	74	—	113	124	—	65	—	1	486	1
Okla.	—	13	59	—	16	11	—	4	—	—	12	3
Tex.	17	658	1,927	4	125	121	5	1,027	3	9	374	9
MOUNTAIN	2	250	2,521	1	41	32	3	410	—	—	203	3
Mont.	—	105	1,162	1	3	2	2	143	—	—	18	—
Idaho	—	1	161	—	4	4	—	20	—	—	2	1
Wyo.	—	—	15	—	—	2	—	—	—	—	—	—
Colo.	1	30	503	—	3	1	—	92	—	—	47	1
N. Mex.	—	—	256	—	7	9	—	16	—	—	3	—
Ariz.	1	51	305	—	15	10	—	15	—	—	93	—
Utah	—	44	18	—	5	3	—	116	—	—	29	1
Nev.	—	19	53	—	4	1	1	7	—	—	11	—
PACIFIC	13	863	10,266	2	256	174	13	759	12	11	1,167	13
Wash.	8	177	541	—	41	22	4	177	1	2	108	1
Oreg.	—	148	366	—	28	18	4	92	1	2	117	—
Calif.	5	526	9,264	2	178	104	5	456	8	7	925	12
Alaska	—	1	60	—	6	28	—	8	2	—	7	—
Hawaii	—	9	35	—	3	2	—	26	—	—	10	—
Guam	NA	24	5	—	—	1	NA	37	NA	NA	4	1
Pac. Trust Terr.	6	13	—	—	—	—	—	1	—	—	2	—
P.R.	3	249	973	—	7	1	19	1,252	—	1	16	5
V.I.	NA	6	14	—	1	—	NA	1	NA	NA	1	—

NA: Not available.

* Delayed reports received for 1977 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: Mass. -1, Ill. +485, Mich. +281, Wis. -5, Ga. +2; Men inf.: Ill. +21, Ga. +1, Fla. -6; Mumps: Ill. +184; Pertussis: Ill. +73, Ga. +2; Rubella: Mass. -1, Ill. +1284, Wis. +1, Ga. +2; Tetanus: Ill. +1.

TABLE III (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending September 30, 1978, and October 1, 1977 (39th week)

