

MMWR

MORBIDITY AND MORTALITY WEEKLY REPORT

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Epidemiologic Notes and Reports

Penicillin-Resistant *Streptococcus pneumoniae* — Minnesota

Streptococcus pneumoniae, type 14, resistant to penicillin, was recovered from the blood of a 5-year-old girl from Minneapolis, Minnesota, on July 28, 1977.

The patient had been unusually susceptible to life-threatening bacterial infections since she was 9 months old, at which time she developed hepatosplenomegaly with ascites of undetermined origin. A splenectomy was performed when she was 16 months old; since that time, she has received oral penicillin or ampicillin daily. Since October 1975, she has also been receiving benzathine penicillin, 600,000 units intramuscularly, monthly.

Prior serious infections included sepsis due to *Escherichia coli*, *Bacteroides fragilis*, and *S. pneumoniae* (typing and sensitivity not available), all during her first year of life. In 1974, *S. pneumoniae*, type 23, (minimal inhibition concentration [MIC] to penicillin 0.025 µg/ml) was isolated from her blood and cerebrospinal fluid (CSF). In 1975, *S. pneumoniae*, type 14, was isolated from her blood and CSF. The MIC of this strain to penicillin was not determined, but the organism was sensitive to penicillin by the single high-potency disc-diffusion method.

The patient's identifiable immune abnormalities include decreased opsonization of *E. coli* and defective neutrophil chemotaxis. Her opsonic defect, but not the chemotactic abnormality, has been correctible with infusions of fresh frozen plasma or cryoprecipitate. Since October 1975, she has received infusions of fresh frozen plasma or cryoprecipitate every 2 to 4 weeks. She has had no serious infections on this regimen until the present illness, although she has chronic pulmonary infiltrates and chronic otitis media. Dodecavalent pneumococcal vaccine (Lilly*) was administered on November 4, 1976. This preparation includes capsular polysaccharide from types 14 and 23. Serum specimens obtained prior to and following vaccination are presently being assayed for type-specific antibody by the radioimmunoassay technique.

The patient, who has never traveled from Minnesota, developed a fever of 103 F on July 26, 1977, while on daily ampicillin and 5 weeks after her last cryoprecipitate and

Bicillin.[†] She was not febrile the next day, but on July 28 her temperature rose to 104 F; she developed mild respiratory distress and was admitted to the University of Minnesota Hospital. Physical examination revealed mild tachypnea and bilateral rales, and a chest X ray showed new bilateral infiltrates. After cultures were obtained, the patient was treated with intravenous chloramphenicol (100 mg/kg/day), penicillin G (100,000 units/kg/day), and gentamicin (5 mg/kg/day). Her temperature was normal 24 hours after admission, and recovery was uneventful.

S. pneumoniae, type 14, was isolated from the initial blood culture and was sensitive to chloramphenicol and erythromycin but resistant to penicillin. The MIC, determined by tube dilution and confirmed at CDC, was 4.0 µg/ml of penicillin.

Penicillin was discontinued after 8 days of therapy, when the penicillin resistance of the organism had been confirmed. Chloramphenicol was administered for 16 days. The acute pulmonary infiltrates resolved within 2 weeks. Admission nose, throat, and urine cultures as well as subsequent blood, CSF, nose, throat, and vaginal cultures were negative for *S. pneumoniae*. *S. pneumoniae* were isolated from nose cultures of the patient's father (type 9) and sister (non-typable). Both organisms were highly sensitive to penicillin.

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Editorial Note: This strain differs in serotype and antibiotic-resistance pattern from the multiply-resistant strain recently reported from South Africa (1). Nevertheless, this level of resistance is very unusual. Although relatively resistant strains of *S. pneumoniae* occur occasionally in the United States (that is, ones with MICs of approximately 0.12-0.5 µg/ml), this case with an MIC of 4.0 µg/ml is the highest level of resistance reported to CDC.

Reference

1. MMWR 26:285-286, 1977

*not available commercially

[†]Use of trade names is for identification only and does not constitute endorsement by the Public Health Service, U.S. Dept of Health, Education and Welfare.

International Notes

Salmonella Enterocolitis — Peru

On May 6, 1977, an explosive outbreak of *Salmonella* enterocolitis occurred in Trujillo, Peru, affecting 598 of 640 (93%) university students who regularly ate in a common dining room. The epidemiologically incriminated food was a sardine/mayonnaise salad ($p < .000001$) eaten at the noon meal the previous day.

