CENTERS FOR DISEASE CONTROL

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MORBIDITY AND MORTALITY WEEKLY REPORT

Current Trends

Oral Contraceptives and Cancer Risk

An initial analysis of an ongoing, multicenter case-control study indicates that women who have used oral contraceptives are approximately half as likely to develop ovarian and endometrial cancer as women who have never used them and that, despite previous concerns, contraceptive use does not appear to increase a woman's risk of breast cancer.

The study used population-based cancer registries in eight geographic regions across the United States to identify women 20-54 years of age with newly diagnosed breast, ovarian, or endometrial cancer. Controls were women of the same ages without known cancer, chosen from the same geographic areas by dialing randomly selected telephone numbers.

The relative risk of ovarian cancer for women who had used oral contraceptives for at least 1 month, as compared with women who had never used them, was 0.6 (95% confidence limits 0.4-0.9). The longer a woman had used oral contraceptives, the lower her risk of developing ovarian cancer. The protective effect of oral contraceptive use persisted more than 10 years after pill use was discontinued.

The relative risk of endometrial cancer for women who had used combined oral contraceptives containing both an estrogen and a progestin was 0.5 (95% confidence limits 0.4-0.8). By contrast, women who had used sequential oral contraceptives (estrogen and progestin components taken at different times of the month) appeared to have an increased risk of endometrial cancer. The protective effects of combined oral contraceptives against endometrial cancer appeared to be restricted to women who had used them for 1 year or longer and was concentrated in nulliparous women.

For breast cancer, women who had used oral contraceptives had a relative risk of 0.9 (95% confidence limits 0.8-1.2) compared with women who had never used them. There was no evidence that long-term oral contraceptive use of more than 10 years or oral contraceptive use that began 16 or more years ago, shortly after oral contraceptives were introduced in this country, increased the risk of breast cancer. Furthermore, there was no indication of any increased risk of breast cancer due to oral contraceptive use for high-risk women such as those with family histories of breast cancer or with previous biopsies for benign breast disease. Similarly, there was no evidence of an increased risk of breast cancer for women who used oral contraceptives before their first pregnancy.

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Oral Contraceptives—Continued

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Editorial Note: The Cancer and Steroid Hormone Study is a collaborative effort of the National Cancer Institute and eight Surveillance, Epidemiology, and End Results (SEER) Centers of the Institute, the National Institute of Child Health and Human Development, and the Centers for Disease Control. It is specifically designed to clarify the association between oral contraceptive use and breast, endometrial, and ovarian cancer.

Methodologic biases are unlikely to account for the study's findings. Selection bias was minimized by attempting to enroll all women from the eight geographic areas who have newly diagnosed breast, endometrial, or ovarian cancer and by selecting controls at random from the same areas. Accurate histories of oral contraceptive use were facilitated by a book containing photographs of all oral contraceptives ever marketed in the United States and by a calendar with which the women could relate periods of contraceptive use to reproductive histories and other life events (*1*). Because of the widespread use of oral contraceptives and the common occurrence of endometrial and ovarian cancer, the protective effects of oral contraceptives against these tumors could have a large public health impact. The reduced risk of cancer among women who have used oral contraceptives would result in the prevention of over 1,700 cases of ovarian cancer and over 2,000 cases of endometrial cancer in the United States each year.

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Epidemiologic Notes and Reports

Rubella in Universities — Washington, California

Seattle, Washington: Between April 4 and May 3, 1981, 12 cases of rubella were reported among students at the University of Washington in Seattle. Eight cases were serologically confirmed as rubella by a four-fold or greater rise in hemagglutination-inhibition (HI) antibody titer. The students' ages ranged from 21 to 30 years with a mean of 23 years, and six students attended the same drama class. Nine of the 12 students were female; one, who contracted rubella in her first trimester of pregnancy, chose to have an abortion. No specific control measures were instituted in this outbreak, nor was the index case ever identified. The University of Washington does not require students to prove immunity to rubella before enrollment.

Rubella—Continued

Los Angeles, California: In late November 1981, 10 cases of rubella-like illness were reported among students seen at the University of Southern California student health center. The illnesses were characterized by maculopapular rashes lasting 3-5 days, low grade fever, malaise, arthralgia, and conjunctivitis. Between November 1981 and January 20, 1982, 49 students developed a similar illness, with the peak occurring between November 15 and December 15; two cases were serologically confirmed as rubella. The students' ages ranged from 18 to 34 years with a mean of 21.5 years. Sixty-seven percent of affected students were male; 30% lived in university dormitories or apartments; and 38% were enrolled as business majors. The University of Southern California, which does not require proof of immunity to rubella, did not implement a control program.

Berkeley, California: Between December 21, 1981, and March 23, 1982, 17 cases of rash illness were reported among students at the University of California-Berkeley. Eleven of the cases were serologically confirmed as rubella. The students, who ranged in age from 20 to 34 years, had a mean age of 28.7 years. Twelve of the affected students were male. Although one student was initially hospitalized for diagnostic purposes, no nosocomial spread of rubella occurred. No pregnant students or contacts were identified. The majority of ill students resided in a cooperative residential hall (190 residents). Although rubella cases are reported routinely among students at the University of California-Berkeley, no proof of rubella immunity is required for admission.

