



Morbidity and Mortality

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE / PUBLIC HEALTH SERVICE HEALTH SERVICES AND MENTAL HEALTH ADMINISTRATION

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EPIDEMIOLOGIC NOTES AND REPORTS

BOTULISM - Tarrant County, Texas

On March 31, 1969, in Tarrant County, a 25-year-old man developed an illness characterized by dizziness and vertigo followed within 8 hours by blurred vision, diplopia, and dysphagia. By the following morning generalized weakness and progressive respiratory distress ensued and he was hospitalized. He remained afebrile and alert. On April 2 he was transferred to the intensive care unit of a hospital in Dallas where tracheal intubation and assisted ventilation were required. On April 4 a tracheostomy with controlled ventilation was necessary. A repeat lumbar puncture showed normal cerebrospinal fluid. His pupils were dilated and reacted sluggishly to light. There was complete ophthalmoplegia and lingual and pharyngeal

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paralysis. Profound skeletal muscle weakness was present. The plantar responses were bilaterally flexor. The patient remained alert throughout his illness and no sensory deficits were present.

On April 4 botulism was diagnosed and trivalent (A,B, and E) *Clostridium botulinum* antiserum was administered. The following day the diagnosis was confirmed
 (Continued on page 114)

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

DISEASE	14th WEEK ENDED		MEDIAN 1964 - 1968	CUMULATIVE, FIRST 14 WEEKS		
	April 5, 1969	April 6, 1968		1969	1968	MEDIAN 1964 - 1968
Aseptic meningitis	16	31	29	393	386	390
Brucellosis	3	3	4	26	26	53
Diphtheria	2	5	4	40	42	42
Encephalitis, primary:						
Arthropod-borne & unspecified	13	22	28	271	210	335
Encephalitis, post-infectious	3	8	21	67	123	194
Hepatitis, serum	109	96	725	1,409	1,011	11,568
Hepatitis, infectious	910	937		12,793	11,729	
Malaria	30	35	6	633	622	81
Measles (rubeola)	752	917	7,572	7,590	8,933	101,805
Meningococcal infections, total	87	71	71	1,161	1,080	1,080
Civilian	77	64	---	1,076	981	---
Military	10	7	---	85	99	---
Mumps	2,539	4,950	---	33,682	71,045	---
Poliomyelitis, total	---	---	---	1	14	6
Paralytic	---	---	---	1	14	5
Rubella (German measles)	1,998	2,493	---	15,994	16,756	---
Streptococcal sore throat & scarlet fever.	10,406	10,830	11,553	162,774	160,833	160,833
Tetanus	2	1	1	25	27	41
Tularemia	---	---	1	24	18	50
Typhoid fever	4	9	8	51	65	82
Typhus, tick-borne (Rky. Mt. spotted fever)	---	---	---	1	4	6
Rabies in animals	85	74	110	1,016	1,040	1,185

TABLE II. NOTIFIABLE DISEASES OF LOW FREQUENCY

	Cum.		Cum.
Anthrax:	---	Rabies in man:	---
Botulism:	2	Rubella congenital syndrome:	2
Leptospirosis:	11	Trichinosis: Ind.-1, Ohio-1	22
Plague:	---	Typhus, murine:	3
Psittacosis: N. Mex.-1	7		

Data exclude report from Alaska.

BOTULISM - (Continued from front page)

when type A botulism toxin was demonstrated in the patient's serum using the mouse protection test. Serum taken from the patient 18 hours after treatment no longer contained demonstrable botulism toxin. The patient expired on April 9.

(Reported by G. J. Vakkur, M.D., Attending Physician; Staff, Tarrant County Health Department; M. S. Dickerson, M.D., Chief, Division of Preventable Disease Control, Texas Department of Health; Anaerobic Bacteriology Laboratory, Bacterial Reference Unit, Laboratory Division, NCDC; and an EIS Officer.)

Editor's Note:

The source of the type A toxin has not been discovered. The patient and his wife denied any ingestion of home-canned foods. The case is under intensive epidemiologic investigation by officials of the local and state health departments. It would behoove all physicians and public health officials in the area to be alert for any other cases compatible with botulism.

SUMMARY OF REPORTED CASES OF INFECTIOUS SYPHILIS

CASES OF PRIMARY AND SECONDARY SYPHILIS: By Reporting Areas March 1969 and March 1968 - Provisional Data

