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Epidemiologic Notes and Reports

Persistent, Generalized Lymphadenopathy among Homosexual Males

Since October 1981, cases of persistent, generalized lymphadenopathy—not attributable to previously identified causes—among homosexual males have been reported to CDC by physicians in several major metropolitan areas in the United States. These reports were prompted by an awareness generated by ongoing CDC and state investigations of other emerging health problems among homosexual males (*1*).

In February and March 1982, records were reviewed for 57 homosexual men with lymphadenopathy seen at medical centers in Atlanta, New York City, and San Francisco. The cases reviewed met the following criteria: 1) lymphadenopathy of at least 3 months' duration, involving 2 or more extra-inguinal sites, and confirmed on physical examination by the patient's physician; 2) absence of any current illness or drug use known to cause lymphadenopathy; and 3) presence of reactive hyperplasia in a lymph node, if a biopsy was performed.

The 57 patients had a mean age of 33 years and the following characteristics: all were male; 81% were white, 15% black, and 4% Hispanic; 83% were single, 6% married, and 11% divorced; 86% were homosexual, 14% bisexual. The median duration of lymphadenopathy was 11 months. Ninety-five percent of patients had at least 3 node chains involved (usually cervical, axillary, and inguinal). Forty-three patients had had lymph node biopsies showing reactive hyperplasia. Approximately 70% of the patients had some constitutional symptoms including fatigue, 70%; fever, 49%; night sweats, 44%; and weight loss of ≥5 pounds, 28%. Hepatomegaly and/or splenomegaly was noted among 26% of patients.

Recorded medical histories for the 57 patients suggested that the use of drugs such as nitrite inhalants, marijuana, hallucinogens, and cocaine was common. Many of these patients have a history of sexually transmitted infections (gonorrhea 58%, syphilis 47%, and amebiasis 42%). Of 30 patients skin-tested for delayed hypersensitivity response, 8 were found to be anergic on the basis of at least 2 antigens other than purified protein derivative (PPD).

Immunologic evaluation performed at CDC for 8 of the above patients demonstrated abnormal T-lymphocyte helper-to-suppressor ratios (<0.9) for 2 patients. Since this review, immunologic evaluations at CDC of 13 additional homosexual males with lymphadenopathy from Atlanta and San Francisco revealed 6 with ratios of <0.9. The normal range of T-lymphocyte helper-to-suppressor ratios established in the CDC laboratory for healthy heterosexual patients is 0.9-3.5 (mean of 2.3). The normal range is being established for apparently healthy homosexual males.

Since the initiation of this study, 1 patient with lymphadenopathy has developed Kaposi's sarcoma.

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Lymphadenopathy — Continued

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Editorial Note: The report above documents the occurrence of cases of unexplained, persistent, generalized lymphadenopathy among homosexual males. There are many known causes of generalized lymphadenopathy including viral infections (e.g., hepatitis B, infectious mononucleosis, cytomegalovirus infection, rubella), tuberculosis, disseminated *Mycobacterium avium-intracellulare*, syphilis, other bacterial and fungal infections, toxoplasmosis, connective tissue disorders, hypersensitivity drug reactions, heroin use, and neoplastic diseases (including leukemia and lymphoma) (*2*). Causes for the persistent lymphadenopathy among patients discussed above were sought but could not be identified.

This unexplained syndrome is of concern because of current reports of Kaposi's sarcoma (KS) and opportunistic infections (OI) that primarily involve homosexual males (*1,3*). Epidemiologic characteristics (age, racial composition, city of residence) of the homosexual patients with lymphadenopathy discussed here are similar to those of the homosexual KS/OI patients. Thirty-two (44%) of 73 Kaposi's sarcoma patients and 14 (23%) of 61 *Pneumocystis carinii* pneumonia patients reported to CDC in the period mid-June 1981-January 1982 had a history of lymphadenopathy before diagnosis (*3*). *Mycobacterium avium-intracellulare* (an opportunistic agent) has been isolated from the lymph nodes of a homosexual patient (*4*). Moreover, the findings of anergy and depressed T-lymphocyte helper-to-suppressor ratios in some of the patients with lymphadenopathy suggest cellular immune dysfunction. Patients with KS/OI have had severe abnormalities of cellular immunity (*5,6*). The relationship between immunologic findings for patients with lymphadenopathy and patients with KS/OI remains to be determined.

Although these cases have been identified and defined on the basis of the presence of lymphadenopathy, this finding may be merely a manifestation of an underlying immunologic or other disorder that needs to be characterized further. Virologic and immunologic studies of many of these patients are currently under way. An analysis of trends in incidence for lymphadenopathy over the past several years is being conducted to determine whether this syndrome is new and whether homosexual males are particularly affected. Results of these studies and follow-up of these patients are necessary before the clinical and epidemiologic significance of persistent, generalized lymphadenopathy among homosexual males can be determined. Homosexual male patients with unexplained, persistent, generalized lymphadenopathy should be followed for periodic review.

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Lymphadenopathy — Continued

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Epistaxis and Liver-Function Abnormalities Associated with Exposure to "Butyl" Caulk — Kentucky

In a recent study the National Institute for Occupational Safety and Health (NIOSH) was asked to investigate a report of possible toluene overexposure involving a person who lived in a log home in Brodhead, Kentucky.

On February 27, 1981, a 45-year-old male resident of Brodhead was hospitalized for uncontrolled epistaxis. Three days earlier, while the walls on the first floor of his log home were being caulked with a toluene- and petroleum distillate-based "butyl" caulk, he had noted a "strong solvent odor." However, he remained in the house almost continuously. Over the next 3 days, he experienced increasingly severe headache, nausea, dizziness, and feelings of disorientation. On the fourth morning he had a nosebleed that became profuse in early evening, requiring that he be hospitalized. His wife and 2 sons, who slept upstairs, had similar symptoms, including nosebleeds, but to a milder degree. Neither he nor his family had a history of nosebleeds or bleeding diathesis. Results of blood tests done during his hospitalization to determine coagulation parameters were consistently normal.

In the first 5 days of his hospitalization, the patient continued to have intermittent nasal hemorrhage despite packing. He received 8 units of blood in the same period and underwent surgery on March 4. On March 6, a routine blood chemistry screen showed elevations of total bilirubin, alkaline phosphatase, gamma glutamyl-transferase, serum glutamic oxalacetic transaminase, and lactate dehydrogenase. His liver function returned to normal within 2 weeks, except for a persistently elevated alkaline phosphatase. Although he did not and does not consume alcohol, he has since developed moderate hepatomegaly. A liver biopsy done on February 1, 1982, showed fatty infiltration and fibrosis. There was no history of hepatitis or exposure to hepatitis; however, laboratory tests to rule out viral hepatitis were not done.

