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MORBIDITY AND MORTALITY WEEKLY REPORT

Epidemiologic Notes and Reports

Toxic-Shock Syndrome — United States

Cases of a newly recognized illness known as toxic-shock syndrome (TSS) have recently been reported to CDC by state health departments in Wisconsin, Minnesota, Illinois, Utah, and Idaho. Physicians in 8 other states have reported individual cases to CDC or to investigators at the University of Colorado, Denver.

Toxic-shock syndrome typically begins suddenly with high fever, vomiting, and profuse watery diarrhea, sometimes accompanied by sore throat, headache, and myalgias. The disease progresses to hypotensive shock within 48 hours, and the patient develops a diffuse, macular, erythematous rash with non-purulent conjunctivitis. Urine output is often decreased, and patients may be disoriented or combative. The adult respiratory distress syndrome or cardiac dysfunction may also be seen.

Laboratory studies reveal elevated blood urea nitrogen, serum creatinine, bilirubin, and creatine phosphokinase levels, and white blood cell counts with marked left shifts. Platelet counts are low in the first week of illness but are usually high in the second week.

Patients require large volumes of fluid to maintain perfusion and usually require intensive care. In the recovery phase, there is desquamation of at least the palms, soles, or digits and often of other skin areas as well.

Since October 1, 1979, 55 cases have been reported to CDC. Fifty-two of these (95%) have been in women. The mean age is 24.8 years, with a range of 13-52 years. Seven deaths have occurred, for a case-fatality ratio of 13%.

Of 40 patients in whom a menstrual history was obtained, 38 (95%) had onset of illness within the 5-day period following onset of menses. Two others had onset of illness 10 days after onset of menses. Moreover, 13 patients have had recurrence of symptoms with a subsequent menstrual period.

In 33 of 45 (73%) patients cultured, *Staphylococcus aureus* was isolated from the throat, cervix, vagina, or rectum. Four of 15 patients (27%) tested for *Herpesvirus hominis* had serologic or cultural evidence of herpes infection. No evidence for leptospirosis, Rocky Mountain spotted fever, viral exanthematous diseases, or streptococcal scarlet fever has been found in those patients in whom it has been looked for.

Reported by PJ Chesney, MD, RW Chesney, MD, W Purdy, MD, Dept of Pediatrics, University of Wisconsin; D Nelson, T McPherson, P Wand, A Helstad, Wisconsin State Laboratory of Hygiene; JP Davis, MD, State Epidemiologist, Wisconsin Dept of Health and Social Services; C Shrock, MD, B Campion, MD, K Crossley, MD, R Derro, MD, R Dinter, MD, W Keane, MD, G Lund, MD, R Opheim, MD, C Simonelli, MD, R Tofte, MD, F Walder, MD, D Williams, MD, Minnesota Dept of Health; S Sokalski, MD, Christ Community Hospital, Oak Lawn, Illinois; J Phair, MD, Northwestern University Medical Center; AG Barbour, MD, CB Smith, MD, Dept of Internal Medicine, University of Utah; RE Johns, Jr, MD, State Epidemiologist, Utah Dept of Health; MH Tanner, MD, Riverview Hospital, Idaho Falls; JK Todd, MD, Children's Hospital, Denver, Colorado; Field Services Div and Special Pathogens Br, Bacterial Diseases Div, Bur of Epidemiology, CDC.

Toxic-Shock Syndrome – Continued

Editorial Note: Toxic-shock syndrome is a serious disease of unknown etiology. It affects primarily young women of child-bearing age who have been previously healthy, and it has a case-fatality ratio for reported cases of 10%-15%. This ratio is probably high because severe cases are easier to recognize. In Wisconsin, where surveillance has been very active, the case-fatality ratio has been 3.2%. The incidence of the disease is not known but is apparently low. The increasing number of reported cases over the past 6 months is probably due to increasing recognition. In support of this theory, a review of medical charts in Wisconsin for the past 2 years revealed 6 cases fitting the case description that had not previously been recognized as toxic-shock syndrome.

The syndrome resembles Kawasaki disease (mucocutaneous lymph node syndrome) in several respects, namely fever, rash with subsequent desquamation, and cardiac involvement. However, shock, which is prominent in toxic-shock syndrome, is not usually seen in Kawasaki disease. The character of the rash is also different in the 2 diseases: it is a maculopapular one in Kawasaki disease but a non-papular, diffuse erythroderma in toxic-shock syndrome. Azotemia and thrombocytopenia are rarely seen in Kawasaki disease and are common in toxic-shock syndrome. Kawasaki disease classically occurs in children less than 5 years of age; some recently reported cases of "adult Kawasaki disease" (*2,3*) may actually be cases of toxic-shock syndrome.

Toxic-shock syndrome was first recognized in 7 children aged 8-17 years, 3 of whom were boys (*1*). In 5 of the 7, *S. aureus* was isolated from the nasopharynx, vagina, or localized abscess. At that time it was hypothesized that the syndrome was caused by a toxin elaborated by the staphylococci. Although *S. aureus* was isolated from vaginal cultures in two-thirds of patients in the current report, no control study has been done to show that this prevalence is unusually high. The isolation of *Herpesvirus* in a small number of cases probably reflects stress-related recurrence of infection and not an etiologic role for the virus. CDC, in cooperation with a number of investigators, is setting up a nationwide case-control study to try to define the epidemiologic features and the cause of this disease.

References

1. Todd J, Fishaut M, Kapral F, Welch T. Toxic-shock syndrome associated with phage-group-I staphylococci. Lancet 1978;2:1116-8.
2. Everett ED. Mucocutaneous lymph node syndrome (Kawasaki disease) in adults. JAMA 1979; 242:542-3.
3. Schlossberg D, Kandra J, Kreiser J. Possible Kawasaki disease in a 20-year-old woman. Arch Dermatol 1979;115:1435-6.

Occupational Mortality in the Oil Industry – Louisiana

A recent review of accidental deaths in Louisiana revealed 205 occupational deaths among oil workers over a 6-year period from January 1973 through December 1978. This represents 19.3% of the total occupational deaths in Louisiana during this period.

