CENTERS FOR DISEASE CONTROL

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Epidemiologic Notes and Reports

Human Plague Associated with Domestic Cats — California, Colorado

Domestic cats, an uncommon source of human infection with *Yersinia pestis*, were recently associated with 2 cases of human plague; 1 case was fatal. Only 6 other cat-associated plague cases have ever been reported.

The first patient was a 47-year-old woman from Tahoe Paradise, California, who became ill the morning of October 2, 1980, with rigors, fever, and right-sided chest pain (*1*). That night vomiting and diarrhea occurred, and she complained of shortness of breath. The next day a dry cough developed, and she was seen by a physician. A urinalysis showed pyuria and bacteriuria; tetracycline, 250 mg every 6 hours, was prescribed for a presumed urinary tract infection. She took 2 doses that day, and 2 the following day, before being admitted to a hospital that evening. By then, her cough had become productive.

Upon admission to the hospital, she was acutely ill. Her respiratory rate was 40, and she was cyanotic. Rales and wheezes were heard in all lung fields; no adenopathy or skin lesions were noted. The white blood cell count was 900/mm^3. A chest X ray showed complete opacification of the right chest and an infiltrate in the left upper lobe. Despite antibiotic administration, the patient died 4½ hours after admission. A sputum culture subsequently grew *Y. pestis* and a lung specimen obtained at autopsy was also positive. Many persons who had contact with potentially infectious secretions or aerosols were placed under surveillance and on antimicrobial prophylaxis. No secondary cases of plague occurred.

On September 24, 8 days before the patient became ill, her pet cat had brought home a dead chipmunk. On September 26, the cat became ill with noisy respirations, coughing, and a bloody nasal discharge. On September 29, the cat died and was buried. After the patient's death, the cat was exhumed and found to have bilateral hemorrhagic pneumonia with left submandibular adenopathy; cultures of both lungs and the submandibular lymph node were positive for *Y. pestis*.

The other cat-associated case was in a 49-year-old veterinarian from Evergreen, Colorado, who developed rigors, fever, vertigo, and a painful swelling in the right axilla on April 15, 1981. On April 18, he began to take tetracycline, 500 mg 4 times a day. On April 19, he was hospitalized with a fever of 103.6 F (39.8 C); a 3x3-cm tender lymph node was palpable in the right axilla.

Tularemia was considered the most likely cause of the patient's illness and tetracycline, 500 mg 4 times a day, as well as oxacillin, 2 g every 4 hours, was administered. Within 36 hours, the patient had improved, and he was discharged on April 24 with a prescription for oral tetracycline. Specimens from a lymph node aspirate performed while

Human Plague – Continued

the patient was in the hospital were positive for *Y. pestis* by fluorescent-antibody and biochemical testing. Serum specimens from the patient, when tested for antibody to *Y. pestis* by passive hemagglutination (PHA), showed reciprocal titers of 32 on blood drawn April 24, and of 128 on blood drawn May 12.

The veterinarian probably acquired his infection from a cat he had treated 2 days before he became ill. The cat, which had a submandibular abscess, had bitten the veterinarian between the right thumb and index finger. The cat's abscess was irrigated with a neomycin solution, and penicillin was administered intramuscularly. The cat returned home and recovered. Blood drawn from the cat on May 5 showed a reciprocal PHA titer of ⩾8192.

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Editorial Note. Evidence of animal plague has been noted in the general area where these infections were acquired. The human case in California appears to have been primary pneumonic plague—the first non-laboratory-associated case in the United States since 1924. This woman probably acquired her infection from inhalation of infectious aerosols produced by her cat.

Experimentally, cats are susceptible to *Y. pestis* inoculated parenterally and orally (*2*). Natural infection probably results from both the bite of infected fleas and the consumption of infected small animals, usually rodents. Subsequent bacteremia with secondary pneumonia may occur with either mode of inoculation. Primary buboes in cats typically occur on the head and neck, which suggests that eating or mouthing infected rodents is the most common natural mode of infection, although flea bites on the head or neck cannot be ruled out. Naturally occurring primary pneumonic plague in cats has not been reported. Infected cats do not necessarily die and occasionally protracted illnesses, accompanied by emaciation, occur.

In humans, streptomycin and tetracycline are the drugs most commonly used to treat plague; penicillin is not effective. The optimal therapy for plague in cats has not been determined but is probably similar to that used for plague in humans.

Thus far in 1981, 4 cases of plague have been reported. One case, associated with a bobcat, has been fatal (*3*).

References

1. California Dept of Health Services. Death from primary plague pneumonia at South Lake Tahoe. California Morbidity Weekly Report 1980 Dec 5.
2. Rust JH Jr, Cavanaugh DC, O'Shita R, Marshall JD Jr. The role of domestic animals in the epidemiology of plague. I. Experimental infection of dogs and cats. J Infect Dis 1971;124:522-6.
3. CDC. Human Plague – Texas, New Mexico. MMWR 1981;30:137-8.

International Notes

Use of Human Diploid Cell Vaccine for Postexposure Rabies Treatment – Canada

During the period June-October 1980, the Ontario Ministry of Health provided human diploid cell vaccine (HDCV, Merieux) for postexposure antirabies treatment of 141

Rabies Vaccine – Continued

persons. Of those treated, 96 had been exposed to proven rabid animals, 9 of them by bite wound. The delay between exposure and onset of treatment ranged from 1 to 18 days. The treatment regimen consisted of an initial dose of rabies immune globulin (20 IU/kg body weight) and 1 dose of vaccine, followed by doses of vaccine 3, 7, 14, and 30 days later.

