CENTERS FOR DISEASE CONTROL

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Current Trends

Elevated Risk of Pelvic Inflammatory Disease among Women Using the Dalkon Shield

Among women using intrauterine devices (IUDs), those using the Dalkon Shield have been found to have a 5-fold increased risk for pelvic inflammatory disease (PID), compared with those using other IUD types. Compared with women using no contraceptive method, current IUD users had a PID risk of 1.9 (95% confidence interval, 1.5 to 2.4), and users of specific IUD types* had the following PID risks: Dalkon Shield 8.3 (4.7-14.5); Progestasert 2.2 (1.0-5.0); Copper-7 1.9 (1.4-2.7); Saf-T-Coil 1.3 (0.5-2.9); and Lippes Loop 1.2 (0.9-1.8). These results indicate that women still using Dalkon Shields should have them removed. No change in use of other IUDs is recommended.

Excluding Dalkon Shield users, most of the increased PID risk among IUD users was seen among women who had been wearing their current IUD for 4 months or less. The highest risk occurred in the first month after IUD insertion (relative risk of 3.8 [2.1-6.8], compared with women currently using no contraception).

These data were derived from the Women's Health Study, a multicenter case-control study solicited and supported by the National Institute of Child Health and Human Development and conducted in the United States from 1976 to 1978 (*1*). Results were based on interviews of 622 women hospitalized with an initial episode of PID and 2,369 hospitalized women reporting no history of PID. An association between IUD use and PID has been previously documented (*2*). However, before this Women's Health Study, no study was of sufficient size to determine PID risks associated with different IUD types.

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Editorial Note: The Dalkon Shield was first marketed nationwide in January 1971. By June 1974, approximately 2.8 million had been distributed in the United States (*3*). In the summer of 1974, the manufacturer voluntarily halted further distribution of the Dalkon Shield in the United States because of its reported association with pregnancy-related complications. In 1980, the manufacturer advised physicians to remove the Dalkon Shield from asymptomatic women because of the risk of actinomyces infection (*4*). No currently available information provides reliable estimates of the number of women in the United States still using Dalkon Shields.

In this analysis, PID risk for current IUD users hospitalized for a first episode of the disease was almost twice that for women using no contraception. Although only a small proportion of

*Use of trade names is for identification only and does not imply endorsement by the Public Health Service or the U.S. Department of Health and Human Services.

Pelvic Inflammatory Disease — Continued

IUD users in this study were using the Dalkon Shield, this device accounted for almost 20% of the excess PID risk occurring among all the IUD users. For users of other IUDs, most of the increased PID risk was confined to the first few months after IUD insertion.

Because risk estimates were adjusted for several confounding variables, it is unlikely that these findings could be explained by differences in age, race, parity, education, sexual practices, or medical history. Because the relative risk associated with the Dalkon Shield is large, it is unlikely to be completely explained by a bias or by some uncontrolled factor.

Previously published studies have not found a significantly increased PID risk among Dalkon Shield users. However, five studies found an elevated PID risk among women wearing the Dalkon Shield, compared with other IUD types, although these results were based on small numbers and were not statistically significant (*5-9*).

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Epidemiologic Notes and Reports

Transfusion Malaria: Serologic Identification of Infected Donors — Pennsylvania, Georgia

In 1982, CDC tested 122 sera from donors associated with the nine cases of transfusion malaria reported to CDC in 1982. (Nine is the highest annual number reported in the past 25 years; the same number was reported in 1971). The following cases illustrate the role of serologic testing in identifying donors infected with malaria.

Case 1, Pennsylvania: A 29-year-old woman received 18 units of red blood cells and 10 units of platelets after an automobile accident on March 16, 1982. On May 7, 52 days post-accident, she developed chills and fever. *Plasmodium malariae* was diagnosed on a peripheral blood smear. The patient was treated successfully with chloroquine.

Records of all donors were reviewed and showed no travel out of the continental United States for the preceding 3 years. One donor, a student of Liberian origin, had been in the United States since 1978. Serum samples were obtained promptly from 26 of the 28 donors and forwarded to CDC; samples from two persons could not be obtained. The Liberian donor

Transfusion Malaria — Continued

had a malaria indirect fluorescent antibody (IFA) titer of 1:1024 to *P. malariae*, 1:256 to both *P. falciparum* and *P. ovale*, and 1:64 to *P. vivax*. No parasites were detected in the donor's blood; he was treated with chloroquine. Serum specimens from the remaining donors were negative by IFA testing.

Case 2, Georgia: On August 15, 1982, a 63-year-old retired serviceman received 26 units of blood and 15 units of platelets during and shortly after emergency repair of a ruptured abdominal aortic aneurysm. Nineteen days later, he began having episodes of fever and nausea. An infected aortic graft was suspected, and plans were made for an exploratory laparotomy. Before surgery, however, malaria parasites were detected on routine examination of a peripheral blood smear. The patient had served in Korea in 1950, 1953, and 1955; he took antimalarial drug prophylaxis intermittently during that time and had no history of malaria. At CDC, *P. ovale* was identified in the patient's blood, and his serum had an IFA titer of 1:1024 to *P. ovale* (titers were 1:64 to *P. malariae* and less than 1:16 to both *P. falciparum* and *P. vivax*). The patient was treated successfully with chloroquine.

