CENTER FOR DISEASE CONTROL

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WEEKLY REPORT

For Week Ending June 16, 1973

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INTERNATIONAL NOTES

FOLLOW-UP ON LASSA FEVER – Sierra Leone

In September and October 1972, epidemiologic investigations of an outbreak of Lassa fever were conducted in the Panguma-Tongo area, Eastern Province, Sierra Leone (MMWR, Vol. 21, No. 45). By review of hospital records, a total of 63 human cases were identified between October 1, 1970, and October 1, 1972. The monthly incidence was highest during the summer (rainy) months of 1972. Twelve patients hospitalized during the investigations were subsequently confirmed as having Lassa fever by virus isolation, positive serologic tests, or both. The overall attack rate in Panguma and Tongo was 2.2 per thousand. The case-fatality rate was 38% among hospitalized patients. Results of a serum survey showed that complement fixing antibody was present in 13.1% of persons inhabiting households with cases and in 6.3% of persons inhabiting households from which no cases were recognized.

CONTENTS

Wild vertebrates were collected in an attempt to identify a nonhuman cycle of virus transmission. The studies focused on rodents and bats, since these hosts have been implicated in the ecology of certain arenaviruses antigenically related to Lassa virus [Machupo (Bolivian Hemorrhagic Fever) lymphocytic choriomeningitis, and Tacaribe viruses].

A total of 615 small vertebrates (480 rodents, 110 bats, 23 insectivores, and 2 reptiles) were collected in Panguma and Tongo. Table 1 shows the distribution of rodent species

TABLE I. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES

(Cumulative totals include revised and delayed reports through previous weeks)

DISEASE	24th WEEK ENDING		MEDIAN	CUMULATIVE, FIRST 24 WEEKS		
	June 16, 1973	June 17, 1972	1968-1972	1973	1972	MEDIAN 1968-1972
Aseptic meningitis	52	45	58	938	886	574
Brucellosis	1	8	4	59	70	72
Chickenpox	4,306	3,491	– – –	133,740	101,696	– – –
Diphtheria	3	1	1	91	50	80
Encephalitis, primary:						
Arthropod-borne and unspecified	24	18	19	494	378	451
Encephalitis, post-infectious	5	7	8	137	133	164
Hepatitis, serum (Hepatitis B)	167	150	150	3,611	4,370	3,265
Hepatitis, infectious (Hepatitis A)	855	1,000	1,000	23,634	26,242	25,937
Malaria	7	9	42	111	569	1,202
Measles (rubeola)	790	813	813	21,242	23,494	23,494
Meningococcal infections, total	25	19	41	794	763	1,470
Civilian	24	19	39	775	730	1,322
Military	1	–	1	19	33	151
Mumps	1,502	1,366	2,186	47,691	49,562	64,868
Rubella (German measles)	683	507	1,134	23,640	18,356	37,756
Tetanus	1	3	3	37	42	49
Tuberculosis, new active	597	654	– – –	14,742	15,231	– – –
Tularemia	1	3	2	37	48	48
Typhoid fever	10	14	8	357	142	127
Typhus, tick-borne (Rky. Mt. spotted fever)	31	29	28	171	118	91
Venereal Diseases:						
Gonorrhea	15,929	16,429	– – –	355,788	317,692	– – –
Syphilis, primary and secondary	438	501	– – –	12,139	11,100	– – –
Rabies in animals	85	79	64	1,727	2,097	1,772

TABLE II. NOTIFIABLE DISEASES OF LOW FREQUENCY

	Cum.		Cum.
Anthrax:	1	Poliomyelitis, total:	2
Botulism:	11	Paralytic:	2
Congenital rubella syndrome: Calif.-3	14	Psittacosis: Neb.-1	9
Leprosy:	49	Rabies in man:	–
Leptospirosis:	13	Trichinosis: Calif.-3	41
Plague:	–	Typhus, murine: *	13

*Delayed reports: Typhus, murine: Ark. 1

LASSA FEVER — Continued

Table 1
Distribution of Rodent Species Collected in Panguma and Tongo, Sierra Leone — 1972

Species	Percent of Species Collected by Town		
	Panguma (N=396)	Tongo (N=84)	Total (N=480)
Mus musculus	45.6	19.1	41.0
Mastomys natalensis	15.6	57.1	22.9
Rattus rattus	17.6	4.7	15.5
Mus musculoides	7.7	1.2	6.8
Lophoromys sikapusi	4.0	9.5	5.0
Cricetomys gambianus	3.3	2.4	3.1
Praomys tullbergi	1.3	2.4	1.5
Hylomyscus simus	1.3	0	1.0
Euxerus erythropus	0.5	3.6	1.0
Dasymys incomptus	0.8	0	0.6
Myomys daltoni	0.8	0	0.6
Hybomys univittatus	0.3	0	0.2
Uranomys ruddi	0.3	0	0.2
Threonomys swinderianus	0.3	0	0.2
Funisciurus pyrrhopus	0.3	0	0.2
Unidentified rodent	0.3	0	0.2

in the collection. Of the 6 species captured most frequently, 3 *(Mus musculoides, Lophoromys sikapusi,* and *Cricetomys gambianus)* were trapped only in the bush at some distance from houses. In contrast, *M. musculus* and *Rattus rattus* were almost exclusively domestic, whereas *Mastomys natalensis* was trapped both inside houses and in gardens and forest surrounding the villages.

