CENTERS FOR DISEASE CONTROL

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MORBIDITY AND MORTALITY WEEKLY REPORT

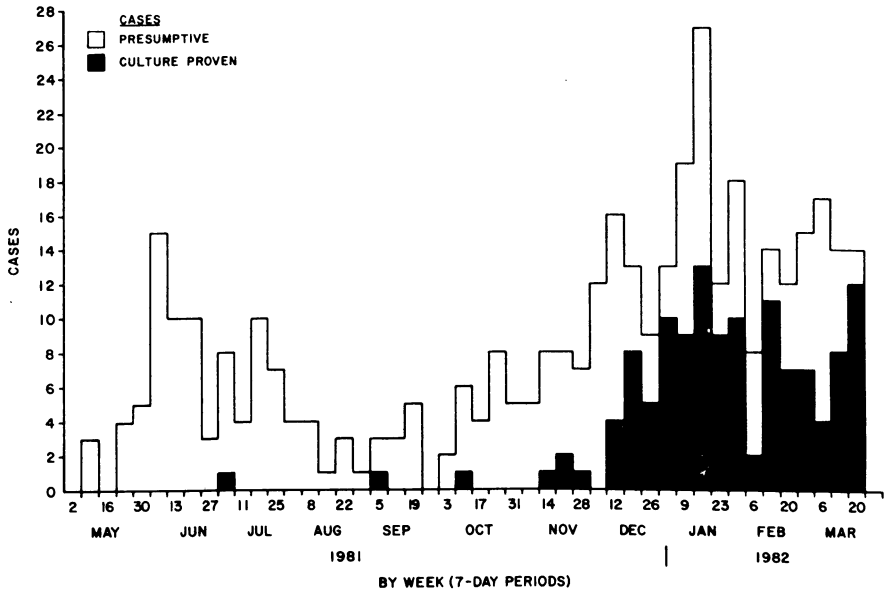
Epidemiologic Notes and Reports

Chancroid — California

From May 1, 1981, to March 19, 1982, 389 patients with dark-field-negative genital ulcers were seen in the Orange County (California) Special Diseases Clinic (OCSDC). *Haemophilus ducreyi* was identified as the causative organism in this outbreak on December 28, 1981. Since then, cultures from genital lesions obtained from 126 patients have grown *H. ducreyi*. The outbreak of chancroid began in late May 1981 when the number of patients with dark-field-negative genital lesions seen at the OCSDC increased markedly. The peak number of *H. ducreyi*-positive cultures occurred in the week ending January 16, 1982 (Figure 1). Although primary and secondary syphilis and genital herpes infections have been hyperendemic in Orange County, chancroid has never before been documented there at such high levels.

Ninety-one percent of the patients were Hispanic men, many of whom were recent immigrants from Mexico currently living in central Orange County in crowded apartments (5-15 occupants per single housing unit). At least 77% of these men had had recent sexual contact with prostitutes. Examination of 2 prostitutes from that area, who presumably had multiple

FIGURE 1. Cases of chancroid, by week of first clinic visit, Orange County, California, 1981-1982



Chancroid — Continued

contacts with male chancroid patients but for whom no direct contact could be established, showed no lesions. However, when cultures of the cervix, urethra, and vagina were done, *H. ducreyi* was recovered from cervical specimens from both women.

Ninety-five percent of the confirmed or presumptive cases* were in men with genital ulcers (ranging from 0.3 cm to 2.5 cm in diameter) and/or enlarged inguinal nodes. The lesions were single or multiple, superficial or deep, sometimes indurated, and often with ragged edges and a purulent base. Tender, unilateral or bilateral inguinal nodes were present in 32% of patients, and in some patients these progressed to the formation of fluctuant buboes.

Dark-field and serologic tests for syphilis, cultures for *Herpes simplex* virus (HSV), and serologic tests for chlamydiae (for diagnosis of lymphogranuloma venereum) have been negative in nearly all instances. However, 2 patients had lesions that were positive for syphilis (*Treponema pallidum* was identified on dark-field examination) and for *H. ducreyi* simultaneously, and 1 patient had a lesion that yielded HSV as well as *H. ducreyi*. In addition, 2 cases of culture-proven chancroid were identified in 1 week at the OCSDC for patients whose lesions were described as "typical herpes," although HSV was not isolated.

Antimicrobial susceptibility tests performed at CDC on 29 isolates of *H. ducreyi* from this outbreak showed resistance to sulfamethoxazole and tetracycline but susceptibility to erythromycin—mean minimum inhibitory concentration (MIC) of $\leq$0.004 μg/ml—and to trimethoprim/sulfamethoxazole—mean MIC $\leq$0.06/1.2 μg/ml.

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Editorial Note: Chancroid is a sexually transmitted disease that is rarely reported in temperate climates and may be confused with primary syphilis and genital herpes infections. The mean number of cases reported annually in the United States and California from 1974 to 1980 was 697 and 29, respectively (*1,2*).

H. ducreyi is a fastidious, gram-negative bacterium that is difficult to grow in vitro, and may not be detected unless careful collection and isolation techniques are employed. The bacterium requires high humidity and a slightly lower temperature for growth (33 -35 C) than do other bacteria (35 -37 C). Also many strains show variation in nutritional requirements. To obtain optimal recovery, several types of plating media should be used for each culture. The Orange County Public Health Laboratory has achieved the greatest rate of recovery by using enriched chocolate agar, but some strains grow only on Heart Infusion agar supplemented with 10% fetal bovine serum (*3*). Microbiologists may contact the CDC Sexually Transmitted Disease Research Laboratory for additional information on the isolation of *H. ducreyi*.

