

MNWR

MORBIDITY AND MORTALITY WEEKLY REPORT

- Epidemiologic Notes and Reports
137 Human Plague — Texas, New Mexico
138 Ciguatera Fish Poisoning — St. Croix,
Virgin Islands of the United States
140 Methicillin-Resistant *Staphylococcus aureus* — United States
Current Trends
147 Rabies — United States, 1980

Epidemiologic Notes and Reports

Human Plague — Texas, New Mexico

The first case of confirmed human plague in 1981 was recently reported to CDC. Both the date of onset and the source of infection—a bobcat—are unusual for this disease.

The patient was a 25-year-old rancher who lived approximately 5 miles from the Texas border in Otero County, New Mexico. He was admitted to an El Paso hospital on February 12, 1981, because of a 2-day history of headache, chills, and fever. The day before admission he began vomiting; the day of admission, an orange-sized swelling in the left axilla was noted. In the 2 weeks before becoming ill, the patient had trapped, killed, and skinned 3 kit foxes, 4 coyotes, and 1 bobcat; the bobcat appeared ill when found in a trap on February 7. The patient had cut his left hand shortly before skinning the bobcat.

When admitted to the hospital, the man appeared acutely ill. In addition to the enlarged, tender lymph node in the left axilla, the patient also had a fever (temperature of 40 C, [104 F]). His chest examination was normal. The possibility of plague was considered, and a lymph-node aspirate and a smear of peripheral blood were reported to contain gram-positive cocci, often in pairs. Under the assumption that a gram-positive organism had caused the patient's illness, he was given cefoxitin. Within a few hours of admission, the patient had a cardiopulmonary arrest. During resuscitation efforts, he vomited and aspirated the vomitus; a chest X ray taken later showed bilateral infiltrates. In addition, the patient bled from several body sites, and medical personnel had contact with his blood and vomitus. Despite efforts to resuscitate him, the patient died within 6 hours of admission. Permission for an autopsy was denied, and the body was released to a mortician for embalming. At no time was the patient placed in isolation, and no isolation procedures were used in handling body fluids.

After the patient's death, colonies of gram-negative rods with bipolar staining were isolated from blood cultures; the bubo aspirate was not cultured. Although biochemical testing of the organism identified it as *Enterobacter agglomerans*, hospital microbiology personnel suspected the isolate was *Yersinia pestis*. This was confirmed by the Texas Department of Health Laboratory.

When plague was again suspected, an autopsy of the patient was conducted. Pathology results indicated that the changes seen on X rays were the result of pulmonary edema, not pneumonia. Before these results were available, the 46 persons who had had contact with potentially infectious secretions or blood in the hospital and mortuary were given antimicrobial prophylaxis and placed under surveillance.

The carcasses of the 3 foxes and the head of the bobcat were still available for examination after the patient's death. Culture and fluorescent-antibody (FA) stains of material

Human Plague — Continued

from the foxes were negative for *Y. pestis*, but the brain of the bobcat was positive in FA tests and in cultures.

Reported by HM Block, MD, JU Contin, MD, JL Lukowski, MD, WL Pierce, MD, B Rosenblum, MD, El Paso, Texas; JL Bradley, MD, EW Gorby, MD, B Hafkin, MD, D Maserang, PhD, CR Webb, Jr, MD, State Epidemiologist, Texas State Dept of Health; T Brown, MS, SC Lapham, MD, Acting State Epidemiologist, J Mann, MD, New Mexico Health and Environment Dept; Bacterial Diseases Div and Vector-Borne Diseases Div, Center for Infectious Diseases, Field Services Div, Epidemiology Program Office, CDC.

Editorial Note: Although this is the first reported case of human plague in the United States in 1981, there were 18 cases in 1980. Only 1 other U.S. case has been confirmed as having been caused by direct contact with an infected bobcat (1). Most cases of human plague in the United States occur during warm weather. Between 1950 and 1979, 82% of cases occurred in the period May-September. Unlike such cases, most of which have almost certainly been transmitted by fleas, cases associated with direct contact with animals usually occur in the cold-weather months of November-April (2).

The reason the Gram stains of the bubo aspirate and peripheral blood showed gram-positive cocci, often in pairs, is unclear. Technical difficulties such as underdecolorization may have played a role. The organisms may have been interpreted as being cocci or diplococci because of 1) the tendency of *Y. pestis* to assume a bipolar appearance when stained with polychromatic stains such as Wright's (this is less pronounced with Gram stain) and 2) the rapid division of this coccobacillary organism, which might have given the impression that the dividing organisms were in pairs.

Y. pestis and some strains of *E. agglomerans* are relatively inactive biochemically and may be difficult to differentiate. Other characteristics, such as colonial morphology, growth characteristics in broth, and motility will aid in the differentiation of these organisms.

References

1. Poland JD, Barnes AM, Herman JJ. Human bubonic plague from exposure to a naturally infected wild carnivore. *Am J Epidemiol* 1973;97:332-7.
2. Kaufmann AF, Boyce JM, Martone WJ. Trends in human plague in the United States. *J Infect Dis* 1980;141:522-4.