Of the 598 patients, 545 (91%) were hospitalized. The clinical symptoms described by 79 hospitalized patients were: fever (97%), diarrhea (96%), myalgia (95%), chills (86%), headache (84%), abdominal cramps (66%), and vomiting (54%). The median incubation period was 14 hours, the range 6-24 hours. Although the average duration of illness could not be determined, 93% of the hospitalized patients had been discharged by the third day of illness.

The salad, consisting of commercially canned sardines, raw eggs, potatoes, oil, salt, and pepper, was prepared between 10:30 and 11:00 AM on May 5 and left unrefrigerated before and during serving from 12:00 noon until 2:00 PM. The eggs used in the salad had been received directly from a local farm on May 4 and left unrefrigerated; many remaining from the same shipment were encrusted with fecal material. None of the food handlers reported having had any diarrheal illness in the week preceding the outbreak.

Laboratory examination of 40 stool samples by the Microbiology Department, School of Medicine, University

of Trujillo, isolated *Salmonella* group C₁ organisms from all 40 samples. Thirty unopened cans of sardines and 15 cans retrieved from the refuse bin were negative for salmonellae. The National Reference Laboratory for Enterobacteria, Ministry of Health, in Lima also received an additional 40 stool specimens from hospitalized patients; *Salmonella thompson*, a group C₁ organism, was isolated from 38 (95%) specimens. The organism was susceptible to multiple antibiotics. Swabs from environmental surfaces, egg shells, and whole eggs, and rectal swabs from 2 food handlers who prepared the salad were processed at CDC; all were negative for salmonellae. Isolates from the outbreak were confirmed as *S. thompson* at CDC.

Recommendations for improving food-handling techniques were given, and plans for further investigations regarding the prevalence and epidemiology of *S. thompson* in northern Peru are being considered.

Reported by Universidad Nacional de Trujillo, Trujillo, Peru; Ministerio de Salud, Lima; Instituto Nacional de Salud, Lima; Pan American Health Organization; Enteric Diseases Br, Bacterial Diseases Div, Bur of Epidemiology, CDC.

Editorial Note: Contaminated raw eggs were considered to be the most likely source of *Salmonella* organisms in this outbreak, even though salmonellae were not isolated from a sample of the remaining eggs. *Salmonella* organisms pathogenic for man are frequently present in the intestinal tract
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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	41st WEEK ENDING		MEDIAN 1972-1976	CUMULATIVE, FIRST 41 WEEKS		
	October 15, 1977	October 16, 1976		October 15, 1977	October 16, 1976	MEDIAN 1972-1976
Aseptic meningitis	134	102	111	3,497	2,501	3,104
Brucellosis	1	4	7	180	254	156
Chickenpox	609	710	---	160,332	152,509	---
Diphtheria	1	-	1	72	127	147
Encephalitis	Primary	45	34	768	1,146	1,146
	Post-Infectious	1	10	161	225	232
Hepatitis, Viral	Type B	305	236	12,752	11,807	7,652
	Type A	437	469	24,041	26,628	32,942
	Type unspecified	148	132	7,144	6,463	---
Malaria	10	10	9	425	374	339
Measles (rubeola)	91	248	151	53,561	34,981	24,543
Meningococcal infections, total	17	19	19	1,396	1,254	1,117
Civilian	17	19	19	1,387	1,237	1,091
Military	-	-	-	9	17	25
Mumps	205	239	501	16,371	33,542	48,344
Pertussis	47	15	---	1,221	760	---
Rubella (German measles)	66	56	97	18,804	10,890	15,122
Tetanus	2	1	1	52	50	74
Tuberculosis	535	459	---	23,897	26,022	---
Tularemia	4	1	3	130	109	112
Typhoid fever	13	11	11	309	335	332
Typhus, tick-borne (Rky. Mt. spotted fever)	12	14	10	1,042	811	726
Venereal Diseases:						
Gonorrhea	20,561	18,357	---	780,617	795,757	---
Civilian	416	338	---	21,180	23,367	---
Military	300	381	---	16,184	19,022	---
Syphilis, primary and secondary	2	6	---	236	272	---
Civilian	2	6	---	236	272	---
Military	---	---	---	---	---	---
Rabies in animals	59	70	55	2,411	2,398	2,398