Post-treatment blood samples from 127 of the 141 individuals were collected between days 45 and 90; 100% had acceptable (≥16) rapid fluorescent focus-inhibition titers (Table 1).

Five patients reported reactions to the vaccine. These ranged from mild local reactions to fever and malaise; 1 individual reported severe erythema and urticaria 7 days after inoculation. None of the treated patients developed rabies.

TABLE 1. Serologic responses to HDCV in 127 persons, Canada, 1980

Titer*	Number of persons	Percent of total
≥256	78	61.4
128	28	22.0
64	12	9.4
32	5	3.9
16	4	3.1
Total	127	100.0%†

*By rapid fluorescent focus-inhibition test.
†Corrected for rounding error.

Reported by A Evans, BS, DVM, Ontario Ministry of Health, Toronto, in the Ontario Ministry of Health's Communicable Disease Control Report 1981 Feb 27, and in the Canada Diseases Weekly Report 1981;7:70-1.

Editorial Note: These data from Canada are similar to results being obtained in the United States that show the new HDCV to be highly immunogenic and relatively non-reactogenic when given as recommended.

Current Trends

Health Examination of Food Handlers – Europe

In November 1979, a World Health Organization (WHO) working group met in Copenhagen, Denmark, to establish guidelines for examining food handlers as potential sources of foodborne disease and to formulate a new strategy for achieving an acceptable level of control of food hygiene.

At issue was the impact on public health of legal requirements in many countries that food handlers have a medical examination before being employed and at regular intervals thereafter. The working group objected to these requirements for several reasons. First, it has not been determined that most outbreaks of foodborne disease are connected with food handlers. Second, medical examinations and laboratory analyses are very expensive, making it possible to identify only a small proportion of the carriers of pathogenic organisms. Finally, because of the rapid turnover of workers in the food industry, it is difficult for administrators to assure that all employees are checked. These 3 points are discussed in detail below.

Food Handlers — Continued

In most European countries, a medical examination before employment in the food industry is required by law. Requirements for later, regularly scheduled examinations vary from country to country. Food handlers (excluding homemakers) account for 6%-10% of the population in these countries.

A number of participants in the working group expressed doubts about the effectiveness of the national policies of their countries regarding the medical examination of food handlers. The group agreed that insufficient resources are available for examining all the workers and that, if these examinations are made routinely and on a general basis, the cost represents an inefficient use of available resources. Therefore, the participants urged that attention be concentrated on workers most likely to be carriers of pathogenic organisms and on persons who work with foods that permit rapid growth of pathogenic organisms and/or are consumed by especially vulnerable groups such as children and the elderly.

The group further agreed that the mandatory medical examinations of food handlers in many European countries are not effective for detecting carriers, and that routine microbiologic examinations of stool specimens from food handlers may not identify healthy carriers of enteropathogenic organisms. However, appropriate tests do reveal some sources of staphylococcal infection (e.g., infected skin lesions) and may provide

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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	22nd WEEK ENDING		MEDIAN	CUMULATIVE, FIRST 22 WEEKS		
	June 6 1981	May 31 1980	1976-1980	June 6 1981	May 31 1980	MEDIAN 1976-1980
Aseptic meningitis	91	73	63	1,489	1,336	873
Brucellosis	4	1	2	57	74	74
Chickenpox	6,104	5,875	5,301	142,556	127,008	129,124
Diphtheria	–	–	1	3	2	35
Encephalitis: Primary (arthropod-borne & unspec.)	16	16	12	299	250	250
Post-infectious	1	2	7	39	79	83
Hepatitis, Viral: Type B	332	360	260	8,135	6,830	6,345
Type A	477	470	551	10,546	11,259	12,361
Type unspecified	218	222	150	4,722	4,618	3,763
Malaria	26	48	8	541	700	206
Measles (rubeola)	247	616	1,272	2,000	9,629	17,293
Meningococcal infections: Total	50	33	33	1,867	1,386	1,229
Civilian	50	33	33	1,861	1,376	1,216
Military	–	–	–	6	10	9
Mumps	111	165	418	2,352	5,826	10,143
Pertussis	17	17	17	417	454	454
Rubella (German measles)	94	233	371	1,336	2,466	8,780
Tetanus	–	1	1	19	24	24
Tuberculosis	576	511	508	11,139	10,930	11,781
Tularemia	5	3	3	65	49	49
Typhoid fever	6	10	10	190	150	150
Typhus fever, tick-borne (Rky. Mt. spotted)	54	24	25	256	168	145
Venereal diseases:						
Gonorrhea: Civilian	17,506	16,952	16,577	407,096	395,027	395,027
Military	670	462	465	11,959	11,413	11,413
Syphilis, primary & secondary: Civilian	430	555	358	12,494	10,959	10,120
Military	7	5	5	153	142	131
Rabies in animals	160	201	68	2,982	2,837	1,286

TABLE II. Notifiable diseases of low frequency, United States

	CUM. 1981		CUM. 1981
Anthrax	–	Poliomyelitis: Total	–
Botulism (Calif. 1)	24	Paralytic	–
Cholera	1	Psittacosis (Upstate N.Y. 2, Wis. 1, Calif. 2)	43
Congenital rubella syndrome	4	Rabies in man	–
Leprosy (Calif. 3, Oreg. 3, Hawaii 4)	98	Trichinosis (Calif. 1)	76
Leptospirosis (Hawaii 1)	17	Typhus fever, flea-borne (endemic, murine) (Tex. 1)	11
Plague	4		

