



Morbidity and Mortality

Vol. 17, No. 21

WEEKLY REPORT

Week Ending
May 25, 1968

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

PUBLIC HEALTH SERVICE

HEALTH SERVICES AND MENTAL HEALTH ADMINISTRATION

EPIDEMIOLOGIC NOTES AND REPORTS

FOODBORNE GROUP A STREPTOCOCCAL EPIDEMIC
U.S. Air Force Academy, Colorado

An epidemic of Group A streptococcal pharyngitis occurred among the cadets at the U.S. Air Force Academy from April 27 through April 30 (Figure 1). Approximately 600 cadets with severe prostrating illness characterized by high fever, headache, and sore throat were seen in the academy hospital clinic on Sunday, April 28; 89 cadets required hospitalization. Of the 89 hospitalized cadets, 90 percent had exudative pharyngitis and tender cervical lymphadenopathy, and 91 percent on throat culture yielded a Group A, M non-typable, T-12 streptococcus. Of 418 cultures taken on April 28, 224 cultures (54 percent) were

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reported as presumptive B-hemolytic streptococci by the Air Force Academy Hospital Laboratory; 139 of these cultures were grouped and typed, and 124 cultures (89 percent) were of the epidemic strain. A random selection of 100 well cadets, cultured at the time that mass prophylaxis was given on April 30, demonstrated an epidemic strain prevalence of only 2 percent.

(Continued on page 190)

TABLE I. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES
(Cumulative totals include revised and delayed reports through previous weeks)

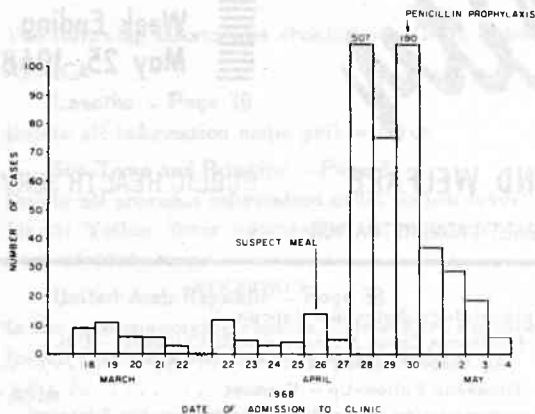
DISEASE	21st WEEK ENDED		MEDIAN 1963 - 1967	CUMULATIVE, FIRST 21 WEEKS		
	May 25, 1968	May 27, 1967		1968	1967	MEDIAN 1963 - 1967
Aseptic meningitis	33	49	35	606	675	586
Brucellosis	3	5	7	61	92	92
Diphtheria	1	2	2	69	42	74
Encephalitis, primary:						
Arthropod-borne & unspecified	16	22	---	333	515	---
Encephalitis, post-infectious	20	18	---	231	354	---
Hepatitis, serum	82	35	750	1,619	798	17,347
Hepatitis, infectious	859	716		17,778	16,549	
Malaria	22	38	1	860	798	41
Measles (rubeola)	717	2,302	7,851	14,600	48,514	199,332
Meningococcal infections, total	43	50	52	1,440	1,227	1,363
Civilian	40	47	---	1,297	1,135	---
Military	3	3	---	143	92	---
Mumps	4,181	---	---	102,251	---	---
Poliomyelitis, total	1	1	1	16	9	10
Paralytic	1	1	1	16	8	8
Rubella (German measles)	2,131	2,024	---	32,764	29,072	---
Streptococcal sore throat & scarlet fever	8,172	9,277	8,670	224,904	244,171	219,826
Tetanus	2	3	6	46	60	82
Tularemia	5	4	5	66	61	81
Typhoid fever	5	9	7	102	133	137
Typhus, tick-borne (Rky. Mt. spotted fever)	9	3	5	32	35	23
Rabies in animals	58	100	92	1,569	1,891	1,891

TABLE II. NOTIFIABLE DISEASES OF LOW FREQUENCY

	Cum.		Cum.
Anthrax:	2	Rabies in man:	—
Botulism:	—	Rubella, Congenital Syndrome:	3
Leptospirosis: Hawaii-1	12	Trichinosis: Hawaii-2, Va.-2	25
Plague:	—	Typhus, murine: Fla.-1	5
Psittacosis:	14		

FOODBORNE GROUP A STREPTOCOCCAL EPIDEMIC - (Continued from front page)

Figure 1
PHARYNGITIS IN CADETS
AIR FORCE ACADEMY OUTPATIENT CLINIC
MARCH 18-22, APRIL 22-MAY 4, 1968



Following initial fluorescent antibody examination which indicated that the etiologic agent was a Group A streptococcus, control measures were instituted. Cadet classes and dependent and public schools in the area were suspended from April 29 to May 1. On Tuesday, April 30, mass prophylaxis utilizing 1.2 million units of benzathine penicillin G or oral erythromycin was given to approximately 2,200 cadets who had not previously been treated. Members of the hospital staff and food handlers were cultured and treated if the cultures were positive. Following mass prophylaxis on April 30, a marked reduction was noted in clinic visits for pharyngitis (Figure 1).