Ciguatera Fish Poisoning — St. Croix, Virgin Islands of the United States

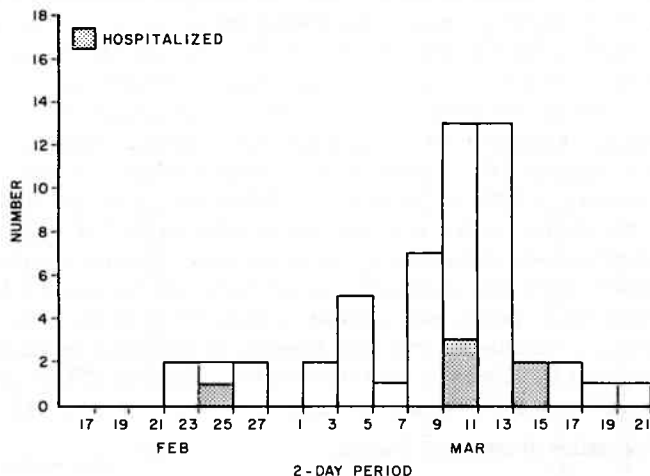
An outbreak of ciguatera fish poisoning, involving at least 69 persons including 3 tourists, occurred at St. Croix, Virgin Islands of the United States, from February 25 through March 20, 1981. The increase in cases was first noted by the staff at Charles Harwood Memorial Hospital, Christiansted, St. Croix (Figure 1); no increase was noted at the clinic in Frederiksted on the other side of the island.

When the Virgin Islands Department of Health conducted an initial investigation, 20 of 21 patients were found to have eaten red snapper in the 48-hour period before onset of illness. The fish was traced to a fisherman who had landed catches of approximately 1,500 pounds on February 25 and 750 pounds (predominantly snapper) on March 5. The fish from the March 5 catch was distributed to at least 5 restaurants and was also sold by a local retailer from the back of a truck. On March 16, an embargo was placed on the sale of any snapper remaining from this catch.

In a subsequent investigation conducted with the assistance of CDC a total of 69 indi-

Fish Poisoning — Continued

FIGURE 1. Emergency-room patients diagnosed as having ciguatera fish poisoning, Charles Harwood Memorial Hospital, Christiansted, St. Croix, Virgin Islands of the United States, February 17-March 21, 1981



viduals were identified who had had ciguatera fish poisoning between February 25 and March 20. Fifty-two (75%) of these 69 individuals had eaten red snapper; 4 had eaten grouper that was traced to the same 2 catches. Symptoms of ill persons who ate red snapper included diarrhea (89% of patients), pain and weakness in the lower extremities (81%), abdominal pain (72%), itching (70%), paresthesias (55%), and vomiting (47%). The mean incubation period was 6.8 hours (range ½-48 hours).

Reported by JN Lewis, MD, MPH, Territorial Epidemiologist, O Caines, Div of Environmental Health, CLE Christian, MD, MPH, Div of Ambulatory Care, R Schneider, MD, Dept of Health, Virgin Islands of the United States; Food and Drug Administration; Phoenix Area Indian Health Service, Health Services Administration; Enteric Diseases Br, Bacterial Diseases Div, Center for Infectious Diseases, CDC.

Editorial Note: Ciguatera fish poisoning is caused by eating fish containing a toxin thought to be produced by the marine dinoflagellate *Gambierdiscus toxicus* (1). The toxin is passed up the food chain and concentrated in large predacious fish (such as snapper). The ecologic factors that result in a high percentage of toxic fish in 1 locality or in a single catch are still not well understood.

The diagnosis of ciguatera fish poisoning is clinical, based on the characteristic combination of gastrointestinal and neurologic symptoms (2). The disease is endemic in many areas of the Caribbean and South Pacific; cases are also frequently reported from south Florida (3) and Hawaii. Physicians treating patients who have a syndrome of gastrointestinal symptoms followed by dysesthesias should consider the diagnosis of ciguatera fish poisoning, and should ask about consumption of fish in or from these geographic areas.

References

1. Bagnis R, Chanteau S, Chungue E, Huntel JM, Yasumoto T, Inoue A. Origins of ciguatera fish poisoning. A new dinoflagellate, *Gambierdiscus toxicus* Adachi and Fukuyo, definitely involved as a causal agent. *Toxicon* 1980;18:199-208.
2. Hughes JM, Merson MH. Fish and shellfish poisoning. *N Engl J Med* 1976;295:1117-20.
3. Lawrence DN, Enriguez MB, Lumish RM, Maceo A. Ciguatera fish poisoning in Miami. *JAMA* 1980;244:254-8.

Methicillin-Resistant *Staphylococcus aureus* — United States

Over the last decade, methicillin-resistant *Staphylococcus aureus* (MRSA) has emerged as a major cause of nosocomial infections in many countries of the world, although it did not appear in the United States as early as in other countries.

The University of Virginia Hospital (UVH) identified its first MRSA isolate in March 1978. Within 6 months of admission of the index patient, MRSA was isolated from 30 additional patients. The epidemiologic, clinical, and microbiologic features of this outbreak and the subsequent establishment of this agent as a significant endemic pathogen at the UVH have been reported (1). Because of this problem, infection-control personnel at UVH conducted a survey in 1980 to determine if MRSA was a common endemic nosocomial pathogen in the United States. Hospital epidemiologists at 114 geographically and demographically diverse medical centers—all of whom were receiving the Hospital Epidemiologists Newsletter*—were sent questionnaires asking for the following information for 1979 about the hospital in which each worked: a description of the hospital; the total number of admissions or discharges; the total number of presumed nosocomial bacteremias, the number caused by *S. aureus*, and the number caused by MRSA; and the hospital's methods of surveillance and of determining antimicrobial resistance of *S. aureus*.

*Supported by the Foundation of Infectious Diseases.

(Continued on page 145)

TABLE I. Summary — cases of specified notifiable diseases, United States
(Cumulative totals include revised and delayed reports through previous weeks.)