Reporting Area	March		Cumulative Jan-Mar		Reporting Area	March		Cumulative Jan-Mar	
	1969	1968	1969	1968		1969	1968	1969	1968
NEW ENGLAND.....	26	26	79	91	EAST SOUTH CENTRAL.....	104	145	290	366
Maine.....	-	-	1	1	Kentucky.....	20	7	59	28
New Hampshire.....	1	-	1	-	Tennessee.....	30	26	100	77
Vermont.....	-	-	-	-	Alabama.....	14	79	49	176
Massachusetts.....	12	9	44	57	Mississippi.....	40	33	82	85
Rhode Island.....	5	9	11	13	WEST SOUTH CENTRAL.....	326	323	862	867
Connecticut.....	8	7	22	20	Arkansas.....	15	14	34	35
MIDDLE ATLANTIC.....	369	230	964	784	Louisiana.....	71	80	171	202
Upstate New York.....	15	16	73	49	Oklahoma.....	4	4	16	18
New York City.....	271	145	670	482	Texas.....	236	225	641	612
Pa. (Excl. Phila.).....	12	22	42	68	MOUNTAIN.....	43	42	146	130
Philadelphia.....	20	20	50	75	Montana.....	-	1	-	2
New Jersey.....	51	27	129	110	Idaho.....	-	-	1	2
EAST NORTH CENTRAL.....	216	256	630	802	Wyoming.....	1	-	3	-
Ohio.....	34	53	99	143	Colorado.....	6	2	17	7
Indiana.....	30	22	89	68	New Mexico.....	23	13	66	34
Downstate Illinois.....	14	9	68	44	Arizona.....	8	20	48	70
Chicago.....	75	89	212	280	Utah.....	-	-	-	-
Michigan.....	63	80	161	262	Nevada.....	5	6	11	15
Wisconsin.....	-	3	1	5	PACIFIC.....	157	176	467	403
WEST NORTH CENTRAL.....	30	42	82	86	Washington.....	3	2	10	8
Minnesota.....	2	7	7	13	Oregon.....	3	3	13	8
Iowa.....	3	2	12	4	California.....	151	170	444	384
Missouri.....	16	24	45	47	Alaska.....	-	-	-	-
North Dakota.....	2	-	3	-	Hawaii.....	-	1	-	3
South Dakota.....	2	6	4	10	U. S. TOTAL.....	1,648	1,723	4,741	4,889
Nebraska.....	4	-	7	8	TERRITORIES.....	107	111	307	262
Kansas.....	1	3	4	4	Puerto Rico.....	107	106	304	238
SOUTH ATLANTIC.....	377	483	1,221	1,360	Virgin Islands.....	-	5	3	24
Delaware.....	1	4	4	9					
Maryland.....	27	41	112	129					
District of Columbia.....	53	62	131	180					
Virginia.....	16	24	58	58					
West Virginia.....	1	4	2	12					
North Carolina.....	49	67	134	184					
South Carolina.....	39	53	153	150					
Georgia.....	76	71	245	203					
Florida.....	115	157	382	435					

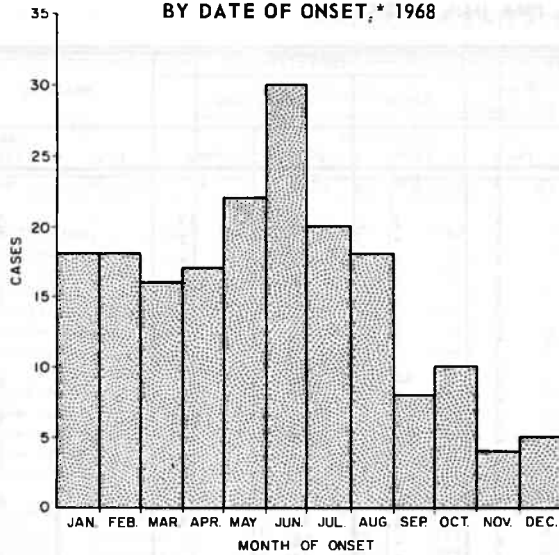
Note: Cumulative Totals include revised and delayed reports through previous months.

SURVEILLANCE SUMMARY HUMAN BRUCELLOSIS - United States 1968*

In 1968, a total of 231 human cases of brucellosis were reported to the NCDC, a decrease from the 248 cases reported in 1967 (MMWR, Vol. 17, No. 10) (Figure 1). In 1968, 34 states reported one or more cases with six states (California, Georgia, Iowa, North Dakota, Tennessee, Texas, and Virginia) recording 71 percent of the cases. The greatest increase in cases over 1967 occurred in Virginia with the largest decrease in Texas (Table 1). In 1968, more cases, 30, occurred in June than in any other month with the fewest cases, 4, occurring in November (Figure 2). This distribution is similar to that of 1967 when more cases, 35, occurred in June than in any other month, but the fewest cases, 12, occurred in February.

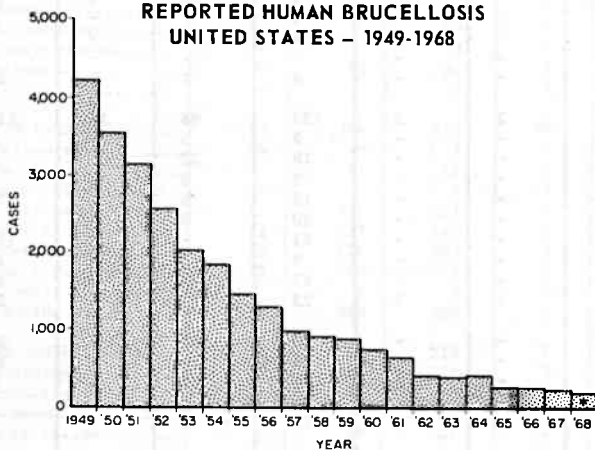
Brucellosis surveillance reports on 187 of the 231 cases were submitted to the Zoonoses Surveillance Unit, NCDC. Of the 187 cases, 158 were males, and 131 of the 158 were between 20 and 60 years of age (Table 2). Of the 158 males, 105 were packinghouse workers. In 73 cases among the male packinghouse workers (70 percent), swine were listed as the most probable source of infection, while only nine workers (9 percent) were exposed to cattle as the single most probable source. Of the total 187 cattle, 81 listed swine as the most likely source, 25 listed cattle only, 21 noted cattle and swine, and 25 noted dairy products. Of 75 persons on whom blood cultures were performed, 42 had cultures positive for a *Brucella* species.