The overall attack rate in the cadet population of 3,012 was 27.5 percent. Squadron attack rates failed to reveal any significant difference between individual squadrons.

Because of the explosive nature of this epidemic, a common source foodborne outbreak was suspected. Several factors tended to localize the time of exposure to the noon meal on Friday, April 26. The incubation period of 12-72 hours coincides with the incubation periods described in previous foodborne outbreaks of streptococcal pharyngitis.^{1,2,3,4} A flight training class of 58 cadets who did not eat the noon meal on Friday reported no cases of illness with onset before 6 p.m. Monday, April 29. From this group, five cadets subsequently became ill and probably represent secondary respiratory spread. From a group of 26 persons who ate only the noon meal on Friday with the

cadets, 6 persons became ill with symptoms of streptococcal pharyngitis during the following 48 hours.

Cultures from all food items served at meals from Friday evening through Sunday failed to yield Group A streptococci. Milk and milk products from the same lot as that served on Friday and Saturday were also negative. Portions of the prepared food items served at the noon meal on Friday were not available for culture.

An analysis of food histories obtained from both hospitalized and well cadets pointed to the tuna salad at the Friday noon meal as the responsible food. An investigation of the preparation of the tuna salad revealed that the hard boiled eggs used in the salad had been steamed and sliced on Thursday, April 25. The sliced eggs were then placed in large pans and left overnight at 58°F. The salad was then prepared at 6 a.m. April 26, and stored immediately at 38°F. until served at the noon meal. The suggestion that eggs were the vehicle of infection is consistent with other reports of foodborne streptococcal epidemics that incriminate eggs as the vehicle of transmission.^{1,2,3,4}

On April 28 and 29, 229 food handlers in the mess hall were cultured. Six were positive for Group A streptococci, three of which were T-12, the epidemic strain. Histories, physical examinations, throat cultures, and blood specimens obtained from food handlers who assisted in preparing the tuna salad, to date, have failed to incriminate definitely a single source of the inoculum.

Intensive surveillance for cases of nonsuppurative sequelae has failed to reveal such complications.

(Reported by Major Roger Kilton, USAF, Laboratory Officer, U.S. Air Force Academy Hospital Laboratory, Colorado Springs, Colorado; Cecil S. Mollohan, M.D., M.P.H., Chief, Section of Epidemiology, Colorado State Department of Public Health; Streptococcal Disease Section, Ecological Investigations Program, NCDC, Kansas City, Kansas; and two EIS Officers.)

References:

1. U.S. Commission on Acute Respiratory Diseases, Fort Bragg, N.C.: A study of a foodborne epidemic of tonsillitis and pharyngitis due to beta hemolytic streptococcus, type 5. *Bull Johns Hopkins Hosp* 77:143-210, 1945.
2. U.S. National Office of Vital Statistics: *Morbidity and Mortality Weekly Report*, Vol. 4, No. 32, Aug. 19, 1955.
3. U.S. National Office of Vital Statistics: *Morbidity and Mortality Weekly Report*, Vol. 5, No. 4, Feb. 3, 1956.
4. Farber, R. E. and F. A. Korff. Foodborne epidemic of Group A beta hemolytic streptococcus. *Public Health Reports* 73:203-209, 1958.

TULAREMIA FOLLOW-UP - Vermont

Since the initial report of 32 cases of tularemia from Vermont (MMWR, Vol. 17, No. 18), eight other cases, diagnosed on the basis of clinical and laboratory findings, have occurred in Vermont in persons who trapped or skinned muskrats. Also, serologic confirmation has been made on eight additional cases from the original 32 reported cases.

Of the 40 patients, to date, 34 have had agglutination titers against *Francisella tularensis* of 1:160 or higher, 2 to 6 weeks after onset of symptoms. Seven of these 34 patients had fourfold or greater rises in titer in serum specimens drawn more than 2 weeks apart. Included in

(Continued on page 196)

RECOMMENDATION OF THE PUBLIC HEALTH SERVICE ADVISORY COMMITTEE ON IMMUNIZATION PRACTICES

The Public Health Service Advisory Committee on Immunization Practices meeting on February 15, 1968, issued the following recommendation on typhus vaccine.

TYPHUS VACCINE

TYPHUS

The United States has not experienced an outbreak of louse-borne (epidemic) typhus since 1922. The last reported case, 1950, did not result from an indigenous source of infection.

Louse-borne typhus was widespread in many countries affected by World War II. Since 1945, reported cases have declined steadily. Effective insecticides and generally improved standards of living have permitted many populations to free themselves of louse infestation. A human reservoir of latent infections persists in many parts of the world and resurgence of the disease might occur under conditions of war or disaster. Vaccination of any civilian population in the United States, however, is unwarranted.