Table II. Notifiable Diseases of Low Frequency: United States

	CUM.		CUM.
Anthrax:	-	Poliomyelitis, total:	9
Botulism:	85	Paralytic:	8
Congenital rubella syndrome:*	12	Psittacosis: Calif. 1	53
Leprosy: * Colo. 1, Calif. 1	103	Rabies in man:	1
Leptospirosis:*	32	Trichinosis: Tex. 1	70
Plague:	15	Typhus, murine:*	60

*Delayed reports: Cong. rubella syndrome: Tenn. 2; Leprosy: Calif. 5; Leptospirosis: Calif. 1; Typhus, murine: P.R. —1

Table III
Cases of Specified Notifiable Diseases: United States
Weeks Ending October 15, 1977 and October 16, 1976 - 41st Week

AREA REPORTING	ASEPTIC MENIN- GITIS	BRUCEL- LOSIS	CHICKEN- POX	DIPHTHERIA		ENCEPHALITIS			HEPATITIS, VIRAL			MALARIA	
						Primary: Arthropod- borne and Unspecified		Post In- fectious	Type B	Type A	Type Unspecified		
						1977	1976	1977	1977	1977	1977		
UNITED STATES	134	1	609	1	72	45	34	1	305	437	148	10	425
NEW ENGLAND	4	-	49	-	-	-	-	-	10	18	11	1	23
Maine	-	-	1	-	-	-	-	-	-	-	-	-	-
New Hampshire*	-	-	15	-	-	-	-	-	-	1	-	-	3
Vermont	-	-	2	-	-	-	-	-	1	1	1	-	2
Massachusetts	1	-	19	-	-	-	-	-	2	5	6	-	4
Rhode Island	3	-	8	-	-	-	-	-	3	-	-	-	5
Connecticut	-	-	4	-	-	-	-	-	4	11	4	1	9
MIDDLE ATLANTIC	27	-	23	-	5	4	4	-	37	38	25	2	93
Upstate New York	3	-	16	-	-	-	-	-	4	5	4	-	21
New York City	5	-	7	-	5	1	-	-	1	6	8	1	43
New Jersey*	14	-	NN	-	-	-	1	-	10	20	11	-	12
Pennsylvania	5	-	-	-	-	3	3	-	22	7	2	1	17
EAST NORTH CENTRAL ...	17	-	230	-	-	17	1	-	53	54	9	-	32
Ohio*	4	-	5	-	-	9	1	-	4	15	-	-	11
Indiana*	1	-	24	-	-	2	-	-	25	3	5	-	2
Illinois	-	-	14	-	-	2	-	-	12	5	4	-	2
Michigan	10	-	118	-	-	3	-	-	7	14	-	-	14
Wisconsin*	2	-	69	-	-	1	-	-	5	17	-	-	3
WEST NORTH CENTRAL ...	2	-	98	-	1	-	10	-	47	23	1	-	34
Minnesota	-	-	1	-	-	-	2	-	39	4	-	-	11