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Editorial Note: These reports demonstrate the potential for rubella outbreaks among university students. An estimated 10%-20% of persons ≥18 years of age remain susceptible (*1*). Since many students and university personnel are of child-bearing age and some may be pregnant at the time of an outbreak, rubella can pose a serious public health problem.

Although rubella immunization is required for school entrance or attendance in all states, female students ≥12 years old are exempted in many states because of the theoretical risk to a fetus associated with vaccinating pregnant women. Existing data, however, show this potential risk, to be minimal (*2*). Because of continued rubella outbreaks on campuses and exposure of pregnant students, university employees, and contacts, universities should address the issue of rubella immunity among students and staff (*3-6*). The Immunization Practices Advisory Committee (ACIP) strongly urges educational institutions to consider requiring proof of immunity (documented history of rubella vaccination on or after the first birthday or presence of antibody to rubella) for admission or employment (*2*). Both male and female students should be included in any such requirement.

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Current Trends

Serologic Diagnosis of Measles

As the countdown for measles elimination has progressed, increasing efforts have been made to confirm measles cases by laboratory methods. As an additional measles serodiagnostic test, a staphylococcal protein A (SPA) adsorption test has recently been adapted to measure measles-specific IgM (*1,2*). This test is based on the principle that SPA will bind IgG antibody and will permit its removal from a serum specimen, allowing any residual measles IgM antibody to be measured by routine hemagglutination-inhibition (HI) testing (*3*).

The sensitivity and specificity of the SPA test were assessed relative to sucrose gradient ultracentrifugation (SGU), the standard method for measuring measles-specific IgM, using 79 serum specimens from patients clinically suspected of having measles (Table 1) (*4*). The sensitivity of the SPA was 71% (45/63), and the specificity was 81% (13/16). In this study, a positive IgM detected by SPA was almost always confirmed as IgM by the SGU; of the 48 serum specimens positive by SPA, 45 (94%) were also positive by SGU. However, a negative SPA test did not mean IgM was absent; of the 31 specimens that tested negative by the SPA test, 18 (58%) were positive by SGU.

Continued on page 401

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

DISEASE	29th WEEK ENDING			CUMULATIVE, FIRST 29 WEEKS		
	July 24, 1982	July 25, 1981	MEDIAN 1977-1981	July 24, 1982	July 25, 1981	MEDIAN 1977-1981
Aseptic meningitis	222	338	184	2,734	2,853	2,028
Brucellosis	5	1	4	85	83	100
Encephalitis: Primary (arthropod-borne & unspec.)	27	41	28	473	504	385
Post-infectious	-	-	4	41	60	119
Gonorrhea: Civilian	18,635	20,036	20,759	497,975	545,709	530,099
Military	293	755	547	14,070	16,324	15,109
Hepatitis: Type A	393	518	566	12,083	14,187	15,834
Type B	383	412	358	11,364	11,184	9,171
Non A, Non B	35	N	N	1,182	N	N
Unspecified	184	197	197	5,002	6,084	5,564
Legionellosis	17	N	N	225	N	N
Leprosy	10	6	3	111	145	96
Malaria	15	28	26	513	778	376
Measles (rubeola)	61	48	150	1,071	2,399	12,256
Meningococcal infections: Total	36	52	38	1,860	2,290	1,708
Civilian	35	52	38	1,848	2,282	1,691
Military	1	-	-	12	8	12
Mumps	52	40	148	3,938	2,923	10,554
Pertussis	36	27	44	606	586	692
Rubella(German measles)	21	30	98	1,811	1,567	10,222
Syphilis (Primary & Secondary): Civilian	632	667	452	17,856	16,596	13,213
Military	12	21	5	223	217	167
Tuberculosis	540	531	585	14,199	14,650	15,390
Tularemia	10	12	8	115	118	94
Typhoid fever	4	9	9	207	277	250
Typhus fever, tick-borne (RMSF)	64	60	60	543	709	573
Rabies, animal	119	176	120	3,486	4,295	2,694

TABLE II. Notifiable diseases of low frequency, United States

	CUM. 1982		CUM. 1982
Anthrax	-	Poliomyelitis: Total	3
Botulism (Wash. 1, Calif. 1)	48	Paralytic	3
Cholera	-	Psittacosis (Wash. 2)	69
Congenital rubella syndrome	5	Rabies, human	-
Diphtheria	-	Tetanus (Ala. 1)	40
Leptospirosis	31	Trichinosis	59
Plague	5	Typhus fever, flea-borne (endemic, murine) (Tex. 2)	19