TYPHUS VACCINE

Typhus vaccines of the type available today were first used widely in World War II. There were no deaths from typhus among vaccinated persons during the North African campaign, and incidence of disease in the vaccinated was reportedly lower than in the unvaccinated. In unvaccinated adults, the case-fatality ratio is reported to be 20 percent or higher.

Although no controlled studies of typhus vaccine have been carried out in human populations, experience from the field and the laboratory suggests that the incidence and severity of typhus cases is diminished among the vaccinated, especially if booster doses have been received.

Typhus vaccine is prepared from formaldehyde inactivated *Rickettsia prowazekii* grown in embryonated eggs. This vaccine provides protection against only louse-borne (epidemic) typhus; it does not protect against murine or scrub typhus.

RECOMMENDATIONS FOR VACCINE USE

The rarity of epidemic typhus minimizes the need for vaccination. Typhus is at present no threat to United States residents visiting most other countries. This is true even in places still reporting large numbers of cases if travel is limited to urban areas with modern hotel accommodations. It is only in mountainous, highland, or areas where a cold climate and other local conditions favor louse infestation that a potential threat exists.

Vaccination may be indicated for travelers to rural or remote, highland areas of Ethiopia, Rwanda, Burundi, Mexico, Ecuador, Bolivia, or Peru, and mountainous areas of Asia. Even there, however, the risk of typhus for U.S. travelers is extremely low. No typhus case in an American traveler is known to have occurred in recent years. Vaccination against typhus is not required by any country as a condition for entry.

Typhus vaccination is suggested only for the following special-risk groups:

- 1) Such persons as scientific investigators (e.g., anthropologists, archaeologists, or geologists), oil-field and construction workers, missionaries, and some government workers who live in or visit areas where the disease actually occurs and who will be in close contact with the indigenous population in such areas.
- 2) Medical personnel, including nurses and attendants, providing care for patients in areas in which louse-borne (epidemic) typhus occurs.
- 3) Laboratory personnel working with *Rickettsia prowazekii*.

Vaccination Schedule

Vaccine should be injected subcutaneously.

Primary: Two injections of vaccine 4 or more weeks apart.*

Boosters: A single injection of vaccine at intervals of 6 to 12 months for as long as opportunity for exposure exists. The primary series need never be repeated for booster doses to be effective.

Reactions

Pain and tenderness at the injection site should be expected. A few individuals have reportedly experienced exaggerated local reactions and fever, presumably a manifestation of hypersensitivity.

Contraindications

As is the case for all vaccines propagated in eggs, typhus vaccine should not be administered to anyone who is hypersensitive to eggs.

*Dose volume should be the amount listed by the manufacturer for adults or for children.

A reprint of this PHS Advisory Committee Recommendation is available on request from:
National Communicable Disease Center
Atlanta, Georgia 30333
Attn: Information Office

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TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES

FOR WEEKS ENDED
MAY 25, 1968 AND MAY 27, 1967 (21st WEEK)