DISEASE	12th WEEK ENDING		MEDIAN 1976-1980	CUMULATIVE, FIRST 12 WEEKS		
	March 28 1981	March 22 1980		March 28 1981	March 22 1980	MEDIAN 1976-1980
Aseptic meningitis	90	52	28	765	769	439
Brucellosis	3	5	4	17	39	39
Chickenpox	8,093	6,585	6,716	68,637	62,453	68,265
Diphtheria	—	—	—	3	1	16
Encephalitis: Primary (arthropod-borne & unspec.)	21	12	12	176	137	125
Post-infectious	—	3	3	14	36	36
Hepatitis, Viral: Type B	406	318	307	4,217	3,623	3,486
Type A	561	485	608	5,700	6,375	6,859
Type unspecified	224	270	180	2,592	2,472	2,108
Malaria	16	31	10	276	310	93
Measles (rubeola)	58	475	1,121	610	2,772	6,025
Meningococcal infections: Total	89	66	66	1,178	771	644
Civilian	89	65	64	1,176	764	637
Military	—	1	1	2	7	5
Mumps	129	282	595	1,298	3,366	5,166
Pertussis	20	21	22	228	242	253
Rubella (German measles)	67	111	547	599	1,083	3,127
Tetanus	2	1	1	10	9	9
Tuberculosis	576	494	603	5,729	5,515	5,996
Tularemia	4	3	2	22	21	21
Typhoid fever	8	9	8	97	68	82
Typhus fever, tick-borne (Rky. Mt. spotted)	—	—	—	13	9	10
Venereal diseases:						
Gonorrhea: Civilian	16,490	16,179	16,914	220,014	218,666	218,666
Military	669	471	471	6,563	6,426	6,426
Syphilis, primary & secondary: Civilian	563	452	453	6,975	6,015	5,616
Military	13	5	5	90	89	73
Rabies in animals	153	131	53	1,322	1,117	559

TABLE II. Notifiable diseases of low frequency, United States

	CUM. 1981		CUM. 1981
Anthrax	—	Poliomyelitis: Total	—
Botulism Calif. 3	13	Paralytic	—
Cholera	—	Psittacosis Oreg. 2, Calif. 1	18
Congenital rubella syndrome	2	Rabies in man	—
Leprosy NYC 1, Oreg. 1	46	Trichinosis Conn. 1	53
Leptospirosis W. Va. 1, Ala. 1	13	Typhus fever, flea-borne (endemic, murine)	—
Plague	1		

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
March 28, 1981 and March 22, 1980 (12th week)

