CENTERS FOR DISEASE CONTROL

July 24, 1981 / Vol. 30 / No. 28

MMWR

MORBIDITY AND MORTALITY WEEKLY REPORT

Epidemiologic Notes and Reports

Gonococcal Eye Infections in Adults — California, Texas, Germany

Gonococcal eye infections have recently been reported in personnel at U.S. military bases in California, Texas, and Germany. The infections described in 2 of the reports were caused by either penicillin-resistant or penicillinase-producing *Neisseria gonorrhoeae*.

California: In June 1979, a 22-year-old man presented to the Ophthalmology Service, Naval Regional Medical Center (NRMC), San Diego, California, with a 2-day history of painless, purulent, conjunctival discharge from the left eye. One week earlier he had been treated with aqueous procaine penicillin G and probenecid for gonococcal urethritis, which he had acquired in the Far East. His urethral symptoms had subsided, and he had not returned for a post-treatment culture.

Gram staining of the conjunctival discharge revealed many gram-negative diplococci, and culture specimens from both the conjunctival discharge and the urethra subsequently grew penicillinase-producing *N. gonorrhoeae* (PPNG). The man was hospitalized for treatment with cefoxitin, 1.0 g intravenously (IV) every 6 hours for 7 days. His conjunctival discharge cleared, and post-treatment cultures were negative.

Three other men with conjunctivitis caused by PPNG were seen at the NRMC in the 2-year period 1979-1980. None had evidence of gonorrhea at any other anatomic site. Two of these patients received IV cefoxitin for 7 days. The third received IV cefoxitin for 2 days and was then given cefaclor, 500 mg orally 4 times a day for 5 days. All patients were cured.

Texas: On November 18, 1980, a 21-year-old male soldier presented to the Ophthalmology Clinic, Fort Hood, Texas, with conjunctival discharge. His symptoms had begun on November 9. Gram-stain examination of the discharge showed gram-negative diplococci, and cultures of the discharge subsequently grew *N. gonorrhoeae*, which was not tested for β-lactamase production. Because he was allergic to penicillin, the patient received spectinomycin, 2.0 g intramuscularly (IM) each day for 3 days.

The source of this patient's infection could not be established. Cultures of specimens taken from his urethra and pharynx were negative for *N. gonorrhoeae*. The patient's wife, his only known sexual contact, was not tested. Five days before the onset of symptoms and 2 weeks before he presented, the patient had been on a field training exercise with another male soldier, who was subsequently treated for symptomatic gonococcal urethritis. Although the possibility of disease transmission between these 2 men by means of a contaminated fomite was considered, it could not be proved.

Germany: A 25-year-old male American soldier who worked as a laboratory technician in the Frankfurt area experienced irritation in his right eye on November 27, 1980. Two days later, while in England, he was treated for conjunctivitis with antibiotic eye drops. The

Gonococcal Eye Infection – Continued

next day his eye felt worse, and oral ampicillin, 250 mg 4 times a day, was begun. On December 2 and December 5, he reported to a U.S. Army clinic in Germany, and at each visit received oral ampicillin, 3.5 g, and probenecid, 1.0 g, for suspected gonococcal infection. A culture specimen of the conjunctival discharge subsequently grew *N. gonorrhoeae*, but testing for penicillin resistance was not done.

The patient was hospitalized on December 6. On examination he had a large corneal ulcer and pus in the anterior chamber of his right eye. Vision was limited to light perception. Treatment was begun with IV penicillin and chloramphenicol. Additionally, penicillin, methylprednisolone, and epinephrine were injected beneath Tenon's capsule. A second culture specimen of the conjunctival discharge yielded *N. gonorrhoeae*, which had a zone of growth inhibition of <22 mm in diameter when tested with a 10-unit penicillin disc. Although no specific test for β-lactamase production was done, a zone diameter of <22 mm correlates with the presence of PPNG (*1*).

When laboratory results were known, therapy was changed to doxycycline, 100 mg IV every 12 hours, and spectinomycin, 4.0 g IM as an initial dose and then 2.0 g IM every 12 hours. Topical chloramphenicol, sodium sulfacetamide, and atropine were also given. Over the next 2 weeks, the corneal ulcer gradually healed, but the patient's vision failed to improve. In January 1981, he returned to the United States for further care.

The source of this patient's infection was not definitely established. In his work as a laboratory technician, he handled both clinical specimens and culture plates containing *N. gonorrhoeae*, but none of the gonococcal isolates was known to be penicillin resistant. Also, he was not aware of having contaminated himself. He had no other signs or symptoms of gonorrhea, but sites other than the eye were not cultured. He had had no sexual contact with any person known to have gonorrhea.

In addition to this case, 6 cases of nonocular infection caused by penicillin-resistant *N. gonorrhoeae* were reported from West Germany to the U.S. Army Medical Command Headquarters in Europe in the period August 1, 1980, through April 30, 1981. No cases had been reported during the previous 3 years. Of the 6 infected persons, 5 were soldiers and 1 was a U.S. civilian.

Reported by SW Berg, Cdr, WO Harrison, MD, Capt, Naval Regional Medical Center, San Diego; CR Baeza, MD, LtC, Fort Hood, Texas; TH Auer, MD, JW Cutting, MD, CD Daily, MD, JC Gaydos, MD, R Grimwood, MD, BA Hill, RN, MPH, RJ Jocz, MS, M Kaneshiro, SM (ASCP), CJ Rakiewicz, RN, MPH, WW Safranek, MS, LA Seigel, MD, JC Shilhab, MS, KR Stewart, RN, MSN, SJ Vaeth, MD, CJ Wikelius, RN, US Army 7th Medical Command, Europe; VD Control Div, Center for Prevention Services, CDC.