Pooled tissues (heart, lung, spleen, and kidney) from each animal were frozen in liquid nitrogen and returned to CDC for viral studies. To date, 325 specimens have been tested for virus by inoculation of tissue suspensions into Vero cell cultures.

Ten isolations identified by the complement fixation test as Lassa virus have been made (Table 2); all were from the same rodent species, *M. natalensis.* Of 193 rodents of 14 other species, 15 shrews, 58 bats, and 1 turtle tested, none were positive.

Table 2
Results of Tests for Lassa Virus in Rodent Tissues Collected in Panguma and Tongo, Sierra Leone — 1972

Species	Panguma	Tongo	Total
Mus musculus	0/96*	0/8	0/104
Mastomys natalensis	1/26	9/20	10/46
Rattus rattus	0/33	0/4	0/37
Mus musculoides	0/19	0/1	0/20
Lophoromys sikapusi	0/8	0/2	0/10
Cricetomys gambianus	0/5	0/2	0/7
Other species	0/15	—	0/15
Total Rodents	1/202	9/37	10/239

*No. positive/No. tested

The isolation rate in *Mastomys* collected in Panguma (1/26) was lower than that in Tongo (9/20). Eight of the 10 isolates were from *Mastomys* trapped in 2 households in Tongo inhabited by Lassa fever patients hospitalized during the epidemiologic investigations. In 1 of these households, 7 of 8 *Mastomys* tested were positive; the only other rodent species trapped in this household was *M. musculus,* and none of 5 tested were positive.

(Reported by the Arbovirology Section, Virology Branch, Laboratory Division, and the Epidemiology Program, CDC.)

Editorial Note

These results suggest that a single rodent species, *M. natalensis* may play a role in the natural history of Lassa fever. It has not been determined, however, whether rodent-to-man transmission is an important means of maintaining or initiating epidemic spread or whether person-to-person transmission, as occurred in nosocomial outbreaks in Liberia and Nigeria, is relatively more important. Biological studies to define the population dynamics and life history of *Mastomys* and experimental studies to determine whether chronic Lassa virus infection and excretion occur are required. However, formulation of a preliminary basis for control of the disease by reducing rodent populations seems warranted.

EPIDEMIOLOGIC NOTES AND REPORTS

SHIGA DYSENTERY — California

On May 2, 1973, a 34-year-old American airline pilot had fever, severe abdominal cramping, and bloody diarrhea while visiting Puerto Vallarta, Mexico. He returned to Los Angeles, California, May 4 and was hospitalized the following day. A stool specimen obtained on admission grew *Shigella dysenteriae* type 1 (Shiga bacillus). He was treated with intravenous fluids and tetracycline; however, after 3 days of therapy without improvement, tetracycline was discontinued and parenteral ampicillin begun, with prompt remission of symptoms. He became asymptomatic and was discharged the following week.

The patient's wife also became ill with diarrhea on May 2, but her symptoms were less severe. Her stool specimen was negative for enteric pathogens. She was treated empirically with ampicillin and improved promptly.

The patient and his wife had arrived in Puerto Vallarta on April 29. They ate only in restaurants with good hygienic conditions and avoided tap water. However, on May 1 they traveled to Yalapa, a primitive Indian village, where they ate fresh fruit cocktail, salad, and fish.

(Reported by Ronald M. Sommer, M.D., private physician, Redondo Beach, California; Ralph M. Sachs, M.D., Deputy Director, Ichiro Kamei, M.D., Chief, Division of Acute Communicable Disease Control, Los Angeles County Community Health Service; S. Benson Werner, M.D., Medical Epidemiologist, James Chin, M.D., State Epidemiologist, Bureau of Communicable Disease Control, California State Department of Public Health; and 2 EIS Officers.)

Editorial Note

Shiga dysentery is a serious intestinal illness characterized by mucoid bloody diarrhea, abdominal cramping, and tenesmus, with or without fever. The majority of U.S. citizens who contracted this illness in the past year have given histories of travel to or contact with someone from Mexico. Many travelers who have been affected have been cautious about their diet, and their source of exposure is less clear than in this case, indicating that the infectious dose may be small or that not all sources of potential contamination have been elucidated. The Mexican epidemic strain of *S. dysenteriae* 1 carries an R factor that confers resistance to chloramphenicol, tetracycline, streptomycin, and sulfadiazine. Although ampicillin resistance has become a major problem in the treatment of enteritis caused by other *Shigella* species, ampicillin remains the drug of choice in the treatment of Shiga dysentery.

TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES FOR WEEKS ENDING JUNE 16, 1973 AND JUNE 17, 1972 (24th WEEK)

AREA	ASEPTIC MENINGITIS	BRUCELLOSIS	CHICKENPOX	DIPHTHERIA		ENCEPHALITIS			HEPATITIS		
						Primary including unspec. cases		Post Infectious	Serum (Hepatitis B)	Infectious (Hepatitis A)	
	1973	1973	1973	1973	Cum. 1973	1973	1972	1973	1973	1973	1972
UNITED STATES	52	1	4,306	3	91	24	18	5	167	855	1,000
NEW ENGLAND	3	-	709	-	3	2	4	-	7	69	77
Maine *	-	-	1	-	-	-	-	-	-	-	15
New Hampshire *	-	-	19	-	-	-	-	-	-	5	9
Vermont	-	-	12	-	-	-	-	-	1	3	3
Massachusetts	-	-	432	-	1	2	4	-	2	42	41
Rhode Island	3	-	60	-	2	-	-	-	2	4	1
Connecticut	-	-	185	-	-	-	-	-	2	15	8
MIDDLE ATLANTIC	3	-	352	-	-	-	3	-	37	121	116
Upstate New York	-	-	2	-	-	-	1	-	11	43	21
New York City	2	-	164	-	-	-	-	-	5	26	33
New Jersey *	-	-	NN	-	-	-	-	-	16	30	42
Pennsylvania	1	-	186	-	-	-	2	-	5	22	20
EAST NORTH CENTRAL	7	-	2,244	-	-	17	1	-	13	119	128
Ohio	2	-	535	-	-	4	-	-	1	29	26
Indiana	-	-	125	-	-	-	-	-	1	11	14
Illinois	1	-	312	-	-	7	-	-	1	25	48
Michigan	3	-	527	-	-	6	1	-	8	44	38
Wisconsin	1	-	745	-	-	-	-	-	2	10	2
WEST NORTH CENTRAL	3	1	360	-	7	-	-	1	5	23	48
Minnesota *	1	-	67	-	-	-	-	1	2	1	4
Iowa	-	-	60	-	-	-	-	-	-	5	4
Missouri	2	1	22	-	-	-	-	-	2	12	27
North Dakota	-	-	11	-	-	-	-	-	-	-	2
South Dakota	-	-	-	-	7	-	-	-	-	-	1
Nebraska	-	-	2	-	-	-	-	-	1	2	2
Kansas	-	-	198	-	-	-	-	-	-	13	8
SOUTH ATLANTIC	13	-	203	-	-	2	3	-	17	133	140
Delaware	-	-	13	-	-	1	-	-	-	2	1
Maryland	1	-	19	-	-	-	-	-	2	9	12
District of Columbia	-	-	-	-	-	-	-	-	-	-	3
Virginia	-	-	31	-	-	-	2	-	2	15	14
West Virginia	1	-	110	-	-	-	1	-	-	3	6
North Carolina	4	-	NN	-	-	-	-	-	2	24	36
South Carolina	-	-	30	-	-	-	-	-	-	9	7
Georgia	-	-	-	-	-	-	-	-	-	22	16
Florida	7	-	-	-	-	1	-	-	11	49	45
EAST SOUTH CENTRAL	2	-	116	-	-	1	5	-	14	78	80
Kentucky	-	-	67	-	-	-	1	-	8	29	31
Tennessee	-	-	NN	-	-	1	1	-	2	33	32
Alabama	2	-	47	-	-	-	3	-	3	11	12
Mississippi	-	-	2	-	-	-	-	-	1	5	5
WEST SOUTH CENTRAL	5	-	111	-	7	-	-	-	9	96	94
Arkansas *	-	-	5	-	-	-	-	-	-	-	3
Louisiana *	3	-	NN	-	-	-	-	-	3	18	3
Oklahoma	-	-	30	-	-	-	-	-	1	26	19
Texas	2	-	76	-	7	-	-	-	5	52	69
MOUNTAIN	-	-	110	-	2	-	-	-	3	20	49
Montana	-	-	29	-	-	-	-	-	-	5	4
Idaho	-	-	-	-	-	-	-	-	2	4	1
Wyoming	-	-	-	-	-	-	-	-	-	-	1
Colorado	-	-	50	-	-	-	-	-	-	5	2
New Mexico	-	-	22	-	2	-	-	-	1	5	10
Arizona	-	-	-	-	-	-	-	-	-	1	9
Utah	-	-	9	-	-	-	-	-	-	-	9
Nevada	-	-	-	-	-	-	-	-	-	-	13
PACIFIC	16	-	101	3	72	2	2	4	62	186	268
Washington	2	-	92	2	66	1	-	-	3	15	26
Oregon	-	-	-	-	3	-	-	1	1	11	21
California	14	-	-	1	3	1	1	3	58	158	213
Alaska	-	-	9	-	-	-	1	-	-	2	2
Hawaii	---	---	---	---	-	---	-	---	---	---	6
Guam *	-	-	-	-	-	-	-	-	-	-	6
Puerto Rico	-	-	21	-	-	-	-	-	-	10	20
Virgin Islands	-	-	-	-	-	-	-	-	-	-	-

*Delayed reports: Aseptic meningitis: Guam 1
Chickenpox: Me. 12, Ark. 3, Guam 5
Encephalitis, post-infections: La. delete 1
Hepatitis B: Minn. 1, La. delete 1
Hepatitis A: Me. 3, N.H. 1, N.J. delete 2, Minn. delete 1, Ark.2, Guam 1

TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES FOR WEEKS ENDING JUNE 16, 1973 AND JUNE 17, 1972 (24th WEEK) – Continued

AREA	MALARIA		MEASLES (Rubeola)			MENINGOCOCCAL INFECTIONS, TOTAL			MUMPS		RUBELLA	
	1973	Cum. 1973	1973	Cumulative		1973	Cumulative		1973	Cum. 1973	1973	Cum. 1973
				1973	1972		1973	1972				
UNITED STATES	7	111	790	21,242	23,494	25	794	763	1,502	47,691	683	23,640
NEW ENGLAND	-	9	83	6,979	2,516	1	35	33	88	2,219	67	3,388
Maine *	-	-	-	46	227	-	-	3	-	210	-	66
New Hampshire	-	-	3	823	221	-	6	2	1	163	3	350
Vermont	-	2	3	108	103	-	2	-	15	237	2	43
Massachusetts	-	3	31	3,751	471	-	11	17	20	705	33	1,905
Rhode Island	-	-	18	552	486	-	1	9	7	250	1	203
Connecticut	-	4	28	1,699	1,008	1	15	2	45	654	28	821
MIDDLE ATLANTIC	-	16	165	1,930	820	5	114	92	219	6,097	164	3,819
Upstate New York	-	10	101	622	112	-	40	22	NN	NN	17	355
New York City	-	1	22	782	194	2	22	27	118	3,623	21	382
New Jersey	-	1	32	281	465	2	27	20	79	1,367	109	2,808
Pennsylvania	-	4	10	245	49	1	25	23	22	1,107	17	274
EAST NORTH CENTRAL	-	16	407	7,377	9,557	6	101	101	329	12,814	273	5,331
Ohio	-	2	8	245	217	1	43	36	102	2,485	37	641
Indiana	-	3	13	522	1,145	1	3	10	12	1,003	18	885
Illinois	-	8	97	1,717	3,537	1	21	24	24	2,151	61	838
Michigan	-	3	234	3,886	1,665	3	29	27	118	3,590	108	1,584
Wisconsin	-	-	55	1,007	2,993	-	5	4	73	3,585	49	1,383
WEST NORTH CENTRAL	-	4	9	412	897	1	65	60	140	4,235	7	1,148
Minnesota	-	1	1	16	16	1	3	13	-	75	4	204
Iowa	-	-	8	267	637	-	15	2	33	2,733	1	175
Missouri	-	1	-	47	153	-	30	18	11	519	1	245
North Dakota	-	1	-	52	48	-	3	-	1	62	-	269
South Dakota	-	-	-	-	4	-	3	2	-	13	1	22
Nebraska	-	-	-	3	18	-	4	9	3	91	-	138
Kansas	-	1	-	27	21	-	7	16	92	742	-	95
SOUTH ATLANTIC	2	14	20	979	1,896	1	129	173	184	5,585	29	1,701
Delaware	-	-	3	8	38	-	-	1	11	239	-	8
Maryland	-	-	-	2	14	-	19	31	14	541	-	9
District of Columbia	-	-	-	3	2	-	3	7	1	38	-	2
Virginia	-	4	7	392	55	1	22	42	15	558	7	384
West Virginia	-	-	3	174	220	-	2	6	69	1,935	5	255
North Carolina	1	4	-	4	28	-	27	24	NN	NN	2	194
South Carolina	-	1	-	51	207	-	10	14	1	328	2	76
Georgia	1	1	-	40	135	-	17	3	-	25	-	7
Florida	-	4	7	305	1,197	-	29	45	73	1,921	13	766
EAST SOUTH CENTRAL	1	3	20	568	967	8	79	60	261	3,522	72	1,155
Kentucky	-	-	7	357	484	4	30	20	50	1,073	4	367
Tennessee	-	-	5	157	183	4	31	22	121	1,546	51	443
Alabama	1	3	-	4	127	-	13	12	90	455	14	176
Mississippi	-	-	8	50	173	-	5	6	-	448	3	169
WEST SOUTH CENTRAL	-	9	1	604	1,286	-	121	93	80	3,020	9	1,345
Arkansas	-	-	-	67	12	-	12	8	12	309	-	107
Louisiana	-	2	1	82	79	-	25	28	7	57	-	94
Oklahoma	-	1	-	48	9	-	11	6	23	355	5	165
Texas	-	6	-	407	1,186	-	73	51	38	2,299	4	979
MOUNTAIN	-	7	23	472	1,629	-	20	13	19	2,185	9	2,283
Montana	-	1	1	13	12	-	4	2	2	201	3	486
Idaho	-	-	4	223	18	-	1	3	-	109	-	27
Wyoming	-	-	15	25	45	-	-	1	-	417	-	5
Colorado	-	1	-	90	484	-	5	2	8	349	5	1,512
New Mexico	-	1	3	104	101	-	3	1	9	868	1	168
Arizona *	-	4	-	16	817	-	3	1	-	140	-	17
Utah	-	-	-	1	152	-	2	2	-	94	-	65
Nevada	-	-	-	-	-	-	2	1	-	7	-	3
PACIFIC	4	33	62	1,921	3,926	3	130	138	182	8,014	53	3,470
Washington	-	2	35	888	933	-	15	11	13	1,358	1	609
Oregon	-	2	10	405	57	-	10	11	-	1,452	27	733
California	4	26	17	549	2,837	3	101	108	137	4,386	25	2,098
Alaska	-	2	-	65	11	-	4	5	32	612	-	9
Hawaii	---	1	---	14	88	---	-	3	---	206	---	21
Guam	-	-	-	4	2	-	-	11	-	6	-	6
Puerto Rico	-	-	54	1,507	492	-	4	4	47	538	1	22
Virgin Islands	-	-	-	-	1	-	-	2	1	16	-	2