REPORTING AREA	ASEPTIC MENIN- GITIS	BRU- CEL- LOSIS	CHICKEN- POX	DIPHTHERIA		ENCEPHALITIS			HEPATITIS (VIRAL), BY TYPE			MALARIA	
						Primary		Post-in- fectious	B	A	Unspecified		
						1981	1980						
UNITED STATES	90	3	8,093	-	3	21	12	-	406	561	224	16	276
NEW ENGLAND	6	-	876	-	-	2	3	-	9	16	7	-	13
Maine	-	-	173	-	-	1	-	-	-	-	-	-	1
N.H.	1	-	93	-	-	-	-	-	-	2	1	-	2
Vt.	-	-	52	-	-	-	-	-	2	2	-	-	-
Mass.	4	-	229	-	-	1	-	-	5	10	6	-	8
R.I.	1	-	46	-	-	-	-	-	-	1	-	-	1
Conn.	-	-	283	-	-	-	3	-	2	1	-	-	1
MID. ATLANTIC	13	-	397	-	-	3	2	-	36	34	6	2	22
Upstate N.Y.	6	-	203	-	-	-	-	-	14	11	4	2	7
N.Y. City	1	-	145	-	-	-	1	-	6	7	2	-	12
N.J.	4	-	NN	-	-	-	1	-	NA	NA	NA	-	2
Pa.	2	-	49	-	-	3	-	-	16	16	-	-	1
E.N. CENTRAL	5	-	3,293	-	-	2	1	-	49	68	24	-	5
Ohio	1	-	200	-	-	2	-	-	11	12	8	-	-
Ind.	-	-	498	-	-	-	-	-	5	17	6	-	1
Ill.	-	-	754	-	-	-	-	-	17	15	5	-	1
Mich.	3	-	1,246	-	-	-	1	-	11	20	5	-	3
Wis.	1	-	595	-	-	-	-	-	5	4	-	-	-
W.N. CENTRAL	4	-	866	-	-	-	2	-	19	41	17	-	10
Minn.	-	-	-	-	-	-	-	-	2	2	2	-	2
Iowa	1	-	321	-	-	-	-	-	2	27	2	-	2
Mo.	3	-	58	-	-	-	-	-	13	10	13	-	1
N. Dak.	-	-	37	-	-	-	-	-	-	-	-	-	1
S. Dak.	-	-	20	-	-	-	-	-	1	-	-	-	1
Nebr.	-	-	25	-	-	-	2	-	-	-	-	-	-
Kans.	-	-	405	-	-	-	-	-	1	2	-	-	3
S. ATLANTIC	12	1	1,401	-	1	3	1	-	101	57	25	1	29
Del.	-	-	6	-	-	-	-	-	2	1	1	-	-
Md.	-	-	235	-	-	2	-	-	15	2	5	1	5
D.C.	-	-	1	-	-	-	-	-	1	1	-	-	1
Va.	-	-	357	-	-	-	1	-	11	1	2	-	9
W. Va.	1	-	305	-	-	-	-	-	1	9	-	-	-
N.C.	4	-	NN	-	-	1	-	-	9	8	6	-	2
S.C.	-	-	55	-	-	-	-	-	6	1	-	-	-
Ga.	3	-	11	-	-	-	-	-	23	6	-	-	4
Fla.	4	1	431	-	1	-	-	-	33	28	11	-	8
E.S. CENTRAL	6	-	140	-	-	2	-	-	15	21	1	1	1
Ky.	2	-	59	-	-	-	-	-	2	3	-	-	-
Tenn.	3	-	NN	-	-	-	-	-	10	8	-	-	-
Ala.	-	-	72	-	-	1	-	-	3	3	1	-	-
Miss.	1	-	9	-	-	1	-	-	-	7	-	1	1
W.S. CENTRAL	13	1	752	-	-	3	2	-	38	105	46	1	18
Ark.	-	-	1	-	-	1	-	-	-	8	4	-	2
La.	1	-	NN	-	-	-	1	-	5	14	2	-	2
Okla.	-	1	-	-	-	1	1	-	10	5	1	-	2
Tex.	12	-	751	-	-	1	-	-	23	78	39	1	12
MOUNTAIN	-	-	116	-	1	1	-	-	23	53	24	1	6
Mont.	-	-	-	-	1	-	-	-	1	3	1	-	-
Idaho	-	-	-	-	-	-	-	-	-	2	-	-	-
Wyo.	-	-	-	-	-	-	-	-	-	-	-	-	-
Colo.	-	-	102	-	-	-	-	-	9	24	1	-	2
N. Mex.	-	-	-	-	-	-	-	-	-	6	3	-	-
Ariz.	-	-	NN	-	-	-	-	-	2	9	10	-	2
Utah	-	-	4	-	-	1	-	-	6	5	6	-	-
Nev.	-	-	10	-	-	-	-	-	5	4	3	1	2
PACIFIC	31	1	252	-	1	5	1	-	116	166	74	10	172
Wash.	1	-	206	-	-	-	-	-	5	14	4	1	11
Oreg.	-	-	-	-	-	-	-	-	11	15	-	1	5
Calif.	21	1	-	-	-	4	1	-	94	137	68	7	155
Alaska	-	-	29	-	1	1	-	-	5	-	1	-	-
Hawaii	9	-	17	-	-	-	-	-	1	-	1	1	1
Guam	NA	NA	NA	NA	-	NA	-	-	NA	NA	NA	NA	-
P.R.	-	-	9	-	-	NA	-	-	2	7	-	-	3
V.I.	NA	NA	NA	NA	-	NA	-	-	NA	NA	NA	NA	1
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 March 28, 1981 and March 22, 1980 (12th 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	58	610	2,772	89	1,178	771	129	1,298	20	67	599	10
NEW ENGLAND	1	25	252	5	80	40	12	60	-	1	59	-
Maine	1	2	4	1	12	2	2	14	-	-	31	-
N.H.	-	2	131	-	6	4	3	8	-	-	12	-
Vt.	-	1	111	-	2	2	1	2	-	-	-	-
Mass.	-	16	2	1	20	13	4	20	-	1	14	-
R.I.	-	-	2	1	7	3	1	8	-	-	-	-
Conn.	-	4	2	2	33	16	1	8	-	-	2	-
MID. ATLANTIC	14	202	612	22	135	126	25	141	9	9	70	1
Upstate N.Y.	7	148	167	12	46	47	6	30	7	3	30	-
N.Y. City	4	21	163	2	13	37	9	24	-	3	14	1
N.J.	3	15	131	4	41	28	4	29	1	2	23	-
Pa.	-	18	151	4	35	14	6	58	1	1	3	-
E.N. CENTRAL	3	40	320	11	137	91	29	375	2	25	131	1
Ohio	-	13	52	3	48	37	1	50	-	-	-	-
Ind.	-	3	18	3	17	14	3	48	2	11	46	-
Ill.	1	6	74	4	37	11	9	64	-	7	32	-
Mich.	2	18	91	1	31	22	14	162	-	3	20	1
Wis.	-	-	85	-	4	7	2	51	-	4	33	-
W.N. CENTRAL	-	4	350	8	46	33	2	112	-	1	32	2
Minn.	-	1	229	3	20	9	-	2	-	-	5	1
Iowa	-	1	-	-	9	3	1	28	-	-	-	-
Mo.	-	-	47	3	11	14	1	20	-	-	1	1
N. Dak.	-	-	-	1	1	1	-	-	-	-	-	-
S. Dak.	-	-	-	-	1	2	-	1	-	-	-	-
Nebr.	-	1	33	-	-	-	-	-	-	1	1	-
Kans.	-	1	41	1	4	4	-	61	-	-	25	-
S. ATLANTIC	29	182	673	22	305	177	24	189	3	9	65	1
Del.	-	-	1	-	4	1	-	3	-	-	-	-
Md.	-	1	19	1	12	16	6	36	-	-	-	-
D.C.	-	-	-	-	1	-	-	-	-	-	-	-
Va.	-	2	129	5	35	15	4	49	-	-	7	-
W. Va.	-	6	3	-	15	5	3	31	-	1	12	-
N.C.	-	-	36	6	44	34	-	4	-	-	2	-
S.C.	-	-	91	3	41	21	-	4	-	-	4	1
Ga.	13	70	278	3	48	41	3	17	2	3	18	-
Fla.	16	103	116	4	105	44	8	45	1	5	22	-
E.S. CENTRAL	1	1	95	2	90	78	1	40	-	2	16	1
Ky.	-	-	30	-	28	22	-	15	-	1	9	-
Tenn.	1	1	4	2	26	18	-	15	-	1	7	-
Ala.	-	-	15	-	26	23	1	9	-	-	-	1
Miss.	-	-	46	-	10	15	-	1	-	-	-	-
W.S. CENTRAL	5	36	217	6	213	84	20	71	2	4	41	2
Ark.	-	-	2	-	17	5	-	-	-	-	-	1
La.	-	-	3	-	44	26	-	3	-	-	4	-
Okla.	-	3	150	1	16	6	-	-	-	-	-	-
Tex.	5	33	62	5	136	47	20	68	2	4	37	1
MOUNTAIN	-	8	58	1	39	32	2	36	-	-	20	1
Mont.	-	-	1	-	2	1	-	3	-	-	1	-
Idaho	-	-	-	-	2	3	-	2	-	-	-	-
Wyo.	-	-	-	-	-	1	-	-	-	-	1	-
Colo.	-	-	2	-	18	8	1	14	-	-	14	-
N. Mex.	-	-	1	-	4	5	-	-	-	-	-	-
Ariz.	-	1	23	1	8	5	-	7	-	-	1	1
Utah	-	-	29	-	3	1	1	5	-	-	2	-
Nev.	-	7	2	-	2	8	-	5	-	-	1	-
PACIFIC	5	112	195	12	133	110	14	274	4	16	165	1
Wash.	-	-	59	3	29	16	-	82	1	7	42	-
Oreg.	-	-	-	1	13	22	-	33	-	-	4	-
Calif.	5	112	128	8	84	71	14	147	3	9	119	1
Alaska	-	-	5	-	3	1	-	3	-	-	-	-
Hawaii	-	-	3	-	4	-	-	9	-	-	-	-
Guam	NA	-	2	-	-	-	NA	-	NA	NA	-	-
P.R.	23	77	21	-	2	5	7	32	-	-	-	-
V.I.	NA	2	4	-	-	1	NA	1	NA	NA	-	-
Pac. Trust Terr.	NA	-	3	-	-	-	NA	-	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
March 28, 1981 and March 22, 1980 (12th week)