All of those who died were males; 57.1% were under 30 years of age. Of the deaths, 66% occurred on offshore rigs and 32% on land rigs.

The accidents occurred primarily during daylight hours (69%). The deaths occurred throughout the year, with no seasonal or monthly predominance. Trauma and drowning accounted for 80% of the deaths; 25% of the total deaths were directly attributable to workers being struck by heavy objects. Forty-two (21%) of the total deaths were a

Occupational Mortality – Continued

result of 4 major tragedies, including an explosion (which accounted for 7 deaths), a fire (12 deaths), and 2 helicopter crashes (23 deaths).

In 1978, the year of the last estimate by the U.S. Department of Labor, 69,000 workers were engaged in oil and gas production in Louisiana. It is difficult to accurately estimate the percentage of this total that is actively engaged in exploration and drilling. However, from a number of sources, it was concluded that the workers at highest risk (those working full-time on active oil rigs) number 12,000-17,000. The mortality rate for this group would then be 188-283/100,000 workers per year. This compares to a mortality rate of 14/100,000 for all U.S. workers and 57/100,000 for a high-risk industry such as construction (*1*).

Reported by S Hearn, MPH, B Salamone, DVM, MPH, D Clemmer, PhD, Tulane School of Public Health and Tropical Medicine; Field Services Div, Bur of Epidemiology, CDC.

Editorial Note: This study suggests a very high rate of fatalities in the population of young males working on oil rigs in Louisiana. One preliminary analysis has identified several factors which may contribute to the high rate of accidents: rapid turnover of personnel, lack of formal work training programs, and problems with regulating the industry (*2*). This preliminary review in Louisiana suggests the need for further investigation given the growing number of workers involved in this industry and the potential for prevention.

References

1. National Safety Council. Accident facts. Chicago: National Safety Council, 1979:23.
2. Perez L. Working offshore: a preliminary analysis of social factors associated with safety in the offshore workplace. Baton Rouge: LSU Center for Wetland Resources, 1979. (Sea Grant publication no. LSU-T-79-001).

Response to a Suspected Case of Imported Lassa Fever – Missouri

In April, for the fourth time since July 1979, CDC was notified of a suspected importation of Lassa fever. Investigation, which included serologic studies at CDC, indicated that this patient, as with the earlier 3, did not have Lassa fever.

The most recent suspected case was a fourth-year medical student who presented to the Student Health Service (SHS) at Washington University School of Medicine in St. Louis on April 30 with fever, pharyngitis, and pleuritic chest pain. He had recently spent 8 weeks on a medical elective at a hospital in Zorzor, Liberia, an area known to be endemic for Lassa fever.

During his stay in Zorzor he took malaria prophylaxis and remained well until April 26, when he had onset of sore throat. The next day, during a jeep ride to Monrovia, he developed left pleuritic chest pain and an infrequent, nonproductive cough. Later in the day, he became fatigued and anorectic and noted myalgias in the lower back and both thighs. That night he felt febrile and had chills but no sweats or true rigors. On April 28, he took an airplane from Monrovia to New York and transferred to a domestic carrier, which flew directly to St. Louis.

While the student was working in Zorzor, no Lassa fever cases were identified at the hospital, although no tests were being conducted there to make the diagnosis. Neither were isolation procedures or barrier-nursing techniques being applied to patients with unknown febrile illnesses. The student came in contact with several children with un-

Lassa Fever – Continued

diagnosed fever, but he was not exposed to spills of blood, vomitus, or other secretions. He did, however, come in direct contact with the urine of several patients.

Upon presenting to the SHS, he appeared fatigued but nontoxic. His temperature was 101 F; there was 2+ pharyngeal erythema without vesicles or exudates; no rubs were audible at the sites of his chest pain. The remainder of the physical findings were normal except for some small (<1-cm), but non-tender, lymph nodes in the axillae and anterior cervial chains. The white blood count was 5,100/mm^3.

Although the illness was nonspecific, the diagnosis of Lassa fever was considered because of the patient's recent potential exposure. No further laboratory tests were performed at the medical school, but blood specimens collected on April 30 and May 1 were sent to CDC for serologic study. Because his illness was mild, the patient returned to his apartment, where physicians monitored his clinical course twice daily. Had his illness required hospitalization, suitable isolation rooms were identified at the medical school hospital; also, the Maximum Containment Facility at Fort Detrick, Maryland, was on alert and prepared to treat the patient. If surveillance of his contacts had been necessary, persons in St. Louis who were exposed to this patient before his quarantine were identified, as were the passengers on the 2 flights he took between Monrovia and St. Louis.

On May 1, the patient was afebrile; by May 3, he was asymptomatic. Therefore, hospitalization and evacuation to a maximum-containment facility were unnecessary. The

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TABLE I. Summary – cases of specified notifiable diseases, United States

[Cumulative totals include revised and delayed reports through previous weeks.]

DISEASE	20th WEEK ENDING		MEDIAN 1975-1979	CUMULATIVE, FIRST 20 WEEKS		
	May 17, 1980	May 19, 1979		May 17, 1980	May 19, 1979	MEDIAN 1975-1979
Aseptic meningitis	63	56	44	1,179	966	747
Brucellosis	9	5	5	66	41	67
Chickenpox	6,033	7,427	6,125	115,042	134,615	118,598
Diphtheria	–	–	–	2	3	39
Encephalitis: Primary (arthropod-borne & unspec.)	13	15	14	224	187	236
Post-infectious	4	5	7	68	85	85
Hepatitis, Viral: Type B	361	236	271	6,231	5,309	5,581
Type A	544	581	581	10,168	11,333	12,455
Type unspecified	229	213	178	4,460	3,867	3,240
Malaria	55	17	9	576	178	149
Measles (rubeola)	816	692	1,337	8,484	7,891	14,625
Meningococcal infections: Total	49	57	32	1,283	1,282	879
Civilian	49	57	30	1,277	1,274	875
Military	–	–	–	6	8	8
Mumps	349	319	536	5,407	7,774	11,783
Pertussis	17	20	23	401	492	472
Rubella (German measles)	124	724	748	2,133	7,526	10,808
Tetanus	3	3	1	17	17	18
Tuberculosis	582	549	648	10,153	10,271	11,523
Tularemia	3	6	3	28	52	39
Typhoid fever	7	8	8	122	146	132
Typhus fever, tick-borne (Rky. Mt. spotted)	35	19	33	80	82	95
Venereal diseases:						
Gonorrhea: Civilian	17,044	18,056	19,246	361,445	362,469	358,135
Military	506	509	491	10,230	10,806	10,806
Syphilis, primary & secondary: Civilian	457	416	471	10,083	9,220	9,650
Military	5	4	4	133	112	1,170
Rabies in animals	151	111	71	2,393	1,763	1,103