Blood samples (unit segments) from 39 donors had been kept in the blood bank at the hospital where surgery was performed and were sent immediately to CDC; specimens from two donors were unavailable. Serum from four of the 39 donors had greatest IFA titers of 1:64 to *P. ovale*. Three of these four donors had not traveled to an area where *P. ovale* is transmitted. The fourth donor had served in the Peace Corps in Sierra Leone from 1977 to 1979, during which time he took chloroquine as antimalarial chemoprophylaxis. He had not taken primaquine to prevent relapses, nor had he experienced febrile illness compatible with malaria since leaving Africa. Serum tested several weeks later showed a titer of 1:256 to *P. ovale*, suggesting a recent parasitemia. Malaria parasites could not be detected on multiple examinations of thick blood smears. He was treated with chloroquine and primaquine to prevent further relapses of parasitemia.

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Editorial Note: Transfusion malaria occurs very infrequently in the United States. Between 1958 and 1976, the annual rate of transfusion-related cases was between 0 and 4.9 cases per million persons transfused (*1*), and has remained within this range through 1982. Estimates based on the number of units of blood collected in the United States since 1972 indicate that 0.25 cases of transfusion malaria have occurred per million units collected (*2*).

Because parasite density in an infected donor may be very low, there may be no clinical history of recent febrile illness or elevated temperature when blood is donated, and an infected individual may slip through the donor screening process. These two cases demonstrate that a thick blood film examination may also be a very insensitive screening procedure (*3*).

To protect recipients of red-blood-cell-containing products from inadvertently acquiring malaria, the American Association of Blood Banks (AABB) has set the following standards for donors who have traveled to or lived in endemic areas (*4*).

1. Travelers may donate blood 6 months after returning from endemic areas if they have been free of symptoms and have not taken antimalarial drugs.

2. Persons who have had malaria or who had been taking chemoprophylaxis shall be deferred from donating blood for 3 years after either becoming asymptomatic or stopping therapy or chemoprophylaxis.

Transfusion Malaria — Continued

3. Immigrants or visitors from endemic areas may be accepted as donors 3 years after departure if they are asymptomatic in the interim.

4. Donations to be used in preparing plasma, plasma components, or derivatives devoid of intact red blood cells are exempted from these restrictions.

Proven carriers of malaria or persons who had malaria caused by *P. malariae* are excluded permanently from donating blood.

The 3-year limit has been established because infections with the relapsing forms of malaria (*P. vivax* and *P. ovale*) rarely persist more than 3 years after a naturally-acquired infection; non-relapsing malaria due to *P. falciparum* will generally present clinically within 3 months of the initial infection, but a semi-immune person may have an asymptomatic infection for a year or more. However, despite the AABB standards, some cases of transfusion malaria will continue to occur, because *P. malariae* (the most common cause of transfusion malaria, now considered a non-relapsing parasite) may remain undetected in the blood for many years. This was illustrated by case 1. Persons who might otherwise be excluded can slip through the screening process; the donor in case 2 left Sierra Leone less than 3 years before giving blood; apparently, this information was not noted at the time of donation.

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

Disease	17th WEEK ENDING			CUMULATIVE, FIRST 17 WEEKS		
	April 30 1983	May 1 1982	Median 1978-1982	April 30 1983	May 1 1982	Median 1978-1982
Aseptic meningitis	62	70	61	1,335	1,287	1,049
Encephalitis: Primary (arthropod-borne & unspec.)	14	25	12	271	276	203
Post-infectious	3	1	2	25	19	52
Gonorrhea: Civilian	15,325	16,983	16,983	282,915	300,507	306,206
Military	423	555	450	7,801	8,758	8,758
Hepatitis: Type A	447	458	557	7,701	7,405	8,858
Type B	444	425	338	7,060	6,654	5,228
Non A, Non B	73	44	N	1,060	669	N
Unspecified	166	157	179	2,544	2,746	3,283
Legionellosis	27	15	N	216	127	N
Leprosy	6	2	4	88	60	55
Malaria	24	30	26	218	257	257
Measles: Total	25	50	674	632	451	6,087
Indigenous	19	N	N	534	N	N
Imported*	6	N	N	98	N	N
Meningococcal infections: Total	75	88	63	1,117	1,208	1,137
Civilian	75	88	63	1,105	1,203	1,128
Military	-	-	-	12	5	9
Mumps	105	176	199	1,392	2,438	4,532
Pertussis	20	35	20	505	364	364
Rubella (German measles)	19	84	132	383	881	1,696
Syphilis (Primary & Secondary): Civilian	581	617	503	10,514	10,924	8,620
Military	17	12	6	163	137	116
Toxic-shock syndrome	6	N	N	133	N	N
Tuberculosis	499	500	546	7,184	7,914	8,280
Tularemia	-	1	2	52	31	33
Typhoid fever	13	8	8	121	127	127
Typhus fever, tick-borne (RMSF)	12	10	9	41	40	32
Rabies, animal	157	148	150	2,059	1,888	1,888

TABLE II. Notifiable diseases of low frequency, United States

	Cum. 1983		Cum. 1983
Anthrax	-	Plague	-
Botulism: Foodborne	8	Poliomyelitis: Total	1
Infant (Ky. 1, Calif. 1)	24	Paralytic	1
Other	-	Psittacosis (Colo. 3)	28
Brucellosis (Mich. 1, Ala. 1, Tex. 1, Calif. 1)	37	Rabies, human	2
Cholera	-	Tetanus (Ill. 1)	14
Congenital rubella syndrome	9	Trichinosis	13
Diphtheria	-	Typhus fever, flea-borne (endemic, murine) (Tex. 1)	9
Leptospirosis (Mo. 1, Okla. 1)	11		

*Six of the 25 reported cases for this week were imported from a foreign country or can be directly traceable to a known internationally imported case within two generations.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending April 30, 1983 and May 1, 1982 (17th week)

