CENTER FOR DISEASE CONTROL

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MMWR

MORBIDITY AND MORTALITY WEEKLY REPORT

Epidemiologic Notes and Reports

Measles — Oregon, California

Measles outbreaks have recently occurred among college students at the University of California at Los Angeles (UCLA) and at Oregon State University (OSU) in Corvallis. These are the first college outbreaks reported to CDC in recent years. Details of the outbreaks follow.

Oregon: Thirty-five cases of measles were diagnosed from January 28-March 31, 1977, in Corvallis, Oregon, residents. Thirty-one of these were in OSU students, who ranged in age from 18 to 23 years old. Of the other 4 cases, 2 were reported in preschoolers, 1 in an intermediate school student in the area, and 1 in a local high school student. Three of the cases were confirmed by complement fixation tests at the Oregon Public Health Laboratory.

Investigation showed that 24 of the patients had never been vaccinated and that 4 had received killed-virus vaccine. The history of 7 cases was unknown. No case had received live-virus vaccine with immune serum globulin (ISG).

There was a clear pattern of transmission among OSU students, initially in common-living quarters, and then through contacts. The pediatric and high school student cases could not be connected positively to OSU, but OSU students are believed responsible for spread outside the campus.

The Benton County Health Department launched a measles-control immunization program on February 22 aimed at protecting OSU students, faculty, and staff, as well as all intermediate and high school students in the county — a total target population of 20,950. The program was specifically aimed at those who: 1) had never been vaccinated, 2) received live vaccine with ISG, 3) received killed vaccine, 4) were vaccinated before they were 12 months old, or 5) could not recall having had measles or vaccine.

The OSU program was conducted on campus February 22, 24, and 28. Consent forms, distributed to all students, urged all those at high risk (as defined above) to be immunized. A total of 2,100 persons were immunized on these 3 days.

Other clinics conducted in the county schools and at the health department and at other sites in Corvallis, February 23-March 10 reached 3,908 persons, mostly between the ages of 12 and 18. Only a few persons over 30 years old received vaccine. More than 100 volunteers — who worked a total of 420 hours in 14 clinics — made it possible to carry out these 6,008 immunizations.

The low incidence in the preschool and elementary school population was probably due to the high measles-immune rate in Benton County's schools. Immunity levels for measles in entering students in Benton County have been among the highest in the state for several years. The State Health Division's Keysort Survey of children entering Benton County's kindergarten and first grade for academic year 1976-77 showed that 95.7% had been immunized against measles.

California: Twenty-five cases of measles were diagnosed in UCLA students in March and April. The majority of these were seen in the outpatient clinic of the Student Health Service. The earliest onset of rash was March 4, the latest, April 7. Because of the Easter holiday, intensive case finding was delayed, and the index case has not yet been identified. None of the cases was hospitalized. The course of clinical illness appears to be similar to that in younger age groups. Sixteen of the cases occurred in students living at the 3 major dormitories; the remaining 9 lived off campus. The mean age of these students was 20.2 years, with a range of 18 to 32 years. Of the cases, 18 were male and 7 female.

Vaccine histories were obtained for 19 of the cases. Of these, 12 were obtained from the patients' mothers, 1 from a father, and 6 from patients. Thirteen of the 19 did not have written records immediately available. Six had been vaccinated, 7 had not been, and 6 did not know their vaccine history. Of the 6 patients who gave a history of vaccine, 2 had killed vaccine only (one at 10 years of age, the other between 5 to 9 years of age), 1 had live vaccine with ISG (at 6 years of age), and 3 did not know which type of vaccine they had received. Only one person gave a history of having previous measles disease, but he had not been diagnosed by a physician.

Blood samples were collected at 3 clinic sessions held for students who wished to know their immunization status. These sessions had been advertised in the 3 dormitories, each of which has approximately 900 students. Preliminary results from this self-selected group revealed that 32 of 347 students (9.2%) had measles HI antibody titers of $<1:5$ (Dorm A, 6/64 or 9.4%; Dorm B, 15/54 or 27.8%; Dorm C, 11/229 or 4.8%).

The survey results, in general, and the large number of cases, in particular, suggest that there may be a much higher percentage of susceptibles among certain college-age groups than previously suspected.

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Measles — Continued

Health Division; JD Cherry, MD, J Deseda-Tous, MD, PJ Krause, MD, UCLA; SL Fannin, MD, S Greenland, MS, SM Odom, BA, MA Strassburg, MPH, C Sullivan, MPH, Los Angeles County Dept of Health Services; and the Immunization Div, Bur of State Services, CDC.

Editorial Note: The trend in recent years towards increasing cases of measles in the 15+ age groups is further illustrated in these 2 outbreaks (*1*). Similar outbreaks may be expected elsewhere, as more susceptibles from high school enter college.

These outbreaks also reinforce the need for close attention to laws requiring immunization before school entry. Strict enforcement of such laws would prevent both unimmunized and inadequately immunized children (particularly those vaccinated before they were 1 year old) from still being susceptible when they reach college.

The true level of susceptibility among college students is unknown. Further studies are needed to define accurately such immunity levels. The rarity of measles outbreaks among these groups suggests that most students are immune. However, the serosurveys conducted at UCLA, while not random, do suggest that a potentially high level of susceptibility may exist in some instances. The bias of such a self-selected survey must be emphasized, however. When outbreaks do occur on college campuses, students should be immunized as soon as possible. Measles immunization and prior disease histories should be requested on all entering students; those who lack such histories should be immunized.

Reference

1. MMWR 26:109-111, 1977

Legionnaires' Disease — Pennsylvania

Serum specimens from a 53-year-old Pennsylvania man hospitalized for pneumonia in April have revealed a seroconversion to the agent of Legionnaires' disease. The patient, a previously healthy carbon plant employee from St. Marys, Pennsylvania, developed a fever, headache, and generalized body aches on March 27, 1977. His only notable exposures in the past 2 weeks had been to dirt from 2 sources: an excavation site behind his house and the dirt floor of his root cellar. Over the next few days, his temperature rose to 105 F, and he developed a nonproductive cough. On April 1, he was seen by his physician and was admitted to a local hospital with right-sided pneumonia; he was treated with intravenous Keflin.* On the seventh hospital day, he had a fever of 104 F and deteriorating mental status.

