

MMWR

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MORBIDITY AND MORTALITY WEEKLY REPORT

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Epidemiologic Notes and Reports

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Follow-up on Laboratory-Associated Typhoid Fever

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In a previous article (1), 19 cases of laboratory-associated typhoid fever that had occurred since January 1977 were identified. Further investigation has identified 6 more cases. Nine of these 25 cases were in students conducting laboratory exercises in medical technology or microbiology courses; 2 cases were in technologists working with cultures isolated from clinical specimens; the remainder were associated with strains provided through proficiency exercises. While these 25 cases constitute only 2% of all reported typhoid cases in the United States since January 1977, they represent 10% of the reported domestically acquired cases that were not associated with outbreaks or carriers.

Reported by the Office of Biosafety, Office of the Center Director, Bur of Laboratories, and Bur of Epidemiology, CDC.

Editorial Note: The problem of laboratory-associated typhoid fever serves as a marker for other, less well-described, laboratory-acquired enteric infections, and suggests that such infections may not be uncommon. Laboratory infections with salmonellae and other Class 2 pathogens (2) are most commonly associated with ingestion or accidental self-inoculation of the infectious agent. Less frequently, infections in laboratory personnel may result from exposure to aerosols generated by such activities as grinding, loop-flaming, centrifuging, and blending, and from aerosols resulting from forceful pipetting or spills.

Most of these 25 laboratory-acquired infections of typhoid fever presumably resulted from poor safety practices, and thus could have been avoided by adherence to proper microbiological technique, personal hygiene, and good safety practices. Mouth pipetting should not be permitted under any circumstances. Eating, drinking, and smoking must be prohibited in the laboratory. Hands should be washed after handling potentially infectious materials, and work surfaces should be decontaminated with an acceptable germicide after completion of bench activities and immediately after spills. All laboratory wastes should be decontaminated by experienced personnel, and accidents or exposures should be reported immediately to supervisors for appropriate medical appraisal and surveillance. Non-laboratory workers should not be present in a microbiology laboratory.

Potential pathogens have been included in proficiency exercises and proficiency-testing programs on the grounds that trained microbiologists charged with the responsibility for isolation and identification of pathogenic agents should be tested on their ability to do so. The need for inclusion of such agents in a general microbiology course is less clear. When possible, microorganisms for testing and teaching purposes should have low virulence for humans. Bacteria with multiple or unusual antibiotic-resistance patterns should be avoided unless this characteristic is an essential part of the learning

Typhoid Fever — Continued

exercise. An atypical antibiotic-resistant strain may complicate treatment in the event of an accidental infection and may potentiate transmission.

The Bacteriology Division in the Bureau of Laboratories at CDC is currently evaluating 3 strains of *Salmonella typhi* reported to have reduced virulence. Such strains must be otherwise typical if they are to be used for teaching purposes. Several potentially useful nontoxigenic strains of *Vibrio cholerae* will be similarly evaluated. The results of these evaluations and the procedure for distributing suitable teaching strains will be reported, when available. Such strains should decrease the likelihood of laboratory-acquired infections or decrease the severity of disease, but they cannot be used as a substitute for laboratory safety. Adherence to adequate safety practices is just as essential with strains of diminished virulence as with a fully virulent strain.

References

1. MMWR 28:521-522, 1979
2. U.S. Public Health Service: Classification of Etiologic Agents on the Basis of Hazard. Atlanta, Center for Disease Control, 1974

Follow-up on Viral Hepatitis Outbreaks — Alabama, Georgia

The origin of oysters associated with 7 cases of hepatitis in Mobile, Alabama, and 3 cases of hepatitis in Albany, Georgia (1), has been traced to Apalachicola Bay, Florida.

By obtaining descriptions of oyster packaging and studying invoices of oyster dealers, the investigators traced shucked oysters consumed in the Mobile hepatitis outbreak to dealers that handled oysters harvested exclusively from Apalachicola Bay. Oysters associated with the Georgia outbreak had been purchased as shell stock from a different dealer, who also used Apalachicola Bay oysters exclusively. In neither investigation were any persons who were involved in the harvesting or handling of the oysters before their consumption identified as having hepatitis. The exact growing area of the incriminated oysters in Apalachicola Bay cannot be identified. The most probable dates of harvesting of the incriminated oysters were September 25-26 for the Georgia cases and October 6-8 for the Alabama outbreak. No cases of hepatitis related to the consumption of raw oysters from Apalachicola Bay have been identified with dates of onset after November 8.

During the last week of September and first week of October, fecal coliform counts transiently exceeded the recommended standard of 14 coliforms* per 100 ml of water (2) at several stations of the bay that were open for oyster harvesting. These counts ranged from 23 to 240 coliforms MPN* with a median of 49. One area of the bay was subsequently closed to oyster harvesting on October 4 by the Florida Department of Natural Resources because of these high coliform counts.

Reported by PC White, MD, District 8, D Smith, JS Terry, MD, Acting State Epidemiologist, Georgia Dept of Human Resources; J Cutts, DVM, Mobile County Health Dept; T Chester, MD, State Epidemiologist, Alabama Dept of Public Health; R Gunn, MD, State Epidemiologist, Florida Dept of Health and Rehabilitative Services; U.S. Food and Drug Administration; Enteric Diseases Br, Bacterial Diseases Div, and Epidemiology Section, Hepatitis Laboratories Div, Bur of Epidemiology, CDC.

Editorial Note: This investigation illustrates the problems of identifying the precise cause of contamination of shellfish so that preventive measures can be taken. It was difficult to trace the oysters to Apalachicola Bay and impossible to locate the exact growing area

*Most probable number (MPN) index.

Viral Hepatitis — Continued

in the bay since Florida does not require labeling of oysters to indicate their place of harvesting.

Several hypotheses can be advanced to explain transient contamination of oyster beds in the bay: increased run-off associated with heavy rains caused by hurricane Frederic during mid-September, illegal dumping of sewage from passing boats, and illegal disposal of waste from land sources. Since large numbers of oysters are harvested from the bay, and only a few cases of oyster-associated hepatitis have been recognized, it seems likely that only a small proportion of oysters from the bay harbored hepatitis virus. The apparent lack of new cases suggests that the problem may have abated.