Reporting Area	Aseptic Meningitis	Encephalitis		Gonorrhea (Civilian)		Hepatitis (Viral), by type				Legionellosis	Leprosy	Malaria
		Primary	Post-infectious			A	B	NA,NB	Unspecified			
	1983	Cum. 1983	Cum. 1983	Cum. 1983	Cum. 1982	1983	1983	1983	1983	1983	Cum. 1983	Cum. 1983
UNITED STATES	62	271	25	282,915	300,507	447	444	73	166	27	88	218
NEW ENGLAND	2	13	-	7,260	7,152	10	22	3	4	4	2	7
Maine	-	-	-	402	331	4	-	-	-	-	-	-
N.H.	-	1	-	197	246	3	-	-	-	-	2	-
Vt.	-	1	-	118	151	1	-	-	-	-	-	-
Mass.	-	7	-	3,185	3,239	-	6	-	4	2	-	2
R.I.	1	-	-	401	496	1	3	-	-	-	-	1
Conn.	1	4	-	2,957	2,689	1	13	3	-	2	-	4
MID ATLANTIC	6	33	4	35,904	36,363	74	67	2	24	-	12	35
Upstate N.Y.	2	11	-	5,388	5,876	7	11	-	7	-	-	11
N.Y. City	3	6	-	15,731	15,423	52	28	-	7	-	11	12
N.J.	1	6	-	6,798	6,435	15	28	2	10	-	-	9
Pa.	U	10	4	7,987	8,629	U	U	U	U	U	1	3
E.N. CENTRAL	2	49	4	35,781	42,830	35	43	1	6	13	3	10
Ohio	1	19	3	10,520	12,135	13	17	-	3	9	1	1
Ind.	U	5	1	4,125	5,021	U	U	U	U	U	-	-
Ill.	-	-	-	6,394	11,527	3	5	-	1	-	1	2
Mich.	1	24	-	11,066	10,108	19	21	1	2	4	1	7
Wis.	-	1	-	3,676	4,039	-	-	-	-	-	-	-
W.N. CENTRAL	3	36	4	13,852	14,171	26	17	11	7	3	1	9
Minn.	-	18	1	2,001	2,111	4	-	3	-	-	1	3
Iowa	-	16	-	1,491	1,547	3	2	3	1	-	-	2
Mo.	2	1	-	6,835	6,465	7	9	4	4	3	-	2
N. Dak.	-	-	-	135	197	-	-	-	-	-	-	1
S. Dak.	-	-	1	390	398	8	2	-	-	-	-	-
Nebr.	-	1	-	769	895	4	3	1	2	-	-	-
Kans.	1	-	2	2,231	2,558	-	1	-	-	-	-	1
S. ATLANTIC	14	39	6	74,054	77,464	46	97	18	22	2	3	30
Del.	-	-	-	1,347	1,191	1	-	-	-	-	-	-
Md.	3	7	-	9,223	9,896	3	21	1	4	-	-	4
D.C.	-	-	-	5,193	3,978	-	1	-	-	-	-	3
Va.	2	14	1	6,242	6,569	2	11	4	1	1	-	5
W. Va.	1	-	-	763	879	-	5	1	-	-	-	1
N.C.	2	7	-	10,616	12,627	2	4	-	1	-	-	1
S.C	-	2	-	7,123	7,238	10	9	1	3	-	-	3
Ga.	1	1	-	16,139	13,757	5	17	1	2	-	1	2
Fla.	5	8	5	17,408	21,329	23	29	10	11	1	2	11
E.S. CENTRAL	2	9	2	24,306	24,372	16	24	6	4	-	-	3
Ky.	-	-	-	3,000	3,315	10	4	2	-	-	-	-
Tenn.	2	1	-	9,819	9,480	3	9	3	2	-	-	-
Ala.	-	8	2	7,398	7,057	3	11	1	2	-	-	1
Miss.	-	-	-	4,089	4,520	-	-	-	-	-	-	2
W.S. CENTRAL	4	29	-	40,465	41,590	83	42	4	59	-	7	21
Ark.	-	3	-	3,141	3,502	-	-	2	1	-	-	1
La.	-	3	-	6,748	7,186	24	14	1	3	-	-	1
Okla.	1	7	-	4,917	4,525	6	3	1	2	-	-	6
Tex.	3	16	-	25,659	26,377	53	25	-	53	-	7	13
MOUNTAIN	1	15	2	8,841	10,872	33	14	5	6	1	11	10
Mont.	-	-	-	412	458	2	-	-	-	1	-	-
Idaho	-	-	-	438	503	1	1	-	1	-	-	-
Wyo.	-	2	-	228	288	-	1	-	-	-	-	-
Colo.	1	4	-	2,561	2,905	4	6	3	3	-	2	4
N. Mex.	-	1	-	1,134	1,377	6	-	1	1	-	-	2
Ariz.	-	1	2	2,223	3,030	17	4	1	-	-	9	3
Utah	-	7	-	413	487	1	2	-	1	-	-	1
Nev.	-	-	-	1,432	1,824	2	-	-	-	-	-	-
PACIFIC	28	48	3	42,452	45,693	124	118	23	34	4	49	93
Wash.	1	3	-	2,993	3,904	9	12	3	1	-	5	2
Oreg.	-	-	1	2,177	2,486	5	-	1	-	-	1	4
Calif.	18	43	2	35,436	37,370	102	99	18	33	4	30	87
Alaska	1	-	-	994	1,134	6	2	-	-	-	-	-
Hawaii	8	2	-	852	799	2	5	1	-	-	13	-
Guam	U	-	-	33	44	U	U	U	U	U	-	-
P.R.	-	-	-	938	981	8	11	-	4	-	-	1
V.I.	-	-	-	92	74	-	-	-	1	-	-	-
Pac. Trust Terr.	U	-	-	-	145	U	U	U	U	U	-	-