Editorial Note: Gonococcal conjunctivitis is a rare infection in adults. In most cases, conjunctivitis probably results from contamination of a patient's eye with infected genital secretions from either the patient or a sexual partner. Since gonococci may survive outside the body for short periods (*2*), fomites could theoretically play a role in the spread of gonorrhea from the genitalia to the eye. Eye infections in laboratory technicians who have been accidentally contaminated with *N. gonorrhoeae* have also been reported (*3,4*).

In any case of gonococcal conjunctivitis, an effort should be made to identify the source of infection. This effort should include obtaining anogenital and pharyngeal culture specimens from the patient and from his or her recent sexual partners.

Therapy for gonococcal conjunctivitis should be started immediately on the basis of Gram-stain examination. Culture specimens should also be taken to confirm the diagnosis. Although optimal treatment schedules for adults with gonococcal conjunctivitis have

Gonococcal Eye Infection – Continued

not been established, most regimens employ high doses of parenterally administered penicillin G. Many ophthalmologists feel that topical antibiotics are a useful adjunct to parenteral therapy for gonococcal conjunctivitis (*5*).

If PPNG as a cause of gonococcal conjunctivitis is either suspected on epidemiologic grounds or proven by laboratory testing, parenteral antibiotics known to be active against PPNG *in vitro* should be given. These include spectinomycin, cefoxitin, sulfamethoxazole/trimethoprim, and aminoglycosides, such as kanamycin and gentamicin (*6*).

References

1. Biddle JW, Swenson JM, Thornsberry C. Disc agar diffusion antimicrobial susceptibility tests with beta-lactamase producing *Neisseria gonorrhoeae*. J Antibiot (Tokyo) 1978;31:352-8.
2. Elmros T, Larsson PA. Survival of gonococci outside of the body. Br Med J 1972; 2:403-4.
3. Diena BB, Wallace R, Ashton FE, Johnson W, Patenaude B. Gonococcal conjunctivitis: accidental infection. Can Med Assoc J 1976; 115:609,12.
4. Bruins SC, Tight RR. Laboratory-acquired gonococcal conjunctivitis. JAMA 1979;241:274.
5. National Society to Prevent Blindness, Committee on Ophthalmia Neonatorum. Statement on prevention and treatment of ophthalmia neonatorum. Publication No. 700, New York: NSPB, 1981.
6. Thornsberry C, Biddle JW, Perine PL, Siegel MS. Susceptibility of *Neisseria gonorrhoeae* from the United States and the Far East (β-lactamase negative and positive) to antimicrobial agents. In: Brooks GF, Gotschlich EC, Holmes KK, Sawyer WD, Young FE, eds. Immunobiology of *Neisseria gonorrhoeae*. Washington, DC: American Society for Microbiology 1978:62-7.

Human Rabies – Oklahoma

The first case of human rabies in the United States since November 1979 was diagnosed on July 7, 1981, in an Oklahoma City man who had died on July 4. The diagnosis was made by fluorescent-antibody (FA) staining of a brain-tissue specimen.

The patient, a 27-year-old day laborer, had been in relatively good health until June 21, when he visited an emergency room in Oklahoma City complaining of sore throat and right-ear pain. He was given penicillin V tablets and pain medication for acute pharyngitis. During the period June 22-24, he was seen on 4 separate occasions by different physicians for increasing throat pain, difficulty in swallowing, and on 1 occasion, left-arm numbness. He was treated with penicillin, antihistamines, and parenteral steroids. Increasing dysphagia led to his hospitalization on June 25. At that time he was diagnosed as having possible aspiration pnuemonia and was noted to be agitated and confused. Soon after admission he had a respiratory arrest and was intubated. Neurologic examination revealed the patient to be comatose with depressed extraocular movements, left pupillary diameter larger than the right, diffuse left-sided spasticity, decreased corneal reflexes, poor caloric responses, and poor doll's-eye reflex. Initial neurologic diagnosis was a possible brain abscess or subdural empyema. A computerized tomography scan showed no mass lesions; lumbar puncture revealed a protein level of 85 mg/dL, a glucose level of 158 mg/dL, 6 lymphocytes/mm^3, and 16 red blood cells/mm^3. The patient was treated with multiple antibiotics and required respiratory support. By June 30 he was in deep coma with no brain-stem reflexes. He died 4 days later.

Family and friends were unable to recall any specific exposure the patient might have had to rabid animals or animal bites. Review of emergency-room logs in the Oklahoma

Human Rabies -- Continued

City area did not show that the patient had recently sought medical attention for an animal bite. The patient lived with his father, a friend, and a pet dog in Oklahoma City. Rabies vaccination history for the dog is questionable, but the animal remains healthy. The patient had spent March, April, and May camping near Corsicana, Texas. On returning to Oklahoma City on June 1, he did not mention having been bitten by an animal while in Texas. Navarro County (Corsicana) reported 4 cases of animal rabies (3 skunks, 1 cat) in 1980 and has reported 1 case of animal rabies (1 skunk) through May of 1981.

As of July 20, 4 family/friend contacts, 95 hospital employees, and 3 other medical personnel had been identified as having had possibly significant exposure to the patient. These persons are currently receiving postexposure prophylaxis.

Reported by N Knutson, MD, Oklahoma City, J Ward, MD, Oklahoma City/County Health Dept; MA Roberts, MPH, PhD, State Epidemiologist, Oklahoma State Dept of Health; Viral Diseases Div, Center for Infectious Diseases, CDC.

Editorial Note: Of 19 human rabies cases acquired in the United States since 1966, the case reported here is the ninth in which no bite exposure could be identified, despite intensive questioning of family and friends. Because the patient had been camping for 3 months before onset of clinical illness, it is possible that he was exposed during that time, either by a bite or nonbite exposure.