Fecally contaminated shellfish have been associated with outbreaks of typhoid fever, cholera, and viral (Norwalk agent) gastroenteritis (3-5) in addition to hepatitis; in all these outbreaks the shellfish were eaten raw or undercooked. Well-cooked shellfish do not appear to be associated with a risk of acquiring hepatitis. Strict enforcement and scrupulous compliance with all shellfish sanitation regulations should minimize the risk of disease caused by fecally contaminated shellfish.

References

1. MMWR 28:581, 1979
2. Food and Drug Administration: National Shellfish Safety Program: Proposed rulemaking. Federal Register 40:25930, 1975
3. Lumsden LL, Hasseltine HE, Leake JP, et al: A typhoid-fever epidemic caused by oyster-borne infection (1924-1925). Public Health Rep 50(suppl):1-102, 1975
4. Blake PA, Rosenberg ML, Bandeira Costa J, et al: Cholera in Portugal, 1974. 1. Modes of transmission. Am J Epidemiol 105:337-343, 1977
5. Murphy AM, Grohmann GS, Christopher PJ, et al: An Australia-wide outbreak of gastroenteritis from oysters caused by Norwalk virus. Med J Aust 2:329-333, 1979

International Notes

Vibrio cholerae 01 Infections — Sardinia

On November 2, 1979, provincial health authorities reported a case of cholera in a 75-year-old woman from a suburb of Cagliari on the island of Sardinia. Nine additional cases of infection with *Vibrio cholerae* 01 were ultimately identified.

The last case was reported on November 10. Six patients were hospitalized, 3 recovered from mild diarrhea at home, and 1 was asymptomatic. There were no deaths.

Epidemiologic investigation, which included interviews of uninfected age- and sex-matched controls from the neighborhoods of the patients, implicated clams as a vehicle of transmission. *V. cholerae* 01 was also isolated from water and clams from a lagoon that receives raw sewage from part of the city. Shellfish from the lagoon were known to be locally available, in violation of the law, from unlicensed vendors. All clinical and environmental isolates of the agent were of serotype Ogawa, biotype El Tor, phage type 4.

Cholera — Continued

Control measures included prohibition of sale or consumption of shellfish in the Province of Cagliari, enforcement of regulations against unlicensed food vendors and against fishing in the lagoon, periodic sampling of sewers with Moore swabs in search of *V. cholerae*, and institution of a province-wide surveillance system for *V. cholerae* infection in cases of uncomplicated diarrhea. No mass vaccination or chemoprophylaxis campaigns were instituted.

Reported by Prof G Angioni, Prof L Pintus, Prof G Piu, Civil Hospital, Cagliari; Dr A Congiu, Public Health Officer, Cagliari; Dr L Barra, Cagliari Provincial Laboratory of Hygiene and Prophylaxis; Dr B Bonfiglio, Provincial Medical Officer, Dr A Bracciotti, Dr C Sitzia, Office of the Cagliari Provincial Medical Officer; Dr M Castellani-Pastoris, Laboratory of Bacterial and Viral Diseases, Prof G De Felip, Laboratory of Foods, Prof A Zampieri, WB Baine, MD, Dr D Greco, Dr S Salmaso, Laboratory of Epidemiology and Biostatistics, Istituto Superiore di Sanità, Rome, Italy.

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

DISEASE	50th WEEK ENDING		MEDIAN 1974-1978**	CUMULATIVE, FIRST 50 WEEKS		
	December 15, 1979	December 16, 1978*		December 15, 1979	December 16, 1978*	MEDIAN 1974-1978**
Aseptic meningitis	147	115	60	8,058	6,294	3,999
Brucellosis	5	5	3	168	166	214
Chickenpox	2,937	3,563	3,522	188,920	144,941	144,941
Diphtheria	1	3	3	66	74	146
Encephalitis: Primary (arthropod-borne & unsp.)	17	12	12	1,027	1,150	1,150
Post-infectious	9	4	5	227	226	245
Hepatitis, Viral: Type B	356	300	300	14,278	14,366	14,366
Type A	582	631	715	28,237	28,272	32,130
Type unspecified	208	221	187	10,468	8,343	8,005
Malaria	25	3	4	769	703	444
Measles (rubella)	114	208	220	13,257	26,359	26,359
Meningococcal infections: Total	43	50	30	2,434	2,336	1,473
Civilian	43	50	30	2,422	2,309	1,453
Military	—	—	—	12	27	27
Mumps	263	335	597	13,396	16,012	37,278
Pertussis	74	25	27	1,343	1,999	1,700
Rubella (German measles)	42	98	115	11,470	17,993	15,993
Tetanus	3	1	1	74	76	76
Tuberculosis	690	603	626	26,781	27,983	29,225
Tularemia	7	6	3	195	133	133
Typhoid fever	6	14	9	490	511	388
Typhus fever, tick-borne (Rky. Mt. spotted)	15	3	3	1,050	1,038	890
Veneral diseases:						
Gonorrhea: Civilian	22,088	21,919	21,315	967,558	979,582	970,104
Military	586	384	384	26,748	25,023	25,080
Syphilis, primary & secondary: Civilian	567	476	476	24,107	20,917	20,917
Military	3	9	5	313	297	297
Rabies in animals	53	59	34	4,758	3,070	2,832

TABLE II. Notifiable diseases of low frequency, United States

	CUM. 1979		CUM. 1978
Anthrax	—	Poliomyelitis: Total	25
Botulism (Wash. 2, Calif. 3)	36	Paralytic	22
Cholera	1	Psittacosis (Ohio 1, Tenn. 1)	95
Congenital rubella syndrome† (Calif. 2)	44	Rabies in man	3
Leprosy (Va. 1, Tex. 1, Calif. 3)	167	Trichinosis (NYC 1)	134
Leptospirosis† (Tex. 1)	53	Typhus fever, flea-borne (endemic, murine)† (Tex. 2, Hawaii 1)	60
Plague	10		