N: Not notifiable U: Unavailable

TABLE III. (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending April 30, 1983 and May 1, 1982 (17th week)

Reporting Area	Measles (Rubeola)					Menin-gococcal Infections	Mumps			Pertussis			Rubella		
	Indigenous		Imported*		Total										
	1983	Cum. 1983	1983	Cum. 1983	Cum. 1982	Cum. 1983	1983	Cum. 1983	Cum. 1982	1983	Cum. 1983	Cum. 1982	1983	Cum. 1983	Cum. 1982
UNITED STATES	19	534	6	98	451	1,117	105	1,392	2,438	20	505	364	19	383	881
NEW ENGLAND	1	2	-	2	8	56	4	63	123	1	18	21	2	6	8
Maine	-	-	-	-	-	6	2	11	25	-	-	-	-	-	-
N.H.	-	-	-	-	1	2	-	13	13	-	2	4	-	2	8
Vt.	-	-	-	-	2	3	-	7	4	-	2	-	1	2	-
Mass.	1	2	-	-	2	18	1	15	61	1	12	8	1	2	-
R.I.	-	-	-	-	-	3	-	7	10	-	2	7	-	-	-
Conn.	-	-	-	2	3	24	1	10	10	-	-	2	-	-	-
MID ATLANTIC	3	7	1	10	30	161	2	102	168	4	124	61	1	22	58
Upstate N.Y.	-	-	-	2	15	59	1	45	36	2	44	38	1	15	30
N.Y. City	3	7	1†	7	13	22	-	7	28	2	15	13	-	2	16
N.J.	-	-	-	1	-	25	1	16	27	-	10	4	-	2	12
Pa.	U	-	U	-	2	55	U	34	77	U	55	6	U	3	-
E.N. CENTRAL	-	300	-	39	31	184	58	670	1,435	4	127	122	2	54	98
Ohio	-	-	-	1	-	73	39	372	1,046	3	44	22	-	1	-
Ind.	U	229	U	-	1	24	U	16	25	U	10	10	U	8	16
Ill.	-	71	-	33	15	33	5	68	94	1	61	60	2	23	25
Mich.	-	-	-	5	15	39	14	174	199	-	6	7	-	11	38
Wis.	-	-	-	-	-	15	-	40	71	-	6	23	-	11	19
W.N. CENTRAL	-	-	-	-	2	71	8	104	149	1	36	16	-	23	23
Minn.	-	-	-	-	-	11	-	16	78	-	14	5	-	3	2
Iowa	-	-	-	-	-	8	1	31	21	1	4	1	-	-	-
Mo.	-	-	-	-	2	36	7	15	7	-	5	5	-	-	15
N. Dak.	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-
S. Dak.	-	-	-	-	-	2	-	-	1	-	2	2	-	-	1
Nebr.	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-
Kans.	-	-	-	-	-	12	-	42	42	-	10	2	-	20	5
S. ATLANTIC	11	125	-	16	27	250	5	88	155	3	68	36	4	43	28
Del.	-	-	-	-	-	-	-	5	3	-	-	3	-	-	1
Md.	-	-	-	2	2	25	2	14	12	-	8	-	-	1	11
D.C.	-	-	-	-	1	4	-	-	-	-	-	1	-	-	-
Va.	-	1	-	11	14	34	-	19	22	1	25	5	-	1	8
W. Va.	-	-	-	-	1	2	1	15	70	-	2	3	-	-	1
N.C.	-	-	-	-	-	48	-	4	5	1	4	5	-	6	-
S.C.	-	-	-	3	-	29	2	4	9	-	5	4	-	-	1
Ga.	-	6	-	-	-	45	-	27	5	1	18	8	1	6	1
Fla.	11	118	-	-	9	63	-	-	29	-	6	7	3	29	5
E.S. CENTRAL	-	-	-	1	5	68	1	25	25	-	5	7	-	5	31
Ky.	-	-	-	1	1	14	-	10	9	-	2	-	-	5	16
Tenn.	-	-	-	-	4	24	1	12	9	-	2	4	-	-	-
Ala.	-	-	-	-	-	20	-	-	4	-	-	-	-	-	-
Miss.	-	-	-	-	-	10	-	3	3	-	1	3	-	-	15
W.S. CENTRAL	1	33	1	12	5	132	7	107	89	5	49	20	1	66	47
Ark.	-	-	-	11	-	6	-	2	5	-	2	-	-	-	-
La.	-	-	-	-	-	27	-	-	3	-	2	-	-	9	-
Okla.	-	-	-	-	-	16	-	-	-	5	19	2	-	-	2
Tex.	1	33	1†	1	5	83	7	105	81	-	26	18	1	57	45
MOUNTAIN	-	-	1	2	-	42	10	68	41	2	60	21	-	13	26
Mont.	-	-	-	-	-	1	-	2	3	-	1	-	-	3	3
Idaho	-	-	-	-	-	4	-	4	2	-	2	1	-	3	-
Wyo.	-	-	-	-	-	1	-	-	2	-	4	1	-	1	5
Colo.	-	-	1†	2	-	20	4	9	10	2	37	5	-	-	1
N. Mex.	-	-	-	-	-	5	-	-	-	-	5	3	-	-	2
Ariz.	-	-	-	-	-	8	6	45	13	-	8	10	-	4	5
Utah	-	-	-	-	-	3	-	6	9	-	3	1	-	1	8
Nev.	-	-	-	-	-	-	-	2	2	-	-	-	-	1	2
PACIFIC	3	67	3	16	343	153	10	165	253	-	18	60	9	151	562
Wash.	-	1	-	1	15	23	2	25	40	-	1	11	-	6	19
Oreg.	-	5	-	-	-	22	-	-	-	-	3	7	-	9	3
Calif.	3	60	3†	15	326	105	8	120	205	-	14	42	9	136	533
Alaska	-	-	-	-	-	-	-	9	6	-	-	-	-	-	1
Hawaii	-	1	-	-	2	3	-	11	2	-	-	-	-	-	6
Guam	U	-	U	-	-	1	U	-	1	U	-	-	U	-	1
P.R.	8	56	-	-	50	7	5	68	25	-	3	11	1	2	4
V.I.	-	-	-	5	-	-	-	-	-	-	-	-	-	1	-
Pac. Trust Terr.	U	-	U	-	-	-	U	-	1	U	-	-	U	-	-