Evaluation of the log home included air sampling and caulk analysis by a private environmental consulting firm on April 5, 1981, and a visit by NIOSH investigators on April 20 (*1*). Air sampling on April 5 showed toluene at a concentration of 2 parts per million (ppm) in the patient's bedroom (acceptable NIOSH limit is 100 ppm). NIOSH investigators noted that the house was heated to about 75 F (24 C) without humidification. The patient's bedroom had bare log walls with caulk visibly extruding between the logs. NIOSH calculated the surface area of exposed caulk in the bedroom to be 4.4 square feet. Quantitative analysis of a bulk sample of fresh caulk yielded 6% toluene, 0.5% xylene, and 15.5% "naphtha" or mixed petroleum distillates.

Reported by the Hazard Evaluations and Technical Assistance Br, Div of Surveillance, Hazard Evaluations, and Field Studies, NIOSH, CDC.

Editorial Note: Symptoms compatible with central nervous system (CNS) involvement have been reported following occupational exposure to toluene, xylene, and naphtha (*2*). Airborne xylene in high concentrations is particularly irritating to mucous membranes (*3*). Although toxic hepatitis has been reported only rarely in association with toluene and xylene exposures (*4,5*), persistently elevated alkaline phosphatase was reported for a glue "sniffer" who was

Epistaxis — Continued

heavily exposed to toluene (*4*), and hepatomegaly was reported for a substantial proportion of industrial painters who were chronically exposed to toluene (*6*). In a recent Swedish study (*7*), industrial painters who were chronically exposed to levels of toluene and mixed solvents that were below Sweden's standard threshold limit had significantly higher alkaline phosphatase levels than did a reference group.

Although environmental monitoring was not done in the log home until several weeks after the patient was initially hospitalized, it appears likely that he was exposed to air levels of toluene, naphtha, and xylene sufficient to cause symptoms compatible with CNS involvement and to precipitate—in combination with the dry, warm, indoor air—a severe nosebleed. Mucous-membrane irritation resulting from chemical exposure associated with nosebleeds is not uncommon. Although the association between such an exposure and liver-function abnormalities and persistent hepatomegaly is less clear, the sudden rise and fall in liver enzymes within 2 weeks after exposure to the caulk, and the absence of any other explanation for the liver function abnormalities, make the possibility of toxic hepatitis plausible. Results of tests on material obtained in a liver biopsy a year after the exposure are compatible with this hypothesis.

Contact with the trade organization of log-home manufacturers and 17 of its member companies indicated that, because of variations in the building design, there is no established policy regarding variations in the techniques or the types of caulking used. Member companies stated that the first caulking is usually done at the time of construction and that the structure is recaulked again later. Neither the caulk manufacturer nor the trade organization recalled previous reports of illness associated with exposure to caulk vapors.

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Human Cryptosporidiosis — Alabama

A case of human cryptosporidiosis in an animal handler has been reported by Auburn University. About 3 weeks before onset of symptoms in mid-July 1981, the patient, a previously healthy 25-year-old male free of immune deficiencies, had started a survey of calves for *Cryptosporidium* sp. (*1*). Clinical features of his illness included nausea and low-grade fever, moderate abdominal cramps, anorexia, 5-10 watery, frothy bowel movements a day, and then constipation. Fourteen days after onset, the patient was much improved and was eating a full diet. Sheather's sugar-flotation tests showed oocysts of *Cryptosporidium* sp. in the first fecal sample collected 56 hours after onset of symptoms and in fecal samples collected daily

Cryptosporidiosis — Continued

through the 12th day of illness; no oocysts were found after day 12. Additional details of this case and the methods for diagnosis of human cryptosporidiosis have been published (*1*).

Since the initial report was submitted in September 1981, stool examinations have been done for 16 other animal handlers at the university who had contact with animals involved in 3 separate, unrelated outbreaks of calf cryptosporidiosis. From these 16 persons, 11 additional cases of human cryptosporidiosis were identified. All involved previously healthy individuals; no abnormalities were noted in their levels of serum globulins at the time of infection, and no deficiencies in cell-mediated immune response were detected by lymphocyte-blastogenesis testing. Symptoms occurred within 1-2 weeks after the individuals had first contact with the infected calves. Four of these 11 patients had clinical symptoms similar to those described above; 4 had diarrhea and moderate abdominal cramps; 1 had fever, constipation, and abdominal cramps; and 2 were asymptomatic. All diagnoses were based on the presence of *Cryptosporidium* sp. oocysts in stool specimens. *Cryptosporidium* sp. oocysts had been found in calf feces but were not found in the stools of any other animals (cats, dogs, goats, pigs, or rats) with which the patients had had contact.

Oocysts of *Cryptosporidium* sp. isolated from the animal handlers were found to be morphologically indistinguishable from those obtained from naturally and experimentally infected calves. When *Cryptosporidium* sp. oocysts isolated from humans and calves were inoculated orally into mice and rats, the infections produced by oocysts from the animal handlers were indistinguishable from those produced by calf oocysts. Oocysts from the animal handlers also produced cryptosporidiosis in calves that had previously been free of *Cryptosporidium.*

Reported by WL Current, PhD, NC Reese, Dept of Zoology-Entomology, Auburn University, JV Ernst, PhD, WS Bailey, DVM, ScD, USDA Regional Parasite Research Laboratory, Auburn, Alabama; Parasitic Diseases Div, Center for Infectious Diseases, CDC.

Editorial Note: Before this report from Alabama, no more than approximately a dozen cases of human cryptosporidiosis had been reported in the literature. Of these, 6 involved patients who had prolonged illness and were shown to be immunologically deficient (*2-7*), 2 other patients were undergoing immunosuppressive chemotherapy (*8-9*), and 4 were otherwise apparently healthy (*1,10-12*). Eight of these 12 cases (*2-9*) were diagnosed only after histologic examination of small- or large-bowel biopsy material. The human cases at Auburn were diagnosed and monitored by the demonstration of *Cryptosporidium* oocysts in fecal flotations (*1*), as were several of the other previously reported cases (*11-12*).

Data presented in this report suggest that cryptosporidiosis occurs among not only immunologically compromised persons but also apparently healthy individuals. This information also adds substantial support to earlier proposals that cryptosporidiosis is a zoonosis (*1,13*) and that *Cryptosporidium* is not host specific (*1,13,14*), as has been reported (*15*). In the cases discussed above, it appears that *Cryptosporidium* caused the illness of the infected individuals. Cultures of fecal samples for salmonellae were negative; however, techniques for detecting other viral or bacterial pathogens were not performed. These data also indicate that calves with diarrhea due to *Cryptosporidium* should be considered as potential sources of human infection and that proper precautions should be taken by individuals who have contact with such animals.