Considerable variation occurs in antibiotic susceptiblity patterns for *H. ducreyi*, making ob-

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*A confirmed case of chancroid was defined by the recovery of *H. ducreyi* from a culture of the genital lesion. A presumptive or suspected case of chancroid was defined by the absence of a positive culture for *H. ducreyi* and of any clinical diagnosis other than chancroid, such as a traumatic tear or folliculitis, plus any of the following:

1. A genital ulcer
   a. negative upon dark-field examination
   b. with accompanying negative serologic test for syphilis (STS)
   c. with no mention of genital herpes in the history, no diagnosis of herpes for this lesion after repeated visits, or no positive culture for *Herpes simplex* virus; or
2. A grossly enlarged, fluctuant, or aspirated inguinal node or bubo in a patient with negative STS results; or
3. A genital ulcer that has not healed after appropriate syphilis treatment, regardless of STS results.

Chancroid – Continued

solete the treatment suggested in most medical textbooks. Resistance of this organism to sulfamethoxazole alone and to tetracycline has been noted in recent years (*4,5*). CDC currently recommends 500 mg erythromycin by mouth 4 times a day for 10 days as the treatment of choice for chancroid. An alternative effective regimen is 800 mg sulfamethoxazole and 160 mg trimethoprim by mouth 2 times a day for 10 days. Recent laboratory testing has shown *H. ducreyi* to be very sensitive to several newer cephalosporin drugs. Research is needed to determine if a single dose of a cephalosporin with a long biologic half-life would be more effective treatment.

Follow-up evaluations should be at no more than 1-week intervals and should continue until the lesions are completely resolved. To prevent transmission of this infection, patients must abstain from sexual activity while clinical disease is present and, because asymptomatic carriage of the organisms is possible, recent sexual partners of patients must be treated with a regimen adequate for uncomplicated chancroid. When chancroid is left untreated, the patient often develops an inguinal bubo that may spontaneously rupture. Necrotic ulcers and erosive lesions that destroy genital tissue have also been reported.

Control strategies in the Orange County outbreak have focused on interviewing persons with confirmed cases for names of sexual partners; this has not successfully identified new cases. During a door-to-door educational campaign in 10 high-risk neighborhoods, no new cases were found. Intensified efforts have been implemented to identify and treat prostitutes.

This outbreak of chancroid is not yet controlled and could spread to other areas, emphasizing the need for prompt diagnosis, treatment, and epidemiologic investigation. Because this disease is uncommon in the United States, current surveillance measures may not be sufficient to detect similar outbreaks should they occur. All sexually-transmitted-disease clinics, private physicians, and other health-care providers should report cases of presumed chancroid to their county or state health departments. The forwarding of isolates of *H. ducreyi* to CDC should be coordinated with state laboratories.

References

1. Sexually Transmitted Disease (STD) Statistical Letter, U.S. Department of Health and Human Services, #129, 1979.
2. Venereal Disease Control Division, Center for Prevention Services, CDC, 1982.
3. California Department of Health Services. An outbreak of chancroid in Orange County. California Morbidity 1982, February 12:5.
4. Albritton WL, Brunton JL, Slaney L, MacLean I. Plasmid-mediated sulfonamide resistance in *Haemophilus ducreyi*. Antimicrob Agents Chemother 1982;21:159-65.
5. Handsfield HH, Totten PA, Fennel CL, Falkow S, Holmes KK. Molecular epidemiology of *Haemophilus ducreyi* infections. Ann Intern Med 1981;95:315-8.

Current Trends

Influenza Update — United States

Influenza activity caused by type B and type A(H1N1) viruses continued in early April, especially in northern states. According to state reports and isolates from collaborating laboratories, virus activity was at generally low levels.

Alaska, Illinois, Massachusetts, and New Mexico, which had reported influenza type B isolates earlier, recently reported their first influenza type A(H1N1) isolates of the season, and

Influenza — Continued

Delaware, Kansas, Louisiana, Maine, and New Jersey have now reported influenza type B isolates. Two additional reports of outbreaks associated with influenza type B virus in nursing homes have been received. In New Jersey, 2 type B isolates were obtained in a nursing home where 28 of 122 residents had influenza-like illness in the period March 21-April 3. In California, 18 of 46 elderly residents had febrile respiratory illness between mid-February and mid-March, and 3 died. Type B influenza virus was isolated from 1 patient, and high titers to influenza B were detected in convalescent-phase serum specimens from 7 of 9 patients.

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

DISEASE	14th WEEK ENDING			CUMULATIVE, FIRST 14 WEEKS		
	April 10 1982	April 11 1981	MEDIAN 1977-1981	April 10 1982	April 11 1981	MEDIAN 1977-1981
Aseptic meningitis	59	58	33	1,017	904	668
Brucellosis	2	4	1	27	23	41
Encephalitis: Primary (arthropod-borne & unspec.)	9	16	11	184	199	162
Post-infectious	3	3	4	14	24	43
Gonorrhea: Civilian	16,924	18,068	18,068	244,504	259,373	252,498
Military	462	728	547	7,309	7,865	7,324
Hepatitis: Type A	368	546	552	5,994	6,780	7,342
Type B	409	402	309	5,220	5,023	4,242
Non A, Non B	54	N	N	503	N	N
Unspecified	179	233	191	2,473	2,881	2,748
Legionellosis	8	N	N	72	N	N
Leprosy	9	8	3	47	57	40
Malaria	8	28	12	182	323	134
Measles (rubeola)	33	81	563	264	770	4,479
Meningococcal infections: Total	73	98	75	943	1,388	953
Civilian	73	98	73	939	1,385	943
Military	–	–	–	4	3	9
Mumps	295	85	471	1,999	1,483	5,491
Pertussis	23	28	18	284	285	285
Rubella(German measles)	81	68	394	665	736	3,878
Syphilis (Primary & Secondary): Civilian	582	630	427	8,895	8,163	6,598
Military	3	2	4	99	104	85
Tuberculosis	522	519	519	6,543	6,535	7,094
Tularemia	4	3	1	25	27	23
Typhoid fever	1	18	11	99	133	108
Typhus fever, tick-borne (RMSF)	3	5	2	22	19	17
Rabies, animal	132	212	118	1,377	1,822	968