*Delayed reports: Measles: Ariz. 1
Mumps: Me. 10

TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES FOR WEEKS ENDING JUNE 16, 1973 AND JUNE 17, 1972 (24th WEEK) – Continued

AREA	TETANUS	TUBERCULOSIS (New Active)		TULAREMIA	TYPHOID FEVER		TYPHUS FEVER TICK-BORNE (Rky. Mt. spotted fever)		VENEREAL DISEASES		RABIES IN ANIMALS	
									GONORRHEA	SYPHILIS (Pri. & Sec.)		
	Cumulative 1973	1973	Cum. 1973	Cumulative 1973	1973	Cum. 1973	1973	Cum. 1973	1973	1973	1973	Cum. 1973
UNITED STATES	37	597	14,742	37	10	357	31	171	15,929	438	85	1,727
NEW ENGLAND	2	19	526	-	-	5	-	1	591	12	1	84
Maine	-	1	39	-	-	-	-	-	21	-	1	50
New Hampshire	-	1	32	-	-	-	-	-	20	-	-	27
Vermont	-	1	16	-	-	-	-	-	9	-	-	3
Massachusetts	-	5	283	-	-	5	-	1	372	4	-	4
Rhode Island	1	2	41	-	-	-	-	-	67	2	-	-
Connecticut	1	9	115	-	-	-	-	-	102	6	-	-
MIDDLE ATLANTIC	5	97	3,023	-	3	31	-	8	1,874	96	1	10
Upstate New York	-	19	530	-	-	4	-	5	238	5	1	5
New York City	3	42	1,150	-	3	13	-	1	856	52	-	-
New Jersey	2	20	536	-	-	6	-	1	329	21	-	-
Pennsylvania	-	16	807	-	-	8	-	1	451	18	-	5
EAST NORTH CENTRAL	4	53	2,232	-	-	17	-	1	2,035	26	18	167
Ohio *	1	23	691	-	-	5	-	1	548	5	-	20
Indiana	-	-	306	-	-	-	-	-	367	9	2	44
Illinois	2	-	626	-	-	4	-	-	319	6	4	46
Michigan	-	30	532	-	-	6	-	-	593	6	-	3
Wisconsin	1	-	77	-	-	2	-	-	208	-	12	54
WEST NORTH CENTRAL	5	30	544	5	-	8	-	3	771	3	26	498
Minnesota	-	8	75	-	-	3	-	-	150	-	13	180
Iowa	-	2	47	-	-	-	-	1	98	1	1	114
Missouri	4	10	251	5	-	3	-	2	217	2	5	43
North Dakota	1	2	19	-	-	-	-	-	16	-	6	83
South Dakota	-	1	37	-	-	1	-	-	51	-	-	32
Nebraska *	-	1	40	-	-	1	-	-	110	-	1	3
Kansas	-	6	75	-	-	-	-	-	129	-	-	43
SOUTH ATLANTIC	5	142	2,882	6	-	220	17	88	4,001	161	5	140
Delaware	-	-	32	-	-	-	1	4	57	5	-	1
Maryland	-	12	281	-	-	4	-	1	405	5	-	7
District of Columbia	-	4	138	-	-	-	-	-	346	16	-	-
Virginia	-	22	395	1	-	-	-	18	463	52	3	47
West Virginia	-	3	141	-	-	2	-	-	54	-	1	16
North Carolina	-	24	452	1	-	3	10	41	573	12	-	1
South Carolina	-	5	261	-	-	3	1	11	316	15	-	1
Georgia	1	24	494	3	-	1	5	13	709	11	1	45
Florida	4	48	688	1	-	207	-	-	1,078	45	-	22
EAST SOUTH CENTRAL	7	77	1,313	5	4	11	7	25	1,263	23	5	305
Kentucky	1	20	326	1	1	2	-	-	186	2	1	162
Tennessee	4	19	402	3	1	5	5	17	482	7	1	107
Alabama	2	4	333	-	-	2	-	3	231	5	3	36
Mississippi	-	34	252	1	2	2	2	5	364	9	-	-
WEST SOUTH CENTRAL	6	72	1,473	20	-	12	7	41	2,460	60	14	348
Arkansas *	-	10	175	8	-	2	-	7	140	5	2	80
Louisiana	2	3	252	-	-	3	-	-	540	18	3	23
Oklahoma	2	4	133	10	-	2	6	33	91	4	4	115
Texas	2	55	913	2	-	5	1	1	1,689	33	5	130
MOUNTAIN	-	25	481	-	-	5	-	-	543	18	-	17
Montana	-	1	16	-	-	2	-	-	21	-	-	-
Idaho	-	-	22	-	-	-	-	-	32	-	-	-
Wyoming	-	1	9	-	-	-	-	-	7	1	-	-
Colorado	-	8	94	-	-	-	-	-	154	4	-	-
New Mexico	-	5	107	-	-	1	-	-	89	-	-	2
Arizona *	-	10	184	-	-	2	-	-	148	1	-	15
Utah	-	-	17	-	-	-	-	-	43	-	-	-
Nevada	-	-	32	-	-	-	-	-	49	12	-	-
PACIFIC	3	82	2,268	1	3	48	-	4	2,391	39	15	158
Washington	-	6	196	-	1	4	-	2	244	4	-	-
Oregon	-	5	121	-	-	2	-	2	223	1	-	1
California	3	71	1,772	1	2	41	-	-	1,845	33	15	150
Alaska	-	-	54	-	-	-	-	-	79	1	-	7
Hawaii	-	---	125	-	---	1	---	-	---	---	---	-
Guam *	-	-	16	-	-	-	-	-	-	-	-	-
Puerto Rico	3	8	245	-	-	2	-	-	105	8	2	23
Virgin Islands	-	-	-	-	-	-	-	-	10	1	-	-