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 June 6, 1981 and May 31, 1980 (22nd week)

REPORTING AREA	ASEPTIC MENINGITIS	BRUCELLOSIS	CHICKEN POX	DIPHTHERIA		ENCEPHALITIS			HEPATITIS (VIRAL), BY TYPE			MALARIA	
						Primary		Post-infectious	B	A	Unspecified		
	1981	1981	1981	1981	CUM. 1981	1981	1980	1981	1981	1981	1981	1981	CUM. 1981
UNITED STATES	91	4	6,104	-	3	16	16	1	332	477	218	26	541
NEW ENGLAND	2	-	1,039	-	-	2	-	-	13	5	10	1	26
Maine	-	-	221	-	-	-	-	-	-	-	1	-	1
N.H.	-	-	74	-	-	1	-	-	-	-	-	-	3
Vt.	-	-	58	-	-	-	-	-	-	1	-	1	3
Mass.	-	-	250	-	-	1	-	-	4	1	8	-	12
R.I.	-	-	129	-	-	-	-	-	1	2	-	-	1
Conn.	2	-	307	-	-	-	-	-	8	1	1	-	6
MID. ATLANTIC	5	-	537	-	-	1	3	1	29	28	10	6	57
Upstate N.Y.	2	-	197	-	-	-	-	-	16	17	3	1	15
N.Y. City	2	-	274	-	-	-	1	-	13	11	7	-	19
N.J.	-	-	NN	-	-	-	-	-	-	-	-	5	16
Pa.	1	-	66	-	-	1	2	1	NA	NA	NA	-	7
E.N. CENTRAL	11	-	3,020	-	-	3	4	-	54	46	23	1	21
Ohio	2	-	248	-	-	1	-	-	9	5	1	-	5
Ind.	2	-	308	-	-	-	4	-	3	-	8	-	6
Ill.	-	-	731	-	-	-	-	-	24	14	3	-	3
Mich.	7	-	1,099	-	-	2	-	-	17	27	11	1	7
Wis.	-	-	634	-	-	-	-	-	1	-	-	-	-
W.N. CENTRAL	6	1	179	-	-	-	1	-	23	27	14	3	16
Minn.	-	-	-	-	-	-	-	-	2	-	1	2	6
Iowa	-	-	26	-	-	-	1	-	2	4	1	-	2
Mo.	6	-	1	-	-	-	-	-	15	19	10	1	2
N. Dak.	-	-	31	-	-	-	-	-	-	-	-	-	1
S. Dak.	-	-	2	-	-	-	-	-	1	-	-	-	1
Nebr.	-	1	40	-	-	-	-	-	-	1	2	-	-
Kans.	-	-	79	-	-	-	-	-	3	3	-	-	4
S. ATLANTIC	18	-	531	-	1	-	2	-	94	82	18	4	62
Del.	-	-	11	-	-	-	-	-	2	2	-	-	1
Md.	2	-	126	-	-	-	-	-	21	11	3	2	10
D.C.	-	-	-	-	-	-	-	-	-	-	-	-	1
Va.	2	-	25	-	-	-	-	-	19	3	3	1	11
W. Va.	-	-	163	-	-	-	-	-	2	2	-	-	3
N.C.	-	-	NN	-	-	-	2	-	2	5	2	-	6
S.C.	-	-	-	-	-	-	-	-	7	6	1	-	1
Ga.	2	-	10	-	-	-	-	-	13	12	-	1	8
Fla.	12	-	196	-	1	-	-	-	28	41	9	-	21
E.S. CENTRAL	6	2	63	-	-	5	2	-	21	28	11	-	3
Ky.	-	-	51	-	-	-	-	-	2	12	1	-	-
Tenn.	5	2	NN	-	-	3	2	-	9	7	5	-	-
Ala.	1	-	10	-	-	-	-	-	6	1	5	-	2
Miss.	-	-	2	-	-	2	-	-	4	8	-	-	1
W.S. CENTRAL	21	1	316	-	-	-	-	-	25	101	56	2	38
Ark.	1	-	1	-	-	-	-	-	1	3	7	-	2
La.	-	-	NN	-	-	-	-	-	6	18	3	-	2
Okla.	-	1	-	-	-	-	-	-	4	4	2	1	4
Tex.	20	-	315	-	-	-	-	-	14	76	44	1	30
MOUNTAIN	9	-	128	-	1	1	2	-	8	41	25	-	16
Mont.	1	-	-	-	1	-	2	-	-	1	-	-	-
Idaho	-	-	1	-	-	-	-	-	-	6	-	-	-
Wyo.	-	-	1	-	-	-	-	-	-	-	-	-	-
Colo.	1	-	33	-	-	1	-	-	-	11	1	-	6
N. Mex.	4	-	-	-	-	-	-	-	3	4	1	-	1
Ariz.	3	-	NN	-	-	-	-	-	2	11	14	-	4
Utah	-	-	52	-	-	-	-	-	1	3	6	-	2
Nev.	-	-	41	-	-	-	-	-	2	5	3	-	3
PACIFIC	13	-	291	-	1	4	2	-	65	119	51	9	302
Wash.	-	-	212	-	-	-	-	-	4	3	1	-	17
Oreg.	1	-	3	-	-	-	1	-	7	8	5	-	8
Calif.	11	-	19	-	-	4	1	-	52	108	45	8	273
Alaska	1	-	1	-	1	-	-	-	1	-	-	-	1
Hawaii	-	-	56	-	-	-	-	-	1	-	-	1	3
Guam	NA	NA	NA	NA	-	NA	-	-	NA	NA	NA	NA	-
P.R.	-	-	12	-	-	-	-	-	3	9	3	-	4
V.I.	NA	NA	NA	NA	-	NA	-	-	NA	NA	NA	NA	2
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 June 6, 1981 and May 31, 1980 (22nd week)