*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 syn.: Ups. N.Y. +1, Ind. +2; Leptospirosis: Mo. +1, Va. +1; Typhus murine: Tex. —1.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending December 15, 1979, and December 16, 1978 (50th week)

REPORTING AREA	ASEPTIC MENIN- GITIS	BRU- CEL- LOSIS	CHICKEN- POX	DIPHTHERIA		ENCEPHALITIS			HEPATITIS (VIRAL), BY TYPE			MALARIA	
						Primary		Post-in- fectious	B	A	Unspecified		
	1979	1978	1978	1979	CUM. 1978	1979	1978*	1979	1979	1979	1979	1979	CUM. 1978
UNITED STATES	147	5	2,937	1	66	17	12	9	356	582	208	25	769
NEW ENGLAND	4	-	368	-	-	1	-	-	9	12	9	-	41
Maine†	-	-	106	-	-	-	-	-	-	2	1	-	3
N.H.	-	-	23	-	-	-	-	-	-	1	-	-	-
Vt.	-	-	1	-	-	-	-	-	-	-	-	-	-
Mass.†	1	-	84	-	-	1	-	-	2	3	8	-	12
R.I.†	2	-	4	-	-	-	-	-	2	3	-	-	10
Conn.	1	-	150	-	-	-	-	-	4	4	-	-	15
MID. ATLANTIC	13	-	169	-	-	3	2	1	43	22	18	2	96
Upstate N.Y.†	5	-	92	-	-	-	-	1	7	4	7	-	14
N.Y. City†	-	-	26	-	-	1	1	-	15	5	4	1	45
N.J.†	-	-	NN	-	-	-	-	-	21	13	7	1	16
Pa.†	8	-	51	-	-	2	1	-	NA	NA	NA	-	21
E.N. CENTRAL	18	-	1,465	-	2	1	1	-	45	79	10	-	48
Ohio†	-	-	53	-	-	-	-	-	9	22	-	-	12
Ind.†	2	-	142	-	1	-	-	-	4	3	6	-	2
Ill.	5	-	364	-	-	1	-	-	16	37	-	-	20
Mich.	9	-	532	-	-	-	1	-	13	10	3	-	12
Wis.†	2	-	374	-	1	-	-	-	3	7	1	-	2
W.N. CENTRAL	8	2	406	-	1	2	-	-	16	22	9	-	47
Minn.†	-	-	-	-	-	-	-	-	1	7	-	-	25
Iowa†	2	1	292	-	-	2	-	-	4	1	-	-	2
Mo.†	4	-	6	-	1	-	-	-	9	4	7	-	4
N. Dak.	-	-	3	-	-	-	-	-	-	-	-	-	7
S. Dak.	-	-	36	-	-	-	-	-	-	-	-	-	1
Nebr.	1	1	1	-	-	-	-	-	2	2	1	-	2
Kans.†	1	-	68	-	-	-	-	-	-	8	1	-	6
S. ATLANTIC	13	1	113	-	1	1	4	1	99	85	33	2	97
Del.	-	-	1	-	-	-	-	-	-	-	1	-	1
Md.	1	-	20	-	-	-	-	-	37	11	6	1	22
D.C.†	-	-	-	-	-	-	-	-	-	-	-	-	6
Va.†	4	-	2	-	1	-	1	-	5	3	6	-	27
W. Va.	NA	NA	NA	NA	-	NA	-	-	NA	NA	NA	NA	3
N.C.†	4	-	NN	-	-	1	3	-	13	10	5	-	6
S.C.†	-	-	11	-	-	-	-	-	3	3	2	-	1
Ge.	-	-	-	-	-	-	-	-	22	22	-	-	6
Fla.†	4	1	77	-	-	-	-	1	19	36	13	1	25
E.S. CENTRAL	24	-	72	-	-	2	1	-	23	26	13	-	12
Ky.	11	-	60	-	-	-	-	-	2	1	2	-	-
Tenn.†	6	-	NN	-	-	2	1	-	9	9	2	-	-
Ala.	7	-	2	-	-	-	-	-	8	14	9	-	4
Miss.†	-	-	10	-	-	-	-	-	4	2	-	-	8
W.S. CENTRAL	10	2	126	-	-	1	-	2	24	110	42	-	52
Ark.	-	2	2	-	-	-	-	-	1	3	10	-	2
La.	1	-	NN	-	-	-	-	-	9	30	4	-	5
Okl.	2	-	-	-	-	-	-	-	1	8	5	-	8
Tex.†	7	-	124	-	-	1	-	-	11	62	33	-	37
MOUNTAIN	4	-	82	1	2	2	-	-	4	26	20	-	21
Mont.†	-	-	18	-	-	-	-	-	-	5	-	-	2
Idaho	-	-	3	-	-	-	-	-	-	1	-	-	-
Wyo.	1	-	-	-	-	1	-	-	-	-	1	-	1
Colo.†	2	-	61	-	-	-	-	-	2	9	5	-	9
N. Mex.†	1	-	-	-	-	1	-	-	1	2	-	-	1
Ariz.	-	-	NN	1	2	-	-	-	-	3	2	-	7
Utah†	-	-	-	-	-	-	-	-	1	2	8	-	-
Nev.	-	-	-	-	-	-	-	-	-	4	4	-	1
PACIFIC	53	-	136	-	60	4	4	5	93	200	54	21	355
Wash.†	-	-	121	-	56	-	-	3	4	18	7	6	24
Oreg.	4	-	2	-	-	-	-	3	1	6	15	-	19
Calif.†	47	-	-	-	4	3	1	1	80	163	47	14	306
Alaska	-	-	4	-	-	1	-	-	1	2	-	-	-
Hawaii	-	-	9	-	-	-	-	-	2	2	-	-	6
Guam	NA	NA	NA	NA	-	NA	-	-	NA	NA	NA	NA	-
P.R.	4	-	20	-	-	-	-	-	3	9	5	4	8
V.I.	NA	NA	NA	NA	-	NA	-	-	NA	NA	NA	NA	-
Pac. Trust Terr.	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: Asep. men.: Mass. +22, NYC -1, Pa. -1, Ohio +3, Ind. +6, Mo. +10, Kans. -1, D.C. +2, Fla. +12, Miss. -1, Tex. -12, Mont. -1; Bruc.: Fla. +1, Tex. -1; Chickenpox: R.I. +1, Ups. N.Y. +5, NYC +45, Iowa +60, Mo. +4, Fla. +49, Miss. +3, Calif. +58; Diph.: Wash. -1; Enceph.: NYC -4, Pa. -1, Ind. +1, Wis. +3, Iowa +1, Tex. -1, Mont. -1; Enceph., post: Fla. +2; Hep.B: Mass. +34, Ups. N.Y. +1, NYC -13, N.J. -7, Mo. -20, Fla. +40, Tenn. +3, Tex. -4, Utah -6; Hep.A: Maine +1, Mass. +30, NYC -8, N.J. +9, Minn. +2, Mo. -3, D.C. -2, S.C. -1, Fla. +32, Tenn. -4, Tex. -25, Colo. +11, N.Mex. +129, Utah +1; Hep. unsp.: Maine -1, N.H. -1, Mass. -73, Ups. N.Y. -1, NYC +6, N.J. -3, Pa. -2, N.C. -2, Fla. +28, Tenn. -3, Tex. -34, N.Mex. +4, Utah +5; Malaria: Fla. -1.