REPORTING AREA	TUBERCULOSIS		TULA-REMLIA	TYPHOID FEVER		TYPHUS FEVER (Tick-borne) (RMSF)		VENEREAL DISEASES (Civilian)						RABIES (in Animals)
								GONORRHEA			SYPHILIS (Pri. & Sec.)			
	1978	CUM. 1978	CUM. 1978	1978	CUM. 1978	1978	CUM. 1978	1978	CUM. 1978	CUM. 1977*	1978	CUM. 1978	CUM. 1977*	CUM. 1978
UNITED STATES	637	22,582	95	7	369	44	898	21,866	748,676	742,478	519	15,838	15,439	2,318
NEW ENGLAND	16	743	2	1	75	-	13	665	19,540	19,940	12	445	625	85
Maine	-	55	-	-	-	-	-	47	1,535	1,459	-	7	19	69
N.H.	1	14	-	-	5	-	-	23	894	799	-	5	3	3
Vt.	-	30	-	-	1	-	-	17	476	494	-	3	6	2
Mass.	11	436	-	-	57	-	5	271	8,549	8,555	10	274	443	6
R.I.	1	51	-	-	4	-	-	57	1,427	1,605	1	19	8	-
Conn.	3	157	2	1	8	-	7	250	6,659	7,028	1	137	146	5
MID. ATLANTIC	140	3,877	5	1	46	-	50	1,987	80,431	76,489	60	2,054	2,140	83
Upstate N.Y.	28	582	4	-	6	-	28	426	13,464	13,103	4	151	199	58
N.Y. City	31	1,366	1	1	31	-	3	985	30,780	29,945	45	1,420	1,347	-
N.J.	41	929	-	-	5	-	11	233	14,956	13,308	7	250	277	13
Pa.†	40	1,000	-	-	4	-	8	343	21,231	20,133	4	233	317	12
E.N. CENTRAL	83	3,527	1	2	27	1	30	3,509	114,154	117,420	42	1,721	1,625	132
Ohio†	9	648	1	-	6	1	20	732	29,641	31,142	9	320	378	11
Ind.	7	402	-	-	1	1	1	444	11,850	10,578	-	118	128	13
Ill.†	26	1,321	-	?	8	-	9	882	35,688	38,210	25	1,076	867	41
Mich.†	36	990	-	-	12	-	-	1,107	26,706	27,061	7	158	188	7
Wis.†	5	166	-	-	-	-	-	344	10,269	10,429	1	49	84	60
W.N. CENTRAL	13	721	17	1	16	4	39	1,111	37,826	38,938	7	347	346	479
Minn.	1	128	-	-	7	-	-	217	6,336	6,974	-	133	109	149
Iowa†	3	87	-	1	3	1	1	135	4,145	4,568	2	38	32	100
Mo.	2	300	15	-	4	1	20	522	16,742	16,156	5	109	130	61
N. Dak.	-	31	-	-	-	-	-	22	695	742	-	2	3	78
S. Dak.	1	60	-	-	-	1	5	34	1,307	1,124	-	3	9	58
S. Dak.	2	19	-	-	-	-	7	56	2,732	3,428	-	11	25	6
Nebr.†	4	97	2	-	2	1	5	125	5,769	5,946	-	51	38	27
Kans.														
S. ATLANTIC	142	4,793	9	1	50	36	497	5,276	183,565	183,333	140	4,204	4,284	343
Del.	1	40	-	-	3	-	5	79	2,570	2,528	-	8	18	3
Md.†	17	727	5	-	10	1	104	590	23,468	22,657	18	325	270	-
D.C.	7	244	-	-	1	1	1	309	12,240	12,055	8	318	441	-
Va.	21	491	4	-	5	6	103	609	17,619	19,267	13	360	421	12
W. Va.	2	180	-	-	5	-	10	87	2,543	2,423	-	15	3	10
N.C.†	14	744	-	-	2	21	181	525	26,133	27,451	4	434	593	9
S.C.	9	415	-	-	5	1	51	534	18,001	17,123	14	223	189	79
Ga.†	14	664	-	-	3	6	42	1,318	35,539	35,661	29	1,047	949	217
Fla.†	57	1,288	-	1	16	-	-	1,225	45,452	44,168	54	1,474	1,400	13
E.S. CENTRAL	51	2,132	6	-	8	3	169	1,817	64,005	65,755	32	837	572	114
Ky.	8	481	2	-	2	-	40	246	8,377	9,026	6	107	76	60
Tenn.	20	657	3	-	3	1	108	765	23,824	26,654	14	289	175	24
Ala.	6	517	1	-	2	-	11	277	18,081	17,503	-	138	119	30
Miss.	17	477	-	-	1	2	10	529	13,723	12,572	12	303	202	-
W.S. CENTRAL	84	2,642	46	-	34	-	87	3,203	101,591	93,301	83	2,579	2,211	709
Ark.	11	296	33	-	5	-	13	119	7,267	7,190	-	57	52	115
La.†	23	460	6	-	3	-	1	562	16,564	13,643	30	561	532	12
Okla.	4	259	4	-	2	-	51	279	9,584	8,935	4	76	62	149
Tex.	46	1,633	3	-	24	-	22	2,243	68,176	63,533	49	1,885	1,565	433
MOUNTAIN	14	641	6	-	19	-	9	1,108	28,395	30,016	22	328	329	73
Mont.†	5	48	-	-	3	-	2	43	1,588	1,573	-	8	4	12
Idaho	1	25	2	-	5	-	3	47	1,165	1,393	-	12	11	-
Wyo.	-	14	2	-	-	-	1	23	677	725	-	8	2	-
Colo.	1	73	-	-	4	-	2	190	7,823	7,940	3	105	103	28
N. Mex.†	2	105	-	-	2	-	-	137	3,986	4,368	6	71	71	14
Ariz.†	2	290	-	-	3	-	-	527	7,476	8,337	13	81	116	13
Utah	-	30	2	-	1	-	-	34	1,547	1,771	-	11	8	6
Nev.	3	56	-	-	1	-	1	107	4,133	3,909	-	32	14	-
PACIFIC	54	3,500	3	1	94	-	4	3,190	119,169	117,286	121	3,323	3,307	300
Wash.	NA	221	-	-	6	-	1	357	9,689	8,861	NA	151	187	2
Oreg.	5	143	-	-	1	-	2	272	8,283	8,076	2	113	108	10
Calif.	78	2,666	3	1	80	-	1	2,348	95,322	94,077	115	3,017	2,959	280
Alaska†	-	57	-	-	-	-	-	158	3,731	3,835	1	9	23	8
Hawaii	11	413	-	-	7	-	-	55	2,144	2,437	3	33	30	-
Guam †	NA	46	-	NA	-	NA	-	NA	166	164	NA	-	2	-
Pac. Trust Terr.	1	2	-	-	-	-	-	12	29	-	-	-	-	-
P.R.	7	298	-	-	3	-	-	31	1,666	2,395	6	368	419	29
V.I.	NA	4	-	NA	2	NA	-	NA	148	164	NA	14	8	-