REPORTING AREA	MEASLES (RUBEOLA)			MENINGOCOCCAL INFECTIONS TOTAL			MUMPS		PERTUSSIS	RUBELLA		TETANUS
	1981	CUM. 1981	CUM. 1980	1981	CUM. 1981	CUM. 1980	1981	CUM. 1981	1981	1981	CUM. 1981	CUM. 1981
UNITED STATES	247	2,000	9,629	50	1,867	1,386	111	2,352	17	94	1,336	19
NEW ENGLAND	–	72	598	2	121	83	4	112	–	2	99	1
Maine	–	5	25	–	18	3	2	22	–	1	33	–
N.H.	–	5	288	–	12	5	–	13	–	–	30	–
Vt.	–	1	223	–	5	9	–	4	–	–	–	–
Mass.	–	54	41	1	29	28	2	35	–	1	26	–
R.I.	–	–	2	–	11	6	–	17	–	–	–	–
Conn.	–	7	19	1	46	32	–	21	–	–	10	1
MID. ATLANTIC	134	599	2,955	11	242	243	31	368	2	8	151	1
Upstate N.Y.	2	188	553	1	82	83	6	66	1	4	64	–
N.Y. City	4	48	807	4	39	67	1	45	–	4	41	1
N.J.	3	49	638	1	59	50	5	78	–	–	42	–
Pa.	125	314	957	5	62	43	19	179	1	–	4	–
E.N. CENTRAL	–	70	1,457	8	213	156	35	696	5	6	284	4
Ohio	–	15	154	3	74	61	2	107	1	–	–	–
Ind.	–	7	79	1	34	30	5	84	–	–	97	–
Ill.	–	20	249	2	51	19	5	127	4	4	67	–
Mich.	–	27	192	2	50	38	12	266	–	–	31	3
Wis.	–	1	783	–	4	8	11	112	–	2	89	1
W.N. CENTRAL	–	7	1,105	2	81	57	1	170	1	–	71	2
Minn.	–	3	881	1	29	15	–	6	–	–	6	1
Iowa	–	1	20	–	16	5	1	39	–	–	3	–
Mo.	–	1	61	1	21	26	–	27	1	–	3	1
N. Dak.	–	–	–	–	1	1	–	–	–	–	–	–
S. Dak.	–	–	–	–	3	4	–	1	–	–	–	–
Nebr.	–	1	80	–	–	–	–	3	–	–	1	–
Kans.	–	1	63	–	11	6	–	94	–	–	58	–
S. ATLANTIC	18	305	1,525	13	449	326	13	301	4	8	125	2
Del.	–	–	1	–	4	2	3	8	–	1	1	–
Md.	–	1	37	1	29	31	–	59	–	–	1	–
D.C.	–	1	–	–	1	1	–	–	–	–	–	–
Va.	–	3	264	2	54	31	–	63	–	–	5	–
W. Va.	–	7	7	–	17	11	3	57	–	–	17	–
N.C.	–	4	106	1	63	65	1	11	–	–	4	–
S.C.	–	–	132	1	59	41	–	7	1	–	7	1
Ga.	5	99	669	6	79	62	3	32	–	6	42	–
Fla.	13	190	309	2	143	82	3	64	3	1	48	1
E.S. CENTRAL	–	–	261	3	143	131	1	60	–	2	24	1
Ky.	–	–	42	1	43	46	1	28	–	1	13	–
Tenn.	–	–	122	1	41	32	–	19	–	–	10	–
Ala.	–	–	17	1	44	32	–	12	–	1	1	1
Miss.	–	–	80	–	15	21	–	1	–	–	–	–
W.S. CENTRAL	68	680	842	2	323	156	11	149	–	15	112	3
Ark.	–	–	13	–	20	12	1	1	–	–	1	1
La.	–	–	11	–	80	54	–	3	–	–	9	–
Okla.	–	6	711	–	25	13	–	–	–	–	–	1
Tex.	68	674	107	2	198	77	10	145	–	15	102	1
MOUNTAIN	–	24	237	2	63	52	3	85	2	2	56	1
Mont.	–	–	1	–	5	2	–	5	1	–	3	–
Idaho	–	1	–	–	3	4	–	4	–	–	2	–
Wyo.	–	–	–	–	–	2	–	1	–	–	1	–
Colo.	–	5	14	–	29	13	1	39	–	–	26	–
N. Mex.	–	5	11	–	4	6	–	–	–	–	2	–
Ariz.	–	3	163	2	14	8	2	14	1	2	13	1
Utah	–	–	41	–	4	2	–	11	–	–	3	–
Nev.	–	10	7	–	4	15	–	11	–	–	6	–
PACIFIC	27	243	649	7	232	182	12	411	3	51	414	4
Wash.	–	1	153	–	43	31	2	119	1	–	53	–
Oreg.	–	3	–	4	35	38	–	47	–	11	30	–
Calif.	27	237	486	3	146	111	5	227	2	40	326	4
Alaska	–	–	5	–	4	2	–	4	–	–	–	–
Hawaii	–	2	5	–	4	–	5	14	–	–	5	–
Guam	NA	1	4	–	–	1	NA	1	NA	NA	–	–
P.R.	8	182	67	–	8	7	2	72	–	–	3	–
V.I.	NA	4	5	–	–	1	NA	4	NA	NA	–	–
Pac. Trust Terr.	NA	–	6	–	–	–	NA	4	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 June 6, 1981 and May 31, 1980 (22nd week)