TABLE III (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending December 15, 1979, and December 16, 1978 (50th 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 1978
UNITED STATES	114	13,257	26,359	43	2,434	2,336	263	13,396	74	42	11,470	74
NEW ENGLAND	-	292	2,043	-	127	130	21	690	-	-	1,441	5
Maine	-	19	1,320	-	9	9	7	268	-	-	67	1
N.H.	-	33	79	-	15	10	-	6	-	-	129	-
Vt.†	-	119	55	-	9	3	1	10	-	-	407	-
Mass.†	-	15	253	-	40	49	10	159	-	-	489	3
R.I.	-	102	8	-	9	18	1	48	-	-	93	-
Conn.†	-	4	328	-	45	41	2	199	-	-	256	1
MID. ATLANTIC	13	1,597	2,262	14	402	359	12	1,309	1	12	2,067	10
Upstate N.Y.†	6	643	1,424	8	136	113	2	186	1	5	1,173	2
N.Y. City†	7	848	400	3	90	84	6	150	-	7	287	5
N.J.	-	58	75	1	98	75	3	594	-	-	341	1
Pa.†	-	48	363	2	78	87	1	379	-	-	266	2
E.N. CENTRAL	39	3,447	11,439	2	267	343	134	5,566	63	10	2,713	5
Ohio†	19	313	489	-	98	89	53	1,971	-	-	140	4
Ind.†	1	228	218	1	47	55	12	347	2	2	778	-
Ill.	9	1,504	1,288	1	28	102	14	987	59	4	250	-
Mich.†	-	862	7,953	-	77	79	28	1,027	2	4	1,255	1
Wis.	10	540	1,491	-	17	18	27	1,234	-	-	290	-
W.N. CENTRAL	11	1,842	511	2	73	96	17	736	-	1	498	2
Minn.	-	1,218	42	1	19	25	-	23	-	-	43	-
Iowa	-	16	70	-	13	12	3	244	-	-	53	-
Mo.†	7	432	89	-	29	41	3	201	-	1	70	1
N. Dak.	-	21	211	-	1	3	-	2	-	-	8	1
S. Dak.	-	2	-	-	2	3	-	11	-	-	5	-
Nebr.	4	78	5	-	-	-	-	7	-	-	202	-
Kans.†	-	75	94	1	9	12	11	248	-	-	117	-
S. ATLANTIC	15	2,141	5,514	8	596	561	31	793	1	3	1,279	14
Del.	-	1	7	-	3	2	18	90	-	-	7	-
Md.	-	16	52	2	59	38	3	195	-	-	28	1
D.C.	-	-	48	-	2	2	-	2	-	-	1	-
Va.†	-	290	2,836	1	81	70	2	99	-	-	205	2
W. Va.	NA	65	1,068	-	15	17	NA	131	NA	NA	112	4
N.C.	-	114	122	3	95	108	2	87	-	-	535	-
S.C.	-	182	199	-	64	42	-	3	-	-	74	-
Ga.	5	587	36	-	87	64	-	7	-	-	14	-
Fla.†	10	886	1,146	2	190	218	6	179	1	3	303	7
E.S. CENTRAL	2	270	1,436	3	171	187	4	1,553	1	-	310	8
Ky.	1	40	122	-	35	31	2	1,298	-	-	72	1
Tenn.	1	77	964	2	51	51	-	105	1	-	102	5
Ala.	-	129	102	-	39	51	2	28	-	-	44	2
Miss.†	-	24	248	1	46	54	-	122	-	-	92	2
W.S. CENTRAL	5	963	1,310	4	357	306	7	1,457	3	1	270	24
Ark.	-	9	17	-	30	24	-	532	-	-	7	4
La.	2	259	358	1	122	122	-	36	-	-	30	3
Okla.	-	22	19	1	41	20	-	-	2	-	24	2
Tex.†	3	673	916	2	164	140	7	889	1	1	209	15
MOUNTAIN	8	342	276	1	100	54	2	325	-	3	554	-
Mont.†	-	60	108	1	15	7	-	13	-	-	71	-
Idaho	-	18	1	-	11	4	-	9	-	2	208	-
Wyo.	-	36	-	-	1	-	-	-	-	-	-	-
Colo.	-	71	46	-	8	3	-	116	-	1	68	-
N. Mex.†	-	38	-	-	6	12	-	13	-	-	11	-
Ariz.	-	80	57	-	36	15	2	64	-	-	149	-
Utah†	-	19	44	-	10	6	-	96	-	-	44	-
Nev.	8	20	20	-	13	7	-	14	-	-	3	-
PACIFIC	21	2,363	1,568	9	341	300	35	967	5	12	2,338	6
Wash.†	-	1,154	416	4	69	50	11	249	1	2	220	-
Oreg.	-	66	503	-	26	33	6	118	2	-	112	6
Calif.	21	1,058	639	5	230	203	16	468	2	10	1,983	-
Alaska	-	17	1	-	6	10	-	13	-	-	4	-
Hawaii	-	68	9	-	10	4	2	119	-	-	19	-
Guam	NA	12	26	-	1	2	NA	12	NA	NA	4	-
P.R.	2	381	311	-	7	11	5	604	-	-	39	11
V.I.	NA	6	6	-	3	1	NA	20	NA	NA	-	-
Pac. Trust Terr.	NA	8	645	-	1	3	NA	45	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: Mass. +1, Ups. N.Y. +28, Ind. -1, Mich. -1, Va. -3, Fla. +9, Tex. -11, Mont. -4, Wash. -1; Men. inf.: Vt. -1, Mass. +8, Conn. +2, NYC -1, Pa. -4, Ohio +5, Ind. +1, Mo. +4, Kans. -1, Fla. +3, Tex. -4, Utah -1; Mumps: Conn. +62, NYC +2, Fla. +4; Pertussis: Mass. +1, Mo. -3, Fla. +1, Miss. +1, Tex. -2, N.Mex. +2; Rubella: Mass. +1, Conn. +4, Ups. N.Y. -1, Mo. +1, Fla. +1, Tex. +3; Tetanus: Mass. -1.