(Continued on page 349)

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

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

DISEASE	28th WEEK ENDING		MEDIAN	CUMULATIVE, FIRST 28 WEEKS		
	July 18 1981	July 12 1980	1976-1980	July 18 1981	July 12 1980	MEDIAN 1976-1980
Aseptic meningitis	199	149	131	2,397	2,084	1,493
Brucellosis	-	8	7	81	101	101
Chickenpox	1,081	1,568	1,326	162,737	152,313	152,313
Diphtheria	-	-	1	3	2	54
Encephalitis: Primary (arthropod-borne & unspec.)	36	25	24	434	361	361
Post-infectious	-	10	9	48	115	122
Hepatitis, Viral: Type B	439	311	308	10,737	9,062	8,127
Type A	485	514	569	13,482	14,521	15,635
Type unspecified	250	163	176	6,047	5,940	4,767
Malaria	35	38	18	731	1,020	322
Measles (rubeola)	36	198	477	2,427	12,132	22,076
Meningococcal infections: Total	52	45	40	2,170	1,685	1,508
Civilian	52	44	39	2,158	1,673	1,487
Military	-	1	1	12	12	14
Mumps	45	75	160	2,812	6,635	12,412
Pertussis	28	26	24	544	628	628
Rubella (German measles)	25	31	142	1,524	2,960	10,171
Tetanus	1	4	3	31	39	33
Tuberculosis	573	499	519	14,343	14,296	15,371
Tularemia	6	4	4	104	86	74
Typhoid fever	9	17	11	257	219	219
Typhus fever, tick-borne (Rky. Mt. spotted)	59	54	50	618	497	464
Venereal diseases:						
Gonorrhea: Civilian	20,172	19,276	20,554	522,469	509,293	509,293
Military	641	364	375	15,308	14,342	14,562
Syphilis, primary & secondary: Civilian	533	397	397	15,826	13,684	12,761
Military	3	2	6	194	167	166
Rabies in animals	95	144	70	3,868	3,649	1,676

TABLE II. Notifiable diseases of low frequency, United States

	CUM. 1981		CUM. 1981
Anthrax	-	Poliomyelitis: Total	1
Botulism (Calif. 3)	34	Paralytic	1
Cholera (Hawaii 1*)	2	Psittacosis (Mich. 1, Wis. 1, Calif. 1)	62
Congenital rubella syndrome	5	Rabies in man	1
Leprosy (Conn. 1, Ill. 12, Calif. 1, Hawaii 2)	138	Trichinosis	91
Leptospirosis (Md. 1)	22	Typhus fever, flea-borne (endemic, murine)	26
Plague	5		