Iowa	-	-	74	-	-	-	-	-	3	-	-	-	1
Missouri	2	-	6	-	1	-	8	-	1	9	1	-	16
North Dakota	-	-	3	-	-	-	-	-	-	1	-	-	1
South Dakota	-	-	-	-	-	-	-	-	-	-	-	-	1
Nebraska	-	-	3	-	-	-	-	-	1	-	-	-	-
Kansas*	-	-	11	-	-	-	-	-	3	9	-	-	4
SOUTH ATLANTIC	14	1	73	-	-	8	-	-	51	70	19	2	80
Delaware	-	-	2	-	-	-	-	-	-	1	-	-	-
Maryland	2	-	1	-	-	-	-	-	6	5	1	-	21
District of Columbia ...	-	-	-	-	-	-	-	-	-	-	-	-	4
Virginia*	2	-	4	-	-	-	-	-	6	3	5	-	20
West Virginia	-	-	52	-	-	6	-	-	2	11	-	-	1
North Carolina	1	-	NN	-	-	-	-	-	8	11	6	1	8
South Carolina*	2	-	-	-	-	-	-	-	3	1	1	-	-
Georgia	-	1	-	-	-	-	-	-	12	22	-	-	8
Florida	7	-	14	-	-	2	-	-	14	16	6	1	18
EAST SOUTH CENTRAL ...	15	-	5	-	-	6	5	1	23	34	6	-	10
Kentucky	12	-	2	-	-	-	-	-	-	-	-	-	4
Tennessee*	-	-	NN	-	-	4	5	-	16	20	6	-	1
Alabama	3	-	3	-	-	2	-	1	5	6	-	-	4
Mississippi	-	-	-	-	-	-	-	-	2	8	-	-	1
WEST SOUTH CENTRAL ...	25	-	24	-	3	4	8	-	15	59	27	2	26
Arkansas	1	-	1	-	-	1	1	-	1	8	4	-	2
Louisiana*	-	-	NN	-	-	2	2	-	2	16	3	-	2
Oklahoma	10	-	11	-	-	-	-	-	5	10	4	-	-
Texas*	14	-	12	-	3	1	5	-	7	25	16	2	22
MOUNTAIN	3	-	42	-	5	3	-	-	13	33	15	1	13
Montana	-	-	22	-	-	-	-	-	-	6	1	1	2
Idaho	-	-	9	-	-	-	-	-	1	1	-	-	-
Wyoming	-	-	2	-	-	-	-	-	-	-	-	-	2
Colorado	-	-	3	-	-	3	-	-	3	5	3	-	6
New Mexico*	-	-	-	-	4	-	-	-	6	8	1	-	1
Arizona*	-	-	NN	-	1	-	-	-	1	7	3	-	2
Utah	3	-	6	-	-	-	-	-	2	6	7	-	-
Nevada*	-	-	-	-	-	-	-	-	-	-	-	-	-
PACIFIC	27	-	65	1	58	3	6	-	56	108	35	2	114
Washington	2	-	48	-	53	1	2	-	1	6	4	-	5
Oregon	12	-	-	-	-	-	1	-	6	11	-	-	1
California*	12	-	-	1	3	2	3	-	47	83	30	2	102
Alaska	1	-	16	-	2	-	-	-	-	5	1	-	2
Hawaii	-	-	1	-	-	-	-	-	2	3	-	-	4
Guam*	NA	NA	NA	NA	-	NA	-	-	NA	NA	NA	NA	-
Puerto Rico*	-	-	8	-	-	-	-	-	-	3	5	-	2
Virgin Islands	NA	NA	NA	NA	-	NA	-	-	NA	NA	NA	NA	-