*For measles only, imported cases includes both out-of-state and international importations. U: Unavailable †International §Out-of-state

TABLE III. (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending April 30, 1983 and May 1, 1982 (17th week)

Reporting Area	Syphilis (Civilian) (Primary & Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1983	Cum. 1982	1983	1983	Cum. 1983	Cum. 1983	Cum. 1983	Cum. 1983	Cum. 1983
UNITED STATES	10,514	10,924	6	499	7,184	52	121	41	2,059
NEW ENGLAND	263	204	-	12	182	-	5	1	2
Maine	11	1	-	-	13	-	-	-	2
N.H.	7	1	-	2	16	-	-	-	-
Vt.	2	-	-	-	2	-	-	-	-
Mass.	167	146	-	8	89	-	5	1	-
R.I.	6	12	-	-	16	-	-	-	-
Conn.	70	44	-	2	46	-	-	-	-
MID ATLANTIC	1,272	1,490	-	55	1,318	-	25	-	45
Upstate N.Y.	68	164	-	5	211	-	4	-	29
N.Y. City	777	905	-	30	533	-	12	-	-
N.J.	264	172	-	20	294	-	8	-	-
Pa.	163	249	U	U	280	-	1	-	16
E.N. CENTRAL	413	694	2	58	977	-	17	3	159
Ohio	163	105	-	6	149	-	4	1	22
Ind.	48	78	U	U	91	-	1	-	10
Ill.	95	377	-	32	438	-	6	-	84
Mich.	79	97	2	20	253	-	6	2	-
Wis.	28	37	-	-	46	-	-	-	43
W.N. CENTRAL	124	209	-	20	250	16	6	4	289
Minn.	51	35	-	3	44	-	-	-	68
Iowa	4	11	-	-	27	-	-	-	78
Mo.	46	126	-	14	135	11	1	3	36
N. Dak.	-	4	-	-	-	-	-	1	19
S. Dak.	2	-	-	2	19	-	-	-	35
Nebr.	7	7	-	-	7	2	-	-	24
Kans.	14	26	-	1	18	3	5	-	29
S. ATLANTIC	2,770	2,968	-	114	1,390	11	17	12	741
Del.	14	7	-	4	11	-	-	-	-
Md.	161	168	-	3	103	5	4	1	310
D.C.	116	190	-	5	60	-	-	-	1
Va.	202	211	-	8	127	1	4	4	274
W. Va.	8	8	-	2	53	-	2	1	58
N.C.	247	218	-	21	169	4	1	2	4
S.C.	181	142	-	5	126	-	1	3	7
Ga.	512	632	-	40	298	1	-	-	73
Fla.	1,329	1,392	-	26	443	-	5	1	14
E.S. CENTRAL	739	779	-	36	666	6	2	3	174
Ky.	41	37	-	12	183	-	-	-	36
Tenn.	199	216	-	13	200	4	1	1	119
Ala.	311	265	-	5	168	-	-	2	19
Miss.	188	261	-	6	115	2	1	-	-
W.S. CENTRAL	2,798	2,694	-	100	829	16	7	15	452
Ark.	76	76	-	10	74	10	-	3	88
La.	621	577	-	15	133	2	-	-	11
Okla.	82	58	-	14	97	4	-	6	44
Tex.	2,019	1,983	-	61	525	-	7	6	309
MOUNTAIN	250	287	-	6	192	1	7	2	75
Mont.	4	1	-	-	18	-	1	1	59
Idaho	3	16	-	-	11	-	-	1	-
Wyo.	3	9	-	-	3	-	-	-	1
Colo.	61	85	-	-	15	-	1	-	-
N. Mex.	87	60	-	4	37	1	-	-	2
Ariz.	55	63	-	2	81	-	3	-	13
Utah	9	10	-	-	18	-	1	-	-
Nev.	28	43	-	-	9	-	1	-	-
PACIFIC	1,885	1,599	4	98	1,380	2	35	1	122
Wash.	52	49	-	4	74	1	2	-	-
Oreg.	35	44	-	4	59	-	-	-	-
Calif.	1,763	1,464	4	86	1,141	1	32	1	115
Alaska	8	6	-	-	13	-	-	-	7
Hawaii	27	36	-	4	93	-	1	-	-
Guam	-	1	U	U	1	-	-	-	-
P.R.	287	189	-	-	142	-	-	-	15
V.I.	8	-	-	-	1	-	-	-	-
Pac. Trust Terr.	-	-	U	U	-	-	-	-	-

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending April 30, 1983 (17th week)