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

*Imported case.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending July 18, 1981 and July12, 1980 (28th 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	199	–	1,081	–	3	36	25	–	439	485	250	35	731
NEW ENGLAND	5	–	229	–	–	–	1	–	15	5	10	1	37
Maine	–	–	22	–	–	–	–	–	–	–	1	–	1
N.H.	–	–	4	–	–	–	–	–	–	–	–	–	3
Vt.	–	–	–	–	–	–	–	–	2	1	–	–	2
Mass.	2	–	98	–	–	–	–	–	1	–	7	–	19
R.I.	2	–	42	–	–	–	–	–	1	1	–	–	2
Conn.	1	–	63	–	–	–	1	–	11	3	2	1	10
MID. ATLANTIC	18	–	134	–	–	9	1	–	91	70	36	11	90
Upstate N.Y.	1	–	84	–	–	–	–	–	7	6	2	2	24
N.Y. City	4	–	48	–	–	5	–	–	10	19	12	4	32
N.J.	7	–	NN	–	–	3	–	–	52	28	19	4	25
Pa.	6	–	2	–	–	1	1	–	22	17	3	1	9
E.N. CENTRAL	36	–	415	–	–	9	15	–	30	34	25	–	32
Ohio	9	–	42	–	–	2	7	–	12	6	13	–	6
Ind.	19	–	–	–	–	5	2	–	–	4	7	–	6
Ill.	–	–	149	–	–	–	5	–	5	6	2	–	9
Mich.	7	–	46	–	–	2	–	–	12	13	3	–	11
Wis.	1	–	178	–	–	–	1	–	1	5	–	–	–
W.N. CENTRAL	2	–	20	–	–	3	–	–	16	16	11	–	20
Minn.	–	–	–	–	–	1	–	–	1	1	1	–	9
Iowa	1	–	3	–	–	1	–	–	3	6	1	–	2
Mo.	1	–	5	–	–	–	–	–	11	6	8	–	2
N. Dak.	–	–	6	–	–	–	–	–	–	–	–	–	1
S. Dak.	–	–	5	–	–	–	–	–	–	1	–	–	1
Nebr.	–	–	1	–	–	–	–	–	1	1	–	–	–
Kans.	–	–	–	–	–	1	–	–	–	1	1	–	5
S. ATLANTIC	35	–	131	–	1	2	6	–	87	42	29	1	77
Del.	–	–	5	–	–	–	–	–	8	1	2	–	1
Md.	3	–	16	–	–	–	–	–	22	4	7	–	17
D.C.	–	–	–	–	–	–	–	–	–	–	–	–	1
Va.	6	–	8	–	–	–	2	–	2	1	2	–	11
W. Va.	1	–	53	–	–	–	–	–	1	2	1	–	3
N.C.	3	–	NN	–	–	1	2	–	9	6	7	–	7
S.C.	–	–	15	–	–	1	–	–	8	–	1	–	1
Ga.	3	–	2	–	–	–	–	–	11	15	–	–	8
Fla.	19	–	32	–	1	–	2	–	26	13	9	1	28
E.S. CENTRAL	22	–	14	–	–	2	–	–	21	27	1	–	7
Ky.	2	–	7	–	–	–	–	–	4	19	–	–	–
Tenn.	16	–	NN	–	–	2	–	–	11	2	1	–	–
Ala.	4	–	7	–	–	–	–	–	6	1	–	–	6
Miss.	–	–	–	–	–	–	–	–	–	5	–	–	1
W.S. CENTRAL	23	–	82	–	–	4	1	–	29	71	54	2	51
Ark.	–	–	–	–	–	–	–	–	–	5	5	–	3
La.	–	–	NN	–	–	–	–	–	10	5	12	1	3
Okla.	–	–	–	–	–	–	1	–	–	7	1	–	4
Tex.	23	–	82	–	–	4	–	–	19	54	36	1	41
MOUNTAIN	8	–	26	–	1	1	–	–	20	41	29	–	23
Mont.	–	–	–	–	1	–	–	–	–	–	–	–	–
Idaho	–	–	–	–	–	–	–	–	–	5	–	–	1
Wyo.	1	–	1	–	–	–	–	–	1	4	–	–	–
Colo.	1	–	12	–	–	–	–	–	8	12	3	–	11
N. Mex.	3	–	–	–	–	–	–	–	–	5	–	–	1
Ariz.	1	–	NN	–	–	1	–	–	7	10	17	–	4
Utah	–	–	3	–	–	–	–	–	1	–	3	–	3
Nev.	2	–	10	–	–	–	–	–	3	5	6	–	3
PACIFIC	50	–	30	–	1	6	1	–	130	179	55	20	394
Wash.	3	–	11	–	–	1	1	–	2	2	1	–	19
Oreg.	3	–	5	–	–	1	–	–	5	2	1	2	11
Calif.	44	–	6	–	–	4	–	–	123	173	53	18	360
Alaska	–	–	1	–	1	–	–	–	–	–	–	–	1
Hawaii	–	–	7	–	–	–	–	–	–	2	–	–	3
Guam	NA	NA	NA	NA	–	NA	–	–	NA	NA	NA	NA	1
P.R.	–	–	11	–	–	–	–	–	3	22	1	–	9
V.I.	–	–	–	–	–	–	–	–	–	–	–	–	3
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 July 18, 1981 and July 12, 1980 (28th 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	36	2,427	12,132	52	2,170	1,685	45	2,812	28	25	1,524	31
NEW ENGLAND	–	72	661	–	137	103	7	139	3	3	103	1
Maine	–	5	33	–	21	4	–	27	1	–	33	–
N.H.	–	4	328	–	13	5	1	16	–	–	35	–
Vt.	–	1	226	–	6	13	1	6	–	–	–	–
Mass.	–	54	50	–	33	35	1	40	2	3	23	–
R.I.	–	–	2	–	12	7	2	19	–	–	–	–
Conn.	–	8	22	–	52	39	2	31	–	–	12	1
MID. ATLANTIC	6	745	3,583	13	297	288	4	495	–	4	187	1
Upstate N.Y.	4	201	642	5	97	96	1	84	–	4	84	–
N.Y. City	2	59	1,113	1	48	74	2	61	–	–	47	1
N.J.	–	51	787	2	68	62	1	82	–	–	46	–
Pa.	–	434	1,041	5	84	56	–	268	–	–	10	–
E.N. CENTRAL	1	74	2,178	7	260	216	8	794	10	1	323	5
Ohio	–	15	346	2	93	68	2	120	3	–	1	1
Ind.	–	8	87	2	40	33	–	91	4	–	113	–
Ill.	–	21	306	–	62	59	4	157	2	–	78	–
Mich.	–	28	228	3	61	44	2	294	1	–	33	3
Wis.	1	2	1,211	–	4	12	–	132	–	1	98	1
W.N. CENTRAL	–	8	1,283	3	100	70	–	174	2	–	75	3
Minn.	–	4	1,050	1	33	18	–	8	2	–	6	2
Iowa	–	1	20	–	18	8	–	40	–	–	4	–
Mo.	–	1	63	2	30	31	–	27	–	–	3	1
N. Dak.	–	–	–	–	1	1	–	–	–	–	–	–
S. Dak.	–	–	–	–	4	4	–	1	–	–	–	–
Nebr.	–	1	83	–	–	–	–	3	–	–	1	–
Kans.	–	1	67	–	14	8	–	95	–	–	61	–
S. ATLANTIC	4	329	1,824	5	494	394	11	390	2	2	126	7
Del.	–	–	3	–	4	2	–	9	–	–	1	–
Md.	–	2	70	–	36	41	4	76	–	–	1	–
D.C.	–	1	–	–	1	1	–	1	–	–	–	–
Va.	–	6	297	–	62	34	2	108	–	–	6	–
W. Va.	–	8	7	–	19	13	3	64	–	–	22	–
N.C.	–	4	123	1	71	75	–	12	1	–	4	2
S.C.	–	–	156	1	65	49	1	10	–	–	8	2
Ga.	3	108	799	1	82	68	–	33	1	2	35	1
Fla.	1	200	369	2	154	111	1	77	–	–	49	2
E.S. CENTRAL	–	2	324	1	156	152	–	65	3	–	25	2
Ky.	–	–	51	–	44	49	–	31	–	–	14	–
Tenn.	–	–	167	–	45	42	–	20	3	–	10	–
Ala.	–	2	22	1	51	38	–	13	–	–	1	2
Miss.	–	–	84	–	16	23	–	1	–	–	–	–
W.S. CENTRAL	14	857	918	5	361	184	4	165	–	2	132	5
Ark.	–	1	15	–	20	14	–	1	–	–	1	1
La.	–	–	11	1	88	66	1	4	–	–	9	2
Okla.	–	6	769	1	29	16	–	–	–	–	–	1
Tex.	14	850	123	3	224	88	3	160	–	2	122	1
MOUNTAIN	–	31	404	4	76	59	1	102	4	2	73	2
Mont.	–	–	2	–	6	2	–	6	–	–	4	–
Idaho	–	1	–	–	3	4	–	4	–	–	3	–
Wyo.	–	–	–	2	2	2	–	1	–	2	3	–
Colo.	–	8	22	1	32	14	1	41	1	–	27	–
N. Mex.	–	8	11	–	6	7	–	–	–	–	5	–
Ariz.	–	4	316	–	17	10	–	23	3	–	18	1
Utah	–	–	46	–	5	2	–	16	–	–	4	1
Nev.	–	10	7	1	5	18	–	11	–	–	9	–
PACIFIC	11	309	957	14	289	219	10	488	4	11	480	5
Wash.	2	3	169	2	54	40	1	132	1	–	61	–
Oreg.	–	3	–	1	43	39	1	56	1	–	30	–
Calif.	9	301	778	11	182	136	8	277	2	11	380	5
Alaska	–	–	5	–	6	4	–	6	–	–	–	–
Hawaii	–	2	5	–	4	–	–	17	–	–	9	–
Guam	NA	4	5	–	–	1	NA	6	NA	NA	1	–
P.R.	2	235	101	–	10	7	1	103	2	–	3	3
V.I.	–	9	6	–	–	1	–	4	–	–	1	–
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 July 18, 1981 and July 12, 1980 (28th 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	573	14,343	104	9	257	59	618	20,172	522,469	509,293	533	15,826	13,684	3,868
NEW ENGLAND	12	409	1	–	12	–	5	592	12,923	12,871	8	341	294	15
Maine	1	25	–	–	1	–	–	36	649	752	–	2	4	8
N.H.	–	11	–	–	–	–	–	24	455	411	–	11	1	1
Vt.	–	12	–	–	–	–	–	18	229	297	–	13	4	–
Mass.	9	237	–	–	7	–	3	172	5,279	5,323	6	225	168	2
R.I.	1	22	–	–	–	–	–	49	679	782	–	19	17	–
Conn.	1	102	1	–	4	–	2	293	5,632	5,306	2	71	100	4
MID. ATLANTIC	92	2,347	10	1	43	11	20	2,544	62,084	55,436	84	2,426	1,991	37
Upstate N.Y.	6	393	10	–	7	7	9	413	10,300	10,055	13	232	160	28
N.Y. City	26	889	–	1	25	–	2	1,150	25,838	21,516	45	1,458	1,319	–
N.J.	39	547	–	–	7	4	7	460	11,720	10,285	16	329	247	5
Pa.	21	518	–	–	4	–	2	521	14,226	13,580	10	407	265	4
E.N. CENTRAL	37	1,828	1	1	15	3	30	2,257	77,369	78,192	18	988	1,274	497
Ohio	14	359	–	–	1	–	25	448	27,013	20,955	13	149	212	41
Ind.	–	148	–	–	–	–	2	235	7,152	7,551	2	110	98	45
Ill.	4	719	–	–	6	3	3	431	19,249	24,532	–	503	699	382
Mich.	12	502	1	1	6	–	–	738	16,773	17,645	3	177	216	4
Wis.	7	100	–	–	2	–	–	405	7,182	7,509	–	49	49	25
W.N. CENTRAL	24	517	9	–	9	–	19	1,100	25,142	22,874	9	300	166	1,678
Minn.	4	91	–	–	2	–	–	270	4,003	3,849	1	107	58	296
Iowa	6	55	–	–	2	–	1	121	2,733	2,562	–	13	8	521
Mo.	5	221	8	–	2	–	10	415	11,610	9,775	8	157	81	133
N. Dak.	–	19	–	–	–	–	–	12	343	341	–	4	3	271
S. Dak.	6	42	–	–	1	–	–	22	704	713	–	2	2	209
Nebr.	–	16	1	–	1	–	2	92	1,905	1,916	–	3	6	118
Kans.	3	73	–	–	1	–	6	168	3,844	3,718	–	14	8	130
S. ATLANTIC	121	3,184	8	1	36	26	359	5,009	128,676	126,931	137	4,165	3,286	221
Del.	–	43	1	–	–	–	2	146	2,018	1,750	–	7	10	–
Md.	13	312	–	1	12	–	36	187	14,071	13,543	8	314	226	8
D.C.	13	204	–	–	1	–	–	279	7,981	8,771	10	350	233	–
Va.	10	319	–	–	1	5	50	405	11,208	10,966	7	354	290	38
W. Va.	6	107	–	–	4	–	4	79	1,969	1,626	4	14	12	10
N.C.	23	547	1	–	1	18	160	589	19,905	18,433	6	325	228	2
S.C.	13	304	2	–	–	2	68	542	12,471	12,143	7	278	183	14
Ga.	20	508	4	–	2	–	31	908	26,417	23,813	40	1,070	957	105
Fla.	23	840	–	–	15	1	8	1,874	32,636	35,886	55	1,453	1,147	44
E.S. CENTRAL	50	1,234	2	–	5	9	60	1,323	43,294	41,352	34	1,013	1,117	249
Ky.	13	332	2	–	–	–	2	144	5,471	6,155	–	46	76	74
Tenn.	5	388	–	–	1	6	42	550	16,406	14,875	2	393	460	137
Ala.	25	348	–	–	2	1	3	259	13,088	11,934	20	292	238	38
Miss.	7	166	–	–	2	2	13	370	8,329	8,388	12	282	343	–
W.S. CENTRAL	81	1,600	53	3	31	8	108	2,607	68,689	65,801	142	3,836	2,652	702
Ark.	8	162	28	–	1	5	21	216	4,989	5,012	–	71	85	92
La.	5	287	2	2	2	–	–	662	10,720	11,668	61	881	629	21
Okla.	12	185	13	–	3	1	66	287	7,392	6,510	1	88	52	138
Tex.	56	966	10	1	25	2	21	1,442	45,588	42,611	80	2,796	1,886	451
MOUNTAIN	18	417	17	–	19	2	15	985	20,741	19,588	22	414	314	115
Mont.	–	23	5	–	4	–	7	47	744	725	–	9	1	69
Idaho	–	6	2	–	–	1	4	10	849	896	–	14	10	–
Wyo.	–	6	1	–	–	1	3	19	484	553	–	8	8	5
Colo.	6	50	5	–	5	–	–	214	5,522	5,311	6	130	88	14
N. Mex.	2	73	1	–	–	–	–	101	2,260	2,426	6	78	51	16
Ariz.	8	192	–	–	9	–	–	301	6,415	5,314	–	80	107	9
Utah	2	29	2	–	1	–	–	30	959	913	–	16	9	–
Nev.	–	38	1	–	–	–	1	263	3,508	3,450	10	79	40	2
PACIFIC	138	2,807	3	3	87	–	2	3,755	83,551	86,248	79	2,343	2,590	354
Wash.	3	204	1	–	3	–	–	343	6,658	7,304	–	101	135	3
Oreg.	2	106	–	1	4	–	–	129	5,044	6,012	–	50	60	3
Calif.	128	2,382	2	1	79	–	2	3,132	68,188	69,089	77	2,146	2,289	335
Alaska	–	39	–	–	–	–	–	86	2,064	2,069	1	6	7	13
Hawaii	5	76	–	1	1	–	–	65	1,597	1,774	1	40	99	–
Guam	NA	7	–	NA	–	NA	–	NA	47	78	NA	–	4	–
P.R.	5	183	–	–	3	–	–	64	1,765	1,422	22	374	299	44
V.I.	–	1	–	–	3	–	–	6	96	108	–	11	10	–
Pac. Trust Terr.	NA	32	–	NA	–	NA	–	NA	165	223	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 July 18, 1981 (28th week)