NA: Not available.

*Delayed reports received for 1977 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: Ohio, -7, Mich, -3, Iowa -1, Md, -6, N.C. -1, Fla. -3, Alaska -1, Guam +1; T. fever: Pa. -1, Ill. +5, Ga. +1; RMSF: Ill. +14; GC: Wis. -1 civ., Nebr. -1 civ., La. -11 civ., Mont. -1 mil., Guam +4 civ., An rabies: Fla. +1, N. Mex. +1, Ariz. +7.

TABLE IV. Deaths in 121 U.S. cities,* week ending September 30, 1978 (39th week)

REPORTING AREA	ALL CAUSES, BY AGE (YEARS)					P & I** TOTAL	REPORTING AREA	ALL CAUSES, BY AGE (YEARS)					P & I** TOTAL
	ALL AGES	>65	45-64	25-44	<1			ALL AGES	>65	45-64	25-44	<1	
NEW ENGLAND	717	468	177	33	19	39	S. ATLANTIC	1,201	662	330	82	78	51
Boston, Mass.	203	119	58	9	12	11	Atlanta, Ga.	156	89	40	8	13	5
Bridgport, Conn.	55	43	9	1	—	5	Baltimore, Md.	242	127	72	22	10	5
Cambridge, Mass.	23	16	4	3	—	2	Charlotte, N.C.	74	48	16	6	2	4
Fall River, Mass.	27	19	8	—	—	—	Jacksonville, Fla.	83	44	24	6	3	5
Hartford, Conn.	64	36	22	4	—	2	Miami, Fla.	111	65	26	7	9	4
Lowell, Mass.	27	16	8	1	1	2	Norfolk, Va.	46	27	12	4	—	1
Lynn, Mass.	22	16	4	2	—	1	Richmond, Va.	92	46	32	4	4	5
New Bedford, Mass.	26	21	5	—	—	—	Savannah, Ga.	44	21	16	2	3	6
New Haven, Conn.	41	27	7	4	2	1	St. Petersburg, Fla.	81	68	11	1	—	6
Providence, R.I.	58	34	15	1	3	4	Tampa, Fla.	66	34	18	7	3	5
Somerville, Mass.	8	8	—	—	—	—	Washington, D.C.	173	76	50	14	30	3
Springfield, Mass.	61	40	14	3	1	5	Wilmington, Del.	33	17	13	1	1	2
Waterbury, Conn.	35	26	4	3	—	3							
Worcester, Mass.	67	47	15	2	—	3							
MID. ATLANTIC	2,667	1,670	668	177	72	125	E.S. CENTRAL	648	365	177	51	22	21
Albany, N.Y.	62	40	16	—	5	2	Birmingham, Ala.	107	61	29	7	3	1
Allentown, Pa.	19	11	7	1	—	—	Chattanooga, Tenn.	64	42	16	4	—	3
Buffalo, N.Y.	125	76	31	5	9	9	Knoxville, Tenn.	47	24	14	7	—	—
Camden, N.J.	38	21	10	5	1	3	Louisville, Ky.	92	53	24	6	6	4
Elizabeth, N.J.	23	13	5	5	—	—	Memphis, Tenn.	119	66	38	11	1	2
Erie, Pa.	20	12	7	1	—	3	Mobile, Ala.	82	42	21	7	5	7
Jersey City, N.J.	47	36	7	2	—	1	Montgomery, Ala.	35	23	5	3	2	—
Newark, N.J.	57	23	22	6	3	3	Nashville, Tenn.	102	54	30	6	5	4
N.Y. City, N.Y.	1,346	854	320	104	27	51							
Paterson, N.J.	34	23	9	1	1	2	W.S. CENTRAL	1,196	625	319	102	83	35
Philadelphia, Pa.	489	292	133	29	15	28	Austin, Tex.	43	26	11	3	—	3
Pittsburgh, Pa.	65	36	25	3	1	2	Baton Rouge, La.	25	16	4	3	2	2
Reading, Pa.	38	31	4	2	—	5	Corpus Christi, Tex.	39	19	9	2	5	—
Rochester, N.Y.	114	73	25	7	6	10	Dallas, Tex.	150	76	37	14	11	4