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

DISEASE	19th WEEK ENDING			CUMULATIVE, FIRST 19 WEEKS		
	May 15 1982	May 16 1981	MEDIAN 1977-1981	May 15 1982	May 16 1981	MEDIAN 1977-1981
Aseptic meningitis	82	90	61	1,417	1,263	909
Brucellosis	2	5	5	43	49	56
Encephalitis: Primary (arthropod-borne & unspec.)	15	12	11	274	248	224
Post-infectious	3	1	5	24	33	67
Gonorrhea: Civilian	16,823	18,446	18,446	328,945	354,281	344,307
Military	739	687	616	9,638	10,578	9,883
Hepatitis: Type A	417	480	581	8,108	9,206	10,348
Type B	371	416	339	7,292	7,065	5,858
Non A, Non B	46	N	N	746	N	N
Unspecified	151	218	171	3,272	3,982	3,654
Legionellosis	4	N	N	122	N	N
Leprosy	3	3	3	69	78	58
Malaria	15	29	12	274	480	177
Measles (rubeola)	68	161	810	560	1,390	7,703
Meningococcal infections: Total	62	69	60	1,332	1,752	1,229
Civilian	62	69	60	1,328	1,747	1,217
Military	-	-	-	4	5	10
Mumps	119	92	457	2,803	1,972	7,455
Pertussis	10	15	20	385	377	389
Rubella(German measles)	78	88	617	1,165	1,121	6,802
Syphilis (Primary & Secondary): Civilian	495	553	457	11,935	10,923	8,804
Military	7	8	8	149	131	112
Tuberculosis	487	616	597	9,094	9,350	9,721
Tularemia	4	7	3	37	46	40
Typhoid fever	4	8	8	131	165	138
Typhus fever, tick-borne (RMSF)	20	40	27	79	128	66
Rabies, animal	115	159	125	2,139	2,710	1,652

TABLE II. Notifiable diseases of low frequency, United States

	CUM. 1982		CUM. 1982
Anthrax	-	Poliomyelitis: Total	1
Botulism (Utah 1, Calif. 1, Hawaii 1)	25	Paralytic	1
Cholera	-	Psittacosis (NYC 1)	33
Congenital rubella syndrome (Calif. 2)	5	Rabies, human	-
Diphtheria	-	Tetanus (W. Va. 1)	21
Leptospirosis (Texas 1, Wash. 1)	22	Trichinosis (NYC 1)	43
Plague	3	Typhus fever, flea-borne (endemic, murine)	5

N: Not notifiable

TABLE III. Cases of specified notifiable diseases, United States, weeks ending May 15, 1982 and May 16, 1981 (19th week)

REPORTING AREA	ASEPTIC MENINGITIS	BRUCELLOSIS	ENCEPHALITIS		GONORRHEA (Civilian)		HEPATITIS (Viral), by type				LEGIONELLOSIS	LEPROSY
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
	1982	CUM. 1982	CUM. 1982	CUM. 1982	CUM. 1982	CUM. 1981	1982	1982	1982	1982	1982	CUM. 1982
UNITED STATES	82	43	274	24	328,945	354,281	417	371	46	151	4	69
NEW ENGLAND	2	-	12	4	8,062	8,673	6	18	1	4	-	1
Maine	-	-	-	-	354	440	-	1	-	-	-	-
N.H.	1	-	-	-	218	307	2	-	-	1	-	-
Vt.	-	-	-	-	169	145	-	-	-	-	-	-
Mass.	-	-	4	-	3,801	3,585	4	5	1	3	-	-
R.I.	-	-	-	-	555	435	-	2	-	-	-	-
Conn.	1	-	8	4	2,965	3,761	-	10	-	-	-	1
MID. ATLANTIC	12	-	42	3	40,012	41,720	47	47	4	10	1	4
Upstate N.Y.	1	-	15	-	6,622	6,772	25	16	3	2	-	1
N.Y. City	6	-	9	-	17,098	17,252	6	13	-	3	-	1
N.J.	5	-	10	-	7,106	8,026	16	18	1	5	1	1
Pa.	U	-	8	3	9,186	9,670	U	U	U	U	U	1
E.N. CENTRAL	7	-	52	6	45,095	55,152	35	37	2	18	-	-
Ohio	2	-	16	4	13,803	19,121	13	16	-	7	-	-
Ind.	-	-	13	2	5,347	4,729	7	5	2	5	-	-
Ill.	2	-	-	-	10,196	15,196	3	3	-	1	-	-
Mich.	2	-	21	-	11,281	11,328	8	11	-	5	-	-
Wis.	1	-	2	-	4,468	4,778	4	2	-	-	-	-
W.N. CENTRAL	1	4	15	2	15,985	16,436	11	13	2	4	-	-
Minn.	-	-	1	1	2,396	2,596	6	2	1	-	-	-
Iowa	1	1	8	1	1,749	1,713	1	1	-	3	-	-
Mo.	-	1	4	-	7,349	7,391	3	6	-	-	-	-
N. Dak.	-	-	-	-	228	224	-	-	-	-	-	-
S. Dak.	-	-	-	-	446	487	-	2	-	-	-	-
Nebr.	-	-	1	-	989	1,305	-	2	1	1	-	-
Kans.	-	2	1	-	2,828	2,720	1	-	-	-	-	-
S. ATLANTIC	17	13	39	5	80,948	86,862	39	87	10	24	2	4
Del.	-	-	-	-	1,328	1,303	1	1	-	-	-	-
Md.	-	-	10	-	10,725	9,472	1	15	3	4	1	2
D.C.	-	-	-	-	4,532	5,519	1	2	-	-	-	-
Va.	4	4	9	-	7,481	7,949	11	14	-	5	-	-
W. Va.	-	-	-	-	995	1,311	8	5	-	-	-	-
N.C.	2	-	4	1	14,059	13,546	6	4	-	4	-	-
S.C.	-	2	-	-	8,316	8,318	-	3	-	-	-	-
Ga.	-	1	-	-	9,483	17,314	1	19	1	1	-	-
Fla.	11	6	16	4	24,029	22,130	10	24	6	10	1	2
E.S. CENTRAL	3	5	15	1	28,545	29,333	21	32	3	3	-	-
Ky.	-	-	-	-	3,763	3,763	9	10	-	-	-	-
Tenn.	-	3	9	-	10,797	10,941	9	8	1	1	-	-
Ala.	3	1	5	1	8,812	9,238	1	9	2	2	-	-
Miss.	-	1	1	-	5,173	5,391	2	5	-	-	-	-
W.S. CENTRAL	9	11	30	-	47,426	47,155	120	40	1	40	-	8
Ark.	-	3	1	-	4,006	3,271	-	3	-	2	-	-
La.	-	2	4	-	8,614	7,412	11	10	1	2	-	-
Okla.	-	3	9	-	5,088	4,815	9	5	-	6	-	-
Tex.	9	3	16	-	29,718	31,657	100	22	-	30	-	8
MOUNTAIN	1	-	14	1	11,970	14,071	33	18	3	12	1	2
Mont.	-	-	-	-	489	507	1	1	-	-	-	-
Idaho	-	-	-	-	544	577	-	-	-	-	1	1
Wyo.	1	-	-	-	326	314	2	-	-	-	-	-
Colo.	-	-	4	1	3,143	3,748	4	3	-	-	-	-
N. Mex.	-	-	-	-	1,502	1,522	5	1	2	-	-	-
Ariz.	-	-	6	-	3,326	4,376	18	11	1	6	-	-
Utah	-	-	-	-	545	661	-	1	-	5	-	1
Nev.	-	-	4	-	2,095	2,366	3	1	-	1	-	-
PACIFIC	30	10	55	2	50,902	54,879	105	79	20	36	-	50
Wash.	1	-	5	-	4,259	4,755	38	13	6	3	-	5
Oreg.	1	-	1	-	2,798	3,679	5	2	-	1	-	-
Calif.	25	9	45	2	41,676	43,954	59	63	14	32	-	25
Alaska	-	1	3	-	1,277	1,417	-	-	-	-	-	1
Hawaii	3	-	1	-	892	1,074	3	1	-	-	-	19
Guam	U	-	-	-	29	53	U	U	U	U	U	-
P.R.	1	-	1	-	1,071	1,199	7	7	-	8	-	-
V.I.	U	-	-	-	60	48	U	U	U	U	U	-
Pac. Trust Terr.	U	-	-	-	36	152	U	U	U	U	U	1