Figure 1
SEASONAL TREND OF REPORTED HUMAN BRUCELLOSIS
BY DATE OF ONSET,* 1968



* IF MONTH OF ONSET WAS NOT GIVEN, MONTH OF POSITIVE LABORATORY RESULTS OR THE MONTH REPORTED WAS USED. OUT OF 187 REPORTS, 1 WAS COMPLETELY UNKNOWN AND IS NOT REFLECTED IN THE FIGURE.

Figure 2
REPORTED HUMAN BRUCELLOSIS
UNITED STATES - 1949-1968



* PROVISIONAL DATA

Table 2
Cases of Human Brucellosis by Age and Sex - 1968

AGE GROUP (Years)	SEX		TOTAL	PERCENT OF TOTAL
	MALE	FEMALE		
0-4	1	0	1	0.5
5-9	2	2	4	2.1
10-14	7	0	7	3.7
15-19	6	1	7	3.7
20-24	21	4	25	13.4
25-29	29	2	31	16.6
30-34	18	5	23	12.3
35-39	21	3	24	12.8
40-44	9	5	14	7.5
45-49	15	3	18	9.6
50-54	8	0	8	4.3
55-59	10	1	11	5.9
60-64	3	0	3	1.6
60+	4	1	5	2.7
Unknown	4	2	6	3.2
Total	158	29	187	99.9

Table 1
Reported Human Brucellosis

STATE	FIVE YEAR MEAN 1963-1967	1968*	COMPARISON OF NUMBERS OF CASES REPORTED IN 1968 WITH 1967
Alabama	3.0	1	-1
Alaska	1.2	2	-4
Arizona	2.0	0	0
Arkansas	6.2	1	-2
California	18.6	21	-2
Colorado	0.8	1	-1
Connecticut	0.8	1	-1
Delaware	0.0	0	0
Florida	4.0	2	-2
Georgia	11.2	12	+6
Hawaii	1.4	0	-3
Idaho	1.6	0	-1
Illinois	18.4	5	-4
Indiana	2.4	2	-1
Iowa	85.2	29	-9
Kansas	5.6	2	+2
Kentucky	3.2	0	-4
Louisiana	6.4	6	+2
Maine	0.4	1	+1
Maryland	0.8	0	-2
Massachusetts	2.2	4	+3
Michigan	4.2	1	-6
Minnesota	10.6	4	-8
Mississippi	5.2	3	-3
Missouri	10.4	2	-6
Montana	0.4	1	0
Nebraska	8.4	3	-5
Nevada	0.0	0	0
New Hampshire	0.0	0	0
New Jersey	1.4	5	+2
New Mexico	1.0	1	-1
New York	5.0	5	+1
North Carolina	3.6	1	-1
North Dakota	1.6	10	+8
Ohio	1.8	0	0
Oklahoma	8.4	3	-4
Oregon	2.0	0	-3
Pennsylvania	4.0	2	-7
Rhode Island	0.2	0	0
South Carolina	0.0	0	0
South Dakota	9.8	5	+3
Tennessee	7.8	15*	+6
Texas	21.2	12	-17
Utah	6.4	1	+1
Vermont	0.4	0	0
Virginia	20.6	64*	+35
Washington	0.6	0	0
West Virginia	0.8	0	0
Wisconsin	7.8	3	+1
Wyoming	0.4	0	0
TOTALS	6.4	231	-27

*Provisional data

*One case with onset and recrudescence in 1968 counted as two cases.

The distribution of total cases with exposure to swine (43 percent) and cattle (13 percent) was generally reflected in the distribution of human isolates of *Br. suis* (48 percent) and *Br. abortus* (17 percent). In the 169 cases where symptoms were recorded, fever, chills, and malaise predominated.

(Reported by the Veterinary Public Health Section, and Statistics Section, Epidemiology Program, NCDC.)

*Preliminary data.

TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES

FOR WEEKS ENDED
APRIL 5, 1969 AND APRIL 6, 1968 (14th WEEK)