Schenectady, N.Y.	25	15	10	—	—	—	El Paso, Tex.	52	31	14	1	4	3
Scranton, Pa.	16	12	3	—	—	—	Fort Worth, Tex.	79	40	22	7	6	—
Syracuse, N.Y.	81	54	18	4	2	2	Houston, Tex.	345	173	98	39	18	9
Trenton, N.J.	27	20	5	—	2	—	Little Rock, Ark.	75	34	19	6	4	1
Utica, N.Y.	22	15	7	—	—	3	New Orleans, La.	96	42	29	8	11	—
Yonkers, N.Y.	19	13	4	2	—	1	San Antonio, Tex.	154	94	36	10	10	4
							Shreveport, La.	48	32	12	2	2	3
							Tulsa, Okla.	90	42	28	7	10	6
E.N. CENTRAL	2,200	1,290	599	120	94	57	MOUNTAIN	551	330	129	39	24	22
Akron, Ohio	103	73	16	5	7	—	Albuquerque, N. Mex.	64	36	18	5	1	7
Canton, Ohio	54	33	11	2	1	4	Colo. Springs, Colo.	29	23	4	—	—	5
Chicago, Ill.	499	266	150	29	25	8	Denver, Colo.	118	74	26	9	4	2
Cincinnati, Ohio	142	88	41	5	5	3	Las Vegas, Nev.	65	30	22	9	2	3
Cleveland, Ohio	154	78	53	8	3	4	Ogden, Utah	15	10	3	1	1	—
Columbus, Ohio	133	81	29	10	8	7	Phoenix, Ariz.	110	68	25	5	6	3
Dayton, Ohio	59	57	28	5	6	1	Pueblo, Colo.	16	10	4	1	—	—
Detroit, Mich.	240	140	74	13	6	3	Salt Lake City, Utah	52	27	12	3	5	2
Evansville, Ind.	27	18	6	2	—	2	Fort Wayne, Ind.	82	52	15	6	5	—
Fort Wayne, Ind.	51	34	9	4	2	2							
Gary, Ind.	35	15	13	5	—	2							
Grand Rapids, Mich.	56	26	17	5	5	5	PACIFIC	1,627	1,077	365	75	46	54
Indianapolis, Ind.	157	84	42	7	7	2	Berkeley, Calif.	24	15	7	—	1	—
Madison, Wis.	56	28	14	5	2	5	Fresno, Calif.	70	40	20	3	2	2
Milwaukee, Wis.	113	73	31	5	2	2	Glendale, Calif.	22	17	2	1	—	—
Peoria, Ill.	41	29	7	2	1	2	Honolulu, Hawaii	90	36	14	2	6	3
Rockford, Ill.	41	24	9	3	3	2	Long Beach, Calif.	59	51	34	2	1	5
South Bend, Ind.	48	37	9	—	1	3	Los Angeles, Calif.	507	350	105	17	10	14
Toledo, Ohio	58	60	26	3	8	—	Oakland, Calif.	64	40	14	6	1	—
Youngstown, Ohio	53	36	12	2	2	—	Pasadena, Calif.	46	35	8	1	1	—
							Portland, Ore.	120	78	32	3	5	1
W.N. CENTRAL	679	454	138	32	28	21	Sacramento, Calif.	70	39	22	4	3	5
Des Moines, Iowa	60	41	11	4	1	—	San Diego, Calif.	137	91	23	10	4	7
Duluth, Minn.	8	4	3	—	—	—	San Francisco, Calif.	127	83	27	11	3	1
Kansas City, Kans.	29	20	4	3	2	—	San Jose, Calif.	50	35	9	3	1	2
Kansas City, Mo.	110	72	23	5	6	5	Seattle, Wash.	148	103	32	7	3	7
Lincoln, Nebr.	38	26	8	2	2	1	Spokane, Wash.	56	34	11	3	5	3
Minneapolis, Minn.	101	64	20	5	7	3	Tacoma, Wash.	37	30	5	2	—	4
Omaha, Nebr.	78	58	13	1	1	1							
St. Louis, Mo.	136	88	29	6	5	1							
St. Paul, Minn.	68	50	13	1	3	2	TOTAL	11,486	6,941	2,902	711	466	425
Wichita, Kans.	51	31	14	5	1	8	Expected Number	10,776	6,538	2,766	689	424	372