N: Not notifiable U: Unavailable

TABLE III (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending May 15, 1982 and May 16, 1981 (19th week)

REPORTING AREA	MALARIA		MEASLES (RUBEOLA)			MENINGOCOCCAL INFECTIONS (Total)		MUMPS		PERTUSSIS	RUBELLA		
	1982	CUM. 1982	1982	CUM. 1982	CUM. 1981	1982	CUM. 1982	1982	CUM. 1982	1982	1982	CUM. 1982	CUM. 1981
UNITED STATES	15	274	68	560	1,390	62	1,332	119	2,803	10	78	1,165	1,121
NEW ENGLAND	1	19	-	7	51	6	77	3	134	1	-	9	87
Maine	-	-	-	-	4	-	2	2	29	-	-	-	32
N.H.	-	-	-	1	6	1	11	-	12	-	-	8	33
Vt.	-	-	-	2	2	-	4	-	4	1	-	-	-
Mass.	1	14	-	2	33	1	21	-	68	-	-	-	13
R.I.	-	1	-	-	-	1	10	-	10	-	-	1	-
Conn.	-	4	-	2	6	3	29	1	11	-	-	-	9
MID. ATLANTIC	2	31	8	41	415	12	220	1	176	3	3	67	129
Upstate N.Y.	-	6	8	23	177	6	58	1	36	2	2	33	53
N.Y. City	2	13	-	16	30	5	46	-	31	-	1	21	31
N.J.	-	8	-	-	41	1	48	-	30	1	-	13	41
Pa.	U	4	U	2	167	U	68	U	79	U	U	-	4
E.N. CENTRAL	1	18	-	31	67	8	161	48	1,631	-	2	101	253
Ohio	-	5	-	-	15	5	68	27	1,200	-	-	-	-
Ind.	-	1	-	1	6	-	13	-	25	-	-	18	88
Ill.	-	1	-	15	20	1	36	5	105	-	2	28	61
Mich.	-	9	-	15	25	2	33	16	230	-	-	38	29
Wis.	1	2	-	-	1	-	11	-	71	-	-	17	75
W.N. CENTRAL	1	8	-	2	4	3	54	42	236	1	1	27	69
Minn.	-	-	-	-	1	-	12	25	137	1	-	5	7
Iowa	-	3	-	-	1	-	5	1	24	-	-	-	1
Mo.	1	2	-	2	-	1	18	-	13	-	1	16	2
N. Dak.	-	-	-	-	-	-	4	-	-	-	-	-	-
S. Dak.	-	-	-	-	-	-	1	-	1	-	-	1	-
Nebr.	-	2	-	-	1	-	4	-	-	-	-	-	1
Kans.	-	1	-	-	1	2	10	16	61	-	-	5	58
S. ATLANTIC	1	45	2	31	277	15	274	8	170	2	3	36	99
Del.	-	-	-	-	-	-	-	-	3	-	-	-	-
Md.	-	6	-	2	1	3	17	-	13	-	-	14	1
D.C.	-	3	-	1	1	-	1	-	-	-	-	-	-
Va.	-	16	-	14	3	2	28	4	27	2	-	10	3
W. Va.	1	2	-	1	7	-	7	-	72	-	-	1	17
N.C.	-	-	-	-	3	6	48	1	7	-	-	-	4
S.C.	-	3	-	-	-	-	32	-	9	-	-	1	6
Ga.	-	6	-	-	91	1	64	1	7	-	1	3	24
Fla.	-	9	2	13	171	3	77	2	32	-	2	7	44
E.S. CENTRAL	-	1	1	6	-	3	87	1	26	1	-	34	20
Ky.	-	1	-	1	-	-	13	-	9	-	-	19	12
Tenn.	-	-	-	4	-	2	35	1	10	-	-	-	8
Ala.	-	-	-	-	-	-	34	-	4	-	-	-	-
Miss.	-	-	1	1	-	1	5	-	3	1	-	15	-
W.S. CENTRAL	2	23	3	14	363	5	164	7	111	1	3	65	71
Ark.	-	3	-	-	-	-	8	1	6	-	-	-	-
La.	-	3	-	-	-	-	25	-	3	-	-	-	9
Okla.	-	2	-	-	5	2	14	-	-	-	-	2	-
Tex.	2	15	3	14	358	3	117	6	102	1	3	53	62
MOUNTAIN	-	6	-	-	21	2	78	1	41	-	-	31	56
Mont.	-	-	-	-	-	-	4	-	3	-	-	3	3
Idaho	-	-	-	-	-	1	6	-	2	-	-	-	2
Wyo.	-	-	-	-	-	-	4	-	2	-	-	5	1
Colo.	-	4	-	-	5	1	30	-	7	-	-	2	27
N. Mex.	-	1	-	-	4	-	11	-	-	-	-	2	4
Ariz.	-	1	-	-	2	-	14	-	14	-	-	7	11
Utah	-	-	-	-	-	-	6	1	11	-	-	10	3
Nev.	-	-	-	-	10	-	3	-	2	-	-	2	5
PACIFIC	7	123	54	428	192	8	217	8	278	1	66	795	337
Wash.	-	6	2	18	1	-	23	-	43	-	3	22	46
Oreg.	1	4	-	-	1	-	45	-	-	-	-	3	37
Calif.	6	111	52	408	188	8	137	6	225	1	63	762	250
Alaska	-	-	-	-	-	-	9	-	6	-	-	1	-
Hawaii	-	2	-	2	2	-	3	2	4	-	-	7	4
Guam	U	1	U	-	5	U	1	U	1	U	U	1	1
P.R.	-	4	4	61	152	-	3	-	26	-	-	4	3
V.I.	U	-	U	-	6	U	-	U	-	U	U	-	-
Pac. Trust Terr.	U	-	U	-	-	U	-	U	-	U	U	-	1