AREA	ASEPTIC MENIN- GITIS	BRUCEL- LOSIS	DIPHThERIA	ENCEPHALITIS			HEPATITIS			MALARIA	
				Primary including unsp. cases	Post- Infectious		Serum	Infectious		1969	Cum. 1969
	1969	1969	1969	1969	1968	1969	1969	1968	1969		
UNITED STATES...	16	3	2	13	22	3	109	910	937	30	633
NEW ENGLAND.....	-	-	-	1	-	-	2	71	33	-	31
Maine*.....	-	-	-	-	-	-	-	1	2	-	-
New Hampshire.....	-	-	-	-	-	-	-	2	-	-	2
Vermont.....	-	-	-	-	-	-	-	4	-	-	-
Massachusetts.....	-	-	-	-	-	-	-	38	9	-	25
Rhode Island.....	-	-	-	1	-	-	-	19	14	-	-
Connecticut.....	-	-	-	-	-	-	2	7	8	-	4
MIDDLE ATLANTIC.....	4	-	-	1	16	-	44	154	141	1	68
New York City.....	1	-	-	-	10	-	19	57	47	-	4
New York, up-State.....	-	-	-	-	-	-	2	20	26	-	13
New Jersey*.....	3	-	-	1	1	-	21	4	37	1	27
Pennsylvania.....	-	-	-	-	5	-	2	73	31	-	24
EAST NORTH CENTRAL...	2	-	-	6	2	1	12	152	137	6	46
Ohio.....	-	-	-	5	-	-	3	34	33	3	7
Indiana.....	1	-	-	-	-	-	-	14	7	-	3
Illinois.....	-	-	-	1	2	1	1	42	44	-	19
Michigan.....	-	-	-	-	-	-	8	52	40	3	16
Wisconsin.....	1	-	-	-	-	-	-	10	13	-	1
WEST NORTH CENTRAL...	1	2	-	1	-	1	-	23	67	2	45
Minnesota.....	1	-	-	-	-	1	-	1	21	-	3
Iowa.....	-	1	-	-	-	-	-	7	22	-	4
Missouri.....	-	-	-	-	-	-	-	5	22	1	12
North Dakota.....	-	-	-	-	-	-	-	1	-	-	2
South Dakota.....	-	-	-	-	-	-	-	1	1	-	-
Nebraska.....	-	-	-	-	-	-	-	-	-	-	3
Kansas.....	-	1	-	1	-	-	-	8	1	1	21
SOUTH ATLANTIC.....	1	-	1	1	2	1	3	133	86	14	211
Delaware.....	-	-	-	-	-	-	-	2	5	-	1
Maryland.....	-	-	-	-	1	-	-	18	22	-	5
Dist. of Columbia..	-	-	-	-	1	-	-	2	2	-	-
Virginia.....	-	-	-	-	-	-	-	15	4	-	10
West Virginia.....	-	-	-	-	-	-	-	10	8	-	-
North Carolina.....	-	-	-	-	-	-	-	11	-	11	111
South Carolina.....	-	-	-	1	-	-	-	9	1	1	19
Georgia.....	-	-	-	-	-	-	-	43	29	2	52
Florida.....	1	-	1	-	-	1	3	23	15	-	13
EAST SOUTH CENTRAL...	1	-	-	1	1	-	-	63	58	-	22
Kentucky.....	1	-	-	-	-	-	-	16	14	-	17
Tennessee.....	-	-	-	1	1	-	-	14	32	-	-
Alabama*.....	-	-	-	-	-	-	-	20	4	-	5
Mississippi.....	-	-	-	-	-	-	-	13	8	-	-
WEST SOUTH CENTRAL...	2	-	-	2	1	-	2	60	67	1	19
Arkansas.....	-	-	-	-	-	-	-	4	2	1	5
Louisiana.....	-	-	-	2	1	-	2	17	8	-	12
Oklahoma.....	-	-	-	-	-	-	-	8	3	-	2
Texas.....	2	-	-	-	-	-	-	31	54	-	-
MOUNTAIN.....	-	-	1	-	-	-	-	37	77	2	44
Montana.....	-	-	-	-	-	-	-	2	13	-	-
Idaho.....	-	-	-	-	-	-	-	-	1	-	1
Wyoming.....	-	-	-	-	-	-	-	-	-	-	-
Colorado.....	-	-	-	-	-	-	-	-	40	1	39
New Mexico.....	-	-	-	-	-	-	-	15	8	-	2
Arizona.....	-	-	1	-	-	-	-	9	9	-	1
Utah.....	-	-	-	-	-	-	-	5	3	1	1
Nevada.....	-	-	-	-	-	-	-	6	3	-	-
PACIFIC.....	5	1	-	-	-	-	46	217	271	4	147
Washington.....	-	-	-	-	-	-	1	33	19	-	5
Oregon.....	1	-	-	-	-	-	-	13	21	-	5
California.....	4	1	-	-	-	-	44	169	229	4	126
Alaska.....	---	---	---	---	---	---	---	---	2	---	-
Hawaii.....	-	-	-	-	-	-	1	2	-	-	11
Puerto Rico.....	-	-	-	-	-	-	-	12	11	-	1

* Delayed reports: Hepatitis, serum: N.J. delete 3
Hepatitis, infectious: Me. 1, N.J. delete 5, Ala. 3

TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES

FOR WEEKS ENDED
APRIL 5, 1969 AND APRIL 6, 1968 (14th WEEK) - CONTINUED

AREA	MEASLES (Rubeola)			MENINGOCOCCAL INFECTIONS, TOTAL			MUMPS	POLIOMYELITIS			RUBELLA
	Cumulative			Cumulative				Total	Paralytic		
	1969	1969	1968	1969	1969	1968		1969	1969	1969	
UNITED STATES...	752	7,590	8,933	87	1,161	1,080	2,539	-	-	1	1,998
NEW ENGLAND.....	27	332	342	2	33	53	329	-	-	-	155
Maine.....	-	2	13	-	1	2	24	-	-	-	5
New Hampshire.....	-	70	53	-	-	6	-	-	-	-	-
Vermont.....	-	1	-	-	-	1	55	-	-	-	3
Massachusetts.....	6	67	127	-	16	26	107	-	-	-	85
Rhode Island.....	-	9	1	1	4	4	40	-	-	-	27
Connecticut.....	21	183	148	1	12	14	103	-	-	-	35
MIDDLE ATLANTIC.....	288	2,309	1,283	11	142	169	103	-	-	-	90
New York City.....	213	1,614	328	3	31	32	88	-	-	-	45
New York, Up-State.....	18	220	663	2	21	27	NN	-	-	-	28
New Jersey.....	22	247	236	3	49	63	15	-	-	-	17
Pennsylvania.....	35	228	56	3	41	47	NN	-	-	-	-
EAST NORTH CENTRAL...	84	851	2,065	17	142	113	771	-	-	-	457
Ohio.....	6	96	162	6	45	27	72	-	-	-	46
Indiana.....	28	248	328	2	22	17	129	-	-	-	207
Illinois.....	10	154	854	6	27	27	86	-	-	-	41
Michigan.....	7	86	135	2	39	30	237	-	-	-	20
Wisconsin.....	33	267	586	1	9	12	247	-	-	-	143
WEST NORTH CENTRAL...	16	236	204	4	61	48	246	-	-	-	156
Minnesota.....	-	1	6	1	10	12	84	-	-	-	6
Iowa.....	-	134	40	1	9	3	145	-	-	-	106
Missouri.....	-	11	59	-	22	10	-	-	-	-	2
North Dakota.....	-	5	65	-	-	2	12	-	-	-	15
South Dakota.....	-	-	3	-	-	4	NN	-	-	-	-
Nebraska.....	16	85	24	1	7	4	3	-	-	-	22
Kansas.....	-	-	7	1	13	13	2	-	-	-	5
SOUTH ATLANTIC.....	142	1,304	786	18	217	238	157	-	-	-	343
Delaware.....	34	99	7	-	3	2	1	-	-	-	12
Maryland.....	-	11	41	-	18	15	15	-	-	-	18
Dist. of Columbia...	-	-	5	1	4	9	-	-	-	-	5
Virginia.....	47	507	151	-	29	16	25	-	-	-	53
West Virginia.....	13	127	140	2	12	6	59	-	-	-	91
North Carolina.....	25	116	202	2	31	53	NN	-	-	-	-
South Carolina.....	13	63	8	2	34	44	29	-	-	-	57
Georgia.....	-	1	3	2	30	45	-	-	-	-	-
Florida.....	10	380	229	9	56	48	28	-	-	-	107
EAST SOUTH CENTRAL...	1	46	214	8	62	89	146	-	-	-	127
Kentucky.....	1	20	64	5	20	32	81	-	-	-	39
Tennessee.....	-	11	43	2	27	28	65	-	-	-	81
Alabama.....	-	-	40	1	9	14	-	-	-	-	1
Mississippi.....	-	15	67	-	6	15	-	-	-	-	6
WEST SOUTH CENTRAL...	133	1,846	2,276	9	159	220	290	-	-	1	239
Arkansas.....	-	2	-	2	19	12	-	-	-	-	-
Louisiana.....	2	53	1	4	42	55	-	-	-	-	-
Oklahoma.....	-	105	100	1	10	43	10	-	-	-	92
Texas.....	131	1,686	2,175	2	88	110	280	-	-	1	147
MOUNTAIN.....	19	182	425	-	29	13	197	-	-	-	98
Montana.....	-	3	54	-	4	1	17	-	-	-	1
Idaho.....	-	36	11	-	5	2	9	-	-	-	7
Wyoming.....	-	-	39	-	-	-	-	-	-	-	4
Colorado.....	-	19	180	-	6	7	17	-	-	-	33
New Mexico.....	17	74	41	-	5	-	72	-	-	-	21
Arizona.....	2	48	96	-	6	1	68	-	-	-	29
Utah.....	-	1	2	-	1	-	14	-	-	-	3
Nevada.....	-	1	2	-	2	2	-	-	-	-	-
PACIFIC.....	42	484	1,338	18	316	137	300	-	-	-	333
Washington.....	-	34	336	5	41	23	92	-	-	-	26
Oregon.....	15	114	283	-	8	14	18	-	-	-	10
California.....	26	320	692	13	257	91	179	-	-	-	257
Alaska.....	---	13	-	---	4	-	---	---	---	---	---
Hawaii.....	1	3	27	-	6	9	11	-	-	-	40
Puerto Rico.....	23	177	160	-	6	16	9	-	-	-	-

*Delayed reports: Measles: N.J. delete 1
Meningococcal infections: N.J. delete 4(1968), Mont. 1
Mumps: Me. 2

Morbidity and Mortality Weekly Report

TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES
 FOR WEEKS ENDED
 APRIL 5, 1969 AND APRIL 6, 1968 (14th WEEK) - CONTINUED