TABLE II. Notifiable diseases of low frequency, United States

	CUM. 1980		CUM. 1980
Anthrax	–	Poliomyelitis: Total	4
Botulism	19	Paralytic	2
Cholera	3	Psittacosis (Ups. N.Y. 1)	28
Congenital rubella syndrome (Ky. 1)	34	Rabies in man	–
Leprosy (Md. 1, Tex. 3, Nev. 1, Calif. 1)	67	Trichinosis (N.J. 8)	41
Leptospirosis (Kans. 1, Hawaii 5)	23	Typhus fever, flea-borne (endemic, murine) (Tex. 2)	18
Plague	–		

All delayed reports and corrections will be included in the following week's cumulative totals.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending May 17, 1980, and May 19, 1979 (20th week)

REPORTING AREA	ASEPTIC MENINGITIS	BRUCELLOSIS	CHICKEN-POX	DIPHTHERIA		ENCEPHALITIS			HEPATITIS (VIRAL), BY TYPE			MALARIA	
						Primary		Post-infectious	B	A	Unspecified		
	1980	1980	1980	1980	CUM. 1980	1980	1979	1980	1980	1980	1980	1980	CUM. 1980
UNITED STATES	63	9	6,033	–	2	13	15	4	361	544	229	55	576
NEW ENGLAND	6	1	755	–	–	–	2	–	17	20	11	9	42
Maine	–	–	120	–	–	–	1	–	1	5	–	5	12
N.H.	–	–	38	–	–	–	–	–	–	–	–	1	3
Vt.	–	–	16	–	–	–	–	–	–	3	–	–	–
Mass.	1	1	194	–	–	–	1	–	3	3	5	–	18
R.I.	4	–	46	–	–	–	–	–	1	2	–	1	3
Conn.		–	341	–	–	–	–	–	12	7	6	2	6
MID. ATLANTIC	7	–	534	–	1	3	–	1	65	40	19	1	76
Upstate N.Y.	3	–	158	–	–	1	–	1	14	7	5	–	12
N.Y. City	2	–	210	–	1	1	–	–	14	12	4	1	26
N.J.	1	–	NN	–	–	–	–	–	17	13	8	–	20
Pa.	1	–	166	–	–	1	–	–	20	8	2	–	18
E.N. CENTRAL	2	–	2,680	–	1	4	5	–	37	53	21	1	26
Ohio	–	–	85	–	–	–	1	–	5	5	9	–	5
Ind.	–	–	377	–	–	–	3	–	7	10	2	–	3
Ill.	–	–	795	–	–	–	–	–	7	23	1	–	5
Mich.	–	–	735	–	1	1	1	–	16	9	4	1	9
Wis.	2	–	688	–	–	3	–	–	2	6	5	–	4
W.N. CENTRAL	3	3	692	–	–	1	–	–	14	26	6	2	25
Minn.	–	–	1	–	–	–	–	–	3	8	–	–	9
Iowa	–	3	267	–	–	–	–	–	1	5	1	–	2
Mo.	1	–	76	–	–	–	–	–	6	8	3	1	7
N. Dak.	–	–	12	–	–	–	–	–	–	–	–	–	–
S. Dak.	–	–	13	–	–	–	–	–	–	2	–	–	1
Nebr.	1	–	9	–	–	1	–	–	–	1	–	–	3
Kans.	1	–	314	–	–	–	–	–	4	2	2	1	3
S. ATLANTIC	13	2	450	–	–	1	2	1	85	98	34	5	58
Del.	–	–	38	–	–	–	–	–	6	1	1	–	–
Md.	–	–	52	–	–	–	–	–	7	9	2	4	15
D.C.	1	–	1	–	–	–	–	–	1	2	–	–	1
Va.	–	1	9	–	–	–	1	–	10	4	1	1	18
W. Va.	–	–	107	–	–	–	1	–	3	3	–	–	2
N.C.	1	–	NN	–	–	1	–	–	13	6	6	–	4
S.C.	–	–	19	–	–	–	–	–	7	8	3	–	3
Ga.	–	–	2	–	–	–	–	–	21	20	–	–	4
Fla.	11	1	222	–	–	–	–	1	17	45	21	–	11
E.S. CENTRAL	1	1	138	–	–	–	–	1	16	32	5	–	6
Ky.	–	–	119	–	–	–	–	–	3	11	2	–	2
Tenn.	1	1	NN	–	–	–	–	1	5	7	2	–	–
Ala.	–	–	11	–	–	–	–	–	5	7	1	–	4
Miss.	–	–	8	–	–	–	–	–	3	7	–	–	–
W.S. CENTRAL	8	2	278	–	–	–	2	1	41	102	62	16	57
Ark.	–	–	7	–	–	–	–	–	3	7	3	–	3
La.	2	–	NN	–	–	–	–	–	6	12	1	13	27
Okla.	–	–	–	–	–	–	2	–	5	7	5	–	7
Tex.	6	2	271	–	–	–	–	1	27	76	53	3	20
MOUNTAIN	5	–	110	–	–	–	1	–	6	56	30	1	22
Mont.	1	–	4	–	–	–	–	–	–	2	–	–	–
Idaho	–	–	–	–	–	–	–	–	–	4	–	–	–
Wyo.	–	–	–	–	–	–	–	–	–	1	–	–	2
Colo.	1	–	99	–	–	–	–	–	5	23	6	1	11
N. Mex.	3	–	–	–	–	–	1	–	–	–	–	–	1
Ariz.	–	–	NN	–	–	–	–	–	–	14	20	–	7
Utah	–	–	–	–	–	–	–	–	–	4	2	–	–
Nev.	–	–	7	–	–	–	–	–	1	8	2	–	1
PACIFIC	18	–	396	–	–	4	3	–	80	117	41	20	264
Wash.	1	–	327	–	–	–	1	–	12	7	11	1	27
Oreg.	6	–	3	–	–	–	–	–	13	15	1	1	15
Calif.	9	–	–	–	–	2	2	–	45	90	27	17	212
Alaska	–	–	11	–	–	2	–	–	1	2	1	1	3
Hawaii	2	–	55	–	–	–	–	–	9	3	1	–	7
Guam	NA	NA	NA	NA	–	NA	–	NA	NA	NA	NA	NA	1
P.R.	1	1	44	–	–	–	–	–	–	3	1	–	1
V.I.	–	–	–	–	–	–	–	–	–	–	–	–	–
Pac. Trust Terr.	NA	NA	NA	NA	–	NA	–	–	NA	NA	NA	NA	–