N: Not notifiable

TABLE III. Cases of specified notifiable diseases, United States, weeks ending July 24, 1982 and July 25, 1981 (29th 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	222	85	473	41	497,975	545,709	393	383	35	184	17	111
NEW ENGLAND	10	3	16	5	12,448	13,609	8	29	1	10	8	1
Maine	–	–	–	–	583	672	1	–	–	–	–	–
N.H.	1	–	–	–	355	480	–	–	–	–	1	–
Vt.	–	–	–	–	247	234	–	–	–	–	4	–
Mass.	4	–	6	–	5,805	5,607	6	11	–	7	–	–
R.I.	5	–	–	–	834	725	1	5	–	–	–	–
Conn.	–	3	10	5	4,624	5,891	–	13	1	3	3	1
MID. ATLANTIC	23	3	55	11	63,454	64,192	43	64	3	14	4	4
Upstate N.Y.	8	3	19	3	10,381	10,512	9	18	–	4	1	1
N.Y. City	–	–	11	–	26,556	26,910	1	4	–	–	–	1
N.J.	12	–	12	–	11,366	12,066	14	25	3	5	3	1
Pa.	3	–	13	8	15,151	14,704	19	17	–	5	–	1
E.N. CENTRAL	19	–	106	7	67,610	83,559	35	48	3	15	2	3
Ohio	7	–	36	4	20,520	28,369	10	19	–	5	2	–
Ind.	3	–	27	2	8,068	7,327	9	9	2	8	–	–
Ill.	–	–	7	1	14,978	22,946	2	2	1	–	–	3
Mich.	6	–	34	–	17,358	17,447	11	17	–	2	–	–
Wis.	3	–	2	–	6,686	7,470	3	1	–	–	–	–
W.N. CENTRAL	14	11	32	3	24,453	26,093	13	17	2	3	–	3
Minn.	–	–	11	1	3,676	4,224	5	4	2	2	–	1
Iowa	5	2	12	1	2,575	2,846	2	1	–	–	–	–
Mo.	–	3	4	–	11,482	11,896	5	3	–	–	–	1
N. Dak.	4	–	–	–	330	365	–	–	–	–	–	–
S. Dak.	2	1	–	1	668	717	–	–	–	–	–	1
Nebr.	1	2	2	–	1,490	1,997	–	3	–	1	–	–
Kans.	2	3	3	–	4,232	4,048	1	6	–	–	–	–
S. ATLANTIC	67	17	74	6	119,176	134,365	49	89	7	14	1	6
Del.	–	–	–	–	2,055	2,126	1	4	–	–	–	–
Md.	1	–	14	–	17,165	15,100	4	16	–	1	–	2
D.C.	2	–	–	–	7,496	8,217	1	2	–	–	–	–
Va.	8	7	19	1	10,897	12,199	2	6	1	1	–	1
W. Va.	–	–	2	–	1,491	2,039	1	1	–	–	–	–
N.C.	9	–	9	1	21,492	20,826	3	4	–	1	–	–
S.C.	–	2	–	–	13,133	13,111	3	10	–	1	–	–
Ga.	2	1	–	–	9,483	27,563	4	22	1	1	–	–
Fla.	45	7	30	4	35,964	33,184	30	24	5	9	1	3
E.S. CENTRAL	8	10	25	2	44,468	44,702	14	22	–	2	–	–
Ky.	–	–	–	–	6,002	5,716	4	1	–	–	–	–
Tenn.	3	6	14	–	17,161	17,042	7	14	–	1	–	–
Ala.	4	3	8	2	13,521	13,495	1	5	–	1	–	–
Miss.	1	1	3	–	7,784	8,449	2	2	–	–	–	–
W.S. CENTRAL	28	23	58	1	71,938	71,069	70	25	–	62	–	15
Ark.	–	4	2	–	5,857	5,270	–	1	–	5	–	–
La.	1	6	8	–	13,289	10,950	6	2	–	3	–	–
Okla.	8	3	16	–	7,964	7,702	17	8	–	3	–	–
Tex.	19	10	32	1	44,828	47,147	47	14	–	51	–	15
MOUNTAIN	5	–	18	3	17,984	21,311	53	19	2	7	1	2
Mont.	1	–	–	–	750	770	1	–	–	1	–	–
Idaho	–	–	–	–	826	895	2	–	–	–	–	1
Wyo.	–	–	–	–	524	497	–	–	–	–	–	–
Colo.	3	–	8	1	4,812	5,757	10	5	1	2	–	–
N. Mex.	–	–	–	–	2,263	2,347	16	2	–	3	–	–
Ariz.	–	–	6	–	4,870	6,481	19	10	1	1	–	–
Utah	1	–	–	2	843	995	1	1	–	–	1	1
Nev.	–	–	4	–	3,096	3,569	4	1	–	–	–	–
PACIFIC	48	18	89	3	76,444	86,809	108	70	17	57	1	77
Wash.	6	–	9	–	6,208	7,108	5	8	–	6	1	6
Oreg.	–	–	2	–	4,318	5,285	11	5	2	1	–	–
Calif.	37	17	74	3	62,661	70,620	92	57	15	49	–	49
Alaska	2	1	3	–	1,896	2,142	–	–	–	1	–	1
Hawaii	3	–	1	–	1,361	1,654	–	–	–	–	–	21
Guam	U	–	–	–	53	72	U	U	U	U	U	–
P.R.	U	–	1	–	1,579	1,821	U	U	U	U	U	–
V.I.	–	–	–	–	126	107	–	–	–	–	–	–
Pac. Trust Terr.	U	–	–	–	187	257	U	U	U	U	U	10