*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.

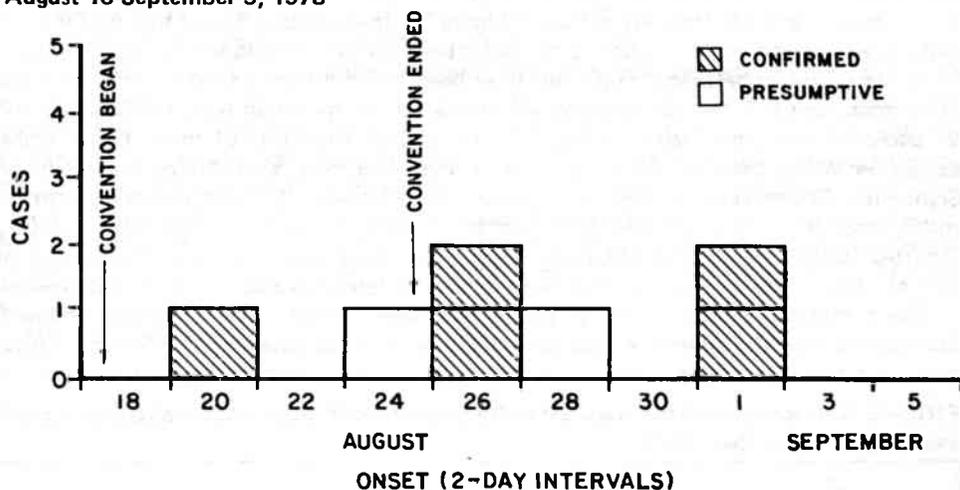
**Pneumonia and influenza

Epidemiologic Notes and Reports**Convention-Associated Legionnaires' Disease**

On September 14, 1978, Legionnaires' disease was diagnosed in a 58-year-old New Jersey man who had onset of symptoms on August 21. He had arrived on August 12 for the 79th Annual National Veterans of Foreign Wars (VFW) Convention, held in Dallas, Texas, August 18-August 25, 1978. The VFW national organization reports that there were approximately 36,000 conventioners, representing 19,000 VFW members, 5,300 Auxiliary members, and guests.