U: Unavailable

TABLE III (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending May 15, 1982 and May 16, 1981 (19th week)

REPORTING AREA	SYPHILIS (Civilian) (Primary & Secondary)		TUBERCULOSIS		TULA-REMIA	TYPHOID FEVER		TYPHUS FEVER (Tick-borne) (RMSF)		RABIES, Animal
	CUM. 1982	CUM. 1981	1982	CUM. 1982	CUM. 1982	1982	CUM. 1982	1982	CUM. 1982	CUM. 1982
UNITED STATES	11,935	10,923	487	9,094	37	4	131	20	79	2,139
NEW ENGLAND	220	241	17	248	-	-	11	-	-	5
Maine	1	1	3	20	-	-	-	-	-	5
N.H.	-	9	-	9	-	-	-	-	-	-
Vt.	-	13	-	6	-	-	2	-	-	-
Mass.	155	150	8	169	-	-	8	-	-	-
R.I.	12	16	1	9	-	-	-	-	-	-
Conn.	52	52	5	35	-	-	1	-	-	-
MID. ATLANTIC	1,610	1,694	58	1,494	3	1	17	-	-	45
Upstate N.Y.	166	145	23	280	3	-	2	-	-	25
N.Y. City	982	1,057	25	577	-	1	12	-	-	-
N.J.	197	212	10	282	-	-	3	-	-	1
Pa.	265	280	U	355	-	U	-	U	-	19
E.N. CENTRAL	657	773	72	1,409	-	-	13	-	-	244
Ohio	115	100	7	247	-	-	6	-	-	33
Ind.	81	67	4	179	-	-	-	-	-	40
Ill.	297	430	33	564	-	-	3	-	-	105
Mich.	124	138	27	342	-	-	4	-	-	1
Wis.	40	38	1	77	-	-	-	-	-	65
W.N. CENTRAL	235	196	10	283	7	-	3	-	3	487
Minn.	41	72	-	47	-	-	-	-	-	80
Iowa	11	9	-	41	1	-	1	-	-	153
Mo.	145	96	7	131	5	-	1	-	1	54
N. Dak.	4	3	-	6	-	-	-	-	-	47
S. Dak.	-	2	3	10	-	-	-	-	-	34
Nebr.	8	3	-	12	-	-	-	-	-	55
Kans.	26	11	-	36	1	-	1	-	2	64
S. ATLANTIC	3,308	2,884	122	1,814	6	-	18	18	42	345
Del.	7	7	-	18	-	-	-	-	-	-
Md.	193	227	14	219	1	-	6	1	8	19
D.C.	207	255	8	71	-	-	-	-	-	-
Va.	241	275	12	200	1	-	2	2	2	167
W. Va.	8	7	3	49	-	-	2	-	-	18
N.C.	240	214	23	300	-	-	-	10	19	12
S.C.	150	199	12	176	3	-	2	5	12	21
Ga.	689	730	19	253	-	-	-	-	1	83
Fla.	1,573	970	31	528	1	-	6	-	-	25
E.S. CENTRAL	857	725	41	824	4	-	11	-	6	260
Ky.	42	33	7	229	-	-	-	-	-	45
Tenn.	237	290	16	276	4	-	2	-	2	180
Ala.	302	193	18	243	-	-	7	-	3	35
Miss.	276	209	-	76	-	-	2	-	1	-
W.S. CENTRAL	2,998	2,564	77	1,027	11	-	7	2	26	445
Ark.	80	48	10	101	6	-	-	-	2	61
La.	639	553	9	187	1	-	-	-	-	11
Okla.	64	69	-	139	4	-	2	1	15	93
Tex.	2,215	1,894	58	600	-	-	5	1	9	280
MOUNTAIN	301	270	13	269	3	1	6	-	1	55
Mont.	1	8	-	18	-	-	-	-	-	26
Idaho	17	2	-	11	1	-	-	-	1	-
Wyo.	9	4	-	2	1	-	-	-	-	2
Colo.	89	90	-	31	-	1	2	-	-	-
N. Mex.	61	60	2	49	-	-	-	-	-	6
Ariz.	67	51	7	112	-	-	3	-	-	21
Utah	10	7	1	15	1	-	1	-	-	-
Nev.	47	48	3	31	-	-	-	-	-	-
PACIFIC	1,749	1,576	77	1,726	3	2	45	-	1	253
Wash.	53	61	7	103	1	-	2	-	-	-
Oreg.	49	35	3	64	-	-	1	-	-	-
Calif.	1,595	1,445	53	1,411	2	2	41	-	1	186
Alaska	6	4	-	18	-	-	-	-	-	67
Hawaii	46	31	14	130	-	-	1	-	-	-
Guam	-	-	U	2	-	U	-	U	-	-
P.R.	221	258	-	116	-	-	1	-	-	20
V.I.	-	4	U	1	-	U	-	U	-	-
Pac. Trust Terr.	-	-	U	19	-	U	-	U	-	-

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending May 15, 1982(19th week)