N: Not notifiable U: Unavailable

TABLE III (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending July 24, 1982 and July 25, 1981 (29th 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	513	61	1,071	2,399	36	1,860	52	3,938	36	21	1,811	1,567
NEW ENGLAND	–	26	–	9	72	2	101	2	158	3	1	16	110
Maine	–	–	–	–	5	–	6	–	34	–	–	–	33
N.H.	–	–	–	2	6	–	14	–	12	–	–	8	43
Vt.	–	–	–	2	2	–	6	–	5	–	–	–	–
Mass.	–	20	–	2	51	1	26	1	77	3	1	4	22
R.I.	–	2	–	–	–	–	11	–	14	–	–	1	–
Conn.	–	4	–	3	8	1	38	1	16	–	–	3	12
MID. ATLANTIC	4	70	2	155	773	5	333	2	248	8	–	86	187
Upstate N.Y.	1	16	2	105	201	1	109	2	53	4	–	41	84
N.Y. City	–	21	–	42	66	–	58	–	41	1	–	31	47
N.J.	1	21	–	4	51	2	71	–	36	1	–	14	46
Pa.	2	12	–	4	455	2	95	–	118	2	–	–	10
E.N. CENTRAL	2	35	–	66	75	2	222	11	2,118	1	2	152	334
Ohio	–	9	–	1	15	–	83	4	1,547	–	–	–	3
Ind.	–	1	–	2	8	–	22	4	37	–	–	26	114
Ill.	–	3	–	23	23	2	62	–	165	–	–	55	81
Mich.	2	20	–	40	28	–	43	2	287	1	–	45	33
Wis.	–	2	–	–	1	–	12	1	82	–	2	26	103
W.N. CENTRAL	–	14	10	49	10	1	78	11	536	1	–	59	76
Minn.	–	2	–	–	3	1	20	10	412	–	–	9	7
Iowa	–	5	–	–	1	–	5	–	29	–	–	–	4
Mo.	–	3	–	2	1	–	23	–	15	–	–	38	2
N. Dak.	–	–	–	–	–	–	6	–	–	–	–	–	–
S. Dak.	–	–	–	–	–	–	3	–	1	1	–	1	–
Nebr.	–	3	3	3	4	–	9	–	–	–	–	–	1
Kans.	–	1	7	44	1	–	12	1	79	–	–	11	62
S. ATLANTIC	6	80	1	35	333	8	372	3	221	11	2	68	125
Del.	–	–	–	–	–	–	–	–	10	–	–	1	1
Md.	–	12	–	3	2	1	23	–	21	3	–	33	1
D.C.	–	3	–	1	1	–	2	–	–	–	–	–	–
Va.	3	26	–	14	6	2	42	–	30	2	–	13	4
W. Va.	1	6	–	2	9	–	7	1	82	–	–	1	22
N.C.	–	2	–	–	3	1	77	1	11	–	–	1	5
S.C.	–	3	–	–	–	1	41	–	13	1	–	1	8
Ga.	–	10	–	–	108	2	81	1	11	2	1	6	35
Fla.	2	18	1	15	204	1	99	–	43	3	1	12	49
E.S. CENTRAL	–	6	–	8	2	1	123	3	35	1	–	39	25
Ky.	–	4	–	1	–	–	20	1	10	–	–	22	16
Tenn.	–	–	–	6	–	1	52	1	14	1	–	1	8
Ala.	–	–	–	–	2	–	44	–	5	–	–	–	1
Miss.	–	2	–	1	–	–	7	1	6	–	–	16	–
W.S. CENTRAL	1	35	1	15	787	5	219	5	149	4	1	98	128
Ark.	–	3	–	–	1	–	12	–	6	–	–	1	2
La.	–	3	–	2	2	1	38	–	3	–	–	1	9
Okla.	–	5	–	–	5	2	23	–	–	–	–	3	–
Tex.	1	24	1	13	779	2	146	5	140	4	1	93	117
MOUNTAIN	–	15	–	5	32	5	91	5	66	5	1	59	76
Mont.	–	–	–	–	–	–	4	–	3	1	–	5	3
Idaho	–	1	–	–	1	–	6	–	3	–	–	1	3
Wyo.	–	–	–	–	–	–	5	–	2	1	–	7	3
Colo.	–	8	–	5	9	3	37	–	8	3	–	4	30
N. Mex.	–	2	–	–	8	1	14	–	–	–	–	5	5
Ariz.	–	3	–	–	4	1	15	3	32	–	–	8	19
Utah	–	1	–	–	–	–	7	1	13	–	1	20	4
Nev.	–	–	–	–	10	–	3	1	5	–	–	9	9
PACIFIC	2	232	47	729	315	7	321	10	407	2	14	1,234	506
Wash.	–	11	–	31	3	1	32	–	61	1	2	34	55
Oreg.	–	9	1	8	3	–	63	–	–	–	1	6	49
Calif.	2	210	46	686	307	6	213	9	332	1	11	1,185	389
Alaska	–	–	–	1	–	–	10	–	6	–	–	1	–
Hawaii	–	2	–	3	2	–	3	1	8	–	–	8	13
Guam	U	1	U	5	6	U	2	U	3	U	U	2	1
P.R.	U	4	U	76	245	U	7	U	43	U	U	6	3
V.I.	–	–	–	–	17	–	–	–	–	–	–	–	1
Pac. Trust Terr.	U	–	U	–	1	U	–	U	1	U	U	–	1

U: Unavailable

TABLE III (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending July 24, 1982 and July 25, 1981 (29th week)