AREA	ASEPTIC MENINGITIS		BRUCELLOSIS	DIPHTHERIA	ENCEPHALITIS			HEPATITIS			MALARIA
	1968	1967			Primary including unsp. cases		Post-Infectious	Serum	Infectious		
					1968	1967			1968	1968	
UNITED STATES...	33	49	3	1	16	22	20	82	859	716	22
NEW ENGLAND.....	1	-	-	-	2	-	-	3	23	30	-
Maine..*	-	-	-	-	-	-	-	-	2	1	-
New Hampshire.....	-	-	-	-	-	-	-	-	-	2	-
Vermont.....	-	-	-	-	-	-	-	-	-	-	-
Massachusetts.....	-	-	-	-	2	-	-	-	11	18	-
Rhode Island.....	1	-	-	-	-	-	-	-	2	3	-
Connecticut.....	-	-	-	-	-	-	-	3	8	6	-
MIDDLE ATLANTIC.....	3	6	-	-	1	1	1	26	131	124	3
New York City.....	2	1	-	-	-	-	-	19	53	53	-
New York, Up-State..	1	1	-	-	-	1	1	3	24	18	1
New Jersey.....	-	2	-	-	1	-	-	1	19	31	-
Pennsylvania.....	-	2	-	-	-	-	-	3	35	22	2
EAST NORTH CENTRAL...	5	4	-	-	4	7	2	1	144	129	3
Ohio.....	1	-	-	-	2	7	-	1	62	20	-
Indiana.....	-	1	-	-	-	-	-	-	7	16	2
Illinois.....	2	1	-	-	2	-	1	-	27	46	1
Michigan.....	2	2	-	-	-	-	1	-	38	33	-
Wisconsin.....	-	-	-	-	-	-	-	-	10	14	-
WEST NORTH CENTRAL...	-	-	-	-	1	-	1	-	77	36	1
Minnesota.....	-	-	-	-	1	-	-	-	21	7	-
Iowa.....	-	-	-	-	-	-	-	-	14	2	-
Missouri.....	-	-	-	-	-	-	-	-	35	25	-
North Dakota.....	-	-	-	-	-	-	-	-	-	-	-
South Dakota.....	-	-	-	-	-	-	-	-	-	-	-
Nebraska.....	-	-	-	-	-	-	-	-	-	-	-
Kansas.....	-	-	-	-	-	-	1	-	7	2	1
SOUTH ATLANTIC.....	9	4	3	-	4	2	4	3	74	102	11
Delaware.....	-	-	-	-	-	-	-	-	2	1	1
Maryland..*	1	-	-	-	-	1	-	1	13	7	1
Dist. of Columbia..	-	-	-	-	-	-	-	-	1	2	-
Virginia.....	1	-	3	-	-	1	-	-	2	30	-
West Virginia.....	-	2	-	-	-	-	-	-	9	8	-
North Carolina.....	1	-	-	-	1	-	-	-	5	10	8
South Carolina.....	-	-	-	-	-	-	-	-	3	10	-
Georgia.....	-	-	-	-	-	-	-	-	11	11	1
Florida.....	6	2	-	-	3	-	4	2	28	23	-
EAST SOUTH CENTRAL...	4	3	-	-	1	2	-	-	29	36	-
Kentucky.....	-	-	-	-	-	2	-	-	5	9	-
Tennessee.....	2	3	-	-	1	-	-	-	9	12	-
Alabama.....	1	-	-	-	-	-	-	-	2	6	-
Mississippi.....	1	-	-	-	-	-	-	-	13	9	-
WEST SOUTH CENTRAL...	6	5	-	1	1	2	3	1	68	59	1
Arkansas.....	1	-	-	-	-	-	-	-	2	2	-
Louisiana.....	4	-	-	1	1	1	3	1	12	15	-
Oklahoma.....	-	-	-	-	1	-	-	-	3	3	1
Texas.....	1	5	-	-	-	-	-	-	51	39	-
MOUNTAIN.....	-	-	-	-	-	2	1	-	26	31	-
Montana.....	-	-	-	-	-	-	-	-	4	2	-
Idaho.....	-	-	-	-	-	-	-	-	6	-	-
Wyoming.....	-	-	-	-	-	-	-	-	1	4	-
Colorado.....	-	-	-	-	-	2	-	-	3	7	-
New Mexico.....	-	-	-	-	-	-	1	-	6	7	-
Arizona.....	-	-	-	-	-	-	-	-	4	11	-
Utah.....	-	-	-	-	-	-	-	-	2	-	-
Nevada.....	-	-	-	-	-	-	-	-	-	-	-
PACIFIC.....	5	27	-	-	2	6	8	48	287	169	3
Washington.....	-	-	-	-	-	-	2	-	31	37	-
Oregon.....	-	-	-	-	-	-	1	1	27	13	-
California.....	4	11	-	-	2	6	5	46	229	119	1
Alaska.....	-	-	-	-	-	-	-	-	-	-	-
Hawaii.....	1	16	-	-	-	-	-	1	-	-	2
Puerto Rico.....	-	-	-	1	-	-	-	-	24	13	-

*Delayed reports: Encephalitis, post-infectious: Md. 1
Hepatitis, infectious: Me. 1

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TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES
FOR WEEKS ENDED
MAY 25, 1968 AND MAY 27, 1967 (21st WEEK) - CONTINUED