NN: Not notifiable. NA: Not available.
All delayed reports and corrections will be included in the following week's cumulative totals.

TABLE III (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending May 17, 1980, and May 19, 1979 (20th week)

REPORTING AREA	MEASLES (RUBEOLA)			MENINGOCOCCAL INFECTIONS TOTAL			MUMPS		PERTUSSIS	RUBELLA		TETANUS
	1980	CUM. 1980	CUM. 1979	1980	CUM. 1980	CUM. 1979	1980	CUM. 1980	1980	1980	CUM. 1980	CUM. 1980
UNITED STATES	816	8,484	7,891	49	1,283	1,282	349	5,407	17	124	2,133	17
NEW ENGLAND	18	511	225	5	76	55	15	484	–	3	154	–
Maine	1	25	8	–	3	1	12	252	–	–	63	–
N.H.	8	233	22	–	4	6	–	12	–	–	24	–
Vt.	7	210	85	–	8	3	–	5	–	–	–	–
Mass.	2	31	10	2	28	16	–	111	–	2	48	–
R.I.	–	2	100	–	6	3	1	16	–	–	7	–
Conn.	–	10	–	3	27	26	2	88	–	1	12	–
MID. ATLANTIC	354	2,651	756	7	227	180	14	633	6	20	291	2
Upstate N.Y.	43	504	376	2	80	66	2	71	6	9	129	1
N.Y. City	59	683	330	2	68	45	8	47	–	6	62	–
N.J.	107	547	30	1	40	48	3	68	–	5	60	–
Pa.	145	917	20	2	39	21	1	447	–	–	40	1
E.N. CENTRAL	67	1,211	1,850	3	135	131	57	2,101	1	35	522	–
Ohio	–	152	66	–	47	47	18	905	1	–	2	–
Ind.	6	71	136	2	26	29	5	80	–	23	205	–
Ill.	3	194	898	1	18	3	5	245	–	2	117	–
Mich.	6	183	486	–	36	37	16	650	–	5	107	–
Wis.	72	611	264	–	8	15	13	221	–	5	91	–
W.N. CENTRAL	63	984	973	2	50	44	5	181	3	5	150	2
Minn.	59	800	599	1	15	8	–	9	–	2	23	1
Iowa	–	–	14	–	5	5	1	30	–	–	3	–
Mo.	1	60	341	–	18	23	3	66	3	2	35	–
N. Dak.	–	–	6	–	1	1	–	3	–	–	5	–
S. Dak.	–	–	1	–	4	2	–	1	–	–	–	–
Nebr.	–	59	–	–	–	–	–	9	–	–	–	–
Kans.	3	65	12	1	7	5	1	63	–	1	84	1
S. ATLANTIC	44	1,427	1,234	19	319	331	210	709	1	26	233	5
Del.	–	1	–	–	2	5	1	33	–	–	–	–
Md.	–	32	6	–	31	25	26	206	–	24	49	–
D.C.	–	–	–	–	1	–	–	2	–	–	–	–
Va.	11	240	126	4	26	45	1	45	–	–	32	1
W. Va.	2	16	47	2	11	5	5	58	–	–	14	1
N.C.	2	97	101	2	62	44	1	71	–	–	40	–
S.C.	6	131	101	6	47	44	174	193	–	–	49	2
Ga.	13	623	318	2	61	54	–	1	1	–	–	–
Fla.	10	287	535	3	78	109	2	100	–	2	49	1
E.S. CENTRAL	7	229	122	3	124	99	11	655	1	1	69	1
Ky.	5	39	20	1	43	18	2	591	1	–	32	1
Tenn.	2	112	44	1	28	31	1	19	–	–	32	–
Ala.	–	17	43	–	32	23	–	10	–	1	4	–
Miss.	–	61	15	1	21	27	8	35	–	–	1	–
W.S. CENTRAL	183	752	764	3	141	211	16	179	3	6	81	2
Ark.	–	7	6	1	10	18	–	14	–	–	1	1
La.	–	9	201	–	48	86	3	51	–	2	8	–
Okla.	181	621	22	–	12	18	–	–	–	–	1	–
Tex.	2	115	535	2	71	89	13	114	3	4	71	1
MOUNTAIN	7	173	210	2	38	55	3	127	–	1	72	–
Mont.	–	1	44	–	1	4	–	41	–	1	22	–
Idaho	–	–	3	–	3	4	–	11	–	–	11	–
Wyo.	–	–	34	–	2	–	–	–	–	–	–	–
Colo.	–	8	29	–	11	3	–	26	–	–	2	–
N. Mex.	–	2	30	–	6	4	–	–	–	–	5	–
Ariz.	7	120	49	–	5	29	–	18	–	–	10	–
Utah	–	39	15	1	2	6	1	23	–	–	19	–
Nev.	–	3	6	1	8	5	2	8	–	–	3	–
PACIFIC	53	546	1,757	5	173	176	18	338	2	27	561	5
Wash.	7	142	950	2	31	26	7	103	–	12	52	–
Oreg.	–	–	48	–	32	12	–	42	–	–	37	–
Calif.	46	396	688	3	108	127	10	184	2	13	468	5
Alaska	–	5	15	–	2	3	–	4	–	1	2	–
Hawaii	–	3	56	–	–	8	1	5	–	1	2	–
Guam	NA	2	3	–	–	–	NA	3	NA	NA	–	–
P.R.	8	57	184	–	7	–	8	99	–	1	9	4
V.I.	–	4	2	–	1	3	–	1	–	–	–	–
Pac. Trust Terr.	NA	3	5	–	–	1	NA	1	NA	NA	1	–

NA: Not available.
All delayed reports and corrections will be included in the following week's cumulative totals.