REPORTING AREA	ALL CAUSES, BY AGE (YEARS)						P&I** TOTAL
	ALL AGES	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	676	464	141	30	21	20	44
Boston, Mass.	176	101	42	11	9	13	16
Bridgeport, Conn.	48	35	11	1	1	-	-
Cambridge, Mass.	19	16	3	-	-	-	4
Fall River, Mass.	30	22	7	1	-	-	1
Hartford, Conn.	60	45	5	6	1	3	1
Lowell, Mass.	16	10	5	1	-	-	1
Lynn, Mass.	17	13	3	1	-	-	-
New Bedford, Mass.	26	23	2	-	1	-	-
New Haven, Conn.	53	32	16	3	2	-	1
Providence, R.I.	71	50	15	4	2	-	6
Somerville, Mass.	7	6	1	-	-	-	-
Springfield, Mass.	54	35	14	1	2	2	5
Waterbury, Conn.	39	29	7	1	1	1	5
Worcester, Mass.	60	47	10	-	2	1	4
MID. ATLANTIC	2,580	1,672	584	193	68	61	77
Albany, N.Y.	66	47	12	2	4	1	2
Allentown, Pa.	16	14	2	-	-	-	-
Buffalo, N.Y.	100	68	23	5	2	2	5
Camden, N.J.	38	24	11	1	1	1	-
Elizabeth, N.J.	22	15	4	3	-	-	1
Erie, Pa.†	44	34	8	1	1	-	-
Jersey City, N.J.	65	49	10	2	3	1	-
N.Y. City, N.Y.	1,416	908	326	119	31	32	32
Newark, N.J.	58	28	18	6	1	3	4
Paterson, N.J.	33	18	8	3	2	2	-
Philadelphia, Pa.†	276	150	76	31	13	6	12
Pittsburgh, Pa.†	63	42	13	4	1	3	3
Reading, Pa.	24	18	4	-	2	-	2
Rochester, N.Y.	119	83	20	7	2	7	9
Schenectady, N.Y.	31	20	10	-	1	-	1
Scranton, Pa.†	24	17	5	1	1	-	1
Syracuse, N.Y.	91	66	17	4	2	2	1
Trenton, N.J.	47	33	8	4	1	1	-
Utica, N.Y.	18	15	3	-	-	-	3
Yonkers, N.Y.	29	23	6	-	-	-	1
E.N. CENTRAL	2,379	1,485	566	152	79	97	85
Akron, Ohio	48	32	11	1	1	3	-
Canton, Ohio	35	24	9	1	1	-	2
Chicago, Ill.	584	327	147	56	28	26	15
Cincinnati, Ohio	130	85	26	9	3	7	14
Cleveland, Ohio	190	119	46	6	4	15	3
Columbus, Ohio	179	106	44	13	3	13	2
Dayton, Ohio	96	70	20	3	1	2	5
Detroit, Mich.	290	162	83	27	12	6	7
Evansville, Ind.	39	30	7	1	1	-	1
Fort Wayne, Ind.	49	35	12	1	1	-	6
Gary, Ind.	14	8	-	3	3	-	-
Grand Rapids, Mich.	63	42	15	2	2	2	-
Indianapolis, Ind.	144	85	37	10	6	6	5
Madison, Wis.	35	19	10	3	1	2	2
Milwaukee, Wis.	107	69	26	5	4	3	3
Peoria, Ill.	51	36	10	2	1	2	5
Rockford, Ill.	43	30	12	1	-	-	3
South Bend, Ind.	49	37	7	3	1	1	3
Toledo, Ohio	182	139	28	3	6	6	9
Youngstown, Ohio	51	30	16	2	-	3	-
W.N. CENTRAL	676	455	137	41	21	22	28
Des Moines, Iowa	69	46	14	6	2	1	1
Duluth, Minn.	19	17	1	-	1	-	3
Kansas City, Kans.	23	11	6	3	2	1	1
Kansas City, Mo.	102	61	25	1	6	9	4
Lincoln, Nebr.	26	22	3	1	-	-	-
Minneapolis, Minn.	84	57	18	6	-	3	1
Omaha, Nebr.	71	60	6	3	-	2	2
St. Louis, Mo.	131	90	28	10	2	1	5
St. Paul, Minn.	74	61	9	1	2	1	2
Wichita, Kans.	77	30	27	10	6	4	9

REPORTING AREA	ALL CAUSES, BY AGE (YEARS)						P&I** TOTAL
	ALL AGES	≥65	45-64	25-44	1-24	<1	
S. ATLANTIC	1,317	753	341	124	49	49	45
Atlanta, Ga.	119	67	39	10	1	2	1
Baltimore, Md.	194	116	52	16	7	3	5
Charlotte, N.C.	79	54	18	3	2	2	4
Jacksonville, Fla.	95	45	29	10	4	7	1
Miami, Fla.	101	58	28	9	4	2	1
Norfolk, Va.	51	26	20	3	-	2	2
Richmond, Va.	77	48	19	4	3	3	8
Savannah, Ga.	49	24	14	6	2	3	7
St. Petersburg, Fla.	80	66	11	2	1	-	1
Tampa, Fla.	64	36	20	2	3	3	3
Washington, D.C.	354	180	79	59	19	16	12
Wilmington, Del.	54	33	12	-	3	6	-
E.S. CENTRAL	644	371	163	44	19	47	24
Birmingham, Ala.	110	61	30	9	2	8	-
Chattanooga, Tenn.	51	31	12	4	2	2	2
Knoxville, Tenn.	46	28	13	2	-	3	-
Louisville, Ky.	101	61	28	7	1	4	4
Memphis, Tenn.	147	73	34	12	8	20	8
Mobile, Ala.	55	33	15	5	2	-	4
Montgomery, Ala.	44	29	9	2	1	3	2
Nashville, Tenn.	90	55	22	3	3	7	4
W.S. CENTRAL	1,298	733	349	104	69	43	39
Austin, Tex.	48	27	14	4	-	3	1
Baton Rouge, La.	54	35	9	4	5	1	1
Corpus Christi, Tex.	49	25	16	4	2	2	-
Dallas, Tex.	152	86	40	10	11	5	1
El Paso, Tex.	64	35	17	3	5	4	3
Fort Worth, Tex.	115	77	23	9	3	3	7
Houston, Tex.	334	157	109	43	16	9	5
Little Rock, Ark.	75	42	22	4	3	4	5
New Orleans, La.	89	41	32	11	3	2	-
San Antonio, Tex.	157	103	30	6	15	3	4
Shreveport, La.	58	36	18	1	2	1	4
Tulsa, Okla.	103	69	19	5	4	6	8
MOUNTAIN	585	346	132	51	36	20	25
Albuquerque, N.Mex.	94	39	30	17	7	1	1
Colo. Springs, Colo.	19	13	3	1	1	1	3
Denver, Colo.	103	61	23	4	4	11	4
Las Vegas, Nev.	71	46	14	7	4	-	1
Ogden, Utah	24	15	6	1	-	2	1
Phoenix, Ariz.	129	69	31	15	10	4	4
Pueblo, Colo.	15	11	2	2	-	-	4
Salt Lake City, Utah	43	30	5	4	4	-	2
Tucson, Ariz.	87	62	18	-	6	1	5
PACIFIC	1,903	1,275	389	108	63	67	103
Berkeley, Calif.	23	15	4	3	-	1	2
Fresno, Calif.	76	53	9	3	5	6	2
Glendale, Calif.	26	22	2	-	-	2	2
Honolulu, Hawaii	62	50	6	4	1	1	6
Long Beach, Calif.	100	74	18	3	1	4	5
Los Angeles, Calif.	534	358	112	41	13	9	30
Oakland, Calif.	82	51	16	5	6	4	4
Pasadena, Calif.	32	19	8	3	1	1	3
Portland, Oreg.	107	79	17	2	3	6	4
Sacramento, Calif.	85	60	18	2	4	1	6
San Diego, Calif.	138	88	35	5	5	5	13
San Francisco, Calif.	176	105	52	9	5	5	4
San Jose, Calif.	185	110	34	19	11	11	7
Seattle, Wash.	164	115	33	6	6	4	5
Spokane, Wash.	66	43	13	3	2	5	9
Tacoma, Wash.	47	33	12	-	-	2	1
TOTAL	12,058††	7,554	2,802	847	425	426	470

*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.