TABLE II. Notifiable diseases of low frequency, United States

	CUM. 1982		CUM. 1982
Anthrax	–	Poliomyelitis: Total	1
Botulism (Calif. 2)	20	Paralytic	1
Cholera	–	Psittacosis (N.J. 2)	22
Congenital rubella syndrome	2	Rabies, human	–
Diphtheria	–	Tetanus (Ark. 1)	12
Leptospirosis (Md. 1, Tex. 1)	17	Trichinosis (Pa. 1, Md. 4)	33
Plague	2	Typhus fever, flea-borne (endemic, murine)	3

N: Not notifiable

TABLE III. Cases of specified notifiable diseases, United States, weeks ending April 10, 1982 and April 11, 1981 (14th 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	59	27	184	14	244,504	259,373	368	409	54	179	8	47
NEW ENGLAND	1	–	10	3	5,864	6,380	5	17	3	8	–	1
Maine	–	–	–	–	271	322	–	–	–	–	–	–
N.H.	–	–	–	–	170	230	–	–	1	–	–	–
Vt.	–	–	–	–	124	104	–	–	–	–	–	–
Mass.	1	–	3	–	2,676	2,597	2	6	–	8	–	–
R.I.	–	–	–	–	417	310	2	2	–	–	–	–
Conn.	–	–	7	3	2,206	2,817	1	9	2	–	–	1
MID. ATLANTIC	8	–	24	2	30,140	30,180	47	63	5	17	1	3
Upstate N.Y.	1	–	11	–	4,986	4,774	3	8	1	3	–	–
N.Y. City	–	–	5	–	12,473	11,875	17	20	–	–	–	1
N.J.	1	–	4	–	5,627	6,333	11	19	4	3	1	1
Pa.	6	–	4	2	7,054	7,198	16	16	–	11	–	1
E.N. CENTRAL	8	–	44	4	31,227	41,044	45	35	3	15	5	–
Ohio	3	–	14	2	10,085	14,189	9	9	1	4	5	–
Ind.	1	–	13	2	4,071	3,363	7	5	1	6	–	–
Ill.	–	–	–	–	5,241	11,278	10	3	1	1	–	–
Mich.	2	–	15	–	8,509	8,671	16	16	–	4	–	–
Wis.	2	–	2	–	3,321	3,543	3	2	–	–	–	–
W.N. CENTRAL	4	2	11	–	11,724	12,240	10	16	3	3	1	–
Minn.	–	–	–	–	1,697	1,999	2	4	1	–	–	–
Iowa	1	1	6	–	1,269	1,286	3	2	2	1	1	–
Mo.	1	1	3	–	5,363	5,547	2	2	–	2	–	–
N. Dak.	–	–	–	–	154	165	–	–	–	–	–	–
S. Dak.	–	–	–	–	336	328	–	1	–	–	–	–
Nebr.	–	–	1	–	717	876	1	4	–	–	–	–
Kans.	2	–	1	–	2,188	2,039	2	3	–	–	–	–
S. ATLANTIC	12	10	22	2	62,649	64,656	33	92	11	17	1	3
Del.	–	–	–	–	987	984	1	3	–	–	–	–
Md.	–	–	9	–	8,127	6,829	3	21	1	6	–	1
D.C.	–	–	–	–	3,193	4,270	–	5	–	–	–	–
Va.	3	4	6	–	5,497	6,050	1	7	2	1	1	–
W. Va.	–	–	–	–	727	959	–	–	–	–	–	–
N.C.	4	–	1	–	10,417	10,286	4	1	–	–	–	–
S.C.	–	1	–	–	5,958	5,882	1	18	–	–	–	–
Ga.	–	1	–	–	9,483	12,835	7	16	1	1	–	–
Fla.	5	4	6	2	18,260	16,561	16	21	7	9	–	2
E.S. CENTRAL	2	3	10	1	20,779	21,219	12	29	8	6	–	–
Ky.	–	–	–	–	2,738	2,770	3	3	–	1	–	–
Tenn.	1	1	7	–	7,931	7,697	4	5	2	1	–	–
Ala.	1	1	2	1	6,324	6,912	2	17	6	4	–	–
Miss.	–	1	1	–	3,786	3,840	3	4	–	–	–	–
W.S. CENTRAL	5	5	15	–	35,133	35,717	96	32	3	78	–	3
Ark.	–	2	–	–	2,896	2,350	4	1	1	2	–	–
La.	2	–	2	–	6,255	5,651	7	6	–	13	–	–
Okla.	–	2	6	–	3,712	3,553	17	5	2	4	–	–
Tex.	3	1	7	–	22,270	24,163	68	20	–	59	–	3
MOUNTAIN	–	–	8	1	8,989	10,688	21	12	2	12	–	1
Mont.	–	–	–	–	382	376	2	1	–	–	–	–
Idaho	–	–	–	–	397	416	–	2	–	–	–	1
Wyo.	–	–	–	–	251	232	–	–	–	–	–	–
Colo.	–	–	2	1	2,476	2,736	7	4	–	4	–	–
N. Mex.	–	–	–	–	1,123	1,221	6	–	–	–	–	–
Ariz.	U	–	2	–	2,343	3,490	U	U	U	U	U	–
Utah	–	–	–	–	396	481	2	–	1	6	–	–
Nev.	–	–	4	–	1,621	1,736	4	5	1	2	–	–
PACIFIC	19	7	40	1	37,999	37,249	99	113	16	23	–	36
Wash.	–	–	3	–	3,279	3,519	20	25	9	1	–	2
Oreg.	–	–	–	–	2,150	2,766	7	3	1	–	–	–
Calif.	18	6	35	1	30,951	29,138	71	82	6	21	–	20
Alaska	–	1	2	–	961	1,023	–	–	–	–	–	–
Hawaii	1	–	–	–	658	803	1	3	–	1	–	14
Guam	U	–	–	–	5	39	U	U	U	U	U	–
P.R.	–	–	1	–	790	909	2	3	–	2	–	–
V.I.	U	–	–	–	51	24	U	U	U	U	U	–
Pac. Trust Terr.	U	–	–	–	36	123	U	U	U	U	U	1