*Delayed reports: TB: Ohio delete 2; Tularemia: Ark. 3; RMSF: Ark. 4; Gonorrhea: Ariz. 35, Guam 5; Syphilis: Neb. 1

Week No. 24

TABLE IV. DEATHS IN 122 UNITED STATES CITIES FOR WEEK ENDING JUNE 16, 1973

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

Area	All Causes			Pneumonia and Influenza	Area	All Causes			Pneumonia and Influenza
	All Ages	65 years and over	Under 1 year	All Ages		All Ages	65 years and over	Under 1 year	All Ages
NEW ENGLAND	741	456	28	44	SOUTH ATLANTIC	1,207	627	53	46
Boston, Mass.	245	131	9	12	Atlanta, Ga.	141	75	7	4
Bridgeport, Conn.	42	28	1	9	Baltimore, Md.	217	106	12	3
Cambridge, Mass.	30	20	2	8	Charlotte, N. C.	48	14	6	1
Fall River, Mass.	27	17	3	-	Jacksonville, Fla.	94	45	4	2
Hartford, Conn.	50	33	1	-	Miami, Fla.	84	43	4	4
Lowell, Mass.	26	18	-	1	Norfolk, Va.	52	28	-	4
Lynn, Mass.	20	12	-	1	Richmond, Va.	103	64	3	8
New Bedford, Mass.	24	18	-	2	Savannah, Ga.	35	18	-	2
New Haven, Conn.	60	32	6	-	St. Petersburg, Fla.	89	67	3	2
Providence, R. I.	67	46	-	7	Tampa, Fla.	77	37	2	6
Somerville, Mass.	9	5	-	-	Washington, D. C.	213	93	8	6
Springfield, Mass.	51	30	3	2	Wilmington, Del.	54	37	4	4
Waterbury, Conn.	32	24	2	-					
Worcester, Mass.	58	42	1	2	EAST SOUTH CENTRAL	656	370	18	28
					Birmingham, Ala.	99	58	2	2
MIDDLE ATLANTIC	2,976	1,805	99	115	Chattanooga, Tenn.	60	39	1	3
Albany, N. Y.	53	32	4	2	Knoxville, Tenn.	52	35	-	-
Allentown, Pa.	32	23	2	3	Louisville, Ky.	124	76	2	9
Buffalo, N. Y.	129	80	5	8	Memphis, Tenn.	153	77	8	3
Camden, N. J.	46	31	1	5	Mobile, Ala.	47	21	1	2
Elizabeth, N. J.	33	27	-	2	Montgomery, Ala.	28	15	1	1
Erie, Pa.	47	28	1	4	Nashville, Tenn.	93	49	3	8
Jersey City, N. J.	55	32	2	5					
Newark, N. J.	91	53	4	3	WEST SOUTH CENTRAL	1,161	640	46	27
New York City, N. Y. †	1,662	973	53	47	Austin, Tex.	33	18	-	1
Paterson, N. J.	41	24	2	2	Baton Rouge, La.	43	21	1	1
Philadelphia, Pa.	194	108	12	3	Corpus Christi, Tex.	28	15	2	-
Pittsburgh, Pa.	161	98	4	9	Dallas, Tex.	141	68	4	1
Reading, Pa.	34	28	1	1	El Paso, Tex.	40	22	3	2
Rochester, N. Y.	127	85	4	11	Fort Worth, Tex.	92	58	3	2
Schenectady, N. Y.	20	13	-	-	Houston, Tex.	234	113	9	4
Scranton, Pa.	40	30	-	2	Little Rock, Ark.	70	41	5	3
Syracuse, N. Y.	91	57	3	1	New Orleans, La.	125	69	3	1
Trenton, N. J.	44	30	1	1	Oklahoma City, Okla. *	81	48	3	1
Utica, N. Y.	27	18	-	3	San Antonio, Tex.	140	81	8	5
Yonkers, N. Y.	49	35	-	3	Shreveport, La.	47	28	1	-
					Tulsa, Okla.	87	58	4	6
EAST NORTH CENTRAL	2,549	1,447	125	70					
Akron, Ohio	63	41	4	-	MOUNTAIN	530	280	29	18
Canton, Ohio	47	33	-	2	Albuquerque, N. Mex.	59	26	1	4
Chicago, Ill.	661	366	38	15	Colorado Springs, Colo.	27	12	4	4
Cincinnati, Ohio	167	84	12	4	Denver, Colo.	128	71	3	4
Cleveland, Ohio	210	115	6	1	Las Vegas, Nev.	37	14	2	-
Columbus, Ohio	129	70	9	4	Ogden, Utah	13	9	-	1
Dayton, Ohio	101	60	3	-	Phoenix, Ariz.	136	71	11	1
Detroit, Mich.	355	172	29	8	Pueblo, Colo.	18	9	3	3
Evansville, Ind.	49	36	1	4	Salt Lake City, Utah	55	35	5	1
Fort Wayne, Ind.	67	41	6	3	Tucson, Ariz.	57	33	-	-
Gary, Ind.	20	11	1	3					
Grand Rapids, Mich.	52	32	1	5	PACIFIC	1,547	947	52	30
Indianapolis, Ind.	166	92	7	4	Berkeley, Calif.	18	15	-	-
Madison, Wis.	33	19	1	5	Fresno, Calif.	62	34	5	-
Milwaukee, Wis.	117	75	2	-	Glendale, Calif.	34	23	1	1
Peoria, Ill.	30	22	1	-	Honolulu, Hawaii	46	26	5	1
Rockford, Ill.	39	24	3	9	Long Beach, Calif.	89	61	-	1
South Bend, Ind.	54	35	-	-	Los Angeles, Calif.	443	277	15	8
Toledo, Ohio	113	74	-	1	Oakland, Calif.	72	40	1	1
Youngstown, Ohio	76	45	1	2	Pasadena, Calif.	45	29	1	-
					Portland, Oreg.	139	85	2	4
WEST NORTH CENTRAL	843	509	32	28	Sacramento, Calif.	49	26	3	1
Des Moines, Iowa	58	37	-	3	San Diego, Calif.	123	70	7	1
Duluth, Minn.	32	25	1	3	San Francisco, Calif.	170	102	7	5
Kansas City, Kans.	24	10	3	-	San Jose, Calif.	49	34	-	1
Kansas City, Mo.	130	85	4	-	Seattle, Wash.	129	67	3	1
Lincoln, Nebr.	25	20	-	3	Spokane, Wash.	46	31	2	2
Minneapolis, Minn.	121	81	3	1	Tacoma, Wash.	33	27	-	3
Omaha, Nebr.	88	43	8	-					
St. Louis, Mo.	196	119	3	5	Total	12,210	7,081	482	406
St. Paul, Minn.	104	58	8	2					
Wichita, Kans.	65	31	2	11	Expected Number	12,342	7,021	543	391
					Cumulative Total (includes reported corrections for previous weeks)	319,079	189,231	11,693	14,192