REPORTING AREA	TUBERCULOSIS		TULAREMIA	TYPHOID FEVER		TYPHUS FEVER (Tick-borne) (RMSF)		VENEREAL DISEASES (Civilian)						RABIES (in Animals)
								GONORRHEA			SYPHILIS (Pri. & Sec.)			
	1981	CUM. 1981	CUM. 1981	1981	CUM. 1981	1981	CUM. 1981	1981	CUM. 1981	CUM. 1980	1981	CUM. 1981	CUM. 1980	CUM. 1981
UNITED STATES	576	11,139	65	6	190	54	256	17,506	407,096	395,027	430	12,494	10,959	2,982
NEW ENGLAND	18	299	–	–	10	–	3	443	9,878	10,123	13	270	234	11
Maine	–	23	–	–	1	–	–	13	496	590	–	1	4	6
N.H.	1	4	–	–	–	–	–	14	359	332	–	9	1	1
Vt.	–	9	–	–	–	–	–	13	180	246	–	13	3	–
Mass.	12	164	–	–	7	–	2	209	3,973	4,163	10	175	130	1
R.I.	1	19	–	–	–	–	–	25	501	605	–	16	13	–
Conn.	4	80	–	–	2	–	1	169	4,369	4,187	3	56	82	3
MID. ATLANTIC	76	1,848	10	5	36	4	7	1,572	47,890	42,773	49	1,898	1,579	13
Upstate N.Y.	13	311	10	–	6	1	2	571	8,017	7,757	17	175	127	12
N.Y. City	30	712	–	2	21	–	2	NA	19,354	16,937	NA	1,146	1,037	–
N.J.	4	403	–	3	5	1	1	521	9,419	7,610	15	251	206	–
Pa.	29	422	–	–	4	2	2	480	11,100	10,469	17	326	209	1
E.N. CENTRAL	58	1,473	1	–	13	–	2	1,848	61,258	61,836	28	806	1,050	286
Ohio	23	272	–	–	–	–	2	623	21,681	16,667	6	114	163	30
Ind.	–	148	–	–	–	–	–	–	5,653	6,154	–	77	88	19
Ill.	17	599	–	–	6	–	–	251	15,260	19,313	–	411	583	310
Mich.	15	383	1	–	5	–	–	625	13,178	13,672	18	159	174	2
Wis.	3	71	–	–	2	–	–	349	5,486	6,030	4	45	42	25
W.N. CENTRAL	30	398	5	1	7	1	6	1,084	19,416	17,218	15	236	130	1,282
Minn.	2	58	–	–	2	–	–	234	3,137	2,971	7	90	44	230
Iowa	4	48	–	–	2	–	–	109	1,958	1,930	1	13	8	425
Mo.	15	175	4	–	1	–	2	526	8,928	7,127	6	110	67	107
N. Dak.	2	19	–	–	–	–	–	16	265	258	1	4	1	196
S. Dak.	–	30	–	–	1	–	–	25	550	538	–	2	1	136
Nebr.	6	15	1	1	1	–	–	76	1,521	1,490	–	3	3	97
Kans.	1	53	–	–	–	1	4	98	3,057	2,904	–	14	6	91
S. ATLANTIC	136	2,494	6	–	24	30	137	4,584	100,784	97,029	161	3,302	2,600	170
Del.	3	35	1	–	–	–	–	73	1,480	1,325	–	7	6	–
Md.	13	258	–	–	7	2	16	486	11,164	10,111	8	258	178	1
D.C.	4	152	–	–	1	–	–	377	6,428	6,890	9	276	181	–
Va.	14	244	–	–	1	6	20	465	9,105	8,337	16	307	234	28
W. Va.	7	82	–	–	3	–	2	61	1,516	1,244	–	9	10	9
N.C.	12	424	1	–	1	11	42	754	15,703	14,402	8	249	189	1
S.C.	17	237	2	–	–	8	40	334	9,501	9,337	9	227	136	13
Ga.	29	399	2	–	2	–	13	963	20,202	18,213	51	848	782	83
Fla.	37	663	–	–	9	3	4	1,071	25,685	27,170	60	1,121	884	35
E.S. CENTRAL	34	953	2	–	5	7	30	2,381	34,051	32,385	55	834	869	195
Ky.	9	250	2	–	–	–	2	222	4,317	4,697	–	39	68	57
Tenn.	10	316	–	–	1	6	20	593	12,652	11,321	28	336	347	110
Ala.	9	257	–	–	2	1	2	1,160	10,749	9,693	21	219	173	28
Miss.	6	130	–	–	2	–	6	406	6,333	6,674	6	240	281	–
W.S. CENTRAL	121	1,200	29	–	15	11	66	1,996	53,889	51,045	67	3,018	2,146	567
Ark.	12	120	15	–	–	3	15	96	3,738	3,817	5	60	72	80
La.	28	244	2	–	–	–	–	328	8,717	9,030	–	671	508	16
Okla.	11	136	8	–	3	8	44	239	5,663	5,057	4	78	39	103
Tex.	70	700	4	–	12	–	7	1,333	35,771	33,141	58	2,209	1,527	368
MOUNTAIN	15	321	10	–	15	–	4	574	16,046	15,225	6	320	262	71
Mont.	–	22	4	–	4	–	–	13	551	573	–	8	1	49
Idaho	–	5	2	–	–	–	1	17	690	711	3	7	8	–
Wyo.	1	5	1	–	–	–	2	26	370	435	–	4	7	4
Colo.	–	41	2	–	3	–	–	227	4,361	4,058	3	99	65	1
N. Mex.	3	63	–	–	–	–	–	73	1,757	1,884	–	67	48	12
Ariz.	4	131	–	–	8	–	–	186	4,996	4,219	–	69	93	3
Utah	–	16	1	–	–	–	–	32	753	711	–	8	5	–
Nev.	7	38	–	–	–	–	1	NA	2,568	2,634	NA	58	36	2
PACIFIC	88	2,153	2	–	65	1	1	3,024	63,884	67,393	36	1,810	2,088	287
Wash.	–	179	1	–	3	–	–	177	5,168	5,602	–	55	106	–
Oreg.	1	74	–	–	3	–	–	240	4,192	4,715	2	42	45	2
Calif.	87	1,816	1	–	59	1	1	2,455	51,662	54,012	30	1,673	1,860	272
Alaska	–	24	–	–	–	–	–	73	1,618	1,612	–	5	3	13
Hawaii	–	60	–	–	–	–	–	79	1,244	1,452	4	35	74	–
Guam	NA	–	–	NA	–	NA	–	NA	14	57	NA	–	2	–
P.R.	6	147	–	–	3	–	–	62	1,399	1,083	12	300	228	29
V.I.	NA	1	–	NA	1	NA	–	NA	57	89	NA	3	10	–
Pac. Trust Terr.	NA	24	–	NA	–	NA	–	NA	144	176	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 June 6, 1981 (22nd week)