He was transferred to a larger medical center, where he was noted to have a temperature of 104 F and to be dis-

*Use of trade names is for identification only and does not constitute endorsement by the PHS, U.S. Dept. HEW.

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Table I. Summary—Cases of Specified Notifiable Diseases: United States

[Cumulative totals include revised and delayed reports through previous weeks]

DISEASE	19th WEEK ENDING		MEDIAN 1972–1976	CUMULATIVE, FIRST 19 WEEKS		
	May 14, 1977	May 15, 1976		May 14, 1977	May 15, 1976	MEDIAN 1972–1976
Aseptic meningitis	46	29	33	679	644	664
Brucellosis	6	12	3	63	94	51
Chickenpox	6,967	5,980	---	116,927	109,077	---
Diphtheria	–	2	8	34	98	98
Encephalitis, Primary	10	13	13	219	278	297
Encephalitis, Post-Infectious	4	3	7	58	103	101
Hepatitis, Viral, Type B	327	279	186	5,839	5,185	3,480
Hepatitis, Viral, Type A	558	620	935	11,855	12,991	16,268
Hepatitis, Viral, Type unspecified	149	175		3,371	3,195	
Malaria	7	6	6	132	126	95
Measles (rubeola)	2,858	2,487	1,303	32,964	22,244	16,879
Meningococcal infections, total	66	36	43	856	720	657
Civilian	66	36	42	851	719	632
Military	–	–	1	5	5	17
Mumps	565	1,137	2,003	10,919	23,746	31,381
Pertussis	11	10	---	240	348	---
Rubella (German measles)	1,132	584	788	12,608	7,298	10,060
Tetanus	2	–	1	15	13	22
Tuberculosis	617	664	---	10,877	11,885	---
Tularemia	1	3	1	29	38	34
Typhoid fever	10	3	6	131	112	112
Typhus, tick-borne (Rky. Mt. spotted fever)	45	20	20	112	63	58
Venereal Diseases:						
Gonorrhea, Civilian	18,259	18,314	---	336,730	351,883	---
Gonorrhea, Military	602	998	---	9,636	11,303	---
Syphilis, primary and secondary, Civilian	375	469	---	7,729	9,282	---
Syphilis, primary and secondary, Military	7	4	---	114	133	---
Rabies in animals	62	75	75	989	953	1,103

Table II. Notifiable Diseases of Low Frequency: United States

	CUM.		CUM.
Anthrax:	–	Poliomyelitis, total:	2
Botulism:	66	Paralytic:	2
Congenital rubella syndrome: *Mich. 1	4	Psittacosis: Calif. 1	23
Leprosy: *Tex. 1, Calif. 2	41	Rabies in man:	–
Leptospirosis: *Calif. 1	14	Trichinosis: *Va. 1, Tex. 2	37
Plague:	1	Typhus, murine: NYC 1, Tex. 1	18

*Delayed reports: Cong. Rubella: Minn. delete 1, Kans. delete 1, Fla. add 1, Alaska delete 2 (1976); Leprosy: Fla. add 5 (1976); Lepto.: Minn. add 1 (1976); Polio, para.: Minn. add 1 (1976); Trichinosis: Pa. add 1 (1977)

Table III

Cases of Specified Notifiable Diseases: United States

Weeks Ending May 14, 1977 and May 15, 1976 — 19th Week

AREA REPORTING	ASEPTIC MENINGITIS	BRUCELLOSIS	CHICKENPOX	DIPHTHERIA		ENCEPHALITIS			HEPATITIS, VIRAL			MALARIA	
						Primary: Arthropod-borne and Unspecified		Post Infectious	Type B	Type A	Type Unspecified		