REPORTING AREA	ALL CAUSES, BY AGE (YEARS)						P&I** TOTAL
	ALL AGES	>65	45-64	25-44	1-24	<1	
NEW ENGLAND	709	477	164	32	15	21	22
Boston, Mass.	204	136	48	5	6	9	–
Bridgeport, Conn.	49	34	9	4	2	–	1
Cambridge, Mass.	26	17	8	1	–	–	1
Fall River, Mass.	29	24	2	3	–	–	2
Hartford, Conn.	61	34	22	2	1	2	1
Lowell, Mass.	19	14	4	1	–	–	–
Lynn, Mass.	20	19	1	–	–	–	–
New Bedford, Mass.	28	25	3	–	–	–	3
New Haven, Conn.	63	38	16	5	2	2	4
Providence, R.I.	58	35	18	2	–	3	5
Somerville, Mass.	6	4	1	1	–	–	–
Springfield, Mass.	72	50	13	3	2	4	3
Waterbury, Conn.	19	10	8	–	1	–	–
Worcester, Mass.	55	37	11	5	1	1	2
MID. ATLANTIC	2,861	1,888	630	205	79	58	97
Albany, N.Y.	39	26	8	1	3	1	–
Allentown, Pa.	16	14	2	–	–	–	–
Buffalo, N.Y.	100	62	22	12	4	–	3
Camden, N.J.	49	31	16	2	–	–	–
Elizabeth, N.J.	38	31	7	–	–	–	2
Erie, Pa.†	39	29	5	2	2	1	2
Jersey City, N.J.	73	52	10	8	2	1	1
N.Y. City, N.Y.	1,616	1,078	343	126	47	22	48
Newark, N.J.	61	35	16	6	2	2	2
Paterson, N.J.	23	12	3	2	–	6	1
Philadelphia, Pa.	413	239	114	29	13	18	16
Pittsburgh, Pa.†	36	20	11	3	1	1	–
Reading, Pa.	29	22	4	3	–	–	2
Rochester, N.Y.	114	90	19	3	1	1	7
Schenectady, N.Y.	23	19	1	–	3	–	4
Scranton, Pa.†	34	21	10	2	–	1	2
Syracuse, N.Y.	77	46	23	3	1	4	1
Trenton, N.J.	34	25	8	1	–	–	1
Utica, N.Y.	22	16	4	2	–	–	2
Yonkers, N.Y.	25	20	4	–	–	–	3
E.N. CENTRAL	2,364	1,421	622	142	94	85	59
Akron, Ohio	77	51	18	2	2	4	1
Canton, Ohio	40	24	12	1	3	–	1
Chicago, Ill.	513	276	166	39	23	9	6
Cincinnati, Ohio	130	70	44	9	4	3	7
Cleveland, Ohio	163	99	36	10	8	10	3
Columbus, Ohio	131	81	32	5	7	6	7
Dayton, Ohio	119	76	28	6	2	7	2
Detroit, Mich.	317	182	81	28	15	11	8
Evansville, Ind.	54	37	9	1	3	4	2
Fort Wayne, Ind.	50	31	15	1	1	2	3
Gary, Ind.	22	11	5	3	3	–	–
Grand Rapids, Mich.	55	43	8	2	–	2	2
Indianapolis, Ind.	155	90	42	9	7	7	1
Madison, Wis.	46	27	12	2	3	2	2
Milwaukee, Wis.	127	86	35	3	1	2	–
Peoria, Ill.	36	24	3	1	2	6	3
Rockford, Ill.	46	33	6	4	1	2	3
South Bend, Ind.	70	44	19	5	1	1	1
Toledo, Ohio	136	88	30	8	6	4	6
Youngstown, Ohio	77	48	21	3	2	3	1
W.N. CENTRAL	820	523	187	57	20	33	33
Des Moines, Iowa	66	48	11	3	1	3	1
Duluth, Minn.	18	12	4	–	1	1	1
Kansas City, Kans.	37	22	13	1	1	–	2
Kansas City, Mo.	106	63	31	7	3	2	1
Lincoln, Nebr.	139	81	33	15	2	8	10
Minneapolis, Minn.	94	68	16	4	4	2	1
Omaha, Nebr.	88	57	23	5	1	2	1
St. Louis, Mo.	139	81	33	15	2	8	10
St. Paul, Minn.	69	52	7	4	3	3	1
Wichita, Kans.	64	39	16	3	2	4	5