NN: Not notifiable

NA: Not available

*Delayed reports: Asep. mang.: N.J. +1, S. Car. +4, Tenn. -2, Calif. +32; Bruc.: N.H. +1, N. Mex. -1; Chickenpox: Calif. +18, Guam +4; Enceph.: Ind. -1, Wisc. -1, Calif. +3; Enceph. post: Tenn. -1, Calif. +1; Hep. B: N.H. +1, N.J. +1, Kans. -5, Va. -1, S.C. +4, Tenn. +3, La. -3, N. Mex. -1, Calif. +87; Hep. A: Ohio -1, Kans. -25, S.C. -4, Tenn. -9, La. -4, Tex. -5, N. Mex. +14, Nev. +2, Calif. +125, Guam +3; Hep. unsp.: N.H. +1, N.J. -1, Tenn. -3, La. -2, N. Mex. +2, Ariz. -1, Nev. +1, Calif. +24, P.R. +1; Malaria: Calif. +2

Table III-Continued
Cases of Specified Notifiable Diseases: United States
Weeks Ending October 15, 1977 and October 16, 1976 — 41st 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	91	53,561	34,981	17	1,396	1,254	205	16,371	47	66	18,804	52
NEW ENGLAND	5	2,479	409	-	55	58	3	666	-	1	1,206	1
Maine	-	170	8	-	3	4	1	58	-	-	69	-
New Hampshire*	-	510	9	-	3	6	-	91	-	-	242	-
Vermont	1	294	59	-	6	3	-	8	-	-	64	-
Massachusetts	1	631	35	-	16	17	1	125	-	1	379	-
Rhode Island	-	64	15	-	1	6	1	61	-	-	134	-
Connecticut	3	810	283	-	26	25	-	323	-	-	318	1
MIDDLE ATLANTIC	5	8,358	7,043	2	196	178	5	1,317	7	3	6,022	4
Upstate New York	1	3,817	2,947	-	52	67	-	289	3	-	3,368	1
New York City	4	732	467	-	48	47	4	495	2	2	322	1
New Jersey*	-	195	604	-	39	25	-	352	-	1	1,782	2
Pennsylvania	-	3,614	3,025	2	57	39	1	181	2	-	550	-
EAST NORTH CENTRAL ..	48	11,368	14,842	-	139	157	61	5,553	7	26	3,757	5
Ohio	6	1,858	573	-	56	64	5	672	4	6	1,126	1
Indiana*	8	4,338	3,373	-	9	8	6	317	-	3	951	1
Illinois	14	1,765	1,620	-	22	20	20	988	1	-	323	1
Michigan	16	977	5,860	-	38	54	10	1,871	1	16	950	2
Wisconsin*	4	2,430	3,416	-	14	11	20	1,705	1	1	407	-
WEST NORTH CENTRAL ..	2	9,790	1,266	-	70	83	69	3,708	-	3	516	9
Minnesota	-	2,622	425	-	25	14	-	6	-	-	17	2
Iowa*	2	4,284	44	-	6	9	4	1,288	-	1	167	1
Missouri*	-	914	31	-	27	35	13	1,282	-	-	36	3
North Dakota	-	24	3	-	1	3	-	18	-	-	12	-
South Dakota	-	67	4	-	4	3	-	59	-	-	18	-
Nebraska	-	214	55	-	2	6	3	71	-	-	3	-
Kansas*	-	1,665	704	-	5	13	49	984	-	2	263	3
SOUTH ATLANTIC	5	4,632	2,182	5	299	246	7	796	18	13	1,675	12
Delaware	-	22	130	-	6	8	2	131	-	-	26	-
Maryland	-	372	715	-	20	20	-	70	-	-	5	-
District of Columbia ..	-	14	13	-	-	2	-	6	-	-	-	-
Virginia	3	2,724	768	-	26	39	1	102	-	1	577	1
West Virginia	-	248	192	-	9	7	2	177	-	12	150	-
North Carolina	-	65	17	2	64	46	-	55	-	-	446	-
South Carolina*	1	154	4	3	32	36	-	13	-	-	228	-
Georgia	-	768	2	-	52	23	-	26	12	-	55	1
Florida	1	265	341	-	90	65	2	216	6	-	188	10
EAST SOUTH CENTRAL ..	-	2,015	887	2	145	118	8	908	2	-	1,934	3
Kentucky	-	1,190	752	-	26	23	3	98	-	-	82	1
Tennessee*	-	709	118	1	39	48	3	546	2	-	1,733	1
Alabama	-	78	-	1	53	33	1	225	-	-	110	1
Mississippi	-	38	17	-	27	14	1	39	-	-	9	-
WEST SOUTH CENTRAL ..	2	2,099	729	6	283	191	24	1,493	3	7	817	10
Arkansas	-	29	4	1	15	11	5	84	-	-	3	2
Louisiana*	-	74	216	1	131	35	-	50	1	-	27	2
Oklahoma	1	59	291	3	14	21	15	507	-	2	33	-
Texas*	1	1,937	218	1	123	124	4	852	2	5	754	6
MOUNTAIN	-	2,529	5,084	1	34	37	4	606	3	3	375	2
Montana*	-	1,162	231	1	3	5	-	11	1	-	14	1
Idaho	-	161	2,020	-	4	5	2	124	1	-	13	-
Wyoming	-	19	4	-	1	-	-	4	-	-	6	1
Colorado	-	503	288	-	1	6	1	267	-	-	237	-
New Mexico*	-	256	15	-	11	4	-	105	1	-	11	-
Arizona	-	317	226	-	10	10	-	-	-	-	16	-
Utah	-	18	2,235	-	3	5	1	80	-	3	69	-
Nevada	-	93	65	-	1	2	-	15	-	-	9	-
PACIFIC	24	10,291	2,539	1	175	186	24	1,324	7	10	2,502	6
Washington*	-	542	343	1	23	31	6	286	1	-	444	-
Oregon	-	366	169	-	17	17	3	247	2	-	112	-
California*	24	9,288	2,020	-	104	116	15	738	4	9	1,531	6
Alaska	-	60	4	-	29	19	-	29	-	-	1	-
Hawaii	-	35	3	-	2	3	-	24	-	1	414	-
Guam*	NA	8	15	-	1	-	NA	6	NA	NA	10	-
Puerto Rico*	7	936	432	-	1	3	10	722	1	-	34	10
Virgin Islands	NA	14	14	-	-	1	NA	189	NA	NA	2	-