TABLE III (Cont'd). Cases of specified notifiable diseases, United States, weeks ending

December 15, 1979, and December 16, 1978 (50th week)

REPORTING AREA	TUBERCULOSIS		TULA- REMIA	TYPHOID FEVER		TYPHUS FEVER (Tick-borne) (RMSF)		VENEREAL DISEASES (Civilian)						RABIES (in Animals)	
								GONORRHEA			SYPHILIS (Pri. & Sec.)				
	1979	CUM. 1979	CUM. 1978	1979	CUM. 1978	1979	CUM. 1978	1979	CUM. 1979	CUM. 1978*	1979	CUM. 1978	CUM. 1978*		CUM. 1979
UNITED STATES	690	26,781	195	6	490	15	1,050	22,088	967,558	979,582	567	24,107	20,917	4,758	
NEW ENGLAND	29	800	3	-	22	-	9	567	23,765	24,929	9	493	575	50	
Maine	1	54	-	-	1	-	-	33	1,669	2,042	-	10	9	30	
N.H.	2	26	-	-	-	-	-	21	884	1,145	-	21	6	5	
Vt.	2	30	-	-	-	-	1	11	624	598	-	3	3	1	
Mass.	15	427	3	-	14	-	4	320	9,448	10,914	3	270	356	10	
R.I.†	1	74	-	-	2	-	-	16	1,895	1,855	-	20	27	2	
Conn.†	8	189	-	-	5	-	4	166	9,245	8,375	6	169	174	2	
MID. ATLANTIC	95	4,121	1	2	97	7	52	2,202	107,095	105,938	75	3,686	2,848	69	
Update N.Y.†	24	738	1	1	22	-	28	510	18,808	17,477	7	281	200	48	
N.Y. City †	25	1,496	-	1	38	1	2	911	41,810	40,323	54	2,510	1,977	-	
N.J.	21	807	-	-	24	-	5	183	18,968	19,588	5	468	359	5	
Pa.	25	1,080	-	-	13	6	17	598	27,509	28,550	9	427	312	16	
E.N. CENTRAL	99	3,997	1	1	28	-	58	3,502	151,720	153,911	48	2,969	2,380	441	
Ohio†	25	733	1	-	3	-	21	701	41,563	40,102	14	589	448	38	
Ind.	16	499	-	-	1	-	2	372	13,182	15,074	3	203	164	68	
Ill.	23	1,594	-	-	8	-	31	1,457	48,249	49,933	22	1,663	1,478	213	
Mich.†	21	969	-	1	13	-	3	731	35,415	35,357	9	439	223	14	
Wis.†	14	202	-	-	3	-	1	241	13,311	13,445	-	75	67	108	
W.N. CENTRAL	25	904	27	-	23	2	61	931	47,952	49,310	10	304	415	984	
Minn.	2	139	1	-	5	-	2	200	7,885	8,202	3	86	150	160	
Iowa	-	68	1	-	5	-	14	89	5,648	5,414	-	30	35	190	
Mo.†	15	494	22	-	8	2	32	338	20,708	21,956	7	140	139	298	
N. Dak.	-	21	-	-	-	-	-	14	846	844	-	2	3	85	
S. Dak.	-	51	2	-	-	-	3	31	1,565	1,653	-	2	3	120	
Neb.	4	26	1	-	1	-	5	63	3,431	3,536	-	7	14	3	
Kans.†	4	105	-	-	4	-	8	196	7,869	7,705	-	37	71	128	
S. ATLANTIC	147	5,927	13	-	44	3	598	4,577	232,564	237,738	79	5,665	5,492	656	
Del.†	1	57	1	-	-	-	3	44	3,780	3,415	-	29	13	-	
Md.	23	698	-	-	6	-	75	582	28,645	30,548	14	377	414	33	
D.C.†	7	287	2	-	1	-	2	412	15,620	15,992	1	437	409	-	
Va.	23	707	2	-	5	-	90	369	22,275	23,125	17	471	461	20	
W. Va.	NA	224	-	NA	5	NA	15	NA	3,099	3,251	NA	50	30	13	
N.C.	17	952	1	-	2	1	242	637	33,867	33,475	5	422	584	26	