AREA	MEASLES (Rubeola)			MENINGOCOCCAL INFECTIONS, TOTAL			MUMPS	POLIOMYELITIS			RUBELLA	
	1968	Cumulative		1968	Cumulative			1968	Total	Paralytic		
		1968	1967		1968	1967				1968		Cum. 1968
UNITED STATES...	717	14,600	48,514	43	1,440	1,227	4,181	1	1	16	2,131	
NEW ENGLAND.....	65	698	638	1	73	56	327	-	-	-	401	
Maine.*.....	-	13	196	1	6	3	5	-	-	-	14	
New Hampshire.....	1	80	71	-	7	2	11	-	-	-	6	
Vermont.....	-	1	25	-	1	-	9	-	-	-	5	
Massachusetts.*.....	29	250	229	-	32	29	183	-	-	-	173	
Rhode Island.....	-	1	52	-	6	3	24	-	-	-	69	
Connecticut.....	35	353	65	-	21	19	95	-	-	-	134	
MIDDLE ATLANTIC.....	206	2,373	1,710	9	241	188	286	-	-	-	318	
New York City.....	139	915	303	1	47	31	141	-	-	-	146	
New York, Up-State.....	39	940	375	-	38	43	NN	-	-	-	45	
New Jersey.*.....	24	400	423	6	90	75	145	-	-	-	121	
Pennsylvania.....	4	118	609	2	66	39	NN	-	-	-	6	
EAST NORTH CENTRAL...	95	3,047	4,054	5	159	145	1,270	-	-	-	650	
Ohio.....	3	243	793	3	43	55	68	-	-	-	320	
Indiana.....	23	539	504	-	20	20	86	-	-	-	26	
Illinois.....	23	1,188	661	1	38	31	186	-	-	-	85	
Michigan.....	11	197	777	1	45	30	443	-	-	-	71	
Wisconsin.....	35	880	1,319	-	13	9	487	-	-	-	148	
WEST NORTH CENTRAL...	14	313	2,287	5	70	56	437	-	-	-	87	
Minnesota.....	-	13	105	-	16	12	43	-	-	-	6	
Iowa.....	4	77	624	1	5	11	317	-	-	-	64	
Missouri.....	5	72	211	3	21	12	8	-	-	-	1	
North Dakota.....	2	107	726	-	3	-	28	-	-	-	16	
South Dakota.....	-	4	46	-	4	6	NN	-	-	-	-	
Nebraska.....	3	32	538	-	6	9	41	-	-	-	-	
Kansas.....	-	8	37	1	15	6	-	-	-	-	-	
SOUTH ATLANTIC.....	43	1,116	5,594	6	309	235	259	-	-	-	170	
Delaware.....	-	9	36	-	4	5	7	-	-	-	7	
Maryland.....	3	69	99	1	19	29	43	-	-	-	9	
Dist. of Columbia..	-	6	16	-	11	8	12	-	-	-	-	
Virginia.....	1	219	1,750	1	22	23	17	-	-	-	14	
West Virginia.....	2	177	1,084	-	7	19	51	-	-	-	24	
North Carolina.....	3	261	798	2	62	47	NN	-	-	-	-	
South Carolina.....	2	12	425	1	54	23	-	-	-	-	5	
Georgia.....	-	3	24	-	57	34	-	-	-	-	-	
Florida.....	32	360	1,362	1	73	47	129	-	-	-	111	
EAST SOUTH CENTRAL...	18	416	4,510	5	125	108	173	-	-	-	94	
Kentucky.....	4	118	1,122	1	47	30	16	-	-	-	30	
Tennessee.....	1	51	1,555	3	43	46	153	-	-	-	42	
Alabama.....	-	65	1,198	1	17	20	4	-	-	-	22	
Mississippi.....	13	182	635	-	18	12	-	-	-	-	-	
WEST SOUTH CENTRAL...	173	3,895	15,621	7	254	176	343	1	1	8	98	
Arkansas.....	-	2	1,376	-	15	22	-	-	-	-	-	
Louisiana.....	-	2	123	2	66	67	1	-	-	-	8	
Oklahoma.....	-	103	3,294	2	48	11	20	-	-	-	-	
Texas.....	173	3,788	10,828	3	125	76	322	1	1	8	90	
MOUNTAIN.....	26	738	3,656	-	22	24	257	-	-	-	82	
Montana.....	-	64	245	-	2	-	17	-	-	-	2	
Idaho.....	1	12	337	-	9	1	9	-	-	-	-	
Wyoming.....	4	48	53	-	-	1	-	-	-	-	-	
Colorado.....	7	353	1,088	-	7	10	68	-	-	-	37	
New Mexico.....	3	73	526	-	-	3	70	-	-	-	11	
Arizona.....	11	164	852	-	1	4	68	-	-	-	29	
Utah.....	-	19	291	-	-	3	25	-	-	-	3	
Nevada.....	-	5	264	-	3	2	-	-	-	-	-	
PACIFIC.....	77	2,004	10,444	5	187	239	829	-	-	8	231	
Washington.....	7	470	4,980	2	31	22	263	-	-	-	63	
Oregon.....	12	387	1,367	-	16	22	58	-	-	-	11	
California.....	57	1,113	3,879	3	130	185	479	-	-	8	153	
Alaska.....	1	1	117	-	-	8	13	-	-	-	-	
Hawaii.....	-	33	101	-	10	2	16	-	-	-	4	
Puerto Rico.....	4	293	1,735	1	16	8	44	-	-	-	1	

*Delayed reports: Measles: Mass. delete 1, N.J. 27
Mumps: Me. 3
Rubella: Me. 3

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TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES

FOR WEEKS ENDED

MAY 25, 1968 AND MAY 27, 1967 (21st WEEK) - CONTINUED

AREA	STREPTOCOCCAL SORE THROAT & SCARLET FEVER	TETANUS		TULAREMIA		TYPHOID		TYPHUS FEVER TICK-BORNE (Rky. Mc. Spotted)		RABIES IN ANIMALS	
		1968	1968	Cum. 1968	1968	Cum. 1968	1968	Cum. 1968	1968	Cum. 1968	1968
UNITED STATES...	8,172	2	46	5	66	5	102	9	32	58	1,569
NEW ENGLAND.....	1,333	-	1	-	32	1	4	-	-	2	56
Maine,*.....	23	-	-	-	-	-	-	-	-	1	50
New Hampshire.....	-	-	-	-	-	-	-	-	-	-	2
Vermont.....	24	-	-	-	32	-	-	-	-	1	3
Massachusetts.....	165	-	-	-	-	-	2	-	-	-	1
Rhode Island.....	82	-	-	-	-	-	-	-	-	-	-
Connecticut.....	1,039	-	1	-	-	1	2	-	-	-	-
MIDDLE ATLANTIC.....	504	-	8	2	3	1	11	-	3	-	13
New York City.....	18	-	4	-	-	-	6	-	-	-	-
New York, Up-State.....	483	-	4	2	3	1	2	-	-	-	9
New Jersey.....	NN	-	-	-	-	-	-	-	-	-	-
Pennsylvania.....	3	-	-	-	-	-	3	-	3	-	4
EAST NORTH CENTRAL...	803	-	6	-	4	1	17	1	2	8	131
Ohio,*.....	116	-	-	-	1	-	11	-	1	2	52
Indiana.....	153	-	1	-	-	-	1	-	-	4	48
Illinois.....	141	-	4	-	2	1	4	1	1	-	12
Michigan.....	200	-	1	-	1	-	-	-	-	1	8
Wisconsin.....	193	-	-	-	-	-	1	-	-	1	11
WEST NORTH CENTRAL...	308	-	2	-	6	-	5	-	1	15	358
Minnesota.....	20	-	-	-	-	-	-	-	-	6	102
Iowa.....	105	-	-	-	-	-	-	-	-	4	66
Missouri.....	18	-	2	-	4	-	3	-	-	2	63
North Dakota.....	61	-	-	-	-	-	-	-	-	3	58
South Dakota.....	25	-	-	-	1	-	1	-	1	-	34
Nebraska.....	50	-	-	-	-	-	1	-	-	-	19
Kansas.....	29	-	-	-	1	-	-	-	-	-	16
SOUTH ATLANTIC.....	824	-	9	-	5	2	27	6	23	5	177
Delaware.....	2	-	-	-	-	-	-	-	-	-	-
Maryland.....	179	-	-	-	-	-	4	-	2	-	3
Dist. of Columbia..	18	-	1	-	-	-	1	-	-	-	-
Virginia.....	214	-	2	-	1	1	5	3	13	-	76
West Virginia.....	143	-	1	-	-	-	-	-	-	1	22
North Carolina.....	34	-	2	-	2	-	2	3	7	-	7
South Carolina.....	12	-	1	-	-	-	-	-	1	-	-
Georgia.....	23	-	-	-	1	-	7	-	-	3	20
Florida.....	199	-	2	-	1	1	8	-	-	1	49
EAST SOUTH CENTRAL...	1,123	2	6	-	5	-	13	1	2	10	403
Kentucky.....	60	-	1	-	1	-	2	-	-	6	188
Tennessee.....	961	2	2	-	3	-	8	1	1	2	197
Alabama.....	60	-	1	-	-	-	-	-	-	2	18
Mississippi.....	42	-	2	-	1	-	3	-	1	-	-
WEST SOUTH CENTRAL...	442	-	6	3	9	-	8	1	1	9	292
Arkansas.....	6	-	-	-	1	-	1	-	-	1	33
Louisiana.....	12	-	4	-	1	-	1	-	-	-	30
Oklahoma.....	12	-	-	-	1	-	1	-	-	3	93
Texas.....	412	-	2	3	6	-	5	1	1	5	136
MOUNTAIN.....	1,594	-	-	-	2	-	8	-	-	2	30
Montana.....	26	-	-	-	-	-	-	-	-	-	-
Idaho.....	155	-	-	-	-	-	-	-	-	-	-
Wyoming,*.....	102	-	-	-	-	-	1	-	-	1	2
Colorado.....	895	-	-	-	1	-	2	-	-	-	1
New Mexico.....	149	-	-	-	-	-	5	-	-	-	15
Arizona.....	127	-	-	-	-	-	-	-	-	1	12
Utah.....	140	-	-	-	1	-	-	-	-	-	-
Nevada.....	-	-	-	-	-	-	-	-	-	-	-
PACIFIC.....	1,241	-	8	-	-	-	9	-	-	7	109
Washington.....	233	-	-	-	-	-	-	-	-	-	-
Oregon.....	93	-	-	-	-	-	2	-	-	-	1
California.....	851	-	8	-	-	-	7	-	-	7	108
Alaska.....	44	-	-	-	-	-	-	-	-	-	-
Hawaii.....	20	-	-	-	-	-	-	-	-	-	-
Puerto Rico.....	3	-	1	-	-	-	-	-	-	-	13

*Delayed reports: SST: Me. 45, Ohio delete 1, Wyo. 90

Morbidity and Mortality Weekly Report

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TABLE IV. DEATHS IN 122 UNITED STATES CITIES FOR WEEK ENDED MAY 25, 1968

(By place of occurrence and week of filing certificate. Excludes fetal deaths)