NA: Not available

*Delayed reports: Measles: Ind. -1, Wisc. -2, Iowa -1, Kans. -454, S.C. -1, Tenn. -2, Tex. -2, Calif. +9, Guam +3, P.R. +52; Men. inf.: N.J. +2, Tenn. -3, La. -4, N. Mex. -2, Calif. +2; Mumps: Calif. +14; Pertussis: N.H. +1, Mo. +1, Calif. +8; Rubella: N.H. +1, Ind. +1, S.C. +2, Tex. +1, Calif. +10, P.R. +1

Table III-Continued
 Cases of Specified Notifiable Diseases: United States
 Weeks Ending October 15, 1977 and October 16, 1976 - 41st Week

REPORTING AREA	TUBERCULOSIS		TULA- REMIA	TYPHOID FEVER		TYPHUS-FEVER TICK-BORNE (RMSF)		VENEREAL DISEASES (Civilian Cases Only)						RABIES IN ANIMALS
	1977	CUM. 1977	CUM. 1977	1977	CUM. 1977	1977	CUM. 1977	GONORRHEA		SYPHILIS (Pri. & Sec.)		CUM. 1977		
								1977	CUMULATIVE		1977		CUMULATIVE	
									1977	1976			1977	1976
UNITED STATES	535	23,877	130	13	309	12	1,042	20,561	780,617	795,757	300	16,184	19,022	2,411
NEW ENGLAND	12	879	1	-	16	-	10	528	21,082	22,232	14	650	632	42
Maine	2	72	-	-	-	-	-	19	1,557	1,880	3	23	18	30
New Hampshire	2	23	-	-	1	-	-	20	854	649	-	4	9	1
Vermont	-	29	-	-	-	-	-	14	524	543	-	6	9	-
Massachusetts	8	499	1	-	11	-	5	206	8,988	10,547	7	456	449	8
Rhode Island	-	73	-	-	2	-	3	50	1,678	1,537	1	9	17	-
Connecticut	-	183	-	-	2	-	2	219	7,481	7,076	3	152	130	3
MIDDLE ATLANTIC	103	3,883	3	2	63	4	65	1,884	81,553	91,479	62	2,269	3,182	79
Upstate New York*	8	659	3	-	8	4	35	496	13,880	15,060	-	212	191	47
New York City	32	1,219	-	2	26	-	-	785	31,941	40,391	46	1,435	2,024	-
New Jersey*	28	993	-	-	18	-	10	251	14,629	14,132	8	290	449	27
Pennsylvania	35	1,012	-	-	11	-	20	352	21,103	21,896	8	332	518	5
EAST NORTH CENTRAL	84	3,755	3	2	27	1	30	3,292	123,583	125,312	9	1,682	1,638	104
Ohio	11	642	1	-	9	-	12	667	32,309	30,818	2	388	400	-
Indiana	21	440	-	1	2	-	2	109	11,439	12,449	-	132	87	8
Illinois	28	1,474	-	-	5	-	14	1,340	40,213	43,786	4	878	863	29
Michigan	16	1,036	-	1	11	1	2	864	28,623	27,092	2	196	204	6
Wisconsin	8	163	2	-	-	-	-	312	17,999	11,167	1	88	84	61
WEST NORTH CENTRAL	24	793	24	1	22	1	31	1,005	41,104	41,578	5	365	354	612
Minnesota	3	169	-	1	5	-	-	136	7,457	7,225	-	115	76	215
Iowa*	3	73	-	-	-	-	1	135	4,799	5,290	-	35	36	100
Missouri*	8	334	22	-	12	1	16	504	17,074	16,749	5	142	145	43
North Dakota	-	20	-	-	1	-	-	16	764	635	-	-	-	92
South Dakota*	4	43	2	-	-	-	2	36	1,212	1,211	-	10	4	120