TABLE III (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending May 17, 1980, and May 19, 1979 (20th week)

REPORTING AREA	TUBERCULOSIS		TULAREMIA	TYPHOID FEVER		TYPHUS FEVER (Tick-borne) (RMSF)		VENEREAL DISEASES (Civilian)						RABIES (in Animals)
								GONORRHEA			SYPHILIS (Pri. & Sec.)			
	1980	CUM. 1980	CUM. 1980	1980	CUM. 1980	1980	CUM. 1980	1980	CUM. 1980	CUM. 1979	1980	CUM. 1980	CUM. 1979	CUM. 1980
UNITED STATES	582	10,153	28	7	122	35	80	17,044	361,445	362,469	457	10,083	9,220	2,393
NEW ENGLAND	5	281	–	–	5	–	1	432	9,349	9,351	8	274	166	17
Maine	1	20	–	–	–	–	–	18	551	649	1	4	3	15
N.H.	–	6	–	–	–	–	–	12	312	323	–	–	12	1
Vt.	–	9	–	–	–	–	–	10	234	193	–	3	–	–
Mass.	3	143	–	–	3	–	1	186	3,816	3,789	7	175	103	1
R.I.	–	33	–	–	1	–	–	29	549	772	–	11	5	–
Conn.	1	70	–	–	1	–	–	177	3,887	3,625	–	81	43	–
MID. ATLANTIC	127	1,756	1	–	33	1	3	1,643	39,650	38,413	69	1,437	1,424	5
Upstate N.Y.	17	328	–	–	5	1	1	351	7,238	6,033	6	112	105	3
N.Y. City	54	644	1	–	13	–	–	550	15,487	15,211	43	935	965	–
N.J.	22	367	–	–	6	–	1	198	7,270	7,320	9	190	192	2
Pa.	34	417	–	–	9	–	1	544	9,655	9,849	11	200	162	–
E.N. CENTRAL	62	1,437	1	–	10	–	–	2,588	56,981	55,521	44	971	1,282	327
Ohio	15	245	–	–	3	–	–	833	15,513	15,166	9	159	240	17
Ind.	4	162	–	–	–	–	–	356	5,738	4,685	3	86	74	38
Ill.	25	527	–	–	3	–	–	636	17,765	17,749	29	532	784	189
Mich.	15	423	1	–	3	–	–	542	12,415	13,011	2	151	142	–
Wis.	3	80	–	–	1	–	–	221	5,550	4,910	1	43	42	83
W.N. CENTRAL	22	342	5	–	2	–	2	815	16,131	17,668	6	113	122	744
Minn.	3	48	1	–	1	–	–	140	2,788	3,053	3	41	39	67
Iowa	–	32	–	–	–	–	–	90	1,775	2,225	–	4	19	152
Mo.	10	165	3	–	–	–	2	332	6,868	7,480	2	59	45	190
N. Dak.	2	19	–	–	–	–	–	18	239	304	–	–	–	69
S. Dak.	5	20	–	–	1	–	–	27	484	602	–	1	–	156
Nebr.	–	12	1	–	–	–	–	40	1,326	1,147	–	4	2	36
Kans.	2	46	–	–	–	–	–	168	2,651	2,857	1	4	17	74
S. ATLANTIC	125	2,303	7	1	18	28	53	4,099	87,833	86,549	107	2,386	2,227	151
Del.	1	31	–	–	1	–	–	61	1,200	1,351	1	6	12	–
Md.†	15	297	1	–	1	7	8	262	9,133	10,482	7	165	153	–
D.C.	4	122	–	–	3	–	–	NA	5,915	5,192	NA	157	170	–
Va.	12	266	–	–	3	3	7	374	7,469	8,283	16	214	223	3
W. Va.	4	92	–	–	1	1	1	65	1,122	1,240	1	9	30	3
N.C.	30	402	2	–	1	13	26	632	13,008	12,992	3	176	188	1
S.C.	14	198	–	–	2	4	9	466	8,437	7,793	5	118	106	25
Ga.	21	308	4	–	–	–	–	1,169	16,721	16,878	38	724	589	84
Fla.	24	587	–	1	6	–	2	1,070	24,828	22,338	36	817	756	35
E.S. CENTRAL	53	938	4	1	4	3	9	1,602	29,485	31,050	26	790	599	141
Ky.	6	202	–	–	1	–	–	140	4,210	4,103	1	60	65	61
Tenn.	24	305	4	–	–	1	6	552	10,341	10,905	18	320	256	67
Ala.	17	270	–	–	1	2	2	629	8,795	9,305	6	162	121	13
Miss.	6	161	–	1	2	–	1	281	6,139	6,737	1	248	157	–
W.S. CENTRAL	61	1,001	6	2	5	2	11	2,357	46,513	47,973	151	1,945	1,585	721
Ark.	8	98	6	–	–	–	4	192	3,415	3,859	3	64	49	92
La.	–	195	–	–	–	–	–	580	8,264	8,406	33	466	363	6
Okla.	17	103	–	–	1	–	3	205	4,586	4,310	–	29	30	119
Tex.	36	605	–	2	4	2	4	1,380	30,248	31,398	115	1,386	1,143	504
MOUNTAIN	17	274	2	–	7	1	1	629	13,907	13,994	5	225	167	62
Mont.	–	11	–	–	1	–	–	19	512	746	–	1	6	3
Idaho	1	10	1	–	–	–	–	25	656	583	2	16	12	–
Wyo.	–	13	–	–	–	–	–	15	403	335	–	7	5	–
Colo.	4	30	–	–	2	–	–	219	3,704	3,800	1	59	44	–
N. Mex.	3	58	–	–	1	–	–	62	1,749	1,813	2	43	30	20
Ariz.	7	121	1	–	2	–	–	162	3,851	3,741	–	62	42	39
Utah	–	16	–	–	1	1	1	22	650	735	–	5	3	–
Nev.	2	15	–	–	–	–	–	105	2,382	2,241	–	32	25	–
PACIFIC	110	1,821	2	3	38	–	–	2,879	61,596	61,950	41	1,942	1,648	225
Wash.	8	139	–	–	–	–	–	NA	4,835	5,264	NA	91	108	–
Oreg.	2	78	–	–	4	–	–	153	4,304	3,930	1	43	76	–
Calif.	99	1,565	2	3	34	–	–	2,590	50,143	49,702	35	1,733	1,411	182
Alaska	–	24	–	–	–	–	–	75	1,468	2,018	–	3	12	43
Hawaii	1	15	–	–	–	–	–	61	846	1,036	5	72	41	–
Guam	NA	11	–	NA	–	NA	–	NA	27	37	NA	–	–	–
P.R.	9	57	–	–	–	–	–	60	1,013	787	6	208	187	18
V.I.	–	–	–	–	–	–	–	8	67	66	1	8	3	–
Pac. Trust Terr.	NA	7	–	NA	–	NA	–	NA	94	193	NA	–	–	–