	1977	1977	1977	1977	CUM. 1977	1977	1976	1977	1977	1977	1977	1977	CUM. 1977
UNITED STATES	46	6	6,967	–	34	10	13	4	327	558	149	7	132
NEW ENGLAND	–	–	954	–	–	–	2	–	13	10	8	–	7
Maine	–	–	5	–	–	–	–	–	1	2	–	–	–
New Hampshire	–	–	2	–	–	–	–	–	1	1	–	–	–
Vermont	–	–	5	–	–	–	–	–	–	–	–	–	1
Massachusetts	–	–	315	–	–	–	2	–	2	4	7	–	2
Rhode Island	–	–	161	–	–	–	–	–	1	–	–	–	2
Connecticut	–	–	466	–	–	–	–	–	8	3	1	–	2
MIDDLE ATLANTIC	6	–	839	–	5	3	4	–	30	56	21	3	30
Upstate New York	1	–	680	–	–	–	2	–	10	18	2	–	8
New York City	3	–	159	–	5	–	1	–	8	13	10	2	16
New Jersey	2	–	NN	–	–	3	–	–	12	25	9	1	4
Pennsylvania	NA	NA	NA	NA	–	NA	1	–	–	NA	NA	NA	2
EAST NORTH CENTRAL	10	–	2,241	–	–	–	1	–	61	133	8	–	9
Ohio	3	–	233	–	–	–	–	–	25	38	–	–	5
Indiana	1	–	99	–	–	–	–	–	2	8	3	–	–
Illinois	1	–	321	–	–	–	–	–	14	57	1	–	1
Michigan	5	–	1,005	–	–	–	1	–	12	28	3	–	2
Wisconsin*	–	–	583	–	–	–	–	–	8	2	1	–	1
WEST NORTH CENTRAL	–	1	1,375	–	1	–	1	–	31	49	14	–	13
Minnesota*	–	–	1	–	–	–	–	–	11	4	–	–	4
Iowa*	–	–	217	–	–	–	–	–	2	3	2	–	–
Missouri	–	1	8	–	1	–	1	–	7	13	4	–	7
North Dakota	–	–	18	–	–	–	–	–	–	1	–	–	–
South Dakota	–	–	3	–	–	–	–	–	–	–	–	–	1
Nebraska	–	–	112	–	–	–	–	–	8	16	4	–	–
Kansas*	–	–	1,016	–	–	–	–	–	3	12	4	–	1
SOUTH ATLANTIC	5	5	355	–	–	–	1	1	76	65	18	1	21
Delaware	–	–	14	–	–	–	–	–	–	1	–	–	–
Maryland	1	–	8	–	–	–	1	–	5	7	2	–	6
District of Columbia	1	–	3	–	–	–	–	–	–	–	–	–	1
Virginia	–	4	25	–	–	–	–	–	5	7	3	–	3
West Virginia	–	–	91	–	–	–	–	–	2	3	–	1	1
North Carolina	2	–	NN	–	–	–	–	–	6	9	3	–	4
South Carolina	–	–	23	–	–	–	–	–	35	2	–	–	–
Georgia	–	–	–	–	–	–	–	–	4	–	–	–	3
Florida*	1	1	191	–	–	–	–	1	19	36	10	–	3
EAST SOUTH CENTRAL	2	–	108	–	–	2	1	–	14	44	7	–	3
Kentucky	–	–	63	–	–	–	–	–	–	–	–	–	3
Tennessee	1	–	NN	–	–	–	–	–	10	23	1	–	–
Alabama	–	–	37	–	–	–	–	–	2	3	6	–	–
Mississippi	1	–	8	–	–	2	1	–	2	18	–	–	–
WEST SOUTH CENTRAL	3	–	352	–	1	2	–	1	17	56	18	–	7
Arkansas*	–	–	1	–	–	–	–	–	–	–	1	–	–
Louisiana*	1	–	NN	–	–	–	–	–	5	12	2	–	–
Oklahoma	–	–	29	–	–	–	–	1	1	5	3	–	–
Texas*	2	–	322	–	1	2	–	–	11	39	12	–	7
MOUNTAIN	1	–	225	–	1	–	1	–	10	41	11	–	6
Montana	1	–	18	–	–	–	–	–	–	3	3	–	–
Idaho	–	–	33	–	–	–	–	–	–	3	1	–	–
Wyoming	–	–	–	–	–	–	–	–	–	–	–	–	1
Colorado	–	–	161	–	–	–	1	–	6	12	2	–	4
New Mexico*	–	–	2	–	–	–	–	–	1	6	1	–	–
Arizona	–	–	NN	–	1	–	–	–	3	17	–	–	1
Utah	–	–	4	–	–	–	–	–	–	–	–	–	–
Nevada	–	–	7	–	–	–	–	–	–	–	4	–	–
PACIFIC	19	–	518	–	26	3	2	2	75	104	44	3	36
Washington	2	–	412	–	24	–	–	–	4	3	2	–	–
Oregon	3	–	6	–	–	–	–	–	2	11	1	–	1
California*	13	–	–	–	1	3	1	2	62	83	40	3	31
Alaska	–	–	66	–	1	–	1	–	–	–	–	–	–
Hawaii	1	–	34	–	–	–	–	–	7	7	1	–	4
Guam*	NA	NA	NA	NA	–	NA	–	–	–	NA	NA	NA	–
Puerto Rico*	–	–	42	–	–	–	–	–	2	7	11	–	–
Virgin Islands	–	–	1	–	–	–	–	–	–	–	–	–	–