†Delayed report for Week ending June 9, 1973

*Estimate based on average percent of divisional total

RECOMMENDATION OF THE PUBLIC HEALTH SERVICE ADVISORY COMMITTEE ON IMMUNIZATION PRACTICES

INFLUENZA VACCINE

INTRODUCTION

Influenza occurs to some extent in the United States every year, but its incidence and the areas affected are quite variable. Periodically, influenza appears in epidemic form. This seems to occur when the antigens of prevalent influenzaviruses change sufficiently to render the population susceptible. Type A and type B influenzaviruses both undergo changes in their antigens. Such changes usually occur gradually, but they can be rapid and abrupt. Epidemics caused by type A influenzaviruses are more frequent and are generally more severe than those caused by type B.

Inactivated influenza vaccines* have not been uniformly effective in the past, and whatever protection they afforded was relatively shortlived. Current vaccines contain more antigen than products available before 1972 and should provide good protection against influenza when the prevalent viruses are identical or similar to those in the vaccine.

Influenza vaccine should be given to chronically ill patients and to older persons in general. These 2 groups appear to be at greatest risk of becoming severely ill with influenza. Because some influenza occurs every year, annual vaccination of "high-risk" patients is indicated as a routine procedure regardless of the amount of influenza expected in any specific geographic area.

INFLUENZAVIRUS VACCINES

Bivalent Vaccine

The Bureau of Biologics, Food and Drug Administration, reviews influenza vaccine formulation regularly and recommends reformulation with contemporary antigens when indicated. Bivalent influenza vaccine this year will contain a new type A influenzavirus representative of currently prevalent "England" strains. Each adult dose of the 1973-74 vaccine will contain not less than 1000 chick cell agglutinating (CCA) units of antigen in the following proportion: 700 CCA units of a type A strain comparable to the prototype, A/England/42/72(H3N2),** and 300 CCA units of a type B strain, B/Massachusetts/1/71. Vaccines from all producers are highly purified and should be relatively free from adverse reactions.