REPORTING AREA	ALL CAUSES, BY AGE (YEARS)						P&I** TOTAL
	ALL AGES	>65	45-64	25-44	1-24	<1	
S. ATLANTIC	1,351	799	319	109	64	59	35
Atlanta, Ga.	131	78	32	15	5	1	3
Baltimore, Md.	295	155	71	27	26	16	4
Charlotte, N.C.	61	32	19	5	1	3	2
Jacksonville, Fla.	108	49	32	15	2	10	2
Miami, Fla.	112	75	20	7	5	5	3
Norfolk, Va.	53	28	16	3	4	2	1
Richmond, Va.	68	37	17	7	2	5	1
Savannah, Ga.	38	24	13	–	1	–	3
St. Petersburg, Fla.	105	87	14	2	2	–	4
Tampa, Fla.	84	56	19	2	2	5	8
Washington, D.C.	234	146	47	21	10	10	4
Wilmington, Del.	62	32	19	5	4	2	–
E.S. CENTRAL	720	439	183	48	25	25	24
Birmingham, Ala.	135	85	30	5	4	11	3
Chattanooga, Tenn.	45	33	9	1	1	1	6
Knoxville, Tenn.	48	23	15	5	2	3	–
Louisville, Ky.	99	56	33	8	2	–	3
Memphis, Tenn.	164	107	40	10	5	2	4
Mobile, Ala.	63	41	10	6	1	5	2
Montgomery, Ala.	56	31	18	4	2	1	3
Nashville, Tenn.	110	63	28	9	8	2	3
W.S. CENTRAL	1,246	689	312	109	85	51	31
Austin, Tex.	65	43	10	5	3	4	2
Baton Rouge, La.	42	21	10	5	5	1	3
Corpus Christi, Tex.	40	25	5	3	2	5	1
Dallas, Tex.	210	104	60	17	15	14	–
El Paso, Tex.	49	29	12	5	2	1	–
Fort Worth, Tex.	71	39	18	5	7	2	5
Houston, Tex.	271	144	69	29	28	1	2
Little Rock, Ark.	74	43	22	4	1	4	6
New Orleans, La.	97	57	23	7	7	3	–
San Antonio, Tex.	183	102	42	18	10	11	8
Shreveport, La.	77	48	22	4	1	2	1
Tulsa, Okla.	67	34	19	7	4	3	3
MOUNTAIN	610	336	171	51	24	28	26
Albuquerque, N. Mex.	56	33	14	5	4	–	–
Colo. Springs, Colo.	23	14	2	4	3	–	3
Denver, Colo.	127	80	29	11	4	3	2
Las Vegas, Nev.	77	44	21	8	1	3	4
Ogden, Utah	16	9	3	3	–	1	1
Phoenix, Ariz.	150	76	48	6	6	14	–
Pueblo, Colo.	17	8	9	–	–	–	2
Salt Lake City, Utah	48	20	17	4	3	4	2
Tucson, Ariz.	96	52	28	10	3	3	12
PACIFIC	1,667	1,070	386	109	62	38	58
Berkeley, Calif.	13	10	3	–	–	–	–
Fresno, Calif.	45	30	8	2	2	3	2
Glendale, Calif.	17	16	1	–	–	–	1
Honolulu, Hawaii	51	33	9	2	6	1	7
Long Beach, Calif.	102	56	39	3	1	3	1
Los Angeles, Calif.	459	276	105	39	27	11	11
Oakland, Calif.§	85	55	18	6	3	3	3
Pasadena, Calif.	27	20	7	–	–	–	3
Portland, Oreg.	126	82	25	11	4	4	–
Sacramento, Calif.	67	45	10	8	1	3	7
San Diego, Calif.	148	98	36	9	2	3	2
San Francisco, Calif.	139	89	37	5	6	1	3
San Jose, Calif.	157	107	40	6	3	1	10
Seattle, Wash.	136	92	25	11	5	3	2
Spokane, Wash.	47	32	8	3	2	2	4
Tacoma, Wash.	48	29	15	4	–	–	2
TOTAL	12,348††	7,642	2,974	862	468	398	385