NN: Not notifiable
NA: Not available
*Delayed reports: Asep. Meng.: Minn. add 4, Kans. add 1, Fla. add 13 (1976), Tex. add 1 (1977); Bruc.: Kans. add 2 (1976); Chickenpox: Minn. delete 537, Kans. add 265, Fla. add 133 (1976), Wisc. add 22, Iowa add 9, Calif. add 155, Guam add 3, P.R. add 28 (1977); Hep. B: Kans. delete 4, Fla. add 32, La. add 4, (1976), Wisc. delete 3, Tex. add 2, N.Mex. add 1 (1977); Hep. A: Minn. add 18, Kans. delete 14, Fla. add 78 (1976), Wisc. delete 3, Ark. add 9, Tex. delete 2, P.R. add 15 (1977); Hep. Unsp.: Minn. delete 2, Kans. delete 15, Fla. add 4, La. delete 40 (1976), Ark. add 1, Guam add 1 (1977); Malaria: Fla. add 1 (1976).

Table III-Continued
Cases of Specified Notifiable Diseases: United States
Weeks Ending May 14, 1977 and May 15, 1976 — 19th Week

REPORTING AREA	MEASLES (Rubeola)			MENINGOCOCCAL INFECTIONS TOTAL			MUMPS		PERTUSSIS	RUBELLA		TETANUS
	1977	CUMULATIVE		1977	CUMULATIVE		1977	CUM. 1977	1977	1977	CUM. 1977	CUM. 1977
		1977	1976		1977	1976						
UNITED STATES	2,858	32,964	22,244	66	856	720	565	10,919	11	1,132	12,608	15
NEW ENGLAND	140	1,563	183	2	38	33	16	486	-	175	851	-
Maine	-	4	3	-	3	-	-	32	-	4	26	-
New Hampshire*	8	402	3	-	3	2	-	84	-	40	193	-
Vermont	5	256	-	1	4	3	-	5	-	3	61	-
Massachusetts*	63	452	2	1	10	9	1	82	-	56	269	-
Rhode Island	5	11	14	-	-	4	2	38	-	15	107	-
Connecticut	59	438	161	-	18	15	13	245	-	57	195	-
MIDDLE ATLANTIC	116	4,115	4,735	2	118	96	38	707	-	236	3,594	-
Upstate New York	83	1,384	1,875	1	32	37	10	124	-	73	1,900	-
New York City	29	217	236	1	24	22	24	289	-	17	202	-
New Jersey*	4	101	496	-	26	16	4	183	-	146	1,294	-
Pennsylvania	NA	2,413	2,128	-	36	21	NA	111	NA	NA	198	-
EAST NORTH CENTRAL	964	7,291	9,291	6	84	91	161	3,814	2	392	2,776	1
Ohio	401	735	315	1	30	39	24	522	-	295	896	-
Indiana	348	3,457	1,773	-	7	4	8	209	-	36	768	-
Illinois	140	928	986	1	14	9	23	543	-	10	190	-
Michigan	11	675	3,799	4	24	32	74	1,310	1	33	645	1
Wisconsin*	64	1,496	2,418	-	9	7	32	1,230	1	18	277	-
WEST NORTH CENTRAL	645	6,415	503	13	63	55	127	2,639	-	44	398	2
Minnesota*	248	1,382	173	2	20	11	-	3	-	-	9	-
Iowa	129	3,348	18	3	5	8	41	1,198	-	5	146	-
Missouri	23	594	10	5	27	16	5	611	-	1	30	1
North Dakota*	2	7	1	-	1	3	-	7	-	3	7	-
South Dakota	8	45	2	-	4	2	-	58	-	5	5	-
Nebraska	93	178	40	-	-	3	11	35	-	1	2	-
Kansas*	142	861	259	3	6	12	70	727	-	29	199	1
SOUTH ATLANTIC	280	2,300	1,304	14	178	143	37	438	-	69	1,205	4
Delaware	3	22	114	1	3	2	3	79	-	3	20	-
Maryland	-	279	592	-	12	10	1	26	-	-	3	-
District of Columbia	-	1	3	-	-	2	-	5	-	-	-	-
Virginia	176	1,239	202	2	11	16	4	52	-	23	390	1
West Virginia	20	111	128	-	8	4	11	116	-	2	69	-
North Carolina*	4	34	-	2	48	26	1	19	-	22	391	-
South Carolina	1	117	3	3	17	27	-	9	-	4	156	-
Georgia*	37	401	-	3	32	13	-	8	-	1	45	-
Florida*	39	96	262	3	47	43	17	124	-	14	131	3
EAST SOUTH CENTRAL	82	1,068	515	10	104	55	57	578	2	85	1,649	2
Kentucky	41	462	496	-	19	10	1	73	1	14	53	1
Tennessee	35	524	5	2	25	23	34	330	1	61	1,522	1
Alabama	3	62	-	6	39	16	19	154	-	9	69	-
Mississippi	3	20	14	2	21	6	3	21	-	1	5	-
WEST SOUTH CENTRAL	44	1,637	466	10	150	114	65	926	2	39	569	3
Arkansas	-	1	-	-	8	4	-	15	-	-	1	-
Louisiana	1	66	114	10	54	14	-	29	-	8	20	1
Oklahoma	1	47	222	-	5	18	26	355	-	-	22	-
Texas*	42	1,523	130	-	83	78	39	527	2	31	526	2
MOUNTAIN	91	1,649	3,933	2	28	19	23	492	-	5	267	-
Montana	27	952	161	-	2	2	-	3	-	1	8	-
Idaho	-	30	1,710	-	2	2	1	112	-	-	2	-
Wyoming	-	2	-	-	1	-	-	-	-	-	2	-
Colorado	44	428	181	-	1	4	13	220	-	-	199	-
New Mexico*	2	14	12	2	13	1	7	93	-	-	7	-
Arizona*	12	143	210	-	7	6	-	-	-	4	4	-
Utah	-	5	1,603	-	1	4	-	60	-	-	41	-
Nevada*	6	75	56	-	1	-	2	4	-	-	4	-
PACIFIC	496	6,926	1,314	7	93	114	41	839	5	87	1,299	3
Washington	7	355	93	-	11	19	11	194	-	17	296	-
Oregon	101	222	85	3	10	9	7	158	1	5	76	-
California	387	6,281	1,134	1	54	80	22	459	4	65	921	3
Alaska*	-	56	-	2	16	4	-	17	-	-	-	-
Hawaii	1	12	2	1	2	2	1	11	-	-	6	-
Guam	NA	3	7	-	-	-	NA	1	NA	NA	4	-
Puerto Rico*	84	387	92	-	-	2	37	286	1	1	16	4
Virgin Islands	1	10	4	-	-	-	14	161	-	-	-	-

NA: Not available

*Delayed reports: Measles: Minn. add 1, Kans. add 97, Fla. add 19 (1976), N. Hamp. add 20, Mass. delete 3, N.J. delete 1, Wisc. delete 1, N. Dak. add 1, Nev. add 1, Alaska delete 1, P.R. add 121 (1977); Men. Inf.: Minn. add 2, Fla. add 3 (1976), Tex. delete 1, N. Mex. add 2, (1977); Mumps: Kans. add 85, Fla. add 32 (1976) Wisc. add 1, Nev. add 2, P.R. add 33 (1977); Pertussis: Minn. delete 1, Fla. delete 7 (1976) Ga. add 1, P.R. add 3 (1977); Rubella: Minn. add 4, Kans. delete 7, Fla. delete 7 (1976); N. Hamp. add 4, N. Car. delete 1, Ariz. add 8, P.R. add 2 (1977); Tetanus: Fla. add 3 (1976).

Table III-Continued
Cases of Specified Notifiable Diseases: United States
Weeks Ending May 14, 1977 and May 15, 1976 — 19th Week