AREA	STREPTOCOCCAL SORE THROAT & SCARLET FEVER	TETANUS		TULAREMIA		TYPHOID FEVER		TYPHUS FEVER TICK-BORNE (Rky. Mt. Spotted)		RABIES IN ANIMALS	
		1969	Cum. 1969	1969	Cum. 1969	1969	Cum. 1969	1969	Cum. 1969	1969	Cum. 1969
UNITED STATES...	10,406	2	25	-	24	4	51	-	1	85	1,016
NEW ENGLAND.....	1,370	-	-	-	-	-	-	-	-	-	2
Maine.*.....	3	-	-	-	-	-	-	-	-	-	1
New Hampshire.....	24	-	-	-	-	-	-	-	-	-	-
Vermont.....	42	-	-	-	-	-	-	-	-	-	1
Massachusetts.....	288	-	-	-	-	-	-	-	-	-	-
Rhode Island.....	108	-	-	-	-	-	-	-	-	-	-
Connecticut.....	905	-	-	-	-	-	-	-	-	-	-
MIDDLE ATLANTIC.....	460	-	4	-	1	-	7	-	-	3	25
New York City.....	30	-	2	-	1	-	5	-	-	-	-
New York, Up-State.	332	-	2	-	-	-	1	-	-	3	25
New Jersey.....	NN	-	-	-	-	-	-	-	-	-	-
Pennsylvania.....	98	-	-	-	-	-	1	-	-	-	-
EAST NORTH CENTRAL...	1,350	-	3	-	2	1	4	-	-	3	44
Ohio.*.....	111	-	-	-	-	1	3	-	-	-	7
Indiana.....	476	-	-	-	1	-	-	-	-	1	10
Illinois.....	262	-	1	-	1	-	-	-	-	1	9
Michigan.....	312	-	2	-	-	-	1	-	-	-	1
Wisconsin.....	189	-	-	-	-	-	-	-	-	1	17
WEST NORTH CENTRAL...	318	-	1	-	3	-	-	-	-	12	183
Minnesota.....	57	-	-	-	-	-	-	-	-	1	47
Iowa.....	73	-	-	-	-	-	-	-	-	1	27
Missouri.....	-	-	-	-	3	-	-	-	-	3	65
North Dakota.....	116	-	-	-	-	-	-	-	-	2	24
South Dakota.....	24	-	-	-	-	-	-	-	-	-	-
Nebraska.*.....	9	-	-	-	-	-	-	-	-	1	8
Kansas.....	39	-	1	-	-	-	-	-	-	4	12
SOUTH ATLANTIC.....	1,278	-	6	-	10	-	5	-	-	29	326
Delaware.....	12	-	-	-	-	-	-	-	-	-	-
Maryland.....	329	-	-	-	-	-	1	-	-	-	-
Dist. of Columbia..	-	-	2	-	-	-	-	-	-	-	-
Virginia.....	379	-	-	-	-	-	-	-	-	12	204
West Virginia.....	142	-	-	-	2	-	-	-	-	8	48
North Carolina.....	28	-	1	-	4	-	1	-	-	-	1
South Carolina.....	200	-	1	-	-	-	1	-	-	-	-
Georgia.....	21	-	-	-	-	-	1	-	-	3	21
Florida.....	167	-	2	-	4	-	1	-	-	6	52
EAST SOUTH CENTRAL...	1,636	1	3	-	4	-	7	-	1	14	185
Kentucky.....	309	-	2	-	-	-	-	-	-	7	109
Tennessee.....	1,128	1	1	-	4	-	6	-	1	5	60
Alabama.....	94	-	-	-	-	-	-	-	-	2	16
Mississippi.....	105	-	-	-	-	-	1	-	-	-	-
WEST SOUTH CENTRAL...	653	-	3	-	2	-	7	-	-	19	137
Arkansas.....	24	-	-	-	-	-	4	-	-	-	8
Louisiana.....	1	-	2	-	-	-	-	-	-	6	13
Oklahoma.....	36	-	1	-	2	-	-	-	-	4	22
Texas.....	592	-	-	-	-	-	3	-	-	9	94
MOUNTAIN.....	2,033	-	-	-	2	-	10	-	-	-	28
Montana.....	33	-	-	-	-	-	-	-	-	-	-
Idaho.....	267	-	-	-	-	-	-	-	-	-	-
Wyoming.*.....	91	-	-	-	-	-	5	-	-	-	11
Colorado.....	966	-	-	-	-	-	1	-	-	-	2
New Mexico.....	298	-	-	-	1	-	2	-	-	-	7
Arizona.....	166	-	-	-	-	-	1	-	-	-	5
Utah.....	211	-	-	-	1	-	-	-	-	-	-
Nevada.....	1	-	-	-	-	-	1	-	-	-	3
PACIFIC.....	1,308	1	5	-	-	3	11	-	-	5	86
Washington.....	204	1	1	-	-	1	1	-	-	-	-
Oregon.....	97	-	-	-	-	-	-	-	-	-	-
California.....	883	-	4	-	-	2	10	-	-	5	86
Alaska.....	---	---	-	---	-	---	-	---	-	---	-
Hawaii.....	124	-	-	-	-	-	-	-	-	-	-
Puerto Rico.....	2	1	2	-	-	-	3	-	-	-	5