REPORTING AREA	TUBERCULOSIS		TULA- REMIA	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	578	5,729	22	8	97	-	13	16,490	220,014	218,666	563	6,975	6,015	1,322
NEW ENGLAND	14	160	-	-	7	-	-	482	5,597	5,681	11	164	138	5
Maine	4	18	-	-	-	-	-	27	280	348	-	1	-	5
N.H.	-	2	-	-	-	-	-	21	212	204	-	9	-	-
Vt.	-	7	-	-	-	-	-	14	95	161	2	5	1	-
Mass.	3	87	-	-	6	-	-	172	2,264	2,274	8	95	78	-
R.I.	2	8	-	-	-	-	-	21	262	332	1	11	7	-
Conn.	5	38	-	-	1	-	-	227	2,484	2,362	-	43	52	-
MID. ATLANTIC	95	1,006	-	7	19	-	3	1,819	25,360	24,286	76	1,063	851	2
Upstate N.Y.	8	158	-	1	4	-	1	304	3,979	4,104	11	99	63	1
N.Y. City	42	441	-	2	11	-	2	850	10,075	9,837	46	664	554	-
N.J.	8	183	-	2	2	-	-	171	5,152	4,318	6	122	113	-
Pa.	37	224	-	2	2	-	-	494	6,154	6,027	13	178	121	1
E.N. CENTRAL	62	750	1	-	5	-	1	2,536	35,049	35,620	34	417	583	156
Ohio	16	139	-	-	-	-	1	1,074	13,635	9,678	-	69	97	9
Ind.	-	35	-	-	-	-	-	219	2,910	3,577	3	30	60	7
Ill.	19	324	-	-	4	-	-	325	7,873	11,016	28	216	304	115
Mich.	23	217	1	-	-	-	-	638	7,583	7,703	NA	76	95	-
Wis.	4	35	-	-	1	-	-	280	3,048	3,646	3	26	27	25
W.N. CENTRAL	11	182	3	-	2	-	1	1,041	10,666	9,661	10	126	67	530
Minn.	6	31	-	-	1	-	-	110	1,709	1,736	3	44	24	103
Iowa	-	30	-	-	-	-	-	94	1,067	1,074	3	8	4	193
Mo.	3	68	3	-	-	-	1	542	4,806	3,965	4	63	37	39
N. Dak.	1	8	-	-	-	-	-	15	136	136	-	1	-	79
S. Dak.	1	15	-	-	1	-	-	29	291	307	-	-	-	49
Nebr.	-	7	-	-	-	-	-	96	820	830	-	3	1	35
Kans.	-	23	-	-	-	-	-	155	1,837	1,613	-	7	1	32
S. ATLANTIC	154	1,264	5	1	11	-	4	4,648	55,400	53,060	162	1,817	1,474	84
Del.	2	12	1	-	-	-	-	54	863	783	-	3	5	-
Md.	26	116	-	-	2	-	-	440	5,823	5,326	14	138	111	1
D.C.	4	78	-	-	1	-	-	278	3,644	3,973	6	158	103	-
Va.	25	136	-	1	1	-	-	427	5,214	4,444	19	175	124	15
W. Va.	3	45	-	-	3	-	-	82	796	708	1	4	4	3
N.C.	26	240	1	-	1	-	4	813	9,150	8,409	18	133	113	-
S.C.	11	114	2	-	-	-	-	392	4,975	4,983	13	130	77	3
Ga.	21	199	1	-	-	-	-	1,095	10,835	9,533	50	479	426	47
Fla.	36	324	-	-	3	-	-	1,067	14,100	14,901	41	597	511	15
E.S. CENTRAL	37	498	2	-	4	-	3	1,243	18,084	17,951	39	479	488	96
Ky.	11	124	2	-	-	-	1	155	2,377	2,566	1	20	28	23
Tenn.	9	169	-	-	1	-	1	525	6,758	6,516	19	189	201	59
Ala.	11	151	-	-	2	-	-	290	5,748	5,061	8	134	101	14
Miss.	6	54	-	-	1	-	1	273	3,201	3,808	11	136	158	-
W.S. CENTRAL	80	508	4	-	8	-	1	1,904	30,407	27,996	152	1,702	1,168	272
Ark.	3	47	-	-	-	-	-	117	1,849	2,099	4	33	44	46
La.	18	111	2	-	-	-	-	288	4,663	4,381	57	373	271	12
Okla.	11	72	1	-	3	-	-	325	3,127	2,781	9	45	16	45
Tex.	48	278	1	-	5	-	1	1,174	20,768	18,735	82	1,251	837	169
MOUNTAIN	19	165	6	-	5	-	-	694	8,966	8,375	34	196	132	25
Mont.	2	17	1	-	4	-	-	15	326	302	-	4	-	24
Idaho	-	5	2	-	-	-	-	13	328	438	-	2	4	-
Wyo.	-	2	-	-	-	-	-	21	200	247	-	2	7	1
Colo.	2	11	2	-	1	-	-	161	2,327	2,128	11	51	38	-
N. Mex.	2	38	-	-	-	-	-	120	1,063	1,135	3	40	23	-
Ariz.	9	66	-	-	-	-	-	230	2,941	2,270	11	44	40	-
Utah	2	8	1	-	-	-	-	35	425	406	-	3	4	-
Nev.	2	18	-	-	-	-	-	99	1,356	1,449	9	50	16	-
PACIFIC	106	1,196	1	-	36	-	-	2,123	30,485	36,036	45	1,011	1,114	152
Wash.	14	88	-	-	-	-	-	286	2,774	3,045	-	23	68	-
Oreg.	3	42	-	-	2	-	-	185	2,397	2,622	1	24	28	1
Calif.	86	1,033	1	-	32	-	-	1,521	23,756	28,722	42	936	999	139
Alaska	-	12	-	-	-	-	-	80	864	866	-	4	1	12
Hawaii	3	21	-	-	2	-	-	51	694	781	2	24	18	-
Guam	NA	-	-	NA	-	NA	-	NA	-	27	NA	-	-	-
P.R.	-	4	-	-	2	-	-	47	762	595	12	164	136	18
V.I.	NA	-	-	NA	1	NA	-	NA	7	40	NA	-	7	-
Pac. Trust Terr.	NA	8	-	NA	-	NA	-	NA	46	79	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
March 28, 1981 (12th week)