Monovalent Type B Vaccine

Since late 1972, new strains of type B influenzavirus have been identified as the cause of characteristic influenza illness. They appeared first in Hong Kong in December 1972 and have since been recovered from influenza cases in Australia and England. It is too early to judge whether these strains will generally supplant currently prevalent type B viruses in the United States in the 1973-74 influenza season. However, it is reasonable to expect that they may become widely disseminated.

Since these type B antigens differ considerably from prior strains, little natural immunity to them can be expected to exist in the general population. Likewise, the available bivalent influenza vaccine cannot be expected to give optimal protection against them.

Anticipating the possibility that these type B influenzaviruses will become widely prevalent in the United States, the Bureau of Biologics prepared guidelines for production of a monovalent type B influenza vaccine containing an antigen representative of the new strains. This monovalent vaccine is expected to be commercially available prior to the 1973-74 influenza season. It should be used as a supplemental vaccine for optimal protection of persons at high-risk who are already recommended to receive bivalent vaccine.

VACCINE USAGE

General Recommendations

Annual vaccination is recommended for persons of all ages who have such chronic conditions as 1) heart disease of any etiology, particularly with mitral stenosis or cardiac insufficiency; 2) chronic bronchopulmonary diseases, such as asthma, chronic bronchitis, bronchiectasis, and emphysema; and 3) diabetes mellitus and other chronic metabolic disorders.

Annual vaccination is recommended for older persons because influenza outbreaks are commonly associated with excess mortality in older age groups.

Vaccinating persons who provide essential community services may also be considered if local priorities justify. However, before undertaking such programs, those responsible should take into account a number of reasonable constraints: difficulties inherent in predicting influenza epidemics, variability in vaccine effectiveness, cost, availability of vaccine, and the chance that vaccine will be diverted from persons with chronic illnesses who are at particular risk.

Schedule

The primary series of bivalent influenza vaccine has traditionally been 2 doses. Preliminary data indicate that with the more potent influenza vaccines available in recent years, the second dose provides little additional benefit. It is therefore reasonable to give a single dose of vaccine for either primary or annual booster vaccination. (Dose volumes for adults and children and the recommended route of administration are specified in the manufacturers' package labeling.)

A single dose of the supplemental monovalent type B influenza vaccine should follow and not be given simultaneously with bivalent vaccine. This is because the additional amount of antigen in the monovalent product might increase the chance of adverse reaction. Furthermore, separating the vaccines by 2 weeks or more might enhance an overall type B antibody response.

Influenza vaccination should be scheduled for completion by mid-November.

Precautions

Influenza vaccines are prepared from viruses grown in embryonated eggs and ordinarily should not be administered to persons clearly hypersensitive to egg protein, ingested or injected.

*Official name: Influenza Virus Vaccine, Bivalent

**The World Health Organization has recommended a revised system of nomenclature for type A influenzaviruses which includes their strain designation and a description of the 2 surface antigens, hemagglutinin (H) and neuraminidase (N).

INTERNATIONAL NOTES
QUARANTINE MEASURES

The following changes should be made in the "Supplement – United States Designated Yellow Fever Vaccination Centers," MMWR, Vol. 21, No. 20:

CALIFORNIA

Hollywood World Wide Immunization Center 90028
Change name to Medical Clinic for Immunization
Change address to 7060 Hollywood Boulevard, Suite 910
Change clinic hours to: By appointment; Monday, Tuesday and Friday, 4-5 p.m.; Wednesday and Thursday, 10-11 a.m.

FLORIDA

Bradenton Manatee County Health Department 33505
Change clinic hours to every Friday, 2 p.m.

Clearwater New Center – add
Pinellas County Health Department
1180 East Cleveland Street 33515
813, 442-6151
Clinic hours: Thursday, 8 a.m.-5 p.m.
Fee charged

MISSOURI

Columbia Student Health Service
University of Missouri
Change Zip Code to 65201

NEW JERSEY

Perth Amboy New Center – add
City Department of Health
44 Market Street 08861
201, 826-0290
Clinic hours: Tuesday, 3-4 p.m.
Fee charged

Elizabeth Port Medical Center 07201
A fee is now charged

NEW MEXICO

Las Cruces Student Health Center
New Mexico State University 88003
Change address from University Park to Las Cruces

OHIO

Columbus Family Medicine Clinic
University Hospitals 43210
Change address to Means Hall
466 West 10th Avenue

TENNESSEE

Chattanooga Chattanooga-Hamilton County Health Department 37403
Change clinic hours to Wednesday, 10-11 a.m.

WISCONSIN

Kohler Medical Department
Kohler Company 53044
Center closed – delete

Erratum, Vol. 22, No. 18, p. 159

In the article, "Follow-up on Chloramphenicol-Resistant *Salmonella typhi* – Mexico," correct the 6th sentence in the Editorial Note to read: "Ideally, tap water should not be consumed unless first boiled or treated with chemical purifiers such as Halazone or hypochlorite-containing bleach." Globaline, previously listed as a chemical purifier, is no longer manufactured.

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The data in this report are provisional, based on weekly telegraphs to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the succeeding Friday.

In addition to the established procedures for reporting morbidity and mortality, the editor welcomes accounts of interesting outbreaks or case investigations of current interest to health officials.

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