NA: Not available.
All delayed reports and corrections will be included in the following week's cumulative totals.

TABLE IV. Deaths in 121 U.S. cities,* week ending May 17, 1980 (20th week)

REPORTING AREA	ALL CAUSES, BY AGE (YEARS)					P & I** TOTAL
	ALL AGES	≥65	45-64	25-44	<1	
NEW ENGLAND	621	418	156	21	13	27
Boston, Mass.	159	98	44	6	8	7
Bridgeport, Conn.	41	31	8	2	–	–
Cambridge, Mass.	23	17	3	3	–	1
Fall River, Mass.	29	23	5	1	–	–
Hartford, Conn.	64	41	21	1	–	3
Lowell, Mass.	33	22	8	1	–	2
Lynn, Mass.	17	11	4	2	–	–
New Bedford, Mass.	26	19	7	–	–	–
New Haven, Conn.	48	35	9	2	1	1
Providence, R.I.	61	34	17	2	3	7
Somerville, Mass.	8	6	2	–	–	–
Springfield, Mass.	36	24	10	1	1	2
Waterbury, Conn.	30	23	6	–	–	4
Worcester, Mass.	46	34	12	–	–	–
MID. ATLANTIC	2,402	1,543	583	138	73	65
Albany, N.Y.	40	26	9	2	2	–
Allentown, Pa.	22	17	5	–	–	–
Buffalo, N.Y.	109	69	28	4	6	3
Camden, N.J.	44	28	11	1	4	–
Elizabeth, N.J.	22	12	9	–	1	–
Erie, Pa.†	33	24	7	2	–	2
Jersey City, N.J.	61	35	18	3	3	2
Newark, N.J.	64	35	16	9	2	6
N.Y. City, N.Y.	1,357	865	320	89	41	35
Paterson, N.J.	22	11	6	3	2	–
Philadelphia, Pa.†	182	116	40	10	7	6
Pittsburgh, Pa.†	92	56	31	3	–	1
Reading, Pa.	40	34	5	–	–	1
Rochester, N.Y.	102	66	29	3	2	1
Schenectady, N.Y.	28	15	9	2	–	2
Scranton, Pa.†	22	18	3	1	–	1
Syracuse, N.Y.	86	59	21	4	2	1
Trenton, N.J.	35	25	8	1	1	–
Utica, N.Y.	21	18	3	–	–	1
Yonkers, N.Y.	20	14	5	1	–	3
E.N. CENTRAL	2,250	1,372	572	139	78	74
Akron, Ohio	62	39	15	3	1	–
Canton, Ohio	36	25	8	2	–	–
Chicago, Ill.	587	352	143	51	22	12
Cincinnati, Ohio	115	70	31	6	6	8
Cleveland, Ohio	176	95	58	11	5	12
Columbus, Ohio	92	54	27	4	4	3
Dayton, Ohio	108	64	25	8	5	1
Detroit, Mich.	273	165	64	19	9	3
Evansville, Ind.	35	25	8	–	1	5
Fort Wayne, Ind.	59	37	14	5	1	2
Gary, Ind.	26	15	7	3	1	1
Grand Rapids, Mich.	49	30	12	2	2	2
Indianapolis, Ind.	169	100	46	8	7	–
Madison, Wis.	31	15	8	4	3	5
Milwaukee, Wis.	114	77	28	3	2	3
Peoria, Ill.	34	23	6	1	2	5
Rockford, Ill.	40	31	7	1	1	3
South Bend, Ind.	48	29	17	1	1	4
Toledo, Ohio	119	73	30	5	4	1
Youngstown, Ohio	77	53	18	2	1	4
W.N. CENTRAL	793	500	175	54	33	32
Des Moines, Iowa	46	29	13	2	1	1
Duluth, Minn.	30	21	4	2	1	4
Kansas City, Kans.	40	20	9	4	–	6
Kansas City, Mo.	128	75	31	9	10	3
Lincoln, Nebr.	29	21	7	–	1	2
Minneapolis, Minn.	97	65	18	7	5	1
Omaha, Nebr.	83	54	23	2	4	2
St. Louis, Mo.	198	123	45	17	7	6
St. Paul, Minn.	80	54	15	7	–	2
Wichita, Kans.	62	38	10	4	4	5