N: Not notifiable U: Unavailable

TABLE III (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending April 10, 1982 and April 11, 1981 (14th 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	8	182	33	264	770	73	943	295	1,999	23	81	665	736
NEW ENGLAND	1	15	–	5	26	2	52	3	108	–	–	8	64
Maine	–	–	–	–	2	–	2	1	22	–	–	–	31
N.H.	–	1	–	–	3	–	9	2	11	–	–	8	21
Vt.	–	–	–	2	2	–	3	–	4	–	–	–	–
Mass.	1	10	–	1	15	1	14	–	55	–	–	–	7
R.I.	–	1	–	–	–	1	9	–	7	–	–	–	–
Conn.	–	3	–	2	4	–	15	–	9	–	–	–	5
MID. ATLANTIC	–	16	1	32	269	11	141	10	108	5	11	52	95
Upstate N.Y.	–	2	1	18	157	2	34	5	27	5	6	28	36
N.Y. City	–	7	–	12	26	–	26	2	20	–	4	14	21
N.J.	–	4	–	–	19	3	37	2	22	–	1	10	34
Pa.	–	3	–	2	67	6	44	1	39	–	–	–	4
E.N. CENTRAL	–	12	2	17	44	7	108	175	1,177	12	20	78	154
Ohio	–	2	–	–	13	3	45	131	849	2	–	–	–
Ind.	–	1	–	1	3	–	7	–	19	–	1	9	51
Ill.	–	–	2	8	6	1	22	10	57	6	3	20	42
Mich.	–	8	–	8	22	2	25	34	181	–	14	32	22
Wis.	–	1	–	–	–	1	9	–	71	4	2	17	39
W.N. CENTRAL	2	7	–	1	4	2	41	80	145	3	2	21	35
Minn.	–	–	–	–	1	–	9	72	75	3	1	2	6
Iowa	1	3	–	–	1	–	4	1	19	–	–	–	–
Mo.	–	1	–	1	–	–	15	1	12	–	1	13	1
N. Dak.	–	–	–	–	–	–	4	–	–	–	–	–	–
S. Dak.	–	–	–	–	–	–	1	–	–	–	–	1	–
Nebr.	1	2	–	–	1	–	3	–	–	–	–	–	1
Kans.	–	1	–	–	1	2	5	6	39	–	–	5	27
S. ATLANTIC	2	34	1	19	214	17	198	9	137	–	1	20	69
Del.	–	–	–	–	–	–	–	–	3	–	–	–	–
Md.	–	6	–	1	1	1	7	1	11	–	1	5	–
D.C.	–	3	–	1	1	–	1	–	–	–	–	–	–
Va.	2	15	–	9	3	3	19	2	19	–	–	9	1
W. Va.	–	–	–	1	7	–	7	1	62	–	–	1	15
N.C.	–	–	–	–	–	1	29	–	4	–	–	–	4
S.C.	–	2	–	–	–	1	25	2	9	–	–	1	4
Ga.	–	2	–	–	75	4	55	–	2	–	–	1	18
Fla.	–	6	1	7	127	7	55	3	27	–	–	3	27
E.S. CENTRAL	–	1	–	5	–	7	61	1	21	–	17	30	15
Ky.	–	1	–	1	–	3	6	1	8	–	2	15	10
Tenn.	–	–	–	4	–	1	25	–	8	–	–	–	5
Ala.	–	–	–	–	–	2	27	–	3	–	–	–	–
Miss.	–	–	–	–	–	1	3	–	2	–	15	15	–
W.S. CENTRAL	–	6	3	29	61	13	135	6	66	–	2	46	47
Ark.	–	–	–	–	–	–	8	–	3	–	–	–	–
La.	–	1	–	–	–	2	19	–	1	–	–	–	6
Okla.	–	–	–	–	3	–	9	–	–	–	1	2	–
Tex.	–	5	3	29	58	11	99	6	62	–	1	44	41
MOUNTAIN	–	3	–	–	12	5	61	2	32	1	1	19	33
Mont.	–	–	–	–	–	1	5	–	3	–	–	1	1
Idaho	–	–	–	–	–	–	4	–	2	–	–	–	2
Wyo.	–	–	–	–	–	–	4	–	2	–	–	4	1
Colo.	–	2	–	–	3	3	23	1	6	1	–	1	16
N. Mex.	–	–	–	–	–	1	9	–	–	–	–	1	2
Ariz.	U	1	U	–	2	U	10	U	10	U	U	4	4
Utah	–	–	–	–	–	–	3	1	7	–	1	6	3
Nev.	–	–	–	–	7	–	3	–	2	–	–	2	4
PACIFIC	3	88	26	156	140	9	146	9	205	2	27	391	224
Wash.	–	7	–	14	1	3	17	3	37	1	1	16	37
Oreg.	–	2	–	–	–	–	26	–	–	–	–	2	31
Calif.	3	77	26	140	139	6	96	6	163	1	25	367	156
Alaska	–	–	–	–	–	–	5	–	4	–	–	1	–