REPORTING AREA	TUBERCULOSIS		TULAREMIA	TYPHOID FEVER		TYPHUS FEVER TICK-BORNE (RMSF)		VENEREAL DISEASES (Civilian Cases Only)						RABIES IN ANIMALS
								GONORRHEA			SYPHILIS (Pri. & Sec.)			
	1977	CUM. 1977	CUM. 1977	1977	CUM. 1977	1977	CUM. 1977	1977	CUMULATIVE 1977	CUMULATIVE 1976	1977	CUMULATIVE 1977	CUMULATIVE 1976	CUM. 1977
UNITED STATES	617	10,877	29	10	131	45	112	18,259	336,730	351,883	375	7,729	9,282	989
NEW ENGLAND	21	392	1	2	8	–	–	506	8,856	9,603	27	302	271	14
Maine	2	29	–	–	–	–	–	26	669	814	–	8	8	12
New Hampshire	2	11	–	–	–	–	–	23	353	255	–	1	4	1
Vermont	–	17	–	–	–	–	–	11	222	216	–	4	2	–
Massachusetts*	8	208	1	1	5	–	–	185	3,854	4,547	18	225	198	–
Rhode Island	2	26	–	1	2	–	–	59	702	630	–	3	10	–
Connecticut*	7	101	–	–	1	–	–	202	3,056	3,141	9	61	49	1
MIDDLE ATLANTIC	82	1,735	–	2	25	–	2	1,111	35,410	37,767	52	1,093	1,590	13
Upstate New York	27	287	–	1	4	–	2	412	5,516	6,053	3	96	104	9
New York City	34	594	–	–	10	–	–	568	15,472	16,443	39	691	1,037	–
New Jersey*	21	447	–	1	9	–	–	131	5,590	6,006	10	144	200	4
Pennsylvania	NA	407	–	NA	2	NA	–	NA	8,832	9,265	NA	162	249	–
EAST NORTH CENTRAL	86	1,727	3	–	13	–	–	3,903	51,189	57,365	55	842	841	38
Ohio*	10	271	1	–	5	–	–	1,075	12,638	14,087	5	212	195	–
Indiana	8	201	–	–	–	–	–	404	4,812	5,126	4	60	44	1
Illinois	43	654	–	–	1	–	–	1,445	17,391	21,475	34	442	445	7
Michigan	22	516	–	–	7	–	–	747	11,516	11,593	10	91	109	3
Wisconsin*	3	85	2	–	–	–	–	232	4,832	5,084	2	37	48	27
WEST NORTH CENTRAL	21	374	4	3	12	–	3	899	17,689	17,765	3	179	169	225
Minnesota*	8	81	–	–	1	–	–	175	3,170	3,323	2	54	38	73
Iowa*	3	37	–	–	–	–	–	110	2,136	2,254	–	21	19	47
Missouri*	4	155	3	2	6	–	2	365	7,559	7,022	1	66	68	16
North Dakota	–	9	–	–	–	–	–	18	313	256	–	–	–	28
South Dakota	2	17	1	–	–	–	–	29	464	514	–	1	2	47
Nebraska	–	13	–	1	1	–	–	107	1,494	1,456	–	17	13	–
Kansas*	4	62	–	–	4	–	1	95	2,553	2,940	–	20	29	14
SOUTH ATLANTIC	139	2,467	8	–	16	32	60	4,372	81,409	85,158	97	2,222	2,799	100
Delaware	1	19	–	–	–	–	–	29	974	1,156	–	13	29	1
Maryland*	14	358	1	–	–	6	8	565	10,474	11,858	4	139	234	–
District of Columbia	5	116	–	–	–	–	–	196	5,538	5,889	5	244	234	–
Virginia	11	251	–	–	5	15	21	460	8,542	9,168	11	219	245	2
West Virginia	2	92	–	–	2	–	–	76	1,169	1,117	–	1	15	3
North Carolina*	17	442	2	–	1	11	21	385	11,701	12,445	16	324	553	2
South Carolina	38	265	2	–	–	–	1	429	7,581	8,103	2	98	141	–
Georgia	–	260	3	–	–	–	9	1,252	15,692	15,560	20	404	383	70
Florida*	51	664	–	–	7	–	–	980	19,738	19,862	39	780	965	22
EAST SOUTH CENTRAL	73	954	1	–	1	6	16	1,655	29,643	31,561	21	262	384	34
Kentucky	10	221	1	–	–	–	1	164	4,016	4,052	6	32	62	10
Tennessee*	36	326	–	–	–	6	14	619	11,796	12,374	7	79	156	18
Alabama	19	248	–	–	1	–	1	487	8,216	8,785	–	47	75	6
Mississippi	8	159	–	–	–	–	–	385	5,615	6,350	8	104	91	–
WEST SOUTH CENTRAL	90	1,261	8	2	6	7	31	2,449	43,276	47,238	61	1,076	1,004	366
Arkansas*	11	143	5	–	–	–	4	240	3,245	4,356	–	25	30	38
Louisiana	17	261	–	–	–	–	–	533	6,471	6,784	15	226	209	4
Oklahoma	8	115	1	–	–	5	18	226	4,037	4,399	1	29	39	134
Texas	54	742	2	2	6	2	9	1,450	29,523	31,699	45	796	726	190
MOUNTAIN	14	287	3	–	13	–	–	733	13,790	14,079	12	165	257	35
Montana	1	14	1	–	–	–	–	34	701	675	–	–	3	18
Idaho	1	16	–	–	–	–	–	34	671	742	1	4	11	–
Wyoming	–	5	–	–	–	–	–	3	348	308	–	12	5	–
Colorado*	3	50	2	–	6	–	–	180	3,535	3,416	3	47	64	–
New Mexico	–	44	–	–	–	–	–	132	2,056	2,757	–	30	74	–
Arizona	9	134	–	–	3	–	–	220	3,915	4,191	8	62	73	17
Utah	–	12	–	–	4	–	–	56	802	728	–	4	10	–
Nevada	–	12	–	–	–	–	–	74	1,762	1,262	–	6	17	–
PACIFIC	91	1,680	1	1	37	–	–	2,631	55,468	51,347	47	1,588	1,967	164
Washington	NA	92	–	–	1	–	–	153	3,913	4,284	NA	56	53	–
Oregon	4	76	–	–	2	–	–	214	4,078	3,820	–	51	53	–
California	78	1,249	1	1	33	–	–	2,133	44,451	40,814	47	1,455	1,823	154
Alaska	–	22	–	–	–	–	–	75	1,831	1,432	–	10	7	10
Hawaii	9	241	–	–	1	–	–	56	1,195	997	–	16	31	–
Guam*	NA	23	–	NA	1	NA	–	NA	86	155	NA	1	1	–
Puerto Rico*	11	117	–	–	2	–	–	61	1,015	992	5	199	204	18
Virgin Islands	–	1	–	–	–	–	–	10	60	100	–	3	31	–

NA: Not available
*Delayed reports: TB: Kans. delete 1 (1976), Mo. delete 1, N. Car. delete 1, Guam add 2 (1977); Tularemia: Minn. delete 1, Kans. delete 1 (1976), Ark. add 1 (1977); Typhoid Fever: Minn. delete 2, Kans. add 3 (1976), Colo. add 1 (1977); RMSF: Kans. add 1, Fla. add 1 (1976) Ark. add 1 (1977); G.C.: Mass. delete 147, Conn. delete 92, Wisc. delete 400, Minn. delete 68, Kans. add 158, Md. add 141, Fla. add 1265, Tenn. add 63 (1976), Ohio add 1000, Guam add 4, P.R. add 65 (1977); Syphilis: Mass. delete 14, Conn. add 8, Wisc. delete 1, Minn. add 1, Kans. add 9, Md. add 21, Fla. add 13, Tenn. delete 13 (1976), Iowa add 4, P.R. add 16 (1977); An. Rabies: N.J. add 2, Wisc. delete 1, P.R. add 2 (1977).