Reporting Area	All Causes, By Age (Years)						P&I** Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	695	492	143	31	8	21	56
Boston, Mass.	175	114	40	9	2	10	20
Bridgeport, Conn.	46	33	11	1	-	1	2
Cambridge, Mass.	18	16	2	-	-	-	-
Fall River, Mass.	36	28	5	3	-	-	-
Hartford, Conn.	61	36	18	5	-	2	4
Lowell, Mass.	26	18	8	-	-	-	4
Lynn, Mass.	23	17	5	-	1	-	1
New Bedford, Mass.	25	18	5	1	1	-	-
New Haven, Conn.	43	30	7	3	-	3	1
Providence, R.I.	69	55	13	1	-	-	10
Somerville, Mass.	15	13	2	-	-	-	2
Springfield, Mass.	49	34	10	-	2	3	4
Waterbury, Conn.	41	32	5	3	1	-	-
Worcester, Mass.	68	48	12	5	1	2	8
MID. ATLANTIC	2,530	1,712	546	163	51	58	107
Albany, N.Y.	56	36	14	3	1	2	3
Allentown, Pa.	16	13	2	1	-	-	-
Buffalo, N.Y.	103	68	27	4	2	2	6
Camden, N.J.	40	25	11	2	1	1	2
Elizabeth, N.J.	21	19	2	-	-	-	1
Erie, Pa.†	41	31	8	1	-	1	2
Jersey City, N.J.	47	29	9	6	1	2	-
N.Y. City, N.Y.	1,461	971	313	107	38	32	61
Newark, N.J.	64	36	16	7	3	2	1
Paterson, N.J.	30	18	3	4	1	4	3
Philadelphia, Pa.†	201	141	47	8	2	3	8
Pittsburgh, Pa.†	66	48	14	3	-	1	2
Reading, Pa.,	31	27	3	-	-	1	3
Rochester, N.Y.	139	93	30	9	2	5	6
Schenectady, N.Y.	20	15	4	1	-	-	2
Scranton, Pa.†	26	18	7	1	-	-	3
Syracuse, N.Y.	95	70	21	2	-	2	3
Trenton, N.J.	31	26	5	-	-	-	-
Utica, N.Y.	14	10	4	-	-	-	-
Yonkers, N.Y.	28	18	6	4	-	-	1
E.N. CENTRAL	2,144	1,380	523	118	57	66	74
Akron, Ohio	56	38	7	4	2	5	-
Canton, Ohio	45	28	12	4	1	-	3
Chicago, Ill	480	295	130	24	11	20	13
Cincinnati, Ohio	149	98	35	8	3	5	8
Cleveland, Ohio	175	108	48	13	-	6	1
Columbus, Ohio	132	83	31	9	3	6	1
Dayton, Ohio	87	59	23	2	3	-	1
Detroit, Mich.	258	153	68	23	8	6	4
Evansville, Ind.	52	35	13	2	2	-	2
Fort Wayne, Ind.	72	46	20	3	1	2	8
Gary, Ind.	15	6	7	2	-	-	-
Grand Rapids, Mich.	32	24	7	-	-	1	2
Indianapolis, Ind.	170	104	37	12	11	6	1
Madison, Wis. §	41	39	-	1	-	1	5
Milwaukee, Wis.	120	79	30	3	2	6	5
Peoria, Ill.	23	16	6	-	1	-	-
Rockford, Ill.	58	37	14	3	3	1	4
South Bend, Ind.	26	20	6	-	-	-	2
Toledo, Ohio	100	75	20	1	3	1	7
Youngstown, Ohio	53	37	9	4	3	-	7
W.N. CENTRAL	775	529	158	40	17	31	36
Des Moines, Iowa	57	42	11	2	-	2	2
Duluth, Minn.	33	26	3	-	1	3	2
Kansas City, Kans.	41	25	8	2	1	5	1
Kansas City, Mo.	129	89	24	7	4	5	7
Lincoln, Nebr.	35	29	6	-	-	-	4
Minneapolis, Minn.	81	52	16	5	2	6	4
Omaha, Nebr.	86	62	16	4	2	2	8
St. Louis, Mo.	150	99	32	10	4	5	2
St. Paul, Minn.	79	59	16	3	1	-	3
Wichita, Kans.	84	46	26	7	2	3	3
S. ATLANTIC	1,296	759	344	98	52	43	47
Atlanta, Ga.	129	63	45	16	3	2	2
Baltimore, Md.	268	163	63	22	13	7	6
Charlotte, N.C.	81	48	23	3	4	3	3
Jacksonville, Fla.	90	49	23	12	4	2	4
Miami, Fla.	118	59	34	14	4	7	3
Norfolk, Va.	66	31	16	4	9	6	3
Richmond, Va.	90	49	32	3	2	4	7
Savannah, Ga.	49	36	9	2	1	1	3
St. Petersburg, Fla.	110	101	7	1	-	1	6
Tampa, Fla.	72	46	17	3	2	4	2
Washington, D.C.	166	94	55	11	2	4	3
Wilmington, Del.	57	20	20	7	8	2	5
E.S. CENTRAL	768	483	185	47	17	36	38
Birmingham, Ala.	134	95	19	8	1	11	-
Chattanooga, Tenn.	44	28	13	2	1	-	1
Knoxville, Tenn.	69	44	17	4	2	2	-
Louisville, Ky.	147	95	38	11	-	3	16
Memphis, Tenn.	133	73	38	8	3	11	4
Mobile, Ala.	84	53	22	3	5	1	11
Montgomery, Ala.	52	30	14	-	1	7	1
Nashville, Tenn.	105	65	24	11	4	1	5
W.S. CENTRAL	1,431	835	347	130	62	57	46
Austin, Tex.	58	39	12	5	-	2	5
Baton Rouge, La.	39	20	11	6	2	-	3
Corpus Christi, Tex.	43	23	12	1	5	2	-
Dallas, Tex.	209	124	41	24	10	10	4
El Paso, Tex.	66	38	15	6	3	4	3
Fort Worth, Tex.	84	61	13	5	2	3	6
Houston, Tex.	381	183	110	49	19	20	7
Little Rock, Ark.	84	53	21	5	2	3	5
New Orleans, La.	129	76	34	9	7	3	-
San Antonio, Tex.	192	120	46	11	8	7	10
Shreveport, La.	66	45	15	3	2	1	1
Tulsa, Okla.	80	53	17	6	2	2	2
MOUNTAIN	725	441	183	43	30	28	35
Albuquerque, N.Mex.	72	45	15	8	4	-	2
Colo. Springs, Colo.	35	27	5	1	1	1	3
Denver, Colo.	147	91	38	7	4	7	7
Las Vegas, Nev.	95	44	35	7	7	2	6
Ogden, Utah	16	12	3	1	-	-	3
Phoenix, Ariz.	169	96	43	11	9	10	3
Pueblo, Colo.	29	17	4	3	4	1	5
Salt Lake City, Utah	52	31	13	2	1	5	-
Tucson, Ariz.	110	78	27	3	-	2	6
PACIFIC	2,010	1,395	389	121	58	46	147
Berkeley, Calif.	21	18	2	1	-	-	2
Fresno, Calif.	65	49	12	1	2	1	9
Glendale, Calif.	33	26	5	2	-	-	2
Honolulu, Hawaii	69	36	19	8	2	3	8
Long Beach, Calif.	100	77	20	1	-	2	5
Los Angeles, Calif.	633	449	103	51	23	7	33
Oakland, Calif.	69	49	12	4	2	2	3
Pasadena, Calif.	43	34	7	-	-	2	5
Portland, Oreg.	111	74	28	2	2	5	7
Sacramento, Calif.	87	62	18	3	2	2	11
San Diego, Calif.	127	83	26	7	6	5	12
San Francisco, Calif.	175	121	31	16	2	5	5
San Jose, Calif.	192	128	41	15	5	3	25
Seattle, Wash.	152	95	32	8	10	7	5
Spokane, Wash.	71	50	17	2	1	1	8
Tacoma, Wash.	62	44	16	-	1	1	7
TOTAL	12,374††	8,026	2,818	791	352	386	586