Area	All Causes		Pneumonia and Influenza All Ages	Under 1 year All Causes	Area	All Causes		Pneumonia and Influenza All Ages	Under 1 year All Causes
	All Ages	65 years and over				All Ages	65 years and over		
NEW ENGLAND:	715	445	38	51	SOUTH ATLANTIC:	1,136	590	40	66
Boston, Mass.-----	262	160	15	20	Atlanta, Ga.-----	140	67	1	12
Bridgeport, Conn.-----	50	26	8	6	Baltimore, Md.-----	239	128	12	11
Cambridge, Mass.-----	19	15	-	-	Charlotte, N. C.-----	45	14	1	1
Fall River, Mass.-----	26	18	-	2	Jacksonville, Fla.-----	64	32	2	1
Hartford, Conn.-----	54	26	2	7	Miami, Fla.-----	87	57	1	3
Lowell, Mass.-----	25	16	1	1	Norfolk, Va.-----	45	26	5	3
Lynn, Mass.-----	29	14	-	3	Richmond, Va.-----	71	36	1	7
New Bedford, Mass.-----	22	18	1	1	Savannah, Ga.-----	39	20	2	2
New Haven, Conn.-----	36	22	-	2	St. Petersburg, Fla.-----	86	72	3	-
Providence, R. I.-----	58	37	4	1	Tampa, Fla.-----	70	35	4	7
Somerville, Mass.-----	11	10	2	-	Washington, D. C.-----	194	74	6	15
Springfield, Mass.-----	33	20	2	4	Wilmington, Del.-----	56	29	2	4
Waterbury, Conn.-----	28	20	-	1					
Worcester, Mass.-----	62	43	3	3	EAST SOUTH CENTRAL:	679	366	35	28
MIDDLE ATLANTIC:	3,338	1,907	107	157	Birmingham, Ala.-----	80	39	1	3
Albany, N. Y.-----	53	31	2	6	Chattanooga, Tenn.-----	73	42	8	-
Allentown, Pa.-----	34	28	2	1	Knoxville, Tenn.-----	32	17	1	1
Buffalo, N. Y.-----	141	79	1	7	Louisville, Ky.-----	148	85	15	5
Camden, N. J.-----	49	23	5	2	Memphis, Tenn.-----	159	87	3	9
Elizabeth, N. J.-----	31	14	-	-	Mobile, Ala.-----	43	22	6	1
Erie, Pa.-----	48	27	2	1	Montgomery, Ala.-----	49	25	-	4
Jersey City, N. J.-----	65	46	4	5	Nashville, Tenn.-----	95	49	1	5
Newark, N. J.-----	81	41	4	3	WEST SOUTH CENTRAL:	1,117	579	42	83
New York City, N. Y.-----	1,630	946	52	59	Austin, Tex.-----	40	26	5	2
Paterson, N. J.-----	32	21	4	4	Baton Rouge, La.-----	29	17	2	2
Philadelphia, Pa.-----	591	321	10	31	Corpus Christi, Tex.-----	33	21	-	1
Pittsburgh, Pa.-----	190	99	1	13	Dallas, Tex.-----	172	86	3	11
Reading, Pa.-----	47	34	1	1	El Paso, Tex.-----	42	25	5	3
Rochester, N. Y.-----	104	66	5	8	Fort Worth, Tex.-----	72	37	2	3
Schenectady, N. Y.-----	29	17	-	1	Houston, Tex.-----	204	91	4	14
Scranton, Pa.-----	32	19	3	2	Little Rock, Ark.-----	60	33	2	7
Syracuse, N. Y.-----	61	32	4	2	New Orleans, La.-----	146	67	5	13
Trenton, N. J.-----	54	25	3	5	Oklahoma City, Okla.-----	80	40	1	11
Utica, N. Y.-----	30	22	3	-	San Antonio, Tex.-----	127	71	-	9
Yonkers, N. Y.-----	36	16	1	6	Shreveport, La.-----	49	30	2	3
					Tulsa, Okla.-----	63	35	11	4
EAST NORTH CENTRAL:	2,656	1,501	88	146	MOUNTAIN:	441	225	12	27
Akron, Ohio-----	69	40	-	5	Albuquerque, N. Mex.-----	44	19	2	1
Canton, Ohio-----	32	21	1	-	Colorado Springs, Colo.-----	21	13	-	2
Chicago, Ill.-----	709	371	22	33	Denver, Colo.-----	115	64	5	9
Cincinnati, Ohio-----	145	86	2	7	Ogden, Utah-----	16	11	2	-
Cleveland, Ohio-----	224	112	3	22	Phoenix, Ariz.-----	113	45	2	7
Columbus, Ohio-----	131	68	4	4	Pueblo, Colo.-----	18	12	-	-
Dayton, Ohio-----	78	45	5	3	Salt Lake City, Utah-----	61	33	-	7
Detroit, Mich.-----	386	213	12	16	Tucson, Ariz.-----	53	28	1	1
Evansville, Ind.-----	44	27	1	5	PACIFIC:	1,527	908	24	64
Flint, Mich.-----	50	32	1	2	Berkeley, Calif.-----	14	12	-	-
Fort Wayne, Ind.-----	48	28	2	2	Fresno, Calif.-----	36	19	-	1
Gary, Ind.-----	52	28	4	5	Glendale, Calif.-----	36	23	1	-
Grand Rapids, Mich.-----	39	28	5	-	Honolulu, Hawaii-----	46	13	-	1
Indianapolis, Ind.-----	141	78	2	10	Long Beach, Calif.-----	103	65	2	-
Madison, Wis.-----	52	28	6	3	Los Angeles, Calif.-----	436	272	6	19
Milwaukee, Wis.-----	155	101	4	8	Oakland, Calif.-----	72	46	-	4
Peoria, Ill.-----	35	21	-	5	Pasadena, Calif.-----	43	30	1	2
Rockford, Ill.-----	32	21	5	1	Portland, Oreg.-----	128	84	-	7
South Bend, Ind.-----	41	25	3	3	Sacramento, Calif.-----	65	38	-	3
Toledo, Ohio-----	122	87	6	9	San Diego, Calif.-----	90	53	-	5
Youngstown, Ohio-----	71	41	-	3	San Francisco, Calif.-----	175	86	4	10
WEST NORTH CENTRAL:	814	473	23	39	San Jose, Calif.-----	33	15	2	1
Des Moines, Iowa-----	62	43	4	1	Seattle, Wash.-----	159	87	7	9
Duluth, Minn.-----	23	12	3	3	Spokane, Wash.-----	51	36	1	1
Kansas City, Kans.-----	38	21	4	4	Tacoma, Wash.-----	40	29	-	1
Kansas City, Mo.-----	131	74	1	2					
Lincoln, Nebr.-----	32	23	-	-	Total	12,423	6,994	409	661
Minneapolis, Minn.-----	124	86	2	10	Cumulative Totals				
Omaha, Nebr.-----	63	26	1	1	including reported corrections for previous weeks				
St. Louis, Mo.-----	217	118	3	9	All Causes, All Ages -----				279,081
St. Paul, Minn.-----	81	47	3	4	All Causes, Age 65 and over-----				163,536
Wichita, Kans.-----	43	23	2	5	Pneumonia and Influenza, All Ages-----				12,839
					All Causes, Under 1 Year of Age-----				12,545