††Total includes unknown ages.

Current Trends

Urban Rat Control — United States

During the first quarter of fiscal year 1982, urban rat-control programs in 56 communities achieved maintenance status* in 910 blocks and identified 1,231 environmentally improved blocks (EIB).† Program services were provided to almost 2.8 million people in over 19,000 blocks.

Since 1969, local programs have provided services benefiting almost 9 million people in approximately 61,000 blaocks. Of these blocks, 17,896 remain in operational areas, but 43,046 have been removed from these areas and classified as EIB. As a result of program accomplishments, 7.7 million people now live in rat-free, environmentally improved neighborhoods.

*Blocks that have limited environmental deficiencies and are essentially rat-free.
†Blocks that have remained in maintenance for at least 1 year and no longer require intensive rat control efforts.

TABLE 1. Status of target-area blocks in urban rat-control programs, first quarter, fiscal year 1982 (October 1-December 31, 1981)

Program community	Target-area blocks				Environmentally improved blocks*	
	Total	In attack phase	In maintenance phase		New this quarter	Cumulative
			<12 months	≥12 months		
REGION I	904	513	264	127	0	1,154
Bridgeport	204	120	85	15	0	0
Hartford	317	154	101	62	0	313
Boston	367	239	78	50	0	53
Previously funded programs	...	...	...	...	...	768
REGION II	3,324	1,231	921	784	148	5,641
Atlantic City	202	20	81	26	0	0
Camden	232	134	60	38	0	119
Jersey City	183	51	94	38	0	260
Newark	201	11	35	30	100	143
New York City	1,134	412	292	430	0	1,219
Rochester	174	76	71	27	48	494
Yonkers	80	60	20	0	0	145
Aguadilla	201	95	11	9	0	254
Arecibo	102	36	66	0	0	291
Guayama	176	131	45	0	0	40
Mayaguez	155	67	72	16	0	230
Ponce	226	41	14	69	0	378
San Juan	258	97	60	101	0	405
Previously funded programs	...	...	...	...	...	1,654
REGION III	2,931	1,221	895	407	207	8,153
"War on Rats"	915	401	278	55	89	1,322
Chester	181	62	59	39	0	116
NE Pa. V.C. Assn.†	531	207	91	118	10	1,364
Philadelphia	934	445	379	110	82	1,646
Pittsburgh	370	106	88	85	26	1,496
Previously funded programs	...	...	...	...	...	2,209

Rat Control — Continued

TABLE 1. Status of target-area blocks in urban rat-control programs, first quarter, fiscal year 1982 (October 1-December 31, 1981) — ***Continued***

Program community	Target-area blocks				Environmentally improved blocks*	
	Total	In attack phase	In maintenance phase		New this quarter	Cumulative
			< 12 months	≥12 months		
REGION IV	3,524	1,608	1,343	332	514	8,377
Mobile	71	38	33	0	0	669
Tuscaloosa	253	42	171	40	42	91
Miami	1,515	714	632	169	91	1,194
Pensacola	183	89	94	0	84	406
Atlanta, Ga.‡	732	406	76	9	0	0
DeKalb Co. Ga	66	66	0	0	269	674
Louisville	480	179	256	45	0	770
Memphis	224	74	81	69	28	592
Previously funded programs						3,981
REGION V	4,892	1,620	1,852	492	189	5,697
Chicago	485	222	238	25	5	15
Peoria	249	9	86	154	0	75
Indianapolis	351	43	308	0	0	417
Benton Harbor	87	29	16	42	0	103
Detroit	1,210	309	133	0	0	706
Highland Park	148	69	58	21	0	72
Saginaw	355	119	155	81	0	108
Washtenaw Co.-Ypsilanti	275	74	170	31	0	0
Wayne Co.-Ecorse	388	118	85	25	0	0
Akron	169	63	96	10	25	695
Barberton	115	1	102	12	7	182
Cincinnati	112	34	78		12	200
Cleveland	301	225	76	0	11	746
Columbus	180	66	63	51	102	385
Toledo	138	36	102	0	11	200
Youngstown	194	93	61	40	16	26
Milwaukee	135	110	25	0	0	0
Previously funded programs						1,767
REGION VI	1,369	698	471	200	30	7,039
Little Rock	349	81	175	93	0	53
Pine Bluff	175	66	80	29	0	233
New Orleans	301	164	59	78	0	3,139
Houston	544	387	157	0	30	2,356
Previously funded programs						1,258
REGION VII	558	143	340	75	26	4,312
Kansas City, Mo.	124	54	70	0	0	747
St. Louis	244	41	147	56	0	1,168
Omaha	190	48	123	19	26	760
Previously funded programs						1,637
REGION IX	394	175	192	27	117	1,843
Los Angeles	61	16	41	4	69	504
Oakland	179	76	95	8	8	287
San Francisco	154	83	56	15	40	381
Previously funded programs						671
Region X						830
Previously funded programs						830
Total	17,896	7,209	6,278	2,444	1,231	43,046

*Contiguous blocks where maintenance has been achieved and sustained for a minimum of 12 months. These blocks are no longer part of the approved project target area.

†Northwestern Pennsylvania Vector Control Association. Serves Lackawanna and Luzerne counties and the cities of Nanticoke, Wilkes-Barre, and Hazleton.

‡Target-area blocks are confined to public housing projects.