REPORTING AREA	SYPHILIS (Civilian) (Primary & Secondary)		TUBERCULOSIS		TULAREMIA	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	17,856	16,596	540	14,199	115	4	207	64	543	3,486
NEW ENGLAND	307	345	20	385	2	–	14	1	6	26
Maine	1	2	1	31	–	–	–	–	–	19
N.H.	1	12	–	11	–	–	–	–	1	–
Vt.	1	13	–	7	–	–	2	–	–	–
Mass.	203	231	16	256	2	–	10	1	3	4
R.I.	17	19	1	17	–	–	–	–	1	–
Conn.	84	68	2	63	–	–	2	–	1	3
MID. ATLANTIC	2,457	2,491	111	2,388	7	–	33	4	20	103
Upstate N.Y.	243	232	14	401	7	–	4	1	2	51
N.Y. City	1,476	1,496	39	875	–	–	20	–	1	–
N.J.	333	340	18	486	–	–	5	–	10	6
Pa.	405	423	40	626	–	–	4	3	7	46
E.N. CENTRAL	940	1,134	75	2,169	–	1	16	10	51	396
Ohio	173	149	11	370	–	1	8	10	50	58
Ind.	105	111	11	288	–	–	–	–	–	59
Ill.	448	640	43	880	–	–	3	–	1	200
Mich.	156	182	10	518	–	–	5	–	–	4
Wis.	58	52	–	113	–	–	–	–	–	75
W.N. CENTRAL	334	335	16	423	14	1	8	4	17	775
Minn.	64	118	–	71	–	1	5	–	–	134
Iowa	20	13	1	48	1	–	1	–	3	246
Mo.	201	177	8	200	9	–	1	–	5	69
N. Dak.	4	6	–	7	–	–	–	–	–	68
S. Dak.	–	2	2	19	–	–	–	3	3	61
Nebr.	10	4	4	19	2	–	–	1	1	92
Kans.	35	15	1	59	2	–	1	–	5	105
S. ATLANTIC	4,871	4,336	92	2,890	9	–	29	34	303	600
Del.	9	7	1	25	–	–	–	–	–	2
Md.	268	323	13	333	1	–	7	6	34	33
D.C.	272	361	4	114	–	–	–	–	–	–
Va.	344	395	10	315	2	–	2	7	37	307
W. Va.	20	13	2	86	–	–	3	1	5	32
N.C.	342	335	20	467	–	–	–	17	136	37
S.C.	262	288	2	277	5	–	3	2	65	32
Ga.	1,008	1,124	15	427	–	–	–	1	24	118
Fla.	2,346	1,490	25	846	1	–	14	–	2	39
E.S. CENTRAL	1,259	1,074	55	1,320	6	–	14	9	40	411
Ky.	70	55	12	335	–	–	–	–	–	85
Tenn.	330	421	20	438	4	–	2	6	26	257
Ala.	464	303	20	375	–	–	9	1	6	69
Miss.	395	295	3	172	2	–	3	2	8	–
W.S. CENTRAL	4,660	4,045	69	1,699	58	1	21	1	96	685
Ark.	118	76	10	181	38	1	2	1	16	95
La.	979	938	13	281	3	–	2	–	–	17
Okla.	104	90	5	227	17	–	2	–	52	127
Tex.	3,459	2,941	41	1,010	–	–	15	–	28	446
MOUNTAIN	445	411	17	405	14	1	8	–	7	130
Mont.	3	9	–	25	2	–	–	–	2	51
Idaho	19	15	1	17	1	–	–	–	1	3
Wyo.	11	7	–	2	1	–	–	–	1	11
Colo.	124	137	–	50	3	–	2	–	–	17
N. Mex.	95	78	2	78	–	–	–	–	1	11
Ariz.	106	80	12	170	–	–	4	–	–	27
Utah	13	16	–	23	7	–	1	–	–	7
Nev.	74	69	2	40	–	1	1	–	2	3
PACIFIC	2,583	2,425	85	2,520	5	–	64	1	3	360
Wash.	83	94	9	155	1	–	3	–	–	–
Oreg.	66	53	1	99	–	–	1	–	–	1
Calif.	2,355	2,226	73	2,045	3	–	57	1	3	286
Alaska	8	10	–	46	1	–	1	–	–	73
Hawaii	71	42	2	175	–	–	2	–	–	–
Guam	1	–	U	4	–	U	–	U	–	–
P.R.	332	378	U	195	–	U	2	U	–	30
V.I.	15	13	–	1	–	–	–	–	–	–
Pac. Trust Terr.	–	–	U	68	–	U	–	U	–	–

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending July 24, 1982 (29th week)