REPORTING AREA	ALL CAUSES, BY AGE (YEARS)					P & I** TOTAL
	ALL AGES	≥65	45-64	25-44	<1	
S. ATLANTIC	1,149	670	299	91	50	50
Atlanta, Ga.	126	75	40	5	3	2
Baltimore, Md.	162	88	47	12	6	4
Charlotte, N.C.	54	35	12	4	3	5
Jacksonville, Fla.	84	49	23	5	1	3
Miami, Fla.	119	73	28	9	3	6
Norfolk, Va.	61	35	16	6	3	6
Richmond, Va.	88	50	18	4	16	3
Savannah, Ga.	51	26	17	6	–	7
St. Petersburg, Fla.	73	58	12	2	1	2
Tampa, Fla.	67	39	16	4	2	3
Washington, D.C.	202	112	55	22	7	7
Wilmington, Del.	62	30	15	12	5	2
E.S. CENTRAL	660	407	186	36	14	35
Birmingham, Ala.	101	61	29	8	3	2
Chattanooga, Tenn.	44	28	11	3	–	4
Knoxville, Tenn.	64	45	16	1	1	–
Louisville, Ky.	97	52	32	6	3	8
Memphis, Tenn.	161	103	45	6	2	10
Mobile, Ala.	49	28	11	8	–	1
Montgomery, Ala.	34	25	5	2	1	3
Nashville, Tenn.	110	65	37	2	4	7
W.S. CENTRAL	1,153	630	308	100	41	31
Austin, Tex.	37	18	9	4	1	1
Baton Rouge, La.	39	27	9	–	–	–
Corpus Christi, Tex.	40	28	7	3	1	1
Dallas, Tex.	168	86	46	17	11	1
El Paso, Tex.	56	30	16	2	3	2
Fort Worth, Tex.	83	53	16	7	–	3
Houston, Tex.	276	124	89	36	11	4
Little Rock, Ark.	65	39	18	2	4	2
New Orleans, La.	105	49	31	13	6	–
San Antonio, Tex.	142	89	36	7	4	10
Shreveport, La.	57	32	12	5	–	2
Tulsa, Okla.	85	55	19	4	–	5
MOUNTAIN	576	314	162	54	20	15
Albuquerque, N. Mex.	63	31	18	7	3	2
Colo. Springs, Colo.	29	20	7	1	1	1
Denver, Colo.	114	66	32	11	2	4
Las Vegas, Nev.	71	31	25	9	2	4
Ogden, Utah	16	7	4	2	2	2
Phoenix, Ariz.	130	69	34	9	7	1
Pueblo, Colo.	23	16	6	–	–	–
Salt Lake City, Utah	46	24	13	5	3	–
Tucson, Ariz.	84	50	23	10	–	1
PACIFIC	1,882	1,194	429	119	74	63
Berkeley, Calif.	15	8	5	1	–	–
Fresno, Calif.	62	45	10	3	3	3
Glendale, Calif.	34	23	5	3	2	–
Honolulu, Hawaii	58	39	15	3	1	6
Long Beach, Calif.	112	67	25	7	7	3
Los Angeles, Calif.	591	367	144	42	15	20
Oakland, Calif.	66	47	11	3	4	5
Pasadena, Calif.	25	15	7	1	–	–
Portland, Oreg.	133	86	28	8	8	1
Sacramento, Calif.	84	52	18	5	2	2
San Diego, Calif.	160	107	34	6	7	1
San Francisco, Calif.	141	89	33	12	5	2
San Jose, Calif.	156	96	41	6	5	3
Seattle, Wash.	139	85	34	10	7	12
Spokane, Wash.	64	37	14	6	6	3
Tacoma, Wash.	42	31	5	3	2	2
TOTAL	11,486	7,048	2,870	752	396	392

*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.

Lassa Fever – Continued

heterophile test and malaria smears performed at CDC were negative. The SGOT, alkaline phosphatase, and total bilirubin were normal. Viral studies were negative for isolation of the Lassa virus and indirect-fluorescent antibody tests for Lassa fever were negative.

Reported by D Krogstad, MD, M Parker, MD, G Storch, MD, Washington University School of Medicine, St. Louis; HD Donnell, Jr, MD, State Epidemiologist, Missouri Div of Health; Bur of Laboratories, Bur of Epidemiology, and Office of Biosafety, Office of the Center Director, CDC.

Editorial Note: The onset of Lassa fever is usually insidious, and in the early stages the disease may be indistinguishable from infectious mononucleosis, influenza, other viral infections, malaria, and some bacterial infections, including typhoid fever and leptospirosis. In this case, symptoms such as headache, nausea, and vomiting, usually associated with Lassa fever during the early stages of illness, were not present. The patient's rapid recovery shortly after presentation to the SHS was also atypical of Lassa fever. However, because most data on the clinical manifestations of Lassa infection have been derived from hospitalized patients with more severe forms of the disease, less is known about the presentation of milder infection. In this instance, the index of suspicion of Lassa fever was high since the patient had been in an endemic area, working in a hospital where isolation and barrier-nursing techniques were not applied routinely to patients with undiagnosed febrile illnesses.

There have been 2 known importations of Lassa fever into the United States: one in 1969 and the most recent in 1976. The risk of transmission during and following international travel would appear to be small since in both instances surveillance of contacts indicated that no further cases resulted.

Current Trends

Penicillin Therapy in Lyme Disease*

Lyme disease, endemic along the northeastern coast of the United States and in Wisconsin, California, and Oregon (*1*), typically begins in late May and early June and extends into the fall of the year. Its characteristic skin lesion, erythema chronicum migrans (ECM), the first manifestation of the disease, is often accompanied by headache, stiff neck, fever, malaise, and fatigue (*2*). Weeks to months later, some patients develop neurologic, cardiac, or joint involvement. The illness is thought to be transmitted by the newly described tick, *Ixodes dammini* (*1*).

In Europe, where associated arthritis and cardiac involvement are unknown, ECM is said to respond to antibiotic therapy (*3*); case reports supporting this conclusion have also appeared in the United States (*4*). Therefore, during the past 4 years, from 1976 through 1979, the efficacy of antibiotics in the treatment of ECM and in the prevention of the later manifestations of the disease was studied at the Yale University School of Medicine. In general, patients received antibiotics during the 1977 and 1979 summers and did not receive them during the 1976 and 1978 summers.

When ECM was active, 42 of the 113 patients studied during the 4 years (37%) received penicillin or, if allergic, erythromycin (9 patients) or tetracycline (7 patients); 55 patients (49%) did not receive antibiotics. The patients in each group did not differ significantly regarding age or sex, and in each of the 4 groups the duration of ECM before the first visit was similar. Further, serum IgM and cryoglobulin determinations on initial serum specimens revealed no significant differences between treated and untreated

*The full report of these data will appear in the July 1980 issue of the Annals of Internal Medicine.