REPORTING AREA	ALL CAUSES, BY AGE (YEARS)						P&I** TOTAL
	ALL AGES	>65	45-64	25-44	1-24	<1	
NEW ENGLAND	698	448	179	26	18	27	69
Boston, Mass.	197	124	55	8	3	7	31
Bridgeport, Conn.	43	28	14	1	–	–	2
Cambridge, Mass.	23	20	2	1	–	–	4
Fall River, Mass.	19	14	4	–	1	–	2
Hartford, Conn.	63	38	18	3	3	1	2
Lowell, Mass.	26	15	8	1	2	–	1
Lynn, Mass.	18	12	5	–	–	1	–
New Bedford, Mass.	27	23	4	–	–	–	–
New Haven, Conn.	80	42	16	4	6	12	7
Providence, R.I.	66	41	18	3	1	3	10
Somerville, Mass.	6	6	–	–	–	–	–
Springfield, Mass.	38	24	11	–	1	2	–
Waterbury, Conn.	38	22	14	1	–	1	4
Worcester, Mass.	54	39	10	4	1	–	6
MID. ATLANTIC	2,757	1,805	615	161	85	91	95
Albany, N.Y.	32	19	6	2	1	4	–
Allentown, Pa.	24	16	6	2	–	–	–
Buffalo, N.Y.	150	102	32	8	5	3	14
Camden, N.J.	52	34	13	–	3	2	2
Elizabeth, N.J.	26	18	4	2	1	1	1
Erie, Pa.†	41	32	8	1	–	–	–
Jersey City, N.J.	52	32	10	4	5	1	1
N.Y. City, N.Y.	1,372	894	304	96	42	36	35
Newark, N.J.	50	20	20	5	1	4	1
Paterson, N.J.	36	25	8	–	–	3	3
Philadelphia, Pa.	508	319	118	27	19	25	23
Pittsburgh, Pa.†	70	43	18	6	2	1	2
Reading, Pa.	36	24	7	1	2	2	–
Rochester, N.Y.	103	77	20	4	–	2	6
Schenectady, N.Y.	30	25	4	–	1	–	2
Scranton, Pa.†	33	22	9	1	–	1	1
Syracuse, N.Y.	61	43	10	2	1	5	2
Trenton, N.J.	36	25	9	–	2	–	1
Utica, N.Y.	17	14	2	–	–	1	1
Yonkers, N.Y.	28	21	7	–	–	–	–
E.N. CENTRAL	2,377	1,438	613	149	77	100	57
Akron, Ohio	65	48	12	2	2	1	–
Canton, Ohio	43	28	12	2	1	–	2
Chicago, Ill.	545	309	147	43	20	26	10
Cincinnati, Ohio	167	107	43	5	4	8	11
Cleveland, Ohio	185	110	47	10	7	11	1
Columbus, Ohio	181	100	59	10	7	5	5
Dayton, Ohio	116	71	28	8	5	4	3
Detroit, Mich.	285	169	68	26	11	11	4
Evansville, Ind.	45	35	8	1	1	–	2
Fort Wayne, Ind.	61	40	17	2	1	1	4
Gary, Ind.	19	6	7	2	3	1	–
Grand Rapids, Mich.	44	28	12	1	–	3	2
Indianapolis, Ind.	170	96	47	12	5	10	2
Madison, Wis.	34	23	9	–	1	1	1
Milwaukee, Wis.	120	75	30	6	3	6	–
Peoria, Ill.	41	23	13	2	–	3	3
Rockford, Ill.	41	25	11	1	1	3	1
South Bend, Ind.	47	33	9	4	–	1	3
Toledo, Ohio	111	74	21	8	5	3	2
Youngstown, Ohio	57	38	13	4	–	2	1
W.N. CENTRAL	799	510	184	40	33	32	42
Des Moines, Iowa	47	36	9	1	–	1	2
Duluth, Minn.	32	20	8	1	3	–	2
Kansas City, Kans.	37	32	4	1	–	–	–
Kansas City, Mo.	125	76	26	10	5	8	6
Lincoln, Nebr.	33	27	4	2	–	–	1
Minneapolis, Minn.	108	69	25	4	5	5	2
Omaha, Nebr.	86	52	23	3	2	6	5
St. Louis, Mo.	194	104	54	10	16	10	12
St. Paul, Minn.	71	53	15	1	1	1	2
Wichita, Kans.	66	41	16	7	1	1	10