*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.

Human Rabies – Continued

Failure to diagnose rabies before death is frequently the result of nonclassic presentation, i.e., lack of frank hydrophobia and no known history of exposure. This case again shows that for patients with encephalopathic illness of undetermined etiology, rabies should be considered as a possible cause, even in the absence of known contact with the agent.

With the exception of corneal transplant recipients (*1,2*), no human-to-human transmission of rabies has been documented. However, because of the theoretical possibility of human-to-human transmission, CDC currently recommends treating persons who have had a possible risk exposure to a rabies patient. Risk exposure is considered to be contamination of open wounds or mucous membranes with saliva or other potentially infectious materials such as neurologic tissue, fresh autopsy tissue, spinal fluid, or urine. Blood, serum, and stool are not usually considered to be infectious (*3*).

References

1. Houff SA, Burton RC, Wilson RW, et al. Human-to-human transmission of rabies virus by corneal transplant. N Engl J Med 1979;300:603-4.
2. CDC. Human-to-human transmission of rabies via a corneal transplant – France. MMWR 1980; 29:25-6.
3. Hattwick MAW, Gregg MB. The disease in man. In: Baer GM, ed. The natural history of rabies. New York: Academic Press 1975:281-304.

International Notes

Crimean-Congo Hemorrhagic Fever – South Africa

South Africa recently reported its first documented indigenous case of Crimean-Congo hemorrhagic fever (CCHF).

The patient, a 13-year-old boy, had attended camp in the Transvaal, South Africa, from February 5-13, 1981. On February 14, he became ill at his home near Johannesburg. He had severe headache and slight chills, and his mother found and removed a tick from his scalp. A physician confirmed the tick bite, noted large and tender lymph glands at the back of the neck, and diagnosed tick-bite fever.

The boy's condition deteriorated, and the next day he was admitted to a private hospital. On the night of February 17, he went into shock and had epistaxis, hemoptysis, hematemesis, melena, and bleeding at venipuncture sites. He was transferred to the intensive care unit of Johannesburg Hospital and placed in strict isolation because some type of viral hemorrhagic fever was suspected. Leukocyte counts varied from 4,000-7,000 cells/mm^3, the platelet count was $<10,000/mm^3$, and fibrin degradation products measured $>40\mu g/ml$. Treatment to control bleeding included repeated transfusions of blood, platelets, and fresh frozen plasma; however, the patient died on February 19.