Since the initial case was diagnosed, a total of 5 confirmed cases (on the basis of a ≥ 4 -fold serologic rise in reciprocal indirect immunofluorescent titer to ≥ 128) and 2 presumptive cases (a single convalescent-phase reciprocal titer of ≥ 256) have been reported (Figure 2). Cases are from New Jersey (4), Washington, New York, and Missouri; none has been fatal.

FIGURE 2. VFW Convention-associated Legionnaires' disease cases, by date of onset, August 18-September 5, 1978



Intensive nationwide casefinding was initiated on September 18. Among 2,953 persons who attended any convention-associated activity and were contacted in a systematic fashion, the overall incidence of pneumonia with onset within 2 weeks of the end of the convention was 0.3%. In Texas, where comprehensive case finding was initiated, 480 persons were contacted, and no documented cases of pneumonia were discovered. Serum specimens from all persons ill with pneumonia were solicited. A questionnaire survey of cases and controls to identify a possible common source of exposure is planned.

Preliminary analysis by week of patients with pneumonia admitted to 13 major Dallas-area hospitals from July 1-September 19, 1978, and the same period in 1977 showed no evidence of an outbreak of pneumonia there this year. Review of records in Dallas-area emergency facilities of persons seen with pneumonia, upper respiratory infection, or fever is pending.

Reported by EL Berry, MD, Dept of Public Health, Dallas; H Dewlett, MD, H Munson, MD, C Webb, MD, State Epidemiologist, Texas Dept of Health; R Altman, MD, State Epidemiologist, New Jersey Dept of Health; JW Taylor, MD, MPH, State Epidemiologist, Washington Dept of Social and Health Services; DO Lyman, MD, State Epidemiologist, New York Dept of Health; HD Donnell Jr, MD,

Legionnaires' Disease — Continued

State Epidemiologist, Missouri Dept of Social Services; Immunization Div, Bur of State Services, Field Services Div, Bacterial Diseases Div, Bur of Epidemiology, CDC.

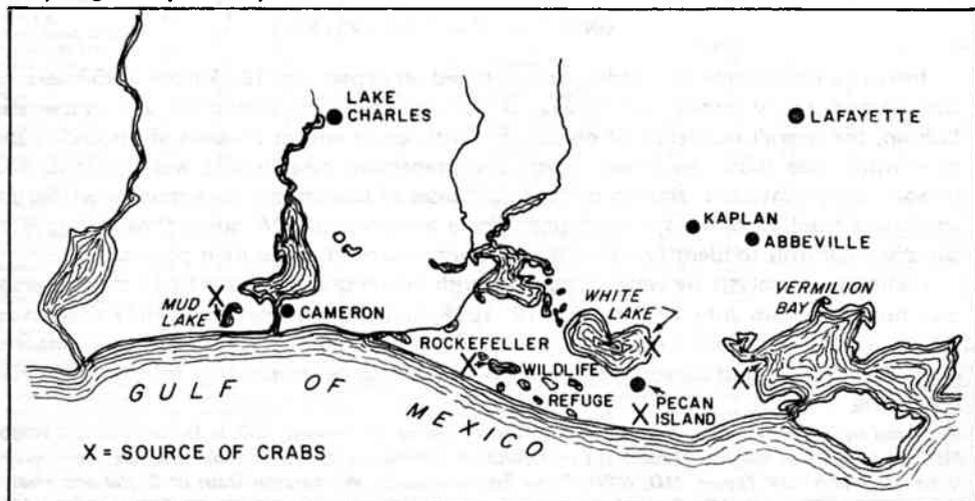
Editorial Note: Efforts are being directed to determine whether this occurrence of Legionnaires' disease is greater than that which would be otherwise expected. The clustering in time of pneumonia cases (with or without confirmation as Legionnaires' disease) suggests that an outbreak occurred.