S.C.†	31	485	1	-	4	-	79	403	21,615	23,341	11	304	275	171	
Ga.	21	963	6	-	2	2	83	915	43,999	46,069	25	1,565	1,378	331	
Fla.†	24	1,554	-	-	19	-	9	1,215	59,664	58,522	6	2,010	1,928	62	
E.S. CENTRAL	89	2,456	15	-	22	-	140	1,999	81,910	81,744	49	1,614	1,100	314	
Ky.	17	617	2	-	7	-	20	298	11,116	10,842	7	158	142	136	
Tenn.†	17	714	13	-	3	-	77	1,017	29,770	29,850	29	663	375	105	
Ala.	42	611	-	-	8	-	21	292	23,795	23,578	4	294	199	72	
Miss.†	13	514	-	-	4	-	22	392	17,229	17,474	9	499	384	1	
W.S. CENTRAL	74	3,222	79	-	76	2	107	3,043	124,168	130,343	147	4,412	3,366	1,739	
Ark.	10	301	49	-	5	-	22	312	9,978	9,653	5	159	74	324	
La.	18	622	5	-	5	-	3	593	22,308	21,416	48	1,117	692	35	
Okl.†	-	322	14	-	-	-	62	317	12,339	12,244	2	85	90	272	
Tex.†	46	1,977	11	-	66	2	20	1,821	79,543	87,030	92	3,051	2,510	1,108	
MOUNTAIN	32	836	46	-	30	-	17	725	38,683	37,607	9	503	426	159	
Mont.	-	35	14	-	-	-	5	35	1,919	2,098	-	9	8	8	
Idaho	1	19	2	-	4	-	3	24	1,692	1,548	-	26	13	8	
Wyo.	5	14	-	-	1	-	-	30	1,097	949	1	9	9	11	
Colo.	13	136	12	-	15	-	4	222	10,339	10,398	5	108	118	51	
N. Mex.†	3	144	4	-	4	-	1	103	4,768	5,388	2	93	83	48	
Ariz.	7	400	-	-	3	-	-	183	10,776	9,681	-	147	105	23	
Utah†	-	33	12	-	1	-	1	34	1,962	2,062	-	5	13	10	
Nev.	3	55	2	-	2	-	3	94	6,130	5,483	1	106	77	-	
PACIFIC	100	4,518	10	3	148	1	8	4,542	159,701	158,062	141	4,461	4,315	346	
Wash.†	22	292	5	1	9	-	-	324	14,034	12,969	NA	195	258	-	
Oreg.	3	179	2	-	5	-	-	129	9,996	10,723	-	161	164	15	
Calif.	70	3,660	3	2	125	1	8	3,912	127,794	126,688	140	3,988	3,838	329	
Alaska†	-	76	-	-	2	-	-	89	4,805	4,918	-	25	12	2	
Hawaii	5	311	-	-	7	-	-	88	3,072	2,764	1	92	43	-	
Guam†	NA	55	-	NA	-	NA	-	NA	96	146	NA	1	1	-	
P.R.	23	296	-	-	6	-	-	38	2,092	2,121	27	574	490	24	
V.I.	NA	4	-	NA	1	NA	-	NA	149	209	NA	11	17	-	
Pac. Trust Terr.	NA	39	-	NA	-	NA	-	NA	430	420	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: Conn. +1, Mich. -2, Mo. -10, Kans. -2, D.C. +9, S.C. -1, Fla. -4, Tenn. -5, Miss. +2, Wash. +4, Alaska +7, Tularemia: D.C. -2, Tex. -1, N.Mex. -1; T. fever: NYC +1, Ohio +1, S.C. +1, Tex. -4; RMSF: Tenn. -2, Okla. +1, N. Mex. +1; GC: Ups. N.Y. -103 civ. -1 mil., Wis. +337 civ., Mo. -311 civ., Tenn. +1 civ. -8 mil., Miss. -17 civ., Tex. -8 civ., Utah -1 civ., Syphilis: R.I. -1 civ., Ups. N.Y. -3, Wis. +3 civ., Mo. +1 civ., S.C. +1 civ., Guam -1 civ. +1 mil., An. rabies: Del. +2, N.Mex. +2, Utah +1.