Rocky Mountain Spotted Fever — United States, 1981

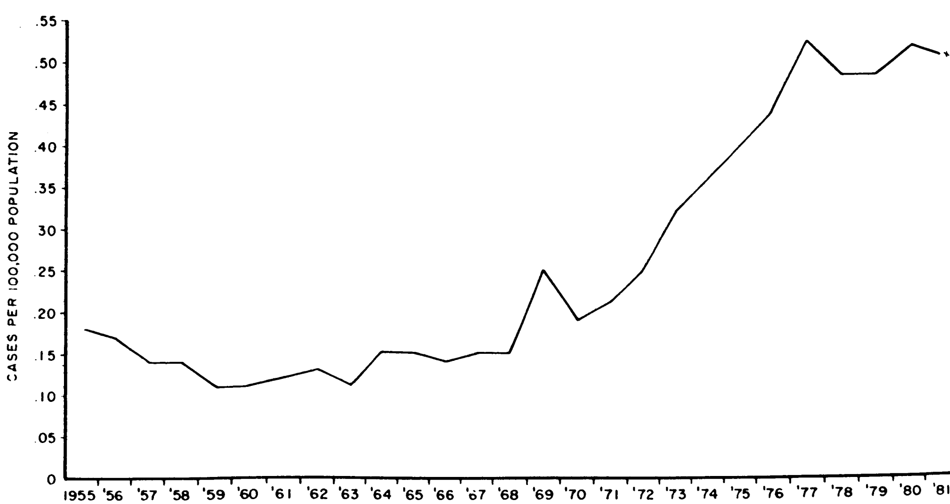
A provisional total of 1,170 cases of Rocky Mountain spotted fever (RMSF) occurring in the United States in 1981 have been reported to CDC. On the basis of this figure, the incidence rate of RMSF in 1981 for the United States as a whole was 0.51 cases/100,000 population.

The South-Atlantic states accounted for 671 (57%) of the reported cases. The highest rates of RMSF were for North Carolina (301 cases, 5.06/100,000), South Carolina (102 cases, 3.22/100,000), Oklahoma (99 cases, 3.19/100,000), Virginia (105 cases, 1.93/100,000), Tennessee (82 cases, 1.78/100,000), Maryland (66 cases, 1.55/100,000), and Arkansas (35 cases, 1.53/100,000).

States submitted case-report forms on 1,059 (91%) of the reported cases. Of these, 372 (35%) were confirmed by complement-fixation (CF), indirect fluorescent-antibody (IFA), indirect hemagglutination (IHA), latex-agglutination (LA), or microagglutination (MA) tests; isolation of spotted fever group rickettsiae; or fluorescent-antibody staining of biopsy or autopsy specimens. An additional 129 patients (12%), whose specimens reacted positively in the Weil-Felix agglutination test, but were not tested by other methods, were designated as having "probable" cases. The other 558 cases (53%) were reported on the basis of clinical diagnosis alone. Sixty percent of the patients were male, 53% were persons <20 years of age, and 92% were white.

Ninety-six percent of the patients became ill between April 1 and September 30. Symptoms reported included fever (98%), headache (90%), rash on torso (85%), and rash on palms

FIGURE 1. Rocky Mountain spotted fever (tick-borne typhus), reported cases per 100,000 population, by year, United States, 1955-1981



*PROVISIONAL

Rocky Mountain Spotted Fever — Continued

of hands or soles of feet (60%). Rash was significantly more commonly associated with laboratory-confirmed (89%) than with unconfirmed (82%) cases ($p<0.01$); otherwise, the prevalence of symptoms was similar for these 2 groups of patients. Seventy-nine percent of patients were hospitalized during their illness. Sixty-seven percent of the patients for whom exposure information was available reported a tick bite or attachment within 14 days before onset of illness. The case-fatality rate (3.4%) was higher for blacks (6.7%) than whites (3.0%), higher for persons ≥30 years of age (4.6%) than for younger individuals (2.8%), higher for persons with unknown or no tick exposure (4.4%) than for persons reporting a tick bite or attachment (2.6%), and higher for persons not reporting treatment with tetracycline or chloramphenicol (8.0%) than for those who received such antibiotic therapy (2.5%).

Twenty-five percent of patients for whom the history was available reported travel outside of the county of residence within 14 days before onset of illness.

Reported by participating state and territorial health depts; Consolidated Surveillance and Communications Activity, Epidemiology Program Office, Div of Viral Diseases, Center for Infectious Diseases, CDC.

Editorial Note: Following the rapid rise in the 1970s of RMSF incidence in the United States, infection rates since 1977 have remained about the same (Figure 1). The predominant occurrence of RMSF in the southeastern states and the higher incidence for younger persons, males, and whites have remained unchanged in recent years. The case-fatality rate, which has fluctuated between 3% and 8% since 1970, indicates that RMSF remains a serious illness that requires prompt diagnosis and early treatment with tetracycline or chloramphenicol. Risk factors that have been associated with fatalities include age ≥30 years, male sex, black race, absence of skin rash, failure to obtain a history of exposure to ticks, and lack of appropriate antibiotic treatment (*1*). A history of travel to an area in which infected ticks are endemic may be critical to the diagnosis of RMSF when a patient is seen in an area where the disease does not commonly occur.

An important change in the method of conducting national surveillance of RMSF in 1981 was the adoption of a new case-report form that provides information about symptoms, hospitalization, treatment, tick exposure, and travel, and also defines stricter criteria for laboratory confirmation of cases. A clinically compatible case with diagnostic serologic results determined by CF, IFA, IHA, LA, or MA is considered confirmed (a case with positive titers obtained by the Weil-Felix reaction is only considered a probable case). Patients from whom the causative agent is isolated, or who have positive fluorescent-antibody staining of tissue specimens, are also considered to have confirmed cases. These stricter criteria are responsible for the lower percentage of cases confirmed by laboratory testing in 1981 compared with 1980 (35% versus 62%, respectively). It should be emphasized that confirmation of RMSF is of epidemiologic importance but cannot usually be expected to occur before days 10-14 after onset of illness. Therefore, diagnosis must rely on clinical (fever, headache, rash, myalgia) and epidemiologic (tick exposure) criteria, and treatment must be initiated before laboratory confirmation is available.

Prevention of RMSF entails frequent inspection of persons for ticks when exposure is likely. (Ticks do not usually transmit infection until they have been attached for several hours.) Ticks are best removed by grasping the tick with tweezers as close as possible to the point of attachment and by pulling slowly and steadily. If tweezers are not available, fingers protected with facial tissue may be used. If bare hands touch the tick during removal, the hands should be washed thoroughly with soap and water, because tick secretions can be infective.

A vaccine against RMSF is in the developmental stage, but is not expected to be available in the near future.

Rocky Mountain Spotted Fever — Continued

References

1. Hattwick MA, O'Brien RJ, Hanson BF. Rocky Mountain spotted fever: epidemiology of an increasing problem. Ann Intern Med 1976;84:732-9.

Erratum, Vol 31, No. 13

p161. In the article "Common-Source Outbreaks of Trichinosis—New York City, Rhode Island" the sentence beginning on line 14, page 162, should read in part: The symptoms plus eosinophilia and elevated creatine phosphokinase (CPK) levels suggested trichinosis;

Erratum, Vol. 31, No. 16

p213. In the article "Introduced Autochthonous *Vivax* Malaria—California, 1980-1981" one name in the credits was misspelled. It should read: T Rowsell, MD, Loma Linda University Medical Center. Also, 3 more names should be added to the credits: G Grodhaus, EE Lusk, R Yescott, Vector Biology and Control Section, California Dept of Health Svcs.

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