Hawaii	–	2	–	2	–	–	2	–	1	–	1	5	–
Guam	U	–	U	–	4	U	–	U	1	U	U	1	–
P.R.	–	2	1	44	102	–	3	1	15	1	–	3	3
V.I.	U	–	U	–	4	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 April 10, 1982 and April 11, 1981 (14th 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	8,895	8,163	522	6,543	25	1	99	3	22	1,377
NEW ENGLAND	178	187	12	186	–	–	10	–	–	5
Maine	–	1	2	13	–	–	–	–	–	5
N.H.	–	8	2	8	–	–	–	–	–	–
Vt.	–	10	–	6	–	–	2	–	–	–
Mass.	126	110	6	121	–	–	7	–	–	–
R.I.	11	13	1	17	–	–	–	–	–	–
Conn.	41	45	1	21	–	–	1	–	–	–
MID. ATLANTIC	1,186	1,229	117	1,137	2	–	11	–	–	16
Upstate N.Y.	118	99	22	200	2	–	2	–	–	10
N.Y. City	722	775	42	444	–	–	7	–	–	–
N.J.	138	143	19	205	–	–	2	–	–	1
Pa.	208	212	34	288	–	–	–	–	–	5
E.N. CENTRAL	404	562	50	982	–	–	8	–	–	155
Ohio	87	73	5	181	–	–	4	–	–	22
Ind.	62	35	13	134	–	–	–	–	–	26
Ill.	132	322	20	370	–	–	1	–	–	65
Mich.	93	103	12	241	–	–	3	–	–	–
Wis.	30	29	–	56	–	–	–	–	–	42
W.N. CENTRAL	173	142	25	201	6	–	3	–	1	356
Minn.	25	52	5	36	–	–	–	–	–	69
Iowa	7	8	–	29	–	–	1	–	–	113
Mo.	109	71	11	87	5	–	1	–	1	45
N. Dak.	4	1	2	5	–	–	–	–	–	40
S. Dak.	–	–	3	6	–	–	–	–	–	18
Nebr.	5	3	1	7	–	–	–	–	–	36
Kans.	23	7	3	31	1	–	1	–	–	35
S. ATLANTIC	2,472	2,144	116	1,313	6	–	12	1	13	221
Del.	6	5	2	13	–	–	–	–	–	–
Md.	144	170	7	165	1	–	3	1	8	13
D.C.	159	189	4	49	–	–	–	–	–	–
Va.	183	198	15	128	1	–	2	–	–	112
W. Va.	6	6	1	33	–	–	2	–	–	10
N.C.	194	172	19	209	–	–	–	–	4	1
S.C.	118	146	24	138	3	–	2	–	1	15
Ga.	526	548	18	208	–	–	–	–	–	57
Fla.	1,136	710	26	370	1	–	3	–	–	13
E.S. CENTRAL	681	557	42	555	3	–	9	1	5	166
Ky.	33	22	12	140	–	–	–	–	–	31
Tenn.	187	219	14	194	3	–	2	1	1	112
Ala.	232	154	16	174	–	–	6	–	3	23
Miss.	229	162	–	47	–	–	1	–	1	–
W.S. CENTRAL	2,297	1,931	52	696	5	1	5	1	2	243
Ark.	57	36	7	69	4	–	–	–	–	35
La.	476	412	4	127	–	–	–	–	–	7
Okla.	43	49	3	104	1	–	2	1	1	58
Tex.	1,721	1,434	38	396	–	1	3	–	1	143
MOUNTAIN	234	201	8	172	2	–	5	–	–	24
Mont.	1	8	2	16	–	–	–	–	–	13
Idaho	16	2	–	7	1	–	–	–	–	–
Wyo.	9	2	–	2	–	–	–	–	–	2
Colo.	75	69	2	19	–	–	1	–	–	–
N. Mex.	45	39	4	37	–	–	–	–	–	3
Ariz.	46	44	U	68	–	U	3	U	–	6
Utah	7	3	–	6	1	–	1	–	–	–
Nev.	35	34	–	17	–	–	–	–	–	–
PACIFIC	1,270	1,210	100	1,301	1	–	36	–	1	191
Wash.	41	43	7	79	1	–	–	–	–	–
Oreg.	37	26	6	49	–	–	1	–	–	–
Calif.	1,159	1,111	82	1,077	–	–	34	–	1	137
Alaska	6	4	–	18	–	–	–	–	–	54
Hawaii	27	26	5	78	–	–	1	–	–	–
Guam	–	–	U	2	–	U	–	U	–	–
P.R.	165	201	–	57	–	–	–	–	–	13
V.I.	–	–	U	1	–	U	–	U	–	–
Pac. Trust Terr.	–	–	U	19	–	U	–	U	–	–