REPORTING AREA	ALL CAUSES, BY AGE (YEARS)					P & I**	TOTAL	REPORTING AREA	ALL CAUSES, BY AGE (YEARS)					P & I**	TOTAL	
	ALL AGES	>65	45-64	25-44	<1				ALL AGES	>65	45-64	25-44	<1			
NEW ENGLAND	758	517	169	34	22	54		S. ATLANTIC	1,241	732	321	89	57	43		
Boston, Mass.	185	112	48	10	9	27		Atlanta, Ga.	167	96	45	12	8	2		
Bridgport, Conn.	40	30	8	2	-	-		Baltimore, Md.	168	93	43	11	15	4		
Cambridge, Mass.	28	21	5	2	-	1		Charlotte, N.C.	77	42	23	4	3	4		
Fall River, Mass.	28	22	5	2	-	1		Jacksonville, Fla.	116	70	33	9	1	3		
Hartford, Conn.	71	53	16	2	-	3		Miami, Fla.	120	66	33	11	6	4		
Lowell, Mass.	33	27	2	2	1	3		Norfolk, Va.	55	28	19	3	2	3		
Lynn, Mass.	28	21	6	1	-	2		Richmond, Va.	69	39	20	4	3	7		
New Bedford, Mass.	24	21	2	-	-	1		Savannah, Ga.	55	25	17	4	3	2		
New Haven, Conn.	104	63	26	5	6	4		St. Petersburg, Fla.	122	101	15	4	2	6		
Providence, R.I.	66	38	23	3	2	3		Tampa, Fla.	71	51	15	3	1	5		
Somerville, Mass.	4	4	-	-	-	-		Washington, D.C.	173	92	44	20	13	2		
Springfield, Mass.	49	30	11	3	3	3		Wilmington, Del.	48	29	14	4	-	1		
Waterbury, Conn.	35	27	6	1	-	2										
Worcester, Mass.	63	48	11	3	1	4										
								E.S. CENTRAL	671	423	161	33	31	15		
MID. ATLANTIC	2,651	1,731	593	189	70	103		Birmingham, Ala.	126	76	32	8	7	-		
Albany, N.Y.	61	40	14	2	3	1		Chattanooga, Tenn.	62	39	15	3	2	4		
Allentown, Pa.	25	19	6	-	-	2		Knoxville, Tenn.	54	38	9	3	2	1		
Buffalo, N.Y.	130	91	25	7	4	17		Louisville, Ky.	83	51	26	3	-	6		
Camden, N.J.	35	24	7	4	-	3		Memphis, Tenn.	131	81	28	10	8	2		
Elizabeth, N.J.	34	22	10	2	-	-		Mobile, Ala.	51	37	10	2	-	1		
Erie, Pa.†	42	32	7	2	-	2		Montgomery, Ala.	47	27	13	-	2	-		
Jersey City, N.J.	41	27	11	2	-	-		Nashville, Tenn.	117	74	28	4	10	1		
Newark, N.J.	84	39	22	11	7	7										
N.Y. City, N.Y.	1,431	938	302	117	38	34		W.S. CENTRAL	1,217	742	301	86	35	61		
Paterson, N.J.	26	13	8	-	4	2		Austin, Tex.	48	32	14	2	-	2		
Philadelphia, Pa.†	299	187	78	21	6	18		Baton Rouge, La.	35	26	5	1	2	-		
Pittsburgh, Pa.†	58	41	12	3	1	1		Corpus Christi, Tex.	51	23	15	3	6	-		
Reading, Pa.	34	26	7	1	-	4		Dallas, Tex.	189	115	53	10	6	6		
Rochester, N.Y.	112	74	22	8	3	5		El Paso, Tex.	50	35	11	2	1	4		
Schenectady, N.Y.	21	16	3	1	-	-		Fort Worth, Tex.	98	65	24	4	2	12		
Scranton, Pa.†	30	19	8	2	-	-		Houston, Tex.	228	113	58	31	8	5		
Syracuse, N.Y.	90	50	30	5	1	-		Little Rock, Ark.	57	33	18	3	2	3		
Trenton, N.J.	37	22	13	1	1	1		New Orleans, La.	141	91	35	9	1	2		
Utica, N.Y.	24	21	1	-	2	3		San Antonio, Tex.	161	107	30	11	3	13		
Yonkers, N.Y.	37	30	7	-	-	3		Shreveport, La.	49	33	11	2	1	3		
								Tulsa, Okla.	110	67	27	8	3	11		
E.N. CENTRAL	2,283	1,360	591	165	90	77		MOUNTAIN	675	417	154	52	19	26		
Akron, Ohio	45	34	6	3	-	1		Albuquerque, N. Mex.	75	46	19	4	2	5		
Canton, Ohio	33	24	7	-	-	-		Colorado Springs, Colo.	32	18	8	3	2	2		
Chicago, Ill.	532	284	156	43	24	15		Denver, Colo.	146	101	28	6	4	8		
Cincinnati, Ohio	153	97	32	12	4	16		Las Vegas, Nev.	71	31	24	9	-	1		
Cleveland, Ohio	200	110	62	13	6	4		Ogden, Utah	31	19	9	1	1	1		
Columbus, Ohio	132	79	35	7	8	5		Phoenix, Ariz.	169	106	32	17	6	2		
Dayton, Ohio	93	60	26	5	1	2		Pueblo, Colo.	28	19	6	2	1	3		
Detroit, Mich.	297	163	69	42	15	9		Salt Lake City, Utah	46	27	10	6	1	-		
Evansville, Ind.	44	26	14	2	-	4		Tucson, Ariz.	77	50	18	4	2	4		
Fort Wayne, Ind.	47	27	16	1	1	2										
Gary, Ind.	19	10	8	-	-	-										
Grand Rapids, Mich.	44	26	10	1	6	-		PACIFIC	1,766	1,168	381	113	55	84		
Indianapolis, Ind.	167	103	37	9	9	1		Berkeley, Calif.	10	7	-	3	-	-		
Madison, Wis.	23	14	3	1	3	2		Fresno, Calif.	58	35	15	4	3	4		
Milwaukee, Wis.	128	91	28	2	6	-		Glendale, Calif.	17	10	5	1	1	-		
Peoria, Ill.††	43	27	10	3	3	3		Honolulu, Hawaii	59	27	19	6	3	6		
Rockford, Ill.	58	31	17	9	1	1		Long Beach, Calif.	96	60	25	5	5	2		
South Bend, Ind.	40	30	7	3	-	6		Los Angeles, Calif.	512	350	100	33	16	23		
Toledo, Ohio	126	83	34	7	1	5		Oakland, Calif.††	74	47	16	5	3	6		
Youngstown, Ohio	59	41	14	2	2	1		Pasadena, Calif.	25	23	1	-	1	1		
								Portland, Oreg.	125	93	23	5	3	1		
W.N. CENTRAL	718	474	157	29	28	35		Sacramento, Calif.	70	46	17	4	2	8		
Des Moines, Iowa	54	36	10	4	4	2		San Diego, Calif.	138	87	35	3	6	1		
Duluth, Minn.	27	22	4	-	1	4		San Francisco, Calif.	169	105	44	16	3	5		
Kansas City, Kans.	27	12	8	3	1	2		San Jose, Calif.	162	104	37	10	4	14		
Kansas City, Mo.	114	66	26	9	7	2		Seattle, Wash.	153	103	28	14	-	7		
Lincoln, Nebr.	31	21	9	-	1	1		Spokane, Wash.	53	39	10	2	2	2		
Minneapolis, Minn.	89	66	14	1	4	5		Tacoma, Wash.	45	32	6	2	3	4		
Omaha, Nebr.	90	58	21	4	2	3										
St. Louis, Mo.	157	102	38	6	6	7										
St. Paul, Minn.	68	49	17	1	-	2										
Wichita, Kans.	61	42	10	1	2	7		TOTAL	11,980	7,564	2,828	790	407	498		