Nebraska	2	32	-	-	1	-	1	50	3,546	3,487	-	25	29	2
Kansas*	4	122	-	-	3	-	11	128	6,252	6,981	-	38	64	40
SOUTH ATLANTIC	103	5,239	10	2	53	6	565	5,154	193,083	195,867	82	4,454	5,746	272
Delaware*	3	55	-	-	-	-	3	42	2,618	2,679	-	19	54	2
Maryland	12	739	2	-	4	-	74	501	23,939	25,592	8	283	457	-
District of Columbia	-	263	-	-	1	-	-	310	12,630	13,360	5	461	444	-
Virginia*	4	620	1	-	9	2	153	521	20,305	20,829	11	442	539	5
West Virginia	1	197	-	-	4	-	5	52	2,543	2,439	-	3	20	9
North Carolina*	23	856	2	1	4	2	214	845	28,926	27,957	5	601	1,058	11
South Carolina*	7	483	2	1	3	-	52	613	18,257	18,548	3	197	295	23
Georgia	20	667	3	-	13	2	63	1,167	37,280	37,510	22	997	858	165
Florida	33	1,359	-	-	15	-	1	1,103	46,585	46,953	28	1,451	2,021	57
EAST SOUTH CENTRAL	36	2,196	8	-	7	-	165	1,644	68,949	70,538	21	624	739	63
Kentucky*	14	576	2	-	1	-	40	155	9,438	9,340	1	81	103	22
Tennessee	9	663	5	-	2	-	99	683	27,598	28,050	6	196	247	31
Alabama	3	565	1	-	1	-	19	484	18,548	19,731	6	137	155	10
Mississippi	10	392	-	-	3	-	7	322	13,365	13,417	8	210	234	-
WEST SOUTH CENTRAL	77	2,811	64	2	27	-	158	3,160	98,593	99,928	57	2,405	2,254	669
Arkansas	6	308	44	1	6	-	52	264	7,622	9,421	3	57	83	100
Louisiana	8	517	1	-	1	-	6	591	14,683	14,723	10	558	461	21
Oklahoma*	4	254	10	-	1	-	71	281	9,461	9,735	-	63	80	211
Texas	59	1,732	9	1	19	-	29	2,024	66,827	66,049	44	1,727	1,630	337
MOUNTAIN	4	686	11	2	27	-	13	634	31,571	32,389	3	376	481	174
Montana	1	43	1	-	-	-	6	45	1,666	1,643	-	4	7	45
Idaho	-	25	-	-	-	-	4	17	1,449	1,748	-	11	21	-
Wyoming	-	16	1	-	-	-	2	6	748	635	-	4	3	1
Colorado	-	94	3	-	8	-	1	171	8,294	8,209	-	103	105	56
New Mexico	-	133	-	-	-	-	-	100	4,631	5,920	-	106	119	18
Arizona*	2	296	2	2	13	-	-	183	8,759	9,505	3	126	177	44
Utah	-	32	4	-	5	-	-	51	1,877	1,735	-	8	19	10
Nevada*	1	47	-	-	1	-	-	61	4,147	2,994	-	14	30	-
PACIFIC	92	3,655	6	2	67	-	5	3,260	121,099	116,434	47	3,359	3,996	396
Washington	NA	246	-	-	2	-	-	283	9,426	9,912	NA	187	129	2
Oregon	1	146	1	-	3	-	1	241	8,566	8,761	4	115	89	7
California*	80	2,730	5	2	61	-	4	2,471	96,548	92,233	43	3,002	3,681	350
Alaska	-	64	-	-	-	-	-	174	3,978	3,373	-	23	21	37
Hawaii	11	469	-	-	1	-	-	91	2,581	2,155	-	32	76	-
Guam*	NA	47	-	NA	1	NA	-	NA	157	267	NA	2	2	-
Puerto Rico	4	308	-	-	6	-	-	84	2,544	2,170	7	431	482	47
Virgin Islands	NA	1	-	NA	-	NA	-	NA	164	204	NA	8	48	-