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending April 10, 1982 (14th week)

REPORTING AREA	ALL CAUSES, BY AGE (YEARS)						P&I** TOTAL
	ALL AGES	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	624	437	135	20	16	12	48
Boston, Mass.	188	119	48	10	5	6	19
Bridgeport, Conn.	36	25	9	2	–	–	5
Cambridge, Mass.	21	16	5	–	–	–	3
Fall River, Mass.	36	28	7	1	–	–	–
Hartford, Conn.	47	35	7	2	1	2	1
Lowell, Mass.	32	24	6	–	2	–	1
Lynn, Mass.	24	17	6	–	–	1	3
New Bedford, Mass.	23	23	–	–	–	–	2
New Haven, Conn.	43	33	7	–	2	1	2
Providence, R.I.	57	37	16	1	2	1	5
Somerville, Mass.	6	5	1	–	–	–	–
Springfield, Mass.	44	30	8	2	3	1	2
Waterbury, Conn.	21	15	6	–	–	–	2
Worcester, Mass.	46	30	13	2	1	–	3
MID. ATLANTIC	2,689	1,804	585	166	68	63	97
Albany, N.Y.	58	40	16	–	–	2	2
Allentown, Pa.	16	13	3	–	–	–	1
Buffalo, N.Y.§	150	139	1	1	4	2	7
Camden, N.J.	36	25	7	1	–	3	1
Elizabeth, N.J.	32	24	2	5	1	–	1
Erie, Pa.†	41	30	6	4	–	1	1
Jersey City, N.J.	43	31	9	2	–	1	2
N.Y. City, N.Y.	1,532	1,006	341	107	39	39	50
Newark, N.J.	52	23	14	6	5	4	2
Paterson, N.J.	18	10	4	2	1	1	–
Philadelphia, Pa.†	283	191	68	14	6	4	10
Pittsburgh, Pa.†	49	28	18	1	1	1	2
Reading, Pa.	29	19	10	–	–	–	3
Rochester, N.Y.	127	94	24	6	2	1	6
Schenectady, N.Y.	19	12	4	1	2	–	1
Scranton, Pa.†	38	28	8	2	–	–	2
Syracuse, N.Y.	93	46	30	7	6	4	2
Trenton, N.J.	27	16	9	2	–	–	–
Utica, N.Y.	21	15	6	–	–	–	–
Yonkers, N.Y.	25	14	5	5	1	–	4
E.N. CENTRAL	2,105	1,308	534	120	75	68	78
Akron, Ohio	41	26	9	4	–	2	–
Canton, Ohio	37	21	12	1	3	–	1
Chicago, Ill.	533	319	142	38	18	16	14
Cincinnati, Ohio	179	115	46	4	9	5	19
Cleveland, Ohio	117	74	33	5	2	3	1
Columbus, Ohio	132	78	41	5	1	7	2
Dayton, Ohio	92	57	22	8	1	4	2
Detroit, Mich.	281	164	70	24	16	7	16
Evansville, Ind.	35	24	7	1	–	3	1
Fort Wayne, Ind.	37	25	10	–	2	–	2
Gary, Ind.	22	10	5	4	1	2	–
Grand Rapids, Mich.	54	33	14	2	2	3	3
Indianapolis, Ind.	141	80	45	6	5	5	2
Madison, Wis.	54	35	14	1	3	1	4
Milwaukee, Wis.	116	81	22	5	4	4	–
Peoria, Ill.	46	33	6	5	–	2	5
Rockford, Ill.	43	31	9	–	3	–	1
South Bend, Ind.	45	33	5	5	1	1	4
Toledo, Ohio	47	34	10	1	1	1	1
Youngstown, Ohio	53	35	12	1	3	2	–
W.N. CENTRAL	723	484	152	35	24	28	35
Des Moines, Iowa	52	38	9	2	2	1	5
Duluth, Minn.	29	23	3	2	1	–	2
Kansas City, Kans.	40	23	9	4	3	1	1
Kansas City, Mo.	116	69	28	10	2	7	8
Lincoln, Nebr.	35	29	4	1	1	–	5
Minneapolis, Minn.	80	54	16	3	3	4	2
Omaha, Nebr.	97	61	24	3	4	5	–
St. Louis, Mo.	125	83	30	4	4	4	6
St. Paul, Minn.	82	64	10	3	2	3	1
Wichita, Kans.	67	40	19	3	2	3	5
S. ATLANTIC	1,371	852	324	107	44	40	47
Atlanta, Ga.	137	79	30	19	7	2	3
Baltimore, Md.	371	239	87	21	14	9	6
Charlotte, N.C.	73	53	14	4	1	1	4
Jacksonville, Fla.	115	69	24	11	5	6	–
Miami, Fla.	135	75	40	15	1	4	2
Norfolk, Va.	57	37	12	1	4	2	7
Richmond, Va.	69	38	21	5	3	2	6
Savannah, Ga.	33	18	13	1	1	–	3
St. Petersburg, Fla.	87	71	12	2	1	1	5
Tampa, Fla.	78	50	18	7	1	2	4
Washington, D.C.	164	91	44	16	5	7	6
Wilmington, Del.	52	32	9	5	1	4	1
E.S. CENTRAL	665	425	158	32	24	25	31
Birmingham, Ala.	111	69	21	9	5	7	2
Chattanooga, Tenn.	49	27	15	2	1	–	2
Knoxville, Tenn.	45	32	10	1	2	–	1
Louisville, Ky.	115	76	26	5	3	4	8
Memphis, Tenn.	145	90	35	5	4	7	8
Mobile, Ala.	70	42	17	2	5	4	5
Montgomery, Ala.	41	29	6	2	2	2	1
Nashville, Tenn.	89	60	20	6	2	1	4
W.S. CENTRAL	1,416	813	382	118	62	40	42
Austin, Tex.	62	40	19	1	–	2	5
Baton Rouge, La.	23	15	6	1	–	–	–
Corpus Christi, Tex.	49	25	11	3	3	7	–
Dallas, Tex.	161	106	35	16	3	1	1
El Paso, Tex.	37	26	9	–	2	–	6
Fort Worth, Tex.	111	63	35	8	2	3	4
Houston, Tex.	483	232	135	58	39	19	10
Little Rock, Ark.	70	45	16	3	2	4	1
New Orleans, La.	143	90	36	10	5	2	2
San Antonio, Tex.	166	108	42	11	4	1	7
Shreveport, La.	45	21	21	1	1	1	–
Tulsa, Okla.	66	42	17	6	1	–	6
MOUNTAIN	633	399	148	39	19	28	28
Albuquerque, N. Mex.	54	34	8	6	3	3	3
Colo. Springs, Colo.	36	23	11	–	–	2	5
Denver, Colo.	131	94	30	4	2	1	3
Las Vegas, Nev.	66	35	23	3	5	–	2
Ogden, Utah	11	10	1	–	–	–	1
Phoenix, Ariz.	160	104	27	15	4	10	4
Pueblo, Colo.	28	18	7	2	1	–	5
Salt Lake City, Utah	53	26	14	5	2	6	1
Tucson, Ariz.	94	55	27	4	2	6	4
PACIFIC	1,780	1,178	367	116	50	68	102
Berkeley, Calif.	14	14	–	–	–	–	1
Fresno, Calif.	69	45	12	4	5	3	5
Glendale, Calif.	18	17	–	–	1	–	2
Honolulu, Hawaii	54	27	16	3	3	3	1
Long Beach, Calif.	94	58	23	8	2	3	5
Los Angeles, Calif.	541	371	111	36	10	12	28
Oakland, Calif.	93	61	20	8	1	3	5
Pasadena, Calif.	26	24	2	–	–	–	6
Portland, Oreg.	124	79	27	11	3	4	5
Sacramento, Calif.	83	53	20	2	4	4	7
San Diego, Calif.	63	41	16	1	1	2	6
San Francisco, Calif.	170	115	25	13	3	14	6
San Jose, Calif.	182	118	37	13	7	7	15
Seattle, Wash.	137	89	28	5	7	8	5
Spokane, Wash.	47	23	15	6	2	1	5
Tacoma, Wash.	65	43	11	6	1	4	–
TOTAL	12,006††	7,700	2,789	753	382	372	508