*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.

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

Staphylococcus aureus — Continued

Sixty-two (54%) of the 114 hospital epidemiologists responded to the survey questionnaire within 3 months. Methods of surveillance used by the 62 reporting centers were diverse, but laboratory methods for determining resistance of *S. aureus* were standard (Kirby-Bauer and/or broth or tube dilution minimal-inhibitory concentration). Twenty-three (37%) centers reported at least 1 MRSA blood isolate in 1979; only 6 (10%) reported >5 cases of MRSA bacteremia (Table 1).

TABLE 1. Incidence of nosocomial methicillin-resistant *Staphylococcus aureus* (MRSA) bacteremias in hospitals reporting isolation of the organism, 1979

Hospital by study number	Number of admissions or discharges	Number of <i>S. aureus</i> bloodstream infections	Rate per 10,000 admissions	Number of MRSA bloodstream infections	Rate per 10,000 admissions	Percentage of MRSA isolates/all <i>S. aureus</i> bloodstream infections
33	12,042	58	48	15	12	26
114	36,700	69	19	15	4	22
19	14,039	23	16	14	10	61
26	38,064	115	30	12	3	10
96	22,099	29	13	7	3	24
128	22,459	45	20	6	3	13
16	21,251	81	38	5	2	6
103	20,581	29	14	4	2	14
25	15,359	38	25	4	3	11
125	39,718	72	18	4	1	6
24	8,458	29	34	3	4	10
67	34,267	87	25	3	<1	3
20	8,000	30	38	2	3	7
85	20,674	37	18	2	<1	5
44	12,559	21	17	1	<1	5
50	18,967	13	7	1	<1	8
1	12,983	16	12	1	<1	6
101	7,067	16	23	1	<1	6
47	25,385	19	7	1	<1	5
61	5,018	42	84	1	2	2
23	19,863	42	21	1	<1	2
79	17,949	84	47	1	<1	1