Follow-up on *Vibrio cholerae* Serotype Inaba Infection — Louisiana

Four more cases of cholera and 2 asymptomatic infections have been identified in Louisiana, bringing the total number of persons known to be infected in August and September to 11. The 6 most recent infections were discovered after a 58-year-old woman from Lafayette had onset of a diarrheal illness on September 24, was hospitalized, and had *Vibrio cholerae*, serotype Inaba, isolated from her stool. On September 22, she had eaten crabs that had been caught in White Lake, boiled, and then held without refrigeration for approximately 6 hours (Figure 3). Investigation found that 5 of 9 other persons who had eaten the crabs at the same time had also developed diarrheal illnesses; *V. cholerae*, serotype Inaba, organisms have been isolated from the stools of 3 of these ill persons. Some of the boiled crabs left over after the meal had been refrigerated, and *V. cholerae*, serotype Inaba, organisms were isolated from one of them. Other crabs, caught in White Lake at the same time by the same man, were boiled separately on September 22 and eaten at once by 6 persons; none became ill, but *V. cholerae*, serotype Inaba, organisms were isolated from the stools of 2 of the 6 persons. All previously reported isolates of *V. cholerae* from Louisiana in August and September were also of this serotype. The biotype of the most recent isolates has not yet been determined.

The 8 infected persons with symptoms had eaten boiled or steamed crab within 5 days before onset of illness. A case-control study of foods eaten by the first 5 symptomatic patients and 10 age- and sex-matched neighbor controls found that none of the

FIGURE 3. Locations where crabs eaten by patients with cholera were obtained, Louisiana, August-September, 1978



Vibrio cholerae — Continued

controls had eaten crabs during comparable periods ($p=0.007$). The 3 asymptomatic infected persons had eaten crabs within 9 days before culture. As mentioned above, *V. cholerae*, serotype Inaba, was isolated from a boiled crab. The organism was also isolated from raw shrimp caught south of Pecan Island (1). These epidemiologic and laboratory data indicate that crabs collected in Louisiana in the area between Mud Lake, west of Cameron, and Vermilion Bay, south of Abbeville, have been the vehicles of infection for the cases of cholera (Figure 3). Crabs prepared in large lots by commercial establishments have not been implicated.

Preliminary results of studies on the effect of boiling on crabs artificially infected with *V. cholerae*, serotype Inaba, from 1 of the Louisiana cases have shown that the organism can be isolated from iced crabs individually boiled after 2, 4, 6, and 8 minutes of boiling, but not after 10 minutes. At 8 minutes the crab shell was red and the meat was firm, so these criteria are not adequate to determine if crabs are safe to eat. In actual practice, crabs are cooked in varying numbers and using a variety of methods and containers. The crabs eaten by the persons with cholera were reportedly steamed for up to 35 minutes or boiled for 10-20 minutes.

Surveillance for cases, culture of seafoods, and monitoring of sewage from 21 cities and towns will continue in Louisiana to determine if a larger coastal area than the one designated is infected, and if other seafoods from the area are causing cholera. Parrish sanitarians will visit all commercial establishments that use crabs to give them information on proper cooking and handling of crabs, including the recommendation that crabs be immersed in vigorously boiling water for at least 15 minutes, and that steaming of crabs be discontinued until studies of the efficacy of steaming have been carried out.

Reported by HB Bradford, PhD, Director, Bur of Laboratories, CT Caraway, DVM, State Epidemiologist, Louisiana Dept of Health and Human Resources; U.S. Food and Drug Administration; Enteric Diseases Br, Epidemiologic Investigations Laboratory Br, Bacterial Diseases Div, Quarantine Div, Field Services Div, Bur of Epidemiology, CDC.

Reference

1. MMWR 27:367, 1978

Erratum, Vol. 27, No. 38

p 355 In the article, "Follow-up on *Vibrio cholerae* Infection— Louisiana," the second reference is incorrect. It should read: The cholera situation. Public Health Rep 26: 1133-1136, 1911.

The Morbidity and Mortality Weekly Report, circulation 78,750, 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.

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