REPORTING AREA	ALL CAUSES, BY AGE (YEARS)						P&I** TOTAL
	ALL AGES	>65	45-64	25-44	1-24	<1	
S. ATLANTIC	1,207	666	364	94	40	43	31
Atlanta, Ga.	145	71	40	14	11	9	2
Baltimore, Md.	231	128	87	10	2	4	4
Charlotte, N.C.	61	32	21	1	2	5	2
Jacksonville, Fla.	106	56	32	9	5	4	8
Miami, Fla.	103	56	34	9	3	1	1
Norfolk, Va.	54	30	13	2	4	5	2
Richmond, Va.	61	39	15	4	2	1	1
Savannah, Ga.	37	17	14	3	1	2	3
St. Petersburg, Fla.	86	68	11	2	2	3	3
Tampa, Fla.	69	42	17	5	2	3	3
Washington, D.C.	202	97	64	30	6	5	2
Wilmington, Del.	52	30	16	5	–	1	–
E.S. CENTRAL	732	431	209	50	22	20	27
Birmingham, Ala.	143	82	41	10	7	3	1
Chattanooga, Tenn.	40	28	8	3	1	–	–
Knoxville, Tenn.	34	25	8	–	1	–	1
Louisville, Ky.	122	69	39	5	5	4	12
Memphis, Tenn.	172	88	59	13	3	9	7
Mobile, Ala.	67	48	12	4	3	–	2
Montgomery, Ala.	46	29	11	3	–	3	–
Nashville, Tenn.	108	62	31	12	2	1	4
W.S. CENTRAL	1,302	727	335	108	67	65	36
Austin, Tex.	52	25	14	8	5	–	3
Baton Rouge, La.	41	21	16	1	3	–	3
Corpus Christi, Tex.	46	31	6	3	2	4	–
Dallas, Tex.	201	125	40	15	10	11	4
El Paso, Tex.	40	22	9	5	3	1	2
Fort Worth, Tex.	95	49	23	12	3	8	3
Houston, Tex.	345	164	100	31	24	26	3
Little Rock, Ark.	74	46	20	3	1	4	5
New Orleans, La.	117	66	36	7	7	1	1
San Antonio, Tex.	168	91	51	14	6	6	6
Shreveport, La.	41	33	7	1	–	–	–
Tulsa, Okla.	82	54	13	8	3	4	6
MOUNTAIN	617	342	140	57	46	32	23
Albuquerque, N.Mex.	81	25	20	16	20	–	2
Colo. Springs, Colo.	25	16	9	–	–	–	2
Denver, Colo.	131	81	24	11	2	13	3
Las Vegas, Nev.	76	39	20	8	7	2	6
Ogden, Utah	21	11	4	4	1	1	1
Phoenix, Ariz.	145	90	27	10	7	11	1
Pueblo, Colo.	21	15	4	–	1	1	3
Salt Lake City, Utah	37	15	10	3	5	4	1
Tucson, Ariz.	80	50	22	5	3	–	4
PACIFIC	1,710	1,100	376	119	57	56	67
Berkeley, Calif.	17	9	3	2	2	–	–
Fresno, Calif.	60	37	14	3	3	3	2
Glendale, Calif.	18	15	1	1	–	1	1
Honolulu, Hawaii	47	24	18	3	2	–	3
Long Beach, Calif.	93	58	25	5	2	3	2
Los Angeles, Calif.	412	280	75	33	16	7	16
Oakland, Calif.§	84	51	18	7	4	4	4
Pasadena, Calif.	24	15	6	1	–	2	1
Portland, Oreg.	126	84	28	7	2	5	3
Sacramento, Calif.	83	42	21	10	5	5	5
San Diego, Calif.	138	86	33	9	5	5	2
San Francisco, Calif.	161	111	34	10	2	4	3
San Jose, Calif.	179	117	38	12	6	6	15
Seattle, Wash.	166	101	39	14	5	7	5
Spokane, Wash.	58	41	11	1	3	2	3
Tacoma, Wash.	44	29	12	1	–	2	2
TOTAL	12,199††	7,467	3,015	804	445	466	447

*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 3 Pennsylvania cities, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

††Total includes unknown ages.

§Data not available this week. Figures are estimates based on average percent of regional totals.