*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.

TABLE V. Years of potential life lost, deaths, and death rates, by cause of death, and estimated number of physician contacts, by principal diagnosis, United States

Cause of morbidity or mortality (Ninth Revision ICD, 1975)	Years of potential life lost before age 65 by persons dying in 1980[1]	Estimated mortality November 1981		Estimated number of physician contacts November 1981[4]
		Number[2]	Annual Rate/100,000[3]	
ALL CAUSES (TOTAL)	10,006,060	157,250	831.1	84,699,000
Accidents and adverse effects (E800-E807, E810-E825, E826-E949)	2,684,850	7,970	42.1	5,377,000
Malignant neoplasms (140-208)	1,804,120	33,220	175.6	1,983,000
Diseases of heart (390-398, 402, 404-429)	1,636,510	59,690	315.5	5,133,000
Suicides, homicides (E950-E978)	1,401,880	4,280	22.6	—
Chronic liver disease and cirrhosis (571)	301,070	2,310	12.2	128,000
Cerebrovascular diseases (430-438)	280,430	13,110	69.3	453,000
Pneumonia and influenza (480-487)	124,830	3,840	20.3	955,000
Diabetes mellitus (250)	117,340	2,590	13.7	2,203,000
Chronic obstructive pulmonary diseases and allied conditions (490-496)	110,530	4,410	23.3	1,462,000
Prenatal care[5]				2,023,000
Infant mortality[5]		3,500	11.9 /1000 live births	

[1]Years of potential life lost for persons between 1 year and 65 years old at the time of death are derived from the number of deaths in each age category as reported by the National Center for Health Statistics, *Monthly Vital Statistics Report* (MVSR), Vol. 29, No. 13, September 17, 1981, multiplied by the difference between 65 years and the age at the mid-point of each category. As a measure of mortality, "Years of potential life lost" underestimates the importance of diseases that contribute to death without being the underlying cause of death.

[2]The number of deaths is estimated by CDC by multiplying the estimated annual mortality rates (MVSR Vol. 30, No. 12, March 18, 1982, pp. 8-9) and the provisional U.S. population in that month (MVSR Vol. 30, No. 11, February 10, 1982, p.1) and dividing by the days in the month as a proportion of the days in the year.

[3]Annual mortality rates are estimated by NCHS (MVSR Vol. 30, No. 12, March 18, 1982, pp. 8-9), using the underlying cause of death from a systematic sample of 10% of death certificates received in state vital statistics offices during the month and the provisional population of those states included in the sample for that month.

[4]IMS America *National Disease and Therapeutic Index* (NDTI), Monthly Report, November, 1981, Section III. This estimate comprises the number of office, hospital, and nursing home visits and telephone calls prompted by each medical condition based on a stratified random sample of office-based physicians (2100) who record all private patient contacts for 2 consecutive days each quarter.

[5]"Prenatal care" (NDTI) and "Infant mortality" (MVSR Vol. 30, No. 11, February 10, 1982, p.1) are included in the table because "Years of potential life lost" does not reflect deaths of children <1 year.

Epidemiologic Notes and Reports

Measles — El Paso, Texas, 1981

In the period March-June 1981, 219 cases of measles were reported by the El Paso (Texas) City-County Health Department. All patients had a temperature of at least 101 F (38.3 C), a rash of at least 3 days' duration, and at least 1 of the following: cough, coryza, conjunctivitis, or Koplik's spots. Twelve cases were confirmed by a 4-fold rise in complement fixation (11) or hemagglutination inhibition (1) antibody titers between acute- and convalescent-phase serum specimens.

Rash onset occurred between April 11 and May 8 in 154 (70.3%) of the cases. Patients ranged in age from 3 months to 36 years. The largest number of cases, 81 (37.0%), occurred among 15-19 year olds followed by 67 among 0-4 year olds (Table 1). Of these 67 preschool patients, only 9 (13.4%) attended day-care centers.

Of the 219 patients, 94 (42.9%) had histories of adequate measles vaccination*; 85 (38.8%) had no history of prior vaccination; and 37 (16.7%) had histories of inadequate vaccination. The vaccination status was unknown for 3 patients.

Five of the 9 El Paso County public school districts were involved in the outbreak. The highest attack rate, 2.3 cases/1,000 enrollees, occurred in the Ysleta Independent School District, where 63 of the 100 cases reported occurred in a single high school (Figure 2). On April 28, 776 (34.3%) of the 2,265 students at that high school were identified as being susceptible, and a special clinic was conducted at the school on the morning of April 29. Only 6 cases were reported after the clinic date, and no cases were reported 14 days or more (1 incubation period) after the measles vaccination clinic.