TABLE IV. Deaths in 121 U.S. cities,* week ending
December 15, 1979 (50th 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	689	443	169	32	19	33	S. ATLANTIC	1,132	700	279	79	30	46
Boston, Mass.	189	106	50	13	9	11	Atlanta, Ga.	163	84	47	16	10	3
Bridgeport, Conn.	48	30	17	1	-	3	Baltimore, Md.	132	86	30	10	4	3
Cambridge, Mass.	33	28	4	1	-	3	Charlotte, N.C.	86	45	26	6	2	3
Fall River, Mass.	26	19	6	-	1	1	Jacksonville, Fla.	127	88	26	4	3	4
Hartford, Conn.	50	33	12	4	-	1	Miami, Fla.	96	60	23	9	-	3
Lowell, Mass.	31	19	9	2	-	1	Norfolk, Va.	49	30	15	3	-	6
Lynn, Mass.	15	9	3	-	1	-	Richmond, Va.	75	48	23	3	1	-
New Bedford, Mass.	23	17	5	-	1	1	Savannah, Ga.	35	25	5	2	-	5
New Haven, Conn.	55	39	11	2	-	1	St. Petersburg, Fla.	102	82	11	4	2	2
Providence, R.I.	65	44	19	1	1	3	Tampa, Fla.	66	40	16	2	3	8
Somerville, Mass.	8	5	2	-	-	-	Washington, D.C.	157	81	48	17	4	-
Springfield, Mass.	45	25	12	4	2	3	Wilmington, Del.	44	31	9	3	1	-
Waterbury, Conn.	39	24	9	2	2	1							
Worcester, Mass.	62	45	10	2	2	2							
MID. ATLANTIC	2,676	1,779	616	156	61	84	E.S. CENTRAL	643	394	158	49	18	26
Albany, N.Y.	42	25	12	1	4	1	Birmingham, Ala.	114	63	34	7	3	4
Allentown, Pa.	15	13	2	-	-	-	Chattanooga, Tenn.	77	55	13	6	2	-
Buffalo, N.Y.	141	89	40	7	5	1	Knoxville, Tenn.	48	36	10	1	-	9
Camden, N.J.	36	22	11	2	1	1	Louisville, Ky.	87	46	29	8	3	1
Elizabeth, N.J.	31	23	5	1	-	1	Memphis, Tenn.	144	92	33	9	1	5
Erie, Pa.†	41	31	7	1	2	-	Mobile, Ala.	52	30	7	8	6	-
Jersey City, N.J.	54	21	27	3	2	2	Montgomery, Ala.	35	25	8	2	-	4
Newark, N.J.	78	40	20	9	6	4	Nashville, Tenn.	86	47	24	8	3	-
N.Y. City, N.Y.	1,407	951	309	85	22	36							
Paterson, N.J.	26	12	9	3	1	4	W.S. CENTRAL	1,466	843	358	122	67	38
Philadelphia, Pa.†	327	208	81	23	7	13	Austin, Tex.	47	32	8	1	1	1
Pittsburgh, Pa.†	40	25	10	1	1	-	Baton Rouge, La.	45	28	10	1	5	1
Reading, Pa.	39	31	6	1	-	-	Corpus Christi, Tex.	42	21	12	2	3	2
Rochester, N.Y.	165	117	32	5	7	10	Dallas, Tex.	221	124	57	14	11	4
Schenectady, N.Y.	41	27	9	5	-	1	El Paso, Tex.	50	31	9	4	4	1
Scranton, Pa.†	21	15	4	2	-	2	Fort Worth, Tex.	124	77	26	14	5	7
Syracuse, N.Y.	74	52	15	5	1	2	Houston, Tex.	350	175	94	38	14	5
Trenton, N.J.	36	22	10	2	2	1	Little Rock, Ark.	61	40	12	4	2	-
Utica, N.Y.	28	24	4	-	-	-	New Orleans, La.	198	108	56	17	13	7
Yonkers, N.Y.	34	31	3	-	-	2	San Antonio, Tex.	164	104	39	10	4	3
							Shreveport, La.	82	52	21	5	2	4
							Tulsa, Okla.	82	51	14	12	3	-
E.N. CENTRAL	2,374	1,426	620	161	90	57							
Akron, Ohio	63	36	20	4	1	-	MOUNTAIN	622	399	130	41	27	27
Canton, Ohio	35	24	10	1	-	1	Albuquerque, N. Mex.	49	36	7	3	2	5
Chicago, Ill.	602	341	156	43	40	6	Colorado Springs, Colo.	40	29	8	-	1	7
Cincinnati, Ohio	156	90	39	13	9	2	Denver, Colo.	138	86	24	11	12	1
Cleveland, Ohio	171	91	63	10	-	5	Las Vegas, Nev.	74	36	26	9	1	2
Columbus, Ohio	123	76	32	8	5	5	Ogden, Utah	23	10	10	2	-	4
Dayton, Ohio	106	61	35	5	2	4	Phoenix, Ariz.	149	102	23	10	4	4
Detroit, Mich.	267	160	68	23	8	3	Pueblo, Colo.	20	15	3	2	-	2
Evansville, Ind.	40	27	10	2	-	4	Salt Lake City, Utah	51	29	13	2	5	-
Fort Wayne, Ind.	54	31	14	5	1	5	Tucson, Ariz.	78	56	16	2	2	-
Gary, Ind.	21	9	7	2	1	1							
Grand Rapids, Mich.	50	29	16	3	1	4	PACIFIC	1,788	1,180	379	122	65	48
Indianapolis, Ind.	157	98	37	9	7	1	Berkeley, Calif.	27	20	2	3	1	3
Madison, Wis.	52	29	11	3	4	3	Fresno, Calif.	67	35	19	9	3	-
Milwaukee, Wis.	143	94	38	7	2	3	Glendale, Calif.	20	14	5	1	-	2
Peoria, Ill.	59	42	10	3	4	4	Honolulu, Hawaii	70	40	20	6	3	3
Rockford, Ill.	45	31	8	3	1	4	Long Beach, Calif.	106	70	26	8	1	11
South Bend, Ind.	56	42	8	4	1	2	Los Angeles, Calif.	514	336	103	45	13	4
Toledo, Ohio	124	84	27	8	3	-	Oakland, Calif.	66	40	16	6	2	5
Youngstown, Ohio	50	31	11	5	-	-	Pasadena, Calif.	35	24	7	2	1	1
							Portland, Ore.	146	111	25	6	2	7
W.N. CENTRAL	760	487	182	34	35	30	Sacramento, Calif.	75	56	12	1	4	1
Des Moines, Iowa	48	27	17	-	3	-	San Diego, Calif.	123	92	20	3	5	3
Duluth, Minn.	35	25	8	-	2	3	San Francisco, Calif.	129	83	31	9	5	4
Kansas City, Kans.	33	19	12	1	-	-	San Jose, Calif.	156	104	33	13	3	1
Kansas City, Mo.	124	77	27	10	5	7	Seattle, Wash.	161	99	31	7	18	1
Lincoln, Neb.	37	23	11	2	1	-	Spokane, Wash.	58	31	19	3	4	1
Minneapolis, Minn.	108	73	21	5	6	4	Tacoma, Wash.	35	25	10	-	-	-
Omaha, Neb.	80	44	20	9	3	1							
St. Louis, Mo.	170	109	42	3	12	7							
St. Paul, Minn.	70	52	15	1	1	4							
Wichita, Kans.	55	38	9	3	2	4							
TOTAL	12,150	7,651	2,891	796	412	369							