TULAREMIA - (Continued from page 190)

these 40 patients are four persons who handled muskrats and had minimal symptoms or denied illness. The lowest titer in this group of four was 1:1280, and no brucella agglutinins (which can result in serologic cross reactions) were found and no histories suggesting prior tularemia were obtained.

Organ homogenates from muskrats shot or found dead in Addison County, Vermont, between April 26 and May 4 have been cultured directly and also inoculated into guinea pigs. *F. tularensis* has been recovered from two of the five muskrats processed to date - from one by direct culture and from the other after guinea pig inoculation.

(Reported by Donald S. Bicknell, M.D., Vergennes, Vermont; L. S. Walker, M.D., Clark Bryant, M.D., and B. J. Andrews, M.D., Middlebury, Vermont; P. G. Merriam, M.D., Pathologist, Rutland Hospital, Rutland, Vermont; Linus J. Leavens, M.D., Director, Bureau of Communicable Disease Control, and Dymitry Pomar, D.V.M., Director, Bureau of Laboratories, Vermont Department of Health; the Bacterial Chemistry Unit and the Bacterial Serology Unit, Laboratory Program, NCDC; and a team from NCDC.)

THE MORBIDITY AND MORTALITY WEEKLY REPORT, WITH A CIRCULATION OF 17,000, IS PUBLISHED AT THE NATIONAL COMMUNICABLE DISEASE CENTER, ATLANTA, GEORGIA.

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IN ADDITION TO THE ESTABLISHED PROCEDURES FOR REPORTING MORBIDITY AND MORTALITY, THE NATIONAL COMMUNICABLE DISEASE CENTER WELCOMES ACCOUNTS OF INTERESTING OUTBREAKS OR CASE INVESTIGATIONS WHICH ARE OF CURRENT INTEREST TO HEALTH OFFICIALS AND WHICH ARE DIRECTLY RELATED TO THE CONTROL OF COMMUNICABLE DISEASES. SUCH COMMUNICATIONS SHOULD BE ADDRESSED TO:

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ATTN: THE EDITOR
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NOTE: THE DATA IN THIS REPORT ARE PROVISIONAL AND ARE BASED ON WEEKLY TELEGRAMS TO THE NCDC BY THE INDIVIDUAL STATE HEALTH DEPARTMENTS. THE REPORTING WEEK CONCLUDES ON SATURDAY; COMPILED DATA ON A NATIONAL BASIS ARE RELEASED ON THE SUCCEEDING FRIDAY.

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