Lyme Disease – Continued

patients. However, ECM and its associated symptoms resolved significantly faster in patients given penicillin or tetracycline (median duration: 4 and 2 days, respectively) than in untreated patients (10 days; $p<0.001$ and $p=0.005$, respectively). Resolution after erythromycin (8 days) was similar to that in untreated patients.

With regard to later manifestations, significantly fewer penicillin-treated patients developed arthritis (12 of 42) than did untreated patients (34 of 55) ($p=0.001$). The time that had elapsed from the onset of ECM until penicillin therapy was initiated did not seem to influence the development of arthritis. Among 15 patients with arthritis who were followed for at least 29 months (1976 and 1977 patients), the total duration of joint involvement (all attacks added together) was significantly shorter in penicillin-treated patients (median duration: 4 weeks) than in untreated patients (17 weeks) ($p=0.019$). Two of the 9 patients treated with erythromycin and 1 of 7 given tetracycline developed arthritis. These frequencies were less than those in untreated patients, but the differences were not statistically significant. Although the number of patients who developed either neurologic or cardiac abnormalities was small, the frequency of these complications was similar regardless of treatment.

Since penicillin therapy appears to shorten the duration of ECM and may prevent or attenuate subsequent arthritis, prompt treatment with oral penicillin G, 250,000 units 4 times a day for 7 to 10 days, is recommended. However, it is not clear that penicillin G (vs. penicillin VK or other antimicrobials) is the antibiotic of choice nor that such dosage and duration of therapy are optimal. Tetracycline is the second choice, 250 mg 4 times a day for the same period, except in children below age 8 years because of tooth discoloration. It is not known whether patients with later manifestations should receive antibiotics.

Reported by AC Steere, MD, SE Malawista, MD, JH Newman, MD, PN Spieler, MD, NH Bartenhagen, MD, Yale University School of Medicine, New Haven, Connecticut; Connecticut State Dept of Health Services; Bacterial Zoonoses Br, Bacterial Diseases Div, Bur of Epidemiology, CDC.

Editorial Note: Lyme disease appears to be caused by a tick-transmitted infectious agent that may trigger subsequent immune-mediated phenomena. Similarly, acute rheumatic fever may follow group A streptococcal pharyngitis (*5*), and Reiter syndrome may follow *Shigella* dysentry (*6*). The observation made here, that penicillin or tetracycline therapy shortens the duration of ECM, is in line with reports both in the United States and abroad (*3,4*). However, the data about prevention of subsequent disease are less clear. It should be emphasized that some untreated patients remained well while others given antibiotics still developed later manifestations, regardless of how early in the course of ECM antibiotics were given. Furthermore, the observation that penicillin therapy during ECM may prevent or attenuate subsequent arthritis required the cumulative data from 4 different years, when varying percentages of patients were being treated. These were not randomized, double-blind trials. Nevertheless, because the agent that causes Lyme disease appears to be tick-transmitted from a stable enzootic reservoir, it seems unlikely that the pathogenicity of the agent would have been different in 1976 and 1978 than in 1977 and 1979. More definitive information about antibiotic therapy in Lyme disease will come from extension of these clinical trials and identification of the causative agent.

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Lyme Disease – Continued

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Epidemiologic Notes and Reports

Follow-up on Cholera in Indochinese Refugees in the United States – California, Pennsylvania

There have been 3 additional cases of cholera and 1 asymptomatic *Vibrio cholerae* 01 infection identified in Indochinese refugees arriving in the United States from the Rangsit Transit Center, located near Bangkok, Thailand. This brings to 7 the number of *V. cholerae* 01 infections identified among refugees since April 4, 1980 (*1*).

Two of the 3 new cases were identified in California. One was in a 5-year-old boy who arrived in California Apirl 28; he developed diarrhea during the flight from Bangkok. His 9-year-old brother, although asymptomatic, was also culture-positive for *V. cholerae* O group 1. The second California case was in a 3-year-old girl who arrived in California May 3; She also had been ill while traveling. The third case was in a 37-year-old man who arrived in Pennsylvania on April 28 and developed diarrhea on April 29.

Fourteen culture-confirmed cases of cholera have occurred in refugees residing in the Rangsit Transit Center since Apirl 4; the last known case occurred May 9. There were a number of cases of cholera in Thailand during April, including cases in areas in which the refugees are free to purchase food and drinks. An epidemiologic investigation in the transit center in late April suggested that ice from outside the camp, sold by vendors, was a vehicle of transmission for cholera, and all ice sales in the transit center were stopped; however, additional cases of cholera among refugees have been identified since that time.

Reported by S Giamona, MD, Children's Hospital, San Francisco; C Powers, J Chin, MD, State Epidemiologist, California State Dept of Health Services; R Berman, Pennsylvania State Laboratory; R Walker, RN, T Demelfi, EJ Witte, VMD, State Epidemiologist, Pennsylvania State Dept of Health; Field Services Div, Quarantine Div, and Enteric Diseases Br, Bacterial Diseases Div, Bur of Epidemiology, CDC.

Editorial Note: These cases are not thought to pose a public health hazard to the United States because of the general high level of sanitation maintained in this country. Physicians should consider the diagnosis of cholera when treating Indochinese refugees who have recently arrived in this country; with suspected cases, stool cultures should be obtained. When cultures are taken, an appropriate selective medium, such as triosulfate-citrate bile salts sucrose (TCBS), should be used.

Reference

1. MMWR 1980;29:196.

The Morbidity and Mortality Weekly Report, circulation 88,700, is published by the Center for Disease Control, Atlanta, Georgia. The data in this report are provisional, based on weekly telegraphs to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the succeeding Friday.

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

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Errata, Vol. 29

No. 19, p227 In the ACIP statement on influenza vaccine, Table 1, the first footnote was incomplete. It should read: *Contains 7 μg each of A/Brazil/78, A/Bangkok/79, and B/Singapore/79 hemagglutinin antigens in each 0.5 ml.

No. 17, p203 In the third paragraph, third line, of "Legionellosis in a Child — Kentucky," the correct dosage of erythromycin received by the patient was 50 mg per kilogram per day in divided doses.

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