* Delayed reports: SST: Me. 13, Ohio 1
 Rabies in animals: Nebr. 6, Wyo. 1

Morbidity and Mortality Weekly Report

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Week No. **TABLE IV. DEATHS IN 122 UNITED STATES CITIES FOR WEEK ENDED APRIL 5, 1969**

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(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:	681	428	33	24	SOUTH ATLANTIC:	1,248	655	49	40
Boston, Mass.-----	228	138	12	8	Atlanta, Ga.-----	104	48	5	3
Bridgeport, Conn.-----	38	26	1	-	Baltimore, Md.-----	266	151	9	5
Cambridge, Mass.-----	40	21	5	2	Charlotte, N. C.-----	51	13	1	3
Fall River, Mass.-----	33	22	-	2	Jacksonville, Fla.-----	90	48	1	1
Hartford, Conn.-----	58	31	1	3	Miami, Fla.-----	125	76	-	4
Lowell, Mass.-----	30	19	-	2	Norfolk, Va.-----	51	23	-	3
Lynn, Mass.-----	11	6	-	1	Richmond, Va.-----	74	41	5	2
New Bedford, Mass.-----	15	12	1	-	Savannah, Ga.-----	52	25	8	5
New Haven, Conn.-----	45	28	-	2	St. Petersburg, Fla.-----	99	77	8	2
Providence, R. I.-----	46	30	4	1	Tampa, Fla.-----	76	43	3	4
Somerville, Mass.-----	6	4	2	-	Washington, D. C.-----	218	97	8	3
Springfield, Mass.-----	51	33	2	2	Wilmington, Del.-----	42	13	1	5
Waterbury, Conn.-----	29	19	1	1	EAST SOUTH CENTRAL:	602	334	44	25
Worcester, Mass.-----	51	39	4	-	Birmingham, Ala.-----	81	47	3	2
MIDDLE ATLANTIC:	3,081	1,789	125	122	Chattanooga, Tenn.-----	35	19	3	6
Albany, N. Y.-----	47	30	1	3	Knoxville, Tenn.-----	42	28	8	1
Allentown, Pa.-----	30	21	2	-	Louisville, Ky.-----	119	67	20	5
Buffalo, N. Y.-----	133	79	4	4	Memphis, Tenn.-----	168	96	2	3
Camden, N. J.-----	37	20	1	2	Mobile, Ala.-----	47	23	1	4
Elizabeth, N. J.-----	31	21	-	-	Montgomery, Ala.-----	35	19	3	-
Erie, Pa.-----	45	28	4	1	Nashville, Tenn.-----	75	35	4	4
Jersey City, N. J.-----	65	34	5	6	WEST SOUTH CENTRAL:	1,190	643	66	65
Newark, N. J.-----	73	42	3	3	Austin, Tex.-----	42	27	9	1
New York City, N. Y.-----	1,618	922	69	59	Baton Rouge, La.-----	41	29	3	-
Paterson, N. J.-----	38	25	2	3	Corpus Christi, Tex.-----	25	17	1	1
Philadelphia, Pa.*-----	456	256	9	20	Dallas, Tex.-----	163	88	4	9
Pittsburgh, Pa.-----	150	72	7	9	El Paso, Tex.-----	44	22	2	4
Reading, Pa.-----	43	35	3	-	Fort Worth, Tex.-----	92	48	5	9
Rochester, N. Y.-----	114	73	4	6	Houston, Tex.-----	212	92	5	10
Schenectady, N. Y.-----	26	18	1	1	Little Rock, Ark.-----	49	23	5	3
Scranton, Pa.-----	24	16	-	-	New Orleans, La.-----	162	73	5	11
Syracuse, N. Y.-----	44	26	2	2	Oklahoma City, Okla.-----	84	55	4	5
Trenton, N. J.-----	33	16	2	2	San Antonio, Tex.-----	134	75	6	4
Utica, N. Y.-----	38	31	4	1	Shreveport, La.-----	67	40	4	3
Yonkers, N. Y.-----	36	24	2	-	Tulsa, Okla.-----	75	54	13	5
EAST NORTH CENTRAL:	2,662	1,486	90	159	MOUNTAIN:	439	270	19	15
Akron, Ohio-----	66	32	-	3	Albuquerque, N. Mex.-----	47	28	1	1
Canton, Ohio-----	38	19	4	4	Colorado Springs, Colo.-----	23	9	4	2
Chicago, Ill.*-----	764	410	28	46	Denver, Colo.-----	109	66	7	3
Cincinnati, Ohio-----	228	137	7	10	Ogden, Utah-----	13	12	-	-
Cleveland, Ohio-----	204	112	4	11	Phoenix, Ariz.-----	119	71	1	4
Columbus, Ohio-----	127	69	5	3	Pueblo, Colo.-----	20	12	-	2
Dayton, Ohio-----	60	32	4	4	Salt Lake City, Utah-----	45	35	1	3
Detroit, Mich.-----	401	207	13	30	Tucson, Ariz.-----	63	37	5	-
Evansville, Ind.-----	32	22	1	-	PACIFIC:	1,587	1,002	59	65
Flint, Mich.-----	46	25	-	4	Berkeley, Calif.-----	24	17	1	-
Fort Wayne, Ind.-----	39	26	1	2	Fresno, Calif.-----	50	33	2	2
Gary, Ind.-----	18	7	3	1	Glendale, Calif.-----	30	28	-	-
Grand Rapids, Mich.-----	33	22	3	2	Honolulu, Hawaii-----	48	22	-	4
Indianapolis, Ind.-----	160	89	1	8	Long Beach, Calif.-----	107	66	3	1
Madison, Wis.-----	41	23	5	3	Los Angeles, Calif.-----	387	261	19	14
Milwaukee, Wis.-----	148	96	-	10	Oakland, Calif.-----	90	51	5	5
Peoria, Ill.-----	37	21	-	5	Pasadena, Calif.-----	33	22	1	-
Rockford, Ill.-----	32	22	2	4	Portland, Ore.-----	134	88	5	6
South Bend, Ind.-----	36	19	5	5	Sacramento, Calif.-----	59	33	2	4
Toledo, Ohio-----	104	65	3	2	San Diego, Calif.-----	110	65	3	5
Youngstown, Ohio-----	48	31	1	2	San Francisco, Calif.-----	209	124	7	6
WEST NORTH CENTRAL:	765	480	21	25	San Jose, Calif.*-----	40	26	2	1
Des Moines, Iowa-----	58	37	5	2	Seattle, Wash.-----	161	96	6	10
Duluth, Minn.-----	7	4	-	-	Spokane, Wash.-----	54	37	1	4
Kansas City, Kans.-----	28	15	1	2	Tacoma, Wash.-----	51	33	2	3
Kansas City, Mo.-----	133	88	-	4	Total	12,255	7,087	506	540
Lincoln, Nebr.-----	23	17	1	4	Cumulative Totals				
Minneapolis, Minn.-----	101	68	2	-	including reported corrections for previous weeks				
Omaha, Nebr.-----	75	45	3	2	All Causes, All Ages -----				199,225
St. Louis, Mo.-----	230	139	4	7	All Causes, Age 65 and over-----				115,691
St. Paul, Minn.-----	35	24	1	1	Pneumonia and Influenza, All Ages-----				12,650
Wichita, Kans.-----	75	43	-	3	All Causes, Under 1 Year of Age-----				8,916