Table IV
Deaths in 121 United States Cities*
Week Ending May 14, 1977 – 19th Week

REPORTING AREA	ALL CAUSES					Pneumonia and Influenza ALL AGES
	ALL AGES	65 Years and Over	45-64 Years	25-44 Years	Under 1 Year	
NEW ENGLAND	680	436	169	41	23	31
Boston, Mass.	201	121	56	13	8	5
Bridgeport, Conn.	40	25	11	3	1	2
Cambridge, Mass.	35	25	7	3	–	2
Fall River, Mass.	25	19	6	–	–	1
Hartford, Conn.	47	21	19	5	1	5
Lowell, Mass.	32	21	10	1	–	2
Lynn, Mass.	17	11	4	1	–	–
New Bedford, Mass.	25	19	6	–	–	1
New Haven, Conn.	65	40	15	3	4	–
Providence, R.I.	78	52	16	5	4	7
Somerville, Mass.	5	3	2	–	–	–
Springfield, Mass.	33	24	4	1	3	–
Waterbury, Conn.	29	17	10	1	1	5
Worcester, Mass.	48	38	3	5	1	1
MIDDLE ATLANTIC	2,864	1,787	734	181	83	120
Albany, N. Y.	52	33	14	1	2	2
Allentown, Pa.	9	6	3	–	–	–
Buffalo, N. Y.	130	88	26	9	5	7
Camden, N. J.	31	16	11	2	1	–
Elizabeth, N. J.	33	22	5	3	1	2
Erie, Pa.	38	26	9	1	1	1
Jersey City, N. J.	44	29	9	3	2	3
Newark, N. J.	59	34	15	6	3	1
New York City, N. Y.	1,395	872	348	106	29	43
Paterson, N. J.	28	14	10	2	1	1
Philadelphia, Pa.	404	234	113	22	16	25
Pittsburgh, Pa.	225	136	60	12	13	17
Reading, Pa.	39	26	11	–	1	1
Rochester, N. Y.	120	91	26	2	–	10
Schenectady, N. Y.	21	16	4	–	1	1
Scranton, Pa.	34	21	11	2	–	2
Syracuse, N. Y.	109	72	26	5	4	1
Trenton, N. J.	53	26	22	2	2	1
Utica, N. Y.	17	14	3	–	–	1
Yonkers, N. Y.	23	11	8	3	1	1
EAST NORTH CENTRAL	2,282	1,351	614	122	97	66
Akron, Ohio	45	28	11	3	2	–
Canton, Ohio	35	19	12	2	1	3
Chicago, Ill.	529	302	141	35	30	15
Cincinnati, Ohio	158	99	44	5	4	4
Cleveland, Ohio	169	100	50	6	6	2
Columbus, Ohio	129	71	45	3	3	7
Dayton, Ohio	109	59	33	6	2	1
Detroit, Mich.	281	155	81	22	12	6
Evansville, Ind.	43	31	9	2	–	2
Fort Wayne, Ind.	36	22	7	2	3	2
Gary, Ind.	25	14	7	3	–	2
Grand Rapids, Mich.	54	34	10	2	5	4
Indianapolis, Ind.	171	103	43	7	8	2
Madison, Wis.	29	13	6	1	3	4
Milwaukee, Wis.	145	97	43	3	1	5
Peoria, Ill.	50	30	10	4	3	2
Rockford, Ill.	32	19	3	4	5	1
South Bend, Ind.	53	35	10	1	4	–
Toledo, Ohio	116	73	33	4	3	4
Youngstown, Ohio	73	47	16	7	2	–
WEST NORTH CENTRAL	695	438	170	35	27	29
Des Moines, Iowa	57	39	12	1	4	1
Duluth, Minn.	34	22	11	1	–	8
Kansas City, Kans.	39	22	10	3	2	–
Kansas City, Mo.	123	71	37	6	5	4
Lincoln, Nebr.	25	21	3	1	–	2
Minneapolis, Minn.	86	57	18	6	2	2
Omaha, Nebr.	76	44	19	3	4	2
St. Louis, Mo.	139	85	34	7	7	3
St. Paul, Minn.	46	35	6	4	1	2
Wichita, Kans.	70	42	20	3	2	5

REPORTING AREA	ALL CAUSES					Pneumonia and Influenza ALL AGES
	ALL AGES	65 Years and Over	45–64 Years	25–44 Years	Under 1 Year	
SOUTH ATLANTIC	1,182	664	340	81	51	43
Atlanta, Ga.	158	92	40	13	6	4
Baltimore, Md.	196	101	68	9	9	1
Charlotte, N. C.	45	23	15	1	5	–
Jacksonville, Fla.	133	79	31	13	2	10
Miami, Fla.	100	52	34	8	4	1
Norfolk, Va.	57	33	16	3	3	7
Richmond, Va.	84	42	28	6	6	6
Savannah, Ga.	37	23	11	3	–	4
St. Petersburg, Fla.	78	61	14	2	1	1
Tampa, Fla.	60	34	16	4	2	5
Washington, D. C.	176	92	48	15	12	4
Wilmington, Del.	58	32	19	4	1	–
EAST SOUTH CENTRAL	652	351	191	53	26	38
Birmingham, Ala.	106	66	29	6	3	6
Chattanooga, Tenn.	49	35	10	3	–	6
Knoxville, Tenn.	45	23	16	5	–	2
Louisville, Ky.	109	50	40	6	5	10
Memphis, Tenn.	147	81	32	17	10	3
Mobile, Ala.	53	26	15	5	2	2
Montgomery, Ala.	46	29	8	6	1	3
Nashville, Tenn.	97	41	41	5	5	6
WEST SOUTH CENTRAL	1,061	587	290	99	40	32
Austin, Tex.	71	50	14	6	–	7
Baton Rouge, La.	36	17	9	6	3	3
Corpus Christi, Tex.	41	25	10	4	–	1
Dallas, Tex.	144	76	44	11	5	2
El Paso, Tex.	47	28	7	5	3	5
Fort Worth, Tex.	77	40	21	7	7	2
Houston, Tex.	207	107	61	24	6	–
Little Rock, Ark.	58	30	18	5	2	1
New Orleans, La.	125	62	48	8	3	–
San Antonio, Tex.	136	79	35	11	5	3
Shreveport, La.	37	23	7	3	2	1
Tulsa, Okla.	82	50	16	9	4	7
MOUNTAIN	530	322	131	31	24	23
Albuquerque, N. Mex.	48	18	20	3	3	2
Colorado Springs, Colo.	38	26	9	2	–	5
Denver, Colo.	108	67	24	9	8	5
Las Vegas, Nev.	28	10	13	2	1	2
Ogden, Utah	18	12	5	1	–	3
Phoenix, Ariz.	144	97	33	7	5	2
Pueblo, Colo.	25	21	2	–	1	3
Salt Lake City, Utah	54	30	11	5	5	1
Tucson, Ariz.	67	41	14	2	1	–
PACIFIC	1,660	1,081	386	93	56	40
Berkeley, Calif.	16	9	6	1	–	–
Fresno, Calif.	73	42	18	5	7	3
Glendale, Calif.	29	25	3	1	–	–
Honolulu, Hawaii	54	30	21	2	1	3
Long Beach, Calif.	110	66	33	5	3	3
Los Angeles, Calif.	507	340	102	36	17	16
Oakland, Calif.	80	61	15	1	1	1
Pasadena, Calif.	41	29	6	2	3	–
Portland, Oreg.	128	78	33	8	5	–
Sacramento, Calif.	69	46	17	1	1	–
San Diego, Calif.	108	70	23	7	4	1
San Francisco, Calif.	164	107	39	8	6	2
San Jose, Calif.**	55	39	11	3	1	1
Seattle, Wash.	159	95	44	8	7	5
Spokane, Wash.	39	29	8	1	–	4
Tacoma, Wash.	28	15	7	4	–	1
TOTAL	11,606	7,017	3,025	736	427	422
Expected Number	11,411	6,932	2,962	727	370	406