* 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.

§ Data not available. Figures are estimates based on average of past 4 weeks.

Transfusion Malaria — Continued

Thus, it is important to maintain vigilance in screening blood donors, promptly diagnose suspected transfusion cases, and rapidly identify and treat the donor responsible for the infection. Because an IFA response is usually associated with current or prior malaria infection, serologic testing is a useful adjunct to the travel or exposure histories in identifying donors potentially responsible for transfusion-related malaria.

In 1982, to provide a more rapid and efficient response for malaria reference diagnosis, CDC reviewed the indications for which malaria IFA serologic testing is appropriate. The review noted that a diagnosis of acute malaria is best made by a properly collected, stained, and examined blood smear. Therefore, the major criteria for reference diagnostic serologic testing for malaria antibodies at CDC are: 1) identification of a donor for each transfusion-related case, and 2) assistance in diagnosing clinically suspected malaria in a patient for whom repeated blood smears have been negative. In addition, CDC can assist other laboratories in standardizing test reagents and procedures for malaria serology.

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Current Trends

Rocky Mountain Spotted Fever — United States, 1982

For 1982, a provisional total of 979 cases of Rocky Mountain spotted fever (RMSF) in the United States was reported to CDC. On the basis of this figure, the RMSF incidence rate was 0.42 cases/100,000 population.

The South Atlantic states accounted for 521 (53%) of the reported cases. The seven highest RMSF rates were for North Carolina (225 cases, 3.74/100,000 population), South Carolina (106 cases, 3.31/100,000), Oklahoma (76 cases, 2.39/100,000), Virginia (73 cases, 1.33/100,000), Tennessee (59 cases, 1.27/100,000), Maryland (50 cases, 1.17/100,000), and Georgia (52 cases, 0.92/100,000) (Figure 1).

States submitted case report forms for 834 (85%) of reported cases. Of these, 400 (48%) were confirmed by serologic testing (a 4-fold increase in antibody titer between acute- and convalescent-phase serum specimens by complement fixation [CF], indirect fluorescent antibody [IFA], indirect hemagglutination [IHA], latex agglutination [LA], or microagglutination [MA]; or a single convalescent titer 1:16 or higher [CF] or 1:64 or higher [IFA] in a clinically compatible case); by isolation of spotted fever group rickettsiae; or by fluorescent antibody staining of biopsy or autopsy specimens. An additional 95 patients (11%) had "probable" cases by a 4-fold increase or a single convalescent titer 1:320 or higher in the Weil-Felix (OX-19, OX-2) agglutination tests, or by a single convalescent titer 1:128 or higher by LA or IHA. The other 339 cases (41%) were reported on the basis of clinical diagnoses alone. Fifty-three percent of the patients were under 20 years of age; 61% were male; and 89% were white.