*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.

Current Trends

Influenza Surveillance — United States

It has been observed repeatedly in the United States that during most epidemics of influenza A the number of deaths from pneumonia and influenza (P&I) exceeds expected values for several weeks (7-3). Therefore, CDC obtains regular reports of deaths attributed to P&I as 1 measure of the extent and impact of influenza activity. The following is a general description of CDC's system of collecting, analyzing, and interpreting data on deaths attributed to P&I.

Each week 121 cities in the United States relay mortality data by postcard to CDC's Consolidated Surveillance and Communications Activity. The number of deaths occurring in these cities is reported separately for all causes, for influenza, and for pneumonia. A death is attributed to pneumonia if it appears on Part 1(A) of the death certificate as an immediate cause of death or on the lowest line on Part 1 as an underlying cause of death. A death is attributed to influenza if the word "influenza" appears anywhere in Part 1 or Part 2 of the certificate; if other causes of death are also named, influenza takes precedence. The number of deaths in each age group is not reported by date of occurrence but by the date reported to the city.

Each year, before the influenza season begins, equations to describe the expected number of P&I deaths are generated to monitor mortality attributed to influenza activity. Large increases beyond the expected number of deaths are usually associated with influenza A epidemics. It should be emphasized that this surveillance method is based on data from 121 urban centers, most of whose populations exceed 100,000 and whose total populations constitute approximately 26% of the U.S. population. Thus, these numbers should be viewed as only an index of the national mortality attributable to P&I. Nevertheless, they serve as a readily available indicator of any increases in mortality in the United States associated with influenza.

CDC's influenza surveillance activities also include systems to monitor morbidity, an especially critical parameter during epidemics associated with viruses which have no significant associated mortality, such as recent influenza A(H1N1) strains and most strains of influenza B. Finally, data are collected from state, county, city, and military laboratories that participate in a weekly reporting system coordinated by the World Health Organization's Collaborating Center for Influenza, CDC. While the specimens tested by these laboratories are not obtained on a random basis, virus isolation results identify the types of influenza viruses circulating in the country.

As part of CDC's efforts to improve its influenza surveillance, a meeting of experts on influenza and statistics was convened in September to discuss new methods of analyzing mortality data. Ongoing analysis of some of these methods will continue through this influenza season.

Reported by Consolidated Surveillance and Communications Activity, Bur of Epidemiology, Virology Div, Bur of Laboratories, Immunization Div, Bur of State Services, CDC.

References

1. Collins SD, Lehmann J: Excess deaths from influenza and pneumonia and from important chronic diseases during epidemic periods, 1918-1951. Public Health Monogr 10 (PHS Publication 213). Washington, Government Printing Office, 1952
2. MMWR 14:8-11, 1965
3. CDC: Influenza Surveillance Report No. 90, 1973-1974 and 1974-1975. Issued February 1976

Epidemiologic Notes and Reports

Influenza B — Arizona, California, Illinois, Wisconsin

Influenza B viruses have been isolated recently in 4 states. In Arizona and California, single isolates were obtained from college students who had no known foreign travel. The illnesses began in the week ending December 1. No outbreaks in the colleges or the surrounding communities have been detected.

Between December 5 and 14, an outbreak of upper respiratory illness consisting of fever, cough, malaise, myalgia, and sore throat affected all schools in Morgan County, Illinois (near Springfield). On December 12, 614 of 3,205 pupils (19.2%) at 8 schools were absent, but during the course of the outbreak absentee rates were as high as 33% at some schools. Influenza B virus was isolated from a 6-year-old child.

From December 2 to 13, influenza B viruses were isolated from 7 persons 12-14 years old in Madison, Wisconsin, where increased absenteeism (up to 20%) occurred in a middle school. In the same period, single isolates of influenza B were obtained from a 19-year-old university student in Milwaukee, a 14-year-old in Neenah, Calumet County, and a 12-year-old in Vilas County. School absenteeism increased (up to 34%) in schools in Vilas County, but no increase in absenteeism was reported in Milwaukee or Neenah.

Reported by J Cherry, MD, Dept of Pediatric Infectious Diseases, University of California at Los Angeles; KM Starko, MD, Acting State Epidemiologist, Arizona Dept of Health Services; WD Meyer, R Ommen, RN, Morgan County Health Dept; BJ Francis, MD, State Epidemiologist, Illinois Dept of Public Health; G Sedmak, PhD, Milwaukee City Health Dept; JP Davis, MD, State Epidemiologist, D Nelson, Wisconsin Dept of Health and Social Services; Virology Div, Bur of Laboratories, Immunization Div, Bur of State Services, CDC.

International Notes

Measles — United Republic of Cameroon

As part of the National Nutritional Survey, conducted in the Republic of Cameroon in 1977, a questionnaire was administered to determine the annual incidence of measles and the mortality resulting from this disease among children from birth to 4 years of age. Results showed that the annual total mortality in this age group ranged from 2% in Douala and Yaoundé to 3% in rural zones, with 14% and 21% of all deaths, respectively, due to measles (Table 1). The case-fatality rate for measles in Douala and Yaoundé was 2% and in the rural zones, 5%.

TABLE 1. Measles incidence and mortality in infants in specific areas of the United Republic of Cameroon, 1977

Region	Number questioned	Total deaths	Percentage of deaths due to measles	Cases of measles	Case-fatality rate
Yaoundé/Douala	952	21(2%)	3(14%)	152	2%
Other urban zones*	917	32(3%)	5(16%)	121	4%
Rural zones*	4,098	137(3%)	29(21%)	592	5%

*Excluding Yaoundé/Douala.

Measles — Continued

Reported by the World Health Organization in the *Weekly Epidemiological Record* 54:273-280, 1979.

Editorial Note: Measles can be controlled or eliminated by a well-conducted vaccination program. In West Africa, 70% of children will develop measles by the age of 24 months if they are not vaccinated. Because of the high incidence of measles in children under 1 year of age and the high case-fatality rate, measles vaccine is best given at 9 months of age in these and other developing countries that have a similar pattern of measles transmission.

Notice to Readers

The MMWR will not be published the week of Christmas. The next issue of the MMWR that you will receive will be No. 51 of Volume 28, dated January 4, 1980. This 16-page issue will accommodate the tables on specified notifiable diseases and deaths in 121 U.S. cities for the weeks ending December 22 and 29 (51st and 52nd weeks).

Addendum, Vol. 28, No. 47

p 566 In the article "*Campylobacter* Enteritis — Iowa," the following name was inadvertently omitted from the credits: WJ Hausler, PhD, Reference Bacteriology Section, University Hygienic Laboratory, University of Iowa, Iowa City.

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

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