*By place of occurrence and week of filing certificate. Excludes fetal deaths.
**Estimate based on average percent of divisional total.

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The editor welcomes accounts of interesting cases, outbreaks, environmental hazards, or other public health problems of current interest to health officials. Send reports to: Center for Disease Control, Attn.: Editor, Morbidity and Mortality Weekly Report, Atlanta, Georgia 30333.

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Legionnaires' Disease — Continued

oriented and dyspneic. He also had a consolidated infiltrate in the right upper, right middle, and right lower pulmonary lobes. His white blood cell count was 4,854 with 86% segmented neutrophils and 7% band forms. Blood pO_2 on room air was 45 mm Hg; the pCO_2 was 29 mm Hg, and the pH, 7.55. He was treated with erythromycin (500 mg) intravenously every 6 hours and gentamicin (80 mg) intravenously every 8 hours and transferred to the intensive care unit of the hospital. Within 24 hours, his temperature fell from 103 F to below 100 F. The patient made an uneventful recovery, and his chest X-ray on April 14 showed clear lung fields. Cultures from the blood, sputum, a tracheal aspirate, and a lung aspirate failed to reveal pathological organisms. Sera tested by the indirect fluorescent antibody method performed at the Bureau of Laboratories of the Pennsylvania Department of Health revealed titers of less than 1:64, 1:128, and 1:1024, on April 9, April 16, and April 28, respectively.

Reported by B Coppolo, MD, St. Marys, Pa; J Dennehy, MD, FL Jones Jr., MD, Geisinger Medical Center, Danville, Pa; E Christian, RN, W Parkin, DVM, State Epidemiologist, V Pidcoe, DrPH, P Nash, PhD, L Sideman, Pennsylvania State Dept of Health; and Field Services Div, Bur of Epidemiology, CDC.

Editorial Note: Sporadic cases of pneumonia apparently caused by the bacterium that caused Legionnaires' disease have been found in 6 states. Although preliminary studies with guinea pigs have suggested that erythromycin may be effective against this agent (MMWR 26[18], 1977), the optimal antibiotic regimen in these cases cannot be determined from individual case reports.

Trichinosis from Shish Kebab — California

Outbreak 1: Trichinosis was diagnosed in a 23-year-old man hospitalized in San Diego in July 1976. He and 38 other persons had attended a workshop on Santa Catalina Island. On June 10, a feral pig had been trapped, butchered, and cooked for 5 to 8 hours in an Umu (an earthen pit). The pork was described as "well cooked" and "falling from the bone" by those who ate it. However, a portion of the raw pork had been cubed and, together with commercial cubed beef, made into shish kebabs. Each participant had cooked his own shish kebab on a willow branch. Not all participants knew that 2 different meats were served and that one was feral pork.

Five (19.2%) of the 26 persons who ate feral pork became ill with trichinosis 11-26 days after the barbeque. The mean incubation period of the 2 female cases (12 days) was much shorter than that of the 3 male cases (23 days). In each case, the first symptom was periorbital edema. All patients experienced myalgia and extreme fatigue; 3 cases were hospitalized. One patient had a positive muscle biopsy. In 4 cases the bentonite flocculation test was positive, although in one case not until after 7 weeks.

Outbreak 2: A pork picnic shoulder purchased at a San Diego market in August 1976 was prepared for shish kebab and marinated with beef strips in soy sauce. The meat was then cooked approximately 3 minutes per side on a charcoal grill. Seventeen people ate the shish kebab, and 5 (29%) became ill with trichinosis 6 to 29 days later. Symptoms included facial swelling, periorbital edema, headache, nausea, fever, muscle pain, and leg swelling. Eosinophilia ranged from 28% to 44%.

Reported by M Ginsberg, MD, H Helm, RS, J Philip, MD, D Ramras, MD, and W Townsend, MD, San Diego County Health Dept; A Friedlander, MD, R Poliakoff, MD, University of California, San Diego; K Damus, MSTH, RR Roberto, MD, California State Dept of Health; and Parasitic Diseases Div, Bur of Epidemiology, CDC.

Editorial Note: These 2 outbreaks of trichinosis illustrate the hazards of mixing pork and beef as shish kebab, and emphasize the necessity of thoroughly cooking pork products regardless of source. Consumers should be aware that commercially marketed pork is not inspected for trichinosis.

Pork products should be heated to an internal temperature of at least 137 F to kill trichinae larvae; a practical rule is to cook pork until the center is no longer pink.