REPORTING AREA	ALL CAUSES, BY AGE (YEARS)						P&I** TOTAL
	ALL AGES	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	734	513	147	33	18	23	50
Boston, Mass.	198	122	49	12	7	8	22
Bridgeport, Conn.	57	40	10	2	4	1	1
Cambridge, Mass.	36	27	9	–	–	–	1
Fall River, Mass.	26	22	3	1	–	–	–
Hartford, Conn.	75	51	16	7	1	–	–
Lowell, Mass.	21	17	3	1	–	–	3
Lynn, Mass.	15	9	4	1	1	–	–
New Bedford, Mass.	22	18	2	1	–	1	1
New Haven, Conn.	60	34	13	4	3	6	1
Providence, R.I.	67	50	13	–	–	4	4
Somerville, Mass.	10	9	1	–	–	–	1
Springfield, Mass.	49	35	10	1	1	2	8
Waterbury, Conn.	39	29	8	2	–	–	3
Worcester, Mass.	59	50	6	1	1	1	5
MID. ATLANTIC	2,587	1,723	570	168	62	63	112
Albany, N.Y.	55	39	13	1	1	1	1
Allentown, Pa.	16	14	2	–	–	–	–
Buffalo, N.Y.	120	81	32	4	2	1	15
Camden, N.J.	38	21	11	3	–	3	–
Elizabeth, N.J.	19	12	7	–	–	–	3
Erie, Pa.†	48	36	7	2	2	1	4
Jersey City, N.J.	69	45	15	5	1	3	–
N.Y. City, N.Y.	1,513	1,011	314	119	41	28	50
Newark, N.J.	73	34	25	7	2	4	3
Paterson, N.J.	38	27	9	1	–	1	4
Philadelphia, Pa.†	113	65	27	6	1	14	5
Pittsburgh, Pa.†	87	50	25	6	3	3	4
Reading, Pa.	32	24	7	–	–	1	2
Rochester, N.Y.	124	88	25	7	4	–	8
Schenectady, N.Y.	30	21	8	1	–	–	1
Scranton, Pa.†	31	23	8	–	–	–	1
Syracuse, N.Y.	94	69	17	3	3	2	1
Trenton, N.J.	44	29	11	2	1	1	4
Utica, N.Y.	14	10	4	–	–	–	1
Yonkers, N.Y.	29	24	3	1	1	–	5
E.N. CENTRAL	2,309	1,423	551	163	83	89	58
Akron, Ohio	62	39	15	1	4	3	–
Canton, Ohio	22	17	5	–	–	–	1
Chicago, Ill.	524	312	118	47	26	21	9
Cincinnati, Ohio	173	115	37	10	5	6	11
Cleveland, Ohio	195	108	56	17	6	8	4
Columbus, Ohio	138	79	39	9	6	5	–
Dayton, Ohio	127	73	34	14	3	3	2
Detroit, Mich.	241	149	61	19	6	6	3
Evansville, Ind.	44	36	6	2	–	–	1
Fort Wayne, Ind.	53	31	14	5	1	2	2
Gary, Ind.	16	8	2	5	1	–	–
Grand Rapids, Mich.	55	36	16	2	–	1	5
Indianapolis, Ind.	185	97	47	14	11	16	–
Madison, Wis.	38	20	8	6	1	3	2
Milwaukee, Wis.	131	93	26	3	3	6	–
Peoria, Ill.	48	33	8	2	4	1	6
Rockford, Ill.	44	25	13	–	2	4	2
South Bend, Ind.	54	41	10	2	1	–	6
Toledo, Ohio	88	56	22	4	2	4	4
Youngstown, Ohio	71	55	14	1	1	–	–
W.N. CENTRAL	759	503	149	52	23	31	23
Des Moines, Iowa §	53	51	–	–	1	–	–
Duluth, Minn.	28	22	3	1	–	2	1
Kansas City, Kans.	51	23	16	8	3	1	1
Kansas City, Mo.	120	76	30	10	1	3	4
Lincoln, Nebr.	37	23	7	3	3	1	3
Minneapolis, Minn.	90	56	16	6	6	6	1
Omaha, Nebr.	81	45	25	5	4	2	4
St. Louis, Mo.	123	79	27	10	2	5	6
St. Paul, Minn.	83	61	10	5	1	6	–
Wichita, Kans.	93	67	15	4	2	5	3