The tick was identified as a species of the genus *Hyalomma*, which is known to be a major vector of CCHF virus infection. Suckling mice inoculated with the patient's blood on the evening of February 18 became sick and died beginning on February 25. Complement-fixation and immunofluorescence tests involving antigen from the brain of these mice confirmed they were infected with a virus of the Congo group.

Hemorrhagic Fever — Continued

An investigation was conducted of hospital and family contacts of the patient, as well as children who had attended camp with him. Eight children from the camp had symptoms of meningoencephalitis from February 16-20, but all recovered; no CCHF virus was isolated from specimens from any of these children. None of the other persons investigated had illness compatible with CCHF virus infection; however, 6 of 75 blood specimens collected from camp staff members and their families had antibody to CCHF virus (*1*). Three pools of *Hyalomma* ticks collected at the camp contained CCHF virus.

Reported by S Andronikou, M Hopp, PD Thomson, Johannesburg Hospital; FE Berkowitz, R Cohn, J Ledger, South African Institute for Medical Research; JH Gear, GM McGillivray, OW Prozesky, E Rossouw, R Swanepoel, High Security Laboratory, National Institute for Virology, Johannesburg; Respiratory and Special Pathogens Br, Viral Diseases Div, Center for Infectious Diseases, CDC.

Editorial Note: A hemorrhagic fever, similar to Crimean hemorrhagic fever, was described as early as the 12th century, but was first recognized clinically in 1944 in an epidemic in the Crimea; the virus was first isolated in 1967. Congo virus, on the other hand, was first isolated in 1956. In the late 1960s, studies showed that the 2 viruses were antigenically identical (*2*)—hence the name Crimean-Congo hemorrhagic fever virus. Of the Congo group (Bunyaviridae family of arboviruses), CCHF virus is the only member known to be pathogenic for humans. It has been found in Europe, Asia, and a broad band of countries across tropical Africa (*3*).

CCHF is naturally transmitted by the bite of an ixodid (hard) tick, most often of the *Hyalomma* genus. The virus is maintained in an area by being transmitted among ticks and asymptomatic wild and domestic mammals; sheep, cattle, goats, and hares are the mammals most commonly associated with human infection. The virus also survives by trans-stadial (from larva to nymph to adult) and transovarial transmission in ticks. Contacts of patients in the home and hospital have become severely ill as the result of transmission via blood or bloody discharges (*3,4-7*).

The incubation period of CCHF is relatively short (3-6 days), and onset is abrupt with fever, chills, headache, myalgia, abdominal pains, nausea, vomiting, liquid stools, and anorexia (*3*). Conjunctivitis, erythema of the throat, and spotted enanthemas on the soft and hard palate can also be present, as can leukopenia and severe thrombocytopenia. Hemorrhagic manifestations may occur by the fourth day and be followed by hypotension and shock. Convalescence may be prolonged, but no relapses have been noted.

Human cases generally occur in the spring and summer months. Agricultural workers are at highest risk. Estimates of the mortality rate range from 10% to 50%. Diagnosis can be confirmed serologically or by isolation of the virus from blood or specimens obtained at autopsy. Treatment is supportive; the efficacy of convalescent-phase plasma therapy is unknown. A vaccine has been developed in the USSR for those at high risk (*3*).

The clinical course of the case described in this report is classic for CCHF. Further investigations are being done to define distribution and ecology of the infection in South Africa. The occurrence of this case in a non-endemic area should alert medical authorities elsewhere in Africa and Asia to the possible presence of this infection in their communities. If suspected cases occur, contacts should be placed under surveillance, and appropriate precautions should be taken to protect medical staff exposed to the patients or to their laboratory specimens.

References

1. World Health Organization. Surveillance of Crimean-Congo haemorrhagic fever. Wkly Epidem Rec 1981;56:143.
2. Casals J. Antigenic similarity between the virus causing Crimean hemorrhagic fever and Congo virus. Proc Soc Exp Biol Med 1969;131:233-6.

Hemorrhagic Fever – Continued

3. Hoogstraal H. The epidemiology of tick-borne Crimean-Congo hemorrhagic fever in Asia, Europe, and Africa. J Med Entomol 1979;15:307-417.
4. Burney MI, Ghafoor A, Saleen M, Webb PA, Casals J. Nosocomial outbreak of viral hemorrhagic fever caused by Crimean hemorrhagic fever-Congo virus in Pakistan, January 1976. Am J Trop Med Hyg 1980;29:941-7.
5. Suleiman MN, Muscat-Baron JM, Harries JR, et al. Congo/Crimean haemorrhagic fever in Dubai. An outbreak at the Rashid Hospital. Lancet 1980;2:939-41.
6. World Health Organization. Suspected viral haemorrhagic fever. Wkly Epidem Rec 1979;54:318-9.
7. Tantawi HH, Al-Moslih MI, Al-Janabi NY, et al. Crimean-Congo haemorrhagic fever virus in Iraq: isolation, identification and electron microscopy. Acta Virol 1980;24:464-7.

The Morbidity and Mortality Weekly Report, circulation 118,223, is published by the Centers 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: Attn: Editor, Morbidity and Mortality Weekly Report, Centers for Disease Control, Atlanta, Georgia 30333.

Send mailing list additions, deletions and address changes to: Attn: Distribution Services, Management Analysis and Services Office, 1-SB-419, Centers for Disease Control, Atlanta, Georgia 30333. When requesting changes be sure to give your former address, including zip code and mailing list code number, or send an old address label.

☆U.S. Government Printing Office: 1981-740-185/904 Region IV

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE / CENTERS FOR DISEASE CONTROL
ATLANTA, GEORGIA 30333 **OFFICIAL BUSINESS**

Postage and Fees Paid
U.S. Department of HHS
HHS 396

HHS Publication No. (CDC) 81-8017