Current Trends

Influenza — United States

More than 96 isolates of A/Texas/1/77 virus have been made in the United States in this influenza season. Among isolates recently examined at CDC, A/Texas/1/77-like strains from sporadic cases in southern California, Texas, Hawaii, and Alaska have been identified. A/Victoria/75-like virus continues to be the predominant influenza virus being isolated (351 isolates to date). Influenza activity is presently at expected levels throughout most of the United States.

A Pennsylvania school of 450 students reported an outbreak of influenza with a 30% attack rate from April 28 through May 5. A/Victoria/75-like virus was isolated from 9 of 10 children cultured.

On April 12, a 17-year-old pregnant woman in South Carolina died of apparent bacterial complications of viral pneumonia. Acute and convalescent sera demonstrated sero-conversion to A/New Jersey/76 by complement fixation, hemagglutination inhibition titers, and neuraminidase assay. The patient had not been immunized against A/New Jersey influenza and had only possible indirect contact with swine. Epidemiologic investigations of the family and community uncovered no elevated titers to A/New Jersey/76 that could not be accounted for by age. There is no evidence of current influenza activity in South Carolina, although immediately prior to the patient's hospitalization both A/Victoria/75 and B/Hong Kong/72 virus had been isolated from the same general area of South Carolina. Although isolation of A/New Jersey/76 virus was unsuccessful in this case, the laboratory and epidemiologic evidence available suggest an isolated case of A/New Jersey/76 infection.

Reported by CW Delia, MD, Conway, S.C.; AF DiSalvo, MD, H Dowda, PhD, R Parker, DVM, State Epidemiologist, South Carolina State Dept of Health and Environmental Control; JN Thomas, RN, Southeast District, SA Williamson, RN, Montgomery County, W Parkin, DVM, State Epidemiologist, Pennsylvania State Dept of Health; and the National Influenza Immunization Program, CDC.

Primary and Secondary Syphilis — United States, March 1977

Reported cases of primary and secondary syphilis numbered 1,673 in March 1977, down 25.4% from the number reported in March 1976 (Table 1). This represents the 12th consecutive month in which a decline of cases has been reported. Also, early latent (less than 1-year duration) syphilis declined from 1,907 cases reported in March 1976 to 1,520 in March 1977, down 20.3%.

Reported by the Venereal Disease Control Div, Bur of State Services, CDC.

TABLE 1. Summary of reported primary and secondary syphilis cases by reporting area, March 1977 and March 1976 — Provisional Data

Reporting Area by HEW Regions	March		Calendar Year Cumulative January—March	
	1977	1976	1977	1976
Connecticut	9	17	41	40
Maine	1	1	7	8
Massachusetts	59	57	143	126
New Hampshire	0	3	0	3
Rhode Island	0	4	3	9
Vermont	0	1	3	2
REGION I TOTAL	69	83	197	188
New Jersey	34	51	97	143
New York (Excl. NYC)	20	35	68	73
New York City	150	274	484	695
REGION II TOTAL	204	360	649	911
Delaware	2	2	11	15
District of Columbia	47	47	159	157
Maryland (Excl. Baltimore)	21	14	52	46
Baltimore	26	40	69	107
Pennsylvania (Excl. Phila.)	16	25	43	58
Philadelphia	19	37	70	86
Virginia	52	51	143	156
West Virginia	0	5	1	11
REGION III TOTAL	183	221	548	636
Alabama	14	18	33	47
Florida	145	176	522	651
Georgia (Excl. Atlanta)	57	38	177	144
Atlanta*	30	29	102	130
Kentucky	6	16	19	48
Mississippi	26	22	74	66
North Carolina	75	140	252	379
South Carolina	34	38	77	109
Tennessee	10	27	46	100
REGION IV TOTAL	397	504	1,302	1,674
Illinois (Excl. Chicago)	14	8	52	33
Chicago	89	67	239	232
Indiana (Excl. Indianapolis)	13	9	24	21
Indianapolis*	5	6	13	14
Michigan	23	28	68	77
Minnesota	15	7	40	29
Ohio	45	43	157	136
Wisconsin	9	18	25	29
REGION V TOTAL	213	186	618	571
Arkansas	5	5	16	25
Louisiana	41	68	144	166
New Mexico	10	13	24	53
Oklahoma	7	11	19	35
Texas	127	237	476	501
REGION VI TOTAL	190	334	679	780
Iowa	3	4	11	15
Kansas	8	8	22	23
Missouri	14	11	36	51
Nebraska	3	3	15	8
REGION VII TOTAL	28	26	84	97
Colorado	9	11	33	41
Montana	0	1	0	4
North Dakota	0	0	1	1
South Dakota	0	1	1	2
Utah	2	0	4	1
Wyoming	0	0	2	4
REGION VIII TOTAL	11	13	41	53
Arizona	24	23	45	63
California (Excl. LA & SF)	123	209	428	594
Los Angeles*	107	178	332	552
San Francisco*	78	73	246	211
Hawaii	3	7	9	18
Nevada	1	3	3	13
REGION IX TOTAL	336	493	1,063	1,451
Alaska	3	1	7	2
Idaho	0	0	2	8
Oregon	14	13	43	41
Washington	25	10	46	37
REGION X TOTAL	42	24	98	88
UNITED STATES TOTAL	1,673	2,244	5,279	6,449
Puerto Rico	32	47	138	132
Virgin Islands	2	1	6	12
United States, Including Outlying Areas	1,707	2,292	5,423	6,593

*County Data

Note: Cumulative totals include revised and delayed reports through previous months.

Source: CDC 9.98, HEW-CDC-BSS-VD Control Division, Atlanta, Georgia

International Notes

Quarantine Measures

The following changes should be made in the *Supplement — Health Information for International Travel,* MMWR, Vol. 25, October 1976:

JAPAN

Smallpox — Africa: Insert Kenya.

GUYANA

Smallpox — Delete all information. Insert code II. Insert: A Certificate is ALSO required from travelers who within the preceding 14 days have been in:

Africa: Ethiopia, Somali
Asia: Bangladesh, India, Pakistan

Errata, Vol. 26, No. 19

p160 In the article, "*Vibrio cholerae* — Alabama," Editorial Note, first paragraph, the Port Lavaca case did not give a history of eating large quantities of raw oysters, as stated.

p160 In the article, "Adult and Teenage Cigarette Smoking Patterns — United States," Table 3, the total population (millions) for males in 1965 should read 56.8, not 65.8 as written.

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