Rocky Mountain Spotted Fever — Continued

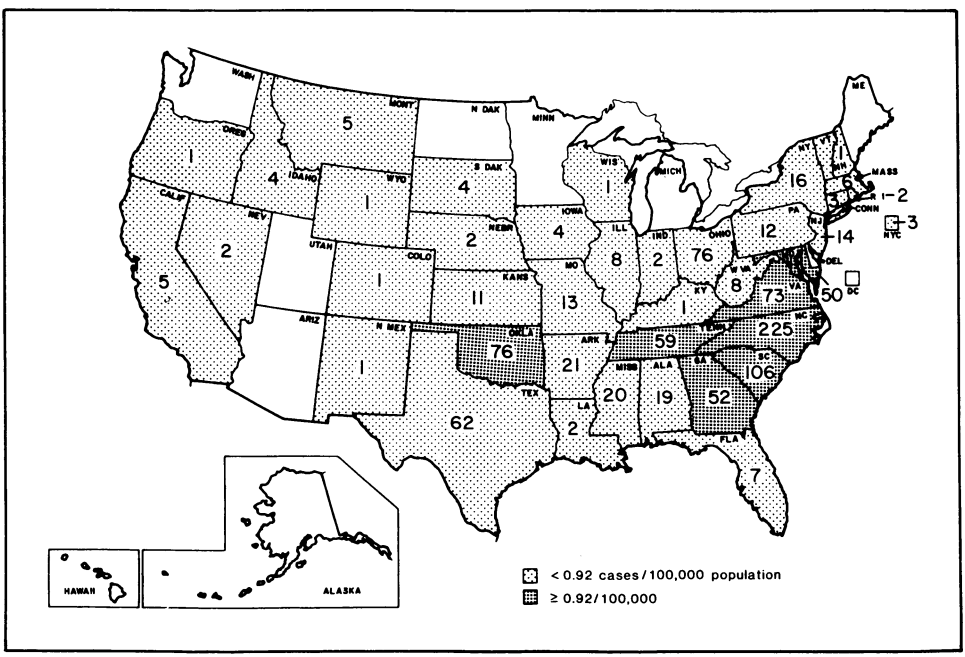
Ninety-five percent of patients became ill between April 1 and September 30. Symptoms reported included fever (98%), headache (89%), rash on torso (88%), and rash on palms of hands or soles of feet (71%). Eighty-one percent of patients were hospitalized. Sixty-seven percent of patients for whom exposure information was available reported a tick bite or attachment within 14 days before onset of illness. The case fatality rate (4.7%) was higher for persons 30 years of age or older (10.2%) than for younger individuals (2.1%), higher for persons with unknown or no tick exposure (7.2%) than for persons reporting a tick bite or attachment (3.1%), and higher for persons not reporting treatment with tetracycline or chloramphenicol (7.8%) than for those who received such antibiotic therapy (4.3%).

Twenty-five percent of 558 patients for whom a history was available reported travel outside the county of residence within 14 days before onset of illness. Forty-five percent of these patients indicated travel to one of the seven states reporting the highest incidence of RMSF in 1982.

Reported by Respective state epidemiologists; Div of Viral Diseases, Center for Infectious Diseases, CDC.

Editorial Note: Following the rapid rise of RMSF in the United States during the 1970s, infection rates remained approximately the same from 1977 to 1981 and dropped slightly in 1982 (Figure 2). The predominance of RMSF in the southeastern United States, the higher incidence of the disease among younger persons, and the case fatality rate (which has fluctuated between 3% and 8% since 1970) have changed little in recent years. Consistent with previous findings (*1*), the 1982 data indicate that fatality continues to be associated with age 30 years or older, failure to obtain a history of exposure to ticks, and lack of appropriate antibiotic treatment. Travel history for 25% of patients for whom information was available indi-

FIGURE 1. Reported cases of Rocky Mountain spotted fever, by state — United States, 1982



Rocky Mountain Spotted Fever – Continued

cates that travel to highly endemic areas may be critical in diagnosing the disease, especially in areas where RMSF does not commonly occur.

The new case report form, used since 1981, continues to provide valuable information concerning symptoms, hospitalization, treatment, tick exposure, travel, and laboratory results pertaining to cases of RMSF. The percentage of total reported cases (85%), for which these case report forms were received in 1982, was slightly lower than that in 1981 (91%). However, the higher proportion of laboratory confirmed cases (48% in 1982, 35% in 1981) suggests that the more sensitive and specific laboratory tests to confirm RMSF cases may have achieved wider use. It must be emphasized, however, that RMSF confirmation is of epidemiologic importance and cannot usually be expected to occur before 10-14 days after onset of illness. Therefore, diagnosis must rely on clinical (fever, headache, rash, myalgia) and epidemiologic (tick exposure) criteria, and treatment with tetracycline or chloramphenicol must be initiated before laboratory confirmation is available.

Prevention of RMSF entails frequent inspection of persons when tick exposure is likely. Ticks are best removed by grasping with tweezers as close as possible to the point of attachment and by pulling slowly and steadily. If tweezers are unavailable, 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. Because of

FIGURE 2. Reported cases of Rocky Mountain spotted fever per 100,000 population, by year – United States, 1955-1982

*Provisional data.

Rocky Mountain Spotted Fever — Continued

technical difficulties and delays in handling tick specimens, routine testing of ticks removed from patients is not recommended. Instead, when a tick bite occurs, the patient and family should be educated about the incubation period of RMSF (3-12 days) and should be instructed to seek medical attention promptly if RMSF symptoms occur. No vaccine against RMSF is currently available.

Reference

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The data in this report are provisional, based on weekly reports 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. Such reports and any other matters pertaining to editorial or other textual considerations should be addressed to: ATTN: Editor, *Morbidity and Mortality Weekly Report,* Centers for Disease Control, Atlanta, Georgia 30333.

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