On April 29, the El Paso City-County Health Director formally declared an epidemic. All schoolchildren in the county were required to show proof of adequate measles vaccination or physician-verified measles illness. Over 120,000 school records were screened in public, private, and parochial schools. The majority of schools excluded students who were unvaccinated. Because of staff limitations, the health department elected to conduct vaccination clinics only at those public schools with at least 300 susceptible students. Special clinics were conducted at 14 of the county's 23 high schools, and, at the same time, regular clinic services and immunization services were maintained for the entire day in the public health clinics.

During the control program, 13,000 persons were vaccinated for measles by the El Paso City-County Health Department, an increase of 502% over the same period in 1980. In addition, the Texas Department of Health issued more than 7,000 doses of measles vaccine to private physicians, hospitals, and out-patient clinics in the El Paso area.

*Defined by the health department as vaccine administered after 12 months of age and after January 1968.

TABLE 1. Reported cases of measles and attack rates, by age group, El Paso County, Texas, March-June 1981

Age Group (years)	Number of Cases	Percentage of Total	Attack Rate/100,000
≤4	67	30.6	159.3
5-9	30	13.7	72.9
10-14	29	13.2	67.7
15-19	81	37.0	171.0
≥20	12	5.5	4.4
TOTAL	219	100.0	49.4

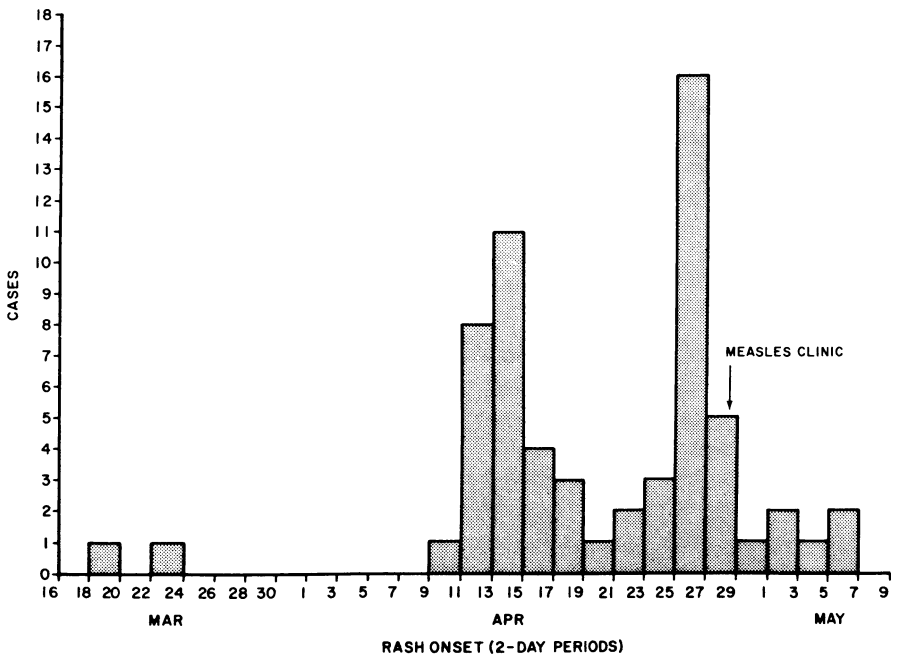
Measles — Continued

Reported by BF Rosenblum, MD, MPH, EW Gorby, MD, E Orneles, S Balcorta, El Paso City-Couty Health Dept, JL Bradley, MD, Public Health Region III, RD Crider, Jr, C Mallory, CR Webb, Jr, MD, State Epidemiologist, Texas Dept of Health; Immunization Div, Center for Prevention Svcs, CDC.

Editorial Note: Texas school immunization laws, rules, and regulations (as amended in 1978) provided for a graduated implementation of requirements for measles vaccination. For the school year 1980-1981, only students through the 7th grade (13 years of age) were required to show proof of measles protection. The lack of such regulations for middle and high school students probably explains the high attack rate in El Paso County in persons 15-19 years of age.

Based on experience in the El Paso outbreak, school regulations for the state of Texas were revised so that, effective September 1, 1981, a history of physician-verified measles or a history of adequate vaccination for measles would be required for all students to attend school, including high school. In May 1981, it was estimated that approximately 290,000 students in public junior and senior high schools would need measles vaccination as a result of the rule changes. From September 1 to November 30, 1981, a statewide record review of all junior and senior high school students was conducted, and from August 1 through November 30, 1981, 112,696 doses of measles vaccine were administered through public health clinics to students 10-19 years of age, an increase of 646% over the same period in 1980. It is now estimated that 98.3% of the 2,919,150 students currently enrolled in the 1,098 school districts in Texas from kindergarten through grade 12 are in compliance with the new state immunization requirements.

FIGURE 2. Reported measles cases in a high school, by date of rash onset, El Paso, Texas, March-May 1981



Measles — Continued

The cornerstone of the measles elimination effort is the achievement and maintenance of high immunization levels, and school requirements for all children from kindergarten through 12th grade are fundamental for success (*1*). Past studies have demonstrated that states with such regulations have the lowest incidence rates for measles (*2-4*) and that enforcement of these regulations with exclusion of non-compliant students correlates best with low measles incidence (*3*).

References

1. CDC. School immunization requirements for measles—United States, 1982. MMWR 1982;31:65-7.
2. CDC. Measles and school immunization requirements—United States, 1978. MMWR 1978;27:303-4.
3. Robbins KB, Brandling-Bennett AD, Hinman AR. Low measles incidence: association with enforcement of school immunization laws. Am J Public Health 1981;71:270-4.
4. CDC. School immunization requirements for measles—United States 1981. MMWR 1981;30:158-60.

Notice to Readers

Malaria Supplement Available

A supplement to the Morbidity and Mortality Weekly Report, entitled **Prevention of Malaria in Travelers — 1982,** is available upon written request. Please send requests to: Malaria Branch, Parasitic Diseases Division, Centers for Disease Control, Atlanta, Georgia 30333.

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