REPORTING AREA	ALL CAUSES, BY AGE (YEARS)						P&I** TOTAL
	ALL AGES	≥65	45-64	25-44	1-24	<1	
S. ATLANTIC	1,147	701	278	92	28	48	32
Atlanta, Ga.	141	81	29	20	1	10	4
Baltimore, Md.	160	93	42	18	3	4	3
Charlotte, N.C.	52	31	11	4	1	5	–
Jacksonville, Fla.	93	58	24	6	4	1	2
Miami, Fla.	116	62	36	11	2	5	–
Norfolk, Va.	58	31	16	6	2	3	2
Richmond, Va.	63	43	17	–	1	2	6
Savannah, Ga.	46	33	12	–	1	–	5
St. Petersburg, Fla.	87	69	12	2	1	3	1
Tampa, Fla.	64	43	13	2	4	2	4
Washington, D.C.	211	120	53	20	5	13	4
Wilmington, Del.	56	37	13	3	3	–	1
E.S. CENTRAL	654	404	181	31	18	20	30
Birmingham, Ala.	114	73	26	8	5	2	3
Chattanooga, Tenn.	41	26	12	1	1	1	4
Knoxville, Tenn.	45	30	12	2	1	–	1
Louisville, Ky.	89	69	16	3	1	–	9
Memphis, Tenn.	110	68	29	4	5	4	5
Mobile, Ala.	100	49	39	5	4	3	1
Montgomery, Ala.	52	24	17	4	1	6	–
Nashville, Tenn.	103	65	30	4	–	4	7
W.S. CENTRAL	1,265	740	313	112	52	48	37
Austin, Tex.	70	38	25	4	2	1	2
Baton Rouge, La.	52	26	15	9	2	–	3
Corpus Christi, Tex.	55	38	10	2	3	2	3
Dallas, Tex.	185	110	46	21	2	6	1
El Paso, Tex.	41	19	11	9	–	2	2
Fort Worth, Tex.	81	53	19	4	4	1	4
Houston, Tex.	262	142	65	23	20	12	6
Little Rock, Ark.	96	58	29	2	5	2	4
New Orleans, La.	123	65	34	12	4	8	–
San Antonio, Tex.	170	107	33	17	6	7	4
Shreveport, La.	51	34	9	3	–	5	–
Tulsa, Okla.	79	50	17	6	4	2	8
MOUNTAIN	576	343	132	50	28	23	15
Albuquerque, N.Mex.	72	37	22	6	3	4	–
Colo. Springs, Colo.	29	24	4	1	–	–	1
Denver, Colo.	130	84	16	15	5	10	4
Las Vegas, Nev.	69	33	19	12	4	1	–
Ogden, Utah	15	12	1	–	2	–	2
Phoenix, Ariz.	125	71	36	5	9	4	2
Pueblo, Colo.	30	17	7	5	1	–	2
Salt Lake City, Utah	33	19	9	1	2	2	1
Tucson, Ariz.	73	46	18	5	2	2	3
PACIFIC	1,800	1,168	383	131	67	49	85
Berkeley, Calif.	18	13	3	2	–	–	–
Fresno, Calif.	65	35	16	6	5	3	3
Glendale, Calif.	26	23	2	–	1	–	1
Honolulu, Hawaii	62	37	12	9	2	2	10
Long Beach, Calif.	88	59	16	7	2	4	2
Los Angeles, Calif.	588	392	119	42	19	14	19
Oakland, Calif.	61	33	18	4	3	3	2
Pasadena, Calif.	24	20	1	–	1	2	1
Portland, Oreg.	122	82	26	4	5	5	9
Sacramento, Calif.	67	37	18	6	5	1	1
San Diego, Calif.	163	111	32	8	3	9	14
San Francisco, Calif.	159	107	39	9	2	2	3
San Jose, Calif.	153	92	36	14	8	3	9
Seattle, Wash.	124	78	27	12	6	1	2
Spokane, Wash.	47	35	7	2	3	–	7
Tacoma, Wash.	33	14	11	6	2	–	2
TOTAL	11,831††	7,518	2,704	832	379	394	442

*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.

Measles—Continued

TABLE 1. Comparison of staphylococcal protein A adsorption (SPA) with sucrose gradients ultracentrifugation (SGU) for measles specific IgM antibody detection

		SGU		
		Positive	Negative	Total
SPA	Positive	45	3	48
	Negative	18	13	31
	Total	63	16	79
	Sensitivity	45 of 63 = 71%		
	Specificity	13 of 16 = 81%		
	Predictive value positive	45 of 48 = 94%		

Serum specimens from 36 measles cases confirmed by a four-fold or greater rise in complement-fixation or HI-antibody titer were used to determine when measles IgM becomes positive by SPA. Only six of 19 (32%) specimens collected 0-4 days after rash onset were positive by SPA compared with 12 of 17 (71%) specimens collected 5-21 days following rash onset ($X^2 = 4.01, p = 0.045$).

Reported by Viral Exanthems and Herpes Virus Br, Div of Viral Diseases, Center for Infectious Diseases, Surveillance, Investigations, and Research Br, Immunization Div, Center for Prevention Svcs, CDC.

Editorial Note: The techniques most commonly used to confirm measles infections serologically are the HI and the complement-fixation (CF) tests (*3*). A four-fold rise in measles-specific HI or CF antibody titers between acute- and convalescent-phase serum specimens confirms measles infection. HI antibodies generally become detectable within the first several days following rash onset and peak approximately 2 weeks later (Figure 1) (*5-7*). Complement-fixation titers frequently follow the rise in HI titers, often by 1-3 days. However, there is considerable individual variation; some persons reach peak HI and CF titers within the first few days after rash onset (*5,8,9*). Measles-specific IgM antibodies may be detected shortly after rash onset and peak within 10 days after rash onset; they are usually undetectable by 30 days (*10*).

The SGU method (used most often to measure measles IgM) is cumbersome and time-consuming and requires expensive and sophisticated equipment. The SPA adsorption test, although less sensitive than SGU for detecting IgM, is simple to perform and requires the addition of only one adsorption step to the serum-treatment procedure for the measles HI assay. Laboratories that perform the HI assay should consider adding the SPA technique for IgM measurement and should establish internal quality control with known IgM positive and IgM negative specimens. A positive test is presumptive evidence of acute measles infection. The three instances in which the SPA adsorption test was positive and the SGU was negative may have been false positives. However, it is possible that the SPA adsorption test may have detected IgM not detectable by SGU. A negative SPA adsorption test, however, should not be interpreted as the absence of IgM.

The laboratory is more helpful for confirming measles cases than for ruling out measles as the cause of a rash illness. The presence of measles-specific IgM or the detection of a four-fold rise in measles HI or CF antibody titers between acute- and convalescent-phase serum specimens confirms an acute measles infection. However, IgM may not be detected, even in specimens collected when antibody should peak, and four-fold rises may go undetected, particularly if peak titers were reached before an acute-phase specimen was drawn (*11*).