Food Handlers – Continued

guidance for more in-depth investigations. Most members of the group agreed that, although human carriers may be a source of intestinal pathogens that cause contamination of food, other sources such as raw foods or food items that are improperly cooked or stored are much more important. Past experience also indicates that routine examination of all food handlers may not be an effective prevention strategy, that medical examinations should be aimed at specific problems, and that governments should consider appropriate education of workers and strict supervision and control of food hygiene as much more effective alternatives.

Among the recommendations of the working group were the following:

1. Since no medical examination (even if it includes detailed microbiologic tests) can ever reliably exclude all carriers of enteropathogens, all food handlers must appreciate their responsibility and always practice the highest levels of hygiene. To that end, they must be instructed in hygienic practices. This instruction should be the responsibility not only of health authorities but also of employers in the food-handling industry.
2. Occupational health nurses and other appropriately trained health personnel have an important role in the food industry, since they can assist in investigating certain conditions such as staphylococcal skin infections, encourage workers to report episodes of illness, and assist in controlling the health and hygiene of food handlers.
3. Examinations of food handlers, including microbiologic tests, should be performed promptly and thoroughly when epidemiologic or clinical evidence indicates a need, e.g., when food handlers have been ill or when an outbreak of foodborne disease has occurred in the community.
4. No persons should be allowed to work in situations in which they could contaminate food if they have symptoms of gastrointestinal infection or obvious infection of the skin or upper respiratory tract. This is essential even in the absence of positive microbiology test findings.
5. Since thorough washing of the hands is very effective in removing enteropathogens, all persons engaged in preparing food commercially or in the home should wash hands thoroughly and frequently.
6. Research should be conducted to determine the efficiency and effectiveness of medical examinations of food handlers in the prevention of foodborne diseases.

Reported by Pan American Health Organization, in the Epidemiological Bulletin (1).

Reference

1. Pan American Health Organization. Health examination of food handlers. Epidemiological Bulletin 1980,1:9-10.

Epidemiologic Notes and Reports

Drug Resistance Among Indochinese Refugees with Tuberculosis

The results of 4 independent surveys indicate that a substantial proportion of Indochinese refugees with pulmonary tuberculosis are infected with organisms resistant to isoniazid (INH) and/or streptomycin (SM). Some of these patients were diagnosed as having tuberculosis in Southeast Asia on the basis of positive smear tests, and were started on therapy before coming to the United States. Tuberculosis was not diagnosed for others until they had been in the United States for periods ranging from weeks to several years.

Tuberculosis — Continued

The surveys were undertaken in Santa Clara County and San Francisco, California; in Washington state; and at CDC (Table 2). The data from Santa Clara County, San Francisco, and Washington state are based on drug-susceptibility tests done by local laboratories. The fourth survey was based on data from CDC on Indochinese refugees who have tuberculosis and are located in several other areas of the United States. Culture specimens from these persons were sent to CDC for drug-susceptibility testing.

In none of these surveys was it possible to differentiate primary and acquired drug resistance. Although results of the 4 surveys are not strictly comparable, in general they indicate that about one-third (33%; range 23% to 44%) of all Indochinese patients whose cultures for tuberculosis were positive when tested in the United States had organisms resistant to at least 1 drug. Resistance to INH and SM was seen most frequently (25% and 22% of specimens tested, respectively). Resistance to ethambutol (EMB) and rifampin (RIF) was much less common (3% each), and resistance to RIF was always associated with resistance to INH.

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Editorial Note: Previous reports have suggested that resistance to antituberculosis drugs, particularly INH and SM, is much more common in Asia than in North America (*1*). The fact that a large proportion of isolates were drug resistant in these 4 surveys emphasizes the importance of earlier recommendations, namely, that specimens should be obtained for culture and drug-susceptibility tests from all Indochinese patients with tuberculosis in the United States, and that initial treatment should consist of INH, RIF, and EMB until results of the drug-susceptibility tests are known (*2*). Although some refugees may have organisms resistant to 2 (or even all 3) of these drugs, adding other antituberculosis drugs to the initial treatment regimen for all such patients is not recommended because of the increased possibility of toxic reactions.

TABLE 2. Patterns of drug-resistant tuberculosis among Indochinese refugees in 4 surveys

Survey (years)	Number examined	Number (percentage) resistant to							
		≥1 drug	SM	INH	RIF	PAS	EMB	Other drugs	INH plus RIF and/or EMB
Santa Clara County (Calif.) (1975-1979)	37	11 (30)	6 (16)	6 (16)	0	1 (3)	5 (14)	2 (5)	1 (3)
San Francisco (1978-1980)	74	17 (23)	14 (19)	13 (18)	1 (1)	1 (1)	0	1 (1)	1 (1)
Washington state (1980)	30	12 (40)	10 (33)	8 (27)	2 (7)	1 (3)	1 (3)	1 (3)	2 (7)
CDC (1980)	54	24 (44)	13 (24)	22 (41)	2 (4)	4 (7)	0	*	2 (4)
Total	195	64 (33)	43 (22)	49 (25)	5 (3)	7 (4)	6 (3)	—	6 (3)

*Other drugs not tested.

Abbreviations: SM=streptomycin, INH=isoniazid, RIF=rifampin, PAS=p-aminosalicyclic acid, EMB=ethambutol.

Tuberculosis – Continued

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1. Byrd RB, Fisk DE, Roethe RA, Glover JN, Wooster LD, Wilder NJ. Tuberculosis in Oriental immigrants: a study in military dependents. Chest 1979;76:136-9.
2. CDC. Health status of Indochinese refugees. MMWR 1979;28:385-90, 395-8.

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