TABLE 2. Distribution of methicillin-resistant *Staphylococcus aureus* in different types of medical centers, 1979

Type of center	Number of hospitals surveyed	Hospitals responding		Hospitals reporting nosocomial MRSA bloodstream infections	
		Number	Percentage	Number	Percentage
Community	47	23	49	8	35
University	45	27	60	11	41
VA/federal	22	12	55	4	33
TOTAL	114	62	54	23	37

Staphylococcus aureus — Continued

MRSA was present in all categories of medical centers surveyed (Table 2): 35% of private hospitals, 33% of Veterans Administration (VA)/federal hospitals, and 41% of university medical centers reported problems with MRSA. Hospitals reporting MRSA were widely distributed geographically in the United States (Figure 2). In 16 of the 27 states represented in the survey, 60% of responding hospitals reported MRSA as a nosocomial bloodstream pathogen.

Reported by RP Wenzel, MD, L Donowitz, MD, University of Virginia School of Medicine, Charlottesville, Virginia; GB Miller, Jr, MD, State Epidemiologist, Virginia State Dept of Health; Hospital Infections Br, Bacterial Diseases Div, Center for Infectious Diseases, CDC.

Editorial Note: Since 1970, MRSA has emerged as an important nosocomial pathogen. Although MRSA has been recognized for years as an important endemic infectious agent in hospitalized patients in Europe (2-3), in North America it has been reported primarily as a cause of sporadic outbreaks (4-6). This survey, which suggests that MRSA is not only an epidemic pathogen, as previously reported, but a significant endemic nosocomial pathogen in the United States, corroborates surveillance data reported by hospitals participating in the National Nosocomial Infections Study (NNIS). In NNIS, the proportion of MRSA isolated from patients with nosocomial infections has increased from 2.4% of all *S. aureus* isolates in 1975 to 4.9% in 1980; most of the isolates were reported from a small number of hospitals in which MRSA appeared to have become endemic.

References

1. Peacock JE, Marsik FJ, Wenzel RP. Methicillin-resistant *Staphylococcus aureus*: introduction and spread within a hospital. *Ann Intern Med* 1980;93:526-32.
2. Cetin ET, Ang O. Staphylococci resistant to methicillin (Celbenin). *Br Med J* 1962;2:51-2.

FIGURE 2. Methicillin-resistant *Staphylococcus aureus* isolates reported from medical centers, United States, 1979



Staphylococcus aureus — Continued

3. Colley EW, McNicol MW, Bracken PM. Methicillin-resistant staphylococci in a general hospital. *Lancet* 1965;1:595-7.
4. Klimet JJ, Marsik FJ, Barlett RC, Weir B, Shea P, Quintiliani R. Clinical, epidemiologic and bacteriologic observations of an outbreak of methicillin-resistant *Staphylococcus aureus* at a large community hospital. *Am J Med* 1977;61:340-5.
5. Crossley K, Loesch D, Landesman B, Mead K, Chern M, Starate R. An outbreak of infections caused by strains of *Staphylococcus aureus* resistant to methicillin and aminoglycosides. I. Clinical studies. *J Infect Dis* 1979;139:273-9.
6. Crossley K, Landesman B, Zaske D. An outbreak of infections caused by strains of *Staphylococcus aureus* resistant to methicillin and aminoglycosides. II. Epidemiologic studies. *J Infect Dis* 1979; 139:280-7.

Current Trends**Rabies — United States, 1980**

In 1980, there were 6,405 laboratory-confirmed cases of animal rabies reported in the United States and its territories (Guam, Puerto Rico, and the Virgin Islands of the United States). This is the largest total since 1954, when 7,282 cases were reported.

The 1980 figure represents an increase of approximately 1,250 cases above the 1979 total and is 83.5% above the average for the preceding 5 years. Forty-eight states and Puerto Rico reported rabid animals in 1980; only the District of Columbia, Guam, Hawaii, Vermont, and the Virgin Islands of the United States reported no cases. Seven kinds of animals accounted for 97% of the total reported cases: skunks, 4,040 (63%); bats, 723 (11.2%); cattle, 398 (6.2%); raccoons, 393 (6.1%); dogs, 247 (4%); cats, 212 (3.3%); and foxes, 207 (3.2%). Wild animals accounted for 85% of the reported cases, and domestic animals accounted for 15%. There were no human cases of rabies reported in 1980.

The geographic distribution of animal rabies in 1980 was similar to the pattern seen in the previous 5 years. Bats continued to be the most widely distributed vector, with confirmed cases occurring in 46 states; skunks, which were reported from 28 states, were second. Reported rabies cases in cattle showed the most dramatic increase—up 75% over the 1979 total and up 112% over the average for the previous 5 years. The increased number of rabies cases in cattle and other domestic animals appears to be both temporally and geographically related to the increase of rabies in skunks.

Reported by the Respiratory and Special Pathogens Br, Viral Diseases Div, Center for Infectious Diseases, CDC.

The Morbidity and Mortality Weekly Report, circulation 110,000, 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. Or call 404-329-3219. When requesting changes be sure to give your former address, including zip code and mailing list code number, or send an old address label.

Director, Centers for Disease Control
William H. Foege, M.D.
Director, Epidemiology Program Office
Philip S. Brachman, M.D.
Editor
Michael B. Gregg, M.D.
Managing Editor
Anne D. Mather, M.A.
Mathematical Statistician
Keewhan Choi, Ph.D.