Laboratory confirmation should be sought for all suspected cases of measles occurring in the United States. However, decisions to take outbreak-control measures should be made on clinical and epidemiological grounds, since laboratory confirmation may take several weeks from rash onset, and the absence of laboratory evidence for measles infection may not rule out measles.

Measles–Continued

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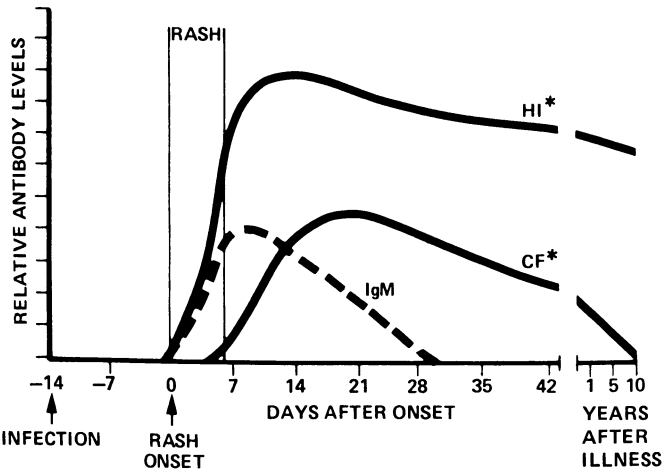
FIGURE 1. Schematic of immune response in acute measles infection



*HI - Hemagglutination inhibition antibody
CF - Complement fixation antibody

Epidemiologic Notes and Reports

Acute Bacterial Conjunctivitis — Southeastern Georgia, 1981

In September and October 1981, an outbreak of conjunctivitis involving primarily grade-school-aged children occurred in southeastern Georgia. Between September 5 and October 16, the Office of Epidemiology, Georgia Department of Human Resources, received both passive and active surveillance reports of over 2,000 conjunctivitis cases in 20 counties. Reports

Conjunctivitis—Continued

suggested that the outbreak peaked in the week ending September 19. The patients' ages ranged from 6 months to 84 years (median age = 7 years).

Between September 24 and October 4, a telephone survey of households with children in three randomly selected first grade classes (the age group most affected) was conducted in one community. Of the 72 selected households, 44 (61%) were contacted. Twenty-two of 44 (50%) reported one or more persons with conjunctivitis since September 1. Eighteen of 44 first graders (41%) had conjunctivitis. There was no difference in attack rates between males and females, blacks and whites, and residents within and beyond city limits. Symptoms reported from the index case in affected households were: conjunctival injection (86%), lid swelling (73%), watering (73%), purulent drainage (73%), eye pain (60%), itching (55%), headache (36%), and discomfort on exposure to bright light (32%). Fever, as well as respiratory and gastrointestinal symptoms were present in <10% of cases. Thirty-eight percent of cases involved one eye; 62% were bilateral. The median duration of illness was 6.5 days (range 2 days-2-1/2 weeks). In nine of the 22 case households (41%), more than one person was affected. In three households, multiple cases appeared simultaneously. In households with multiple cases, age-specific attack rates were: ≤4 years, four of five (80%); 5-9 years, 29 of 35 (83%); 10-14, six of 14 (43%); 15-19, zero of nine; 20-29, one of 11 (9%); ≥30, zero of 31.

Microscopic examination of purulent material obtained from the eyes of eight acutely ill children in one community revealed small, pleomorphic intracellular gram-negative rods morphologically compatible with the presence of *Haemophilus* organisms. A possible *Haemophilus* species was isolated from seven of the eight specimens but could not be further identified. A similar organism was isolated from 17 persons with conjunctivitis in another community. Viral cultures from nine patients were negative.

Health authorities considered the possibility that gnats (*Hippelates pusio*) were responsible for mechanical transmission of this disease. These insects derive nourishment from eye secretions and were unusually prevalent during the outbreak period. Attempts to isolate *Haemophilis* from gnats trapped in a first-grade classroom were unsuccessful.

Reported by R Poblete, MD, Baxley, DC Schwekendiek, Tift General Hospital, Tifton, I Eunice, RN, C Matthews, JT Holloway, MD, Health District 9, Unit 2, Waycross, J Franklin, Bacteriology Laboratory, RK Sikes, DVM, State Epidemiologist, Georgia Dept of Human Resources; Field Svcs Div, Epidemiology Program Office, CDC.

Editorial Note: Outbreaks of seasonal conjunctivitis in the southern states and southern California were described as early as 1929 (*1-5*); they occurred during the summer or early fall and primarily affected young children. The etiologic agent was *Haemophilus aegyptius* (known as the Kochs-Weeks bacillus and now as *H. influenza* biotype III), and mechanical vector transmission by gnats has long been suggested. In many areas of the southern United States, these insects are prevalent during the warm months. Gnat-borne transmission has been documented in animal studies (*6*).

The Morbidity and Mortality Weekly Report, circulation 111,113, 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 on interesting cases, outbreaks, environmental hazards, or other public health problems of current interest to health officials. Send reports to: Attn: Editor, Morbidity and Mortality Weekly Report, Centers for Disease Control, Atlanta, Georgia 30333.

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

Conjunctivitis—Continued

In this outbreak, transmission by gnats was suggested. It was hypothesized that such transmission may have been facilitated when children congregated in school yards. It was not possible, however, to discern the relative importance of vector or direct person-to-person spread.

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