*Estimate - based on average percent of divisional total.

INTERNATIONAL NOTES

BOLIVIAN HEMORRHAGIC FEVER – La Cayoba, Bolivia

An outbreak of Bolivian hemorrhagic fever (BHF) occurred during January and February in La Cayoba, Bolivia, a small agricultural community, 40 km north of Magdalena in the Province of Itenez, Department of Beni. There were 10 suspected cases with six deaths¹ among the 245 residents. Virus, isolated from the spleen of one fatal case and from the blood of two other subsequently fatal cases, was identified as Machupo virus, causative agent of BHF. Machupo virus was also isolated from 12 of 40 *Calomys callosus* rodents trapped inside the houses of La Cayoba. Seven of the 12 positive rodents were caught in one house where three cases had occurred (two were fatal). Prior to the outbreak, only one of 120 La Cayoba residents had Machupo virus neutralizing antibodies.

Approximately 100 residents fled from the town during the outbreak and the remaining 145 were quarantined for 30 days in a deserted agricultural experimental station, 4 km north of Magdalena. Food was supplied by friends and relatives in Magdalena. A team of five Machupo-immune persons, employed by the hemorrhagic fever commission since 1965 to carry out rodent control measures in San Joaquin, was sent to La Cayoba. Kill traps and poison were used to eliminate rodents. Corn, rice, yucca, and banana crops were harvested and destroyed so that they would not be available to support rodent populations. The control measures, although drastic economically and psychologically to the residents of La Cayoba, appear to have stopped the outbreak and avoided spread to Magdalena.

(Reported by Luis Valverde Chinel, M.D., Chief, Hemorrhagic Fever Commission, La Paz, Bolivia; and Patricia Ann Webb, M.D., Middle America Research Unit, Balboa Heights, Canal Zone.)

Editorial Comment:

Machupo virus is transmitted to man by contact with the rodent *Calomys callosus*; human to human transmission is rare.² The incubation period is approximately 7 to 15 days.

Ecologically, the isolated community of La Cayoba resembles Orobayaya, a town 45 km to the east, where the disease occurred with devastating intensity in 1960-1962 (107 cases with 44 deaths among 600 residents.)³

References:

- ¹Pan American Sanitary Bureau Regional Office of the World Health Organization, *Weekly Epidemiological Record*. 41(13):68.
- ²Douglas, R. Gordon, Jr., et al: Bolivian Hemorrhagic Fever Probably Transmitted by Personal Contact. *Amer J Epid* 82(1): 85-91, 1965.
- ³MacKenzie, Ronald B. et al: Epidemic Hemorrhagic Fever in Bolivia, *Amer J Trop Med* 13:620-625, 1964.

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MORBIDITY AND MORTALITY WEEKLY REPORT

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 AT CLOSE OF BUSINESS ON FRIDAY; COMPILED DATA ON A NATIONAL BASIS ARE OFFICIALLY RELEASED TO THE PUBLIC ON THE SUCCEEDING FRIDAY.

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