NA: Not available

*Delayed reports: TB: Kans. -2, Del. -2, N.C. -4, S.C. +8, Ky. -1, Ariz. -1, Calif. +86, Guam +2; Typhoid fever: Calif. +5; RMSF: N.J. +1, Mo. +1, Va. -1, Okla. -6; GC: S. Dak. -1, S.C. -2, Nev. -1 (mil.), Calif. +2314 (civ.), +85 (mil.), Guam +7; Syphilis: S.Dak. -1 (civ.), +1 (mil.), Calif. +75; An. rabies: Ups. N.Y. +2, Iowa +1, Calif. +12

Table IV
Deaths in 121 United States Cities*
Week Ending October 15, 1977 - 41st Week

REPORTING AREA	ALL CAUSES					Pneumonia and Influenza ALL AGES	REPORTING AREA	ALL CAUSES					Pneumonia and Influenza ALL AGES
	ALL AGES	85 Years and Over	45-84 Years	25-44 Years	Under 1 Year			ALL AGES	85 Years and Over	45-84 Years	25-44 Years	Under 1 Year	
NEW ENGLAND	674	421	179	36	22	31	SOUTH ATLANTIC	1,078	602	300	88	47	47
Boston, Mass.	177	94	59	9	11	10	Atlanta, Ga.	115	61	33	9	8	2
Bridgeport, Conn.	45	27	10	6	1	-	Baltimore, Md.	179	102	52	12	5	4
Cambridge, Mass.	23	19	3	1	-	4	Charlotte, N. C.	52	27	18	5	2	-
Fall River, Mass.	26	21	3	-	1	2	Jacksonville, Fla.	65	37	18	4	4	5
Hartford, Conn.	70	37	24	2	3	5	Miami, Fla.	160	96	41	20	1	11
Lowell, Mass.	14	11	3	-	-	1	Norfolk, Va.	56	30	14	5	4	3
Lynn, Mass.	8	8	-	-	-	-	Richmond, Va.	74	33	28	5	4	6
New Bedford, Mass.	26	18	6	-	-	1	Savannah, Ga.	26	14	5	3	2	3
New Haven, Conn.	54	29	20	3	1	-	St. Petersburg, Fla.	64	57	6	1	-	3
Providence, R.I.	58	38	13	4	1	-	Tampa, Fla.	64	31	16	8	2	4
Somerville, Mass.	9	5	3	1	-	-	Washington, D. C.	168	79	56	13	14	3
Springfield, Mass.	67	45	12	5	4	3	Wilmington, Del.	55	35	13	3	1	3
Waterbury, Conn.	40	26	12	2	-	3							
Worcester, Mass.	57	43	11	3	-	3							
MIDDLE ATLANTIC	2,769	1,781	684	151	77	114	EAST SOUTH CENTRAL	656	359	181	49	43	30
Albany, N. Y.	54	40	8	-	5	-	Birmingham, Ala.	122	67	34	11	9	1
Allentown, Pa.	11	10	-	-	-	-	Chattanooga, Tenn.	79	45	18	8	1	4
Buffalo, N. Y.	96	57	29	3	4	5	Knoxville, Tenn.	26	17	8	-	-	1
Camden, N. J.	44	25	14	4	1	1	Louisville, Ky.	109	56	40	6	5	7
Elizabeth, N. J.	35	26	7	-	-	1	Memphis, Tenn.	145	76	33	12	15	2
Erie, Pa.	32	18	9	3	1	1	Mobile, Ala.	54	32	16	1	5	5
Jersey City, N. J.	43	27	11	3	1	3	Montgomery, Ala.	33	15	13	5	-	3
Newark, N. J.	55	24	19	4	3	3	Nashville, Tenn.	88	51	19	6	8	7
New York City, N. Y.	1,469	956	351	97	27	36	WEST SOUTH CENTRAL	1,175	633	336	98	46	35
Paterson, N. J.	49	31	11	2	5	3	Austin, Tex.	33	19	6	6	-	2
Philadelphia, Pa.	309	182	81	19	17	20	Baton Rouge, La.	38	20	9	5	-	-
Pittsburgh, Pa.	166	100	47	9	5	12	Corpus Christi, Tex.	39	28	5	2	2	1
Reading, Pa.	48	41	6	-	-	3	Dallas, Tex.	163	84	54	16	4	8
Rochester, N. Y.	116	74	30	5	3	9	El Paso, Tex.	43	28	8	4	3	5
Schenectady, N. Y.	29	21	8	-	-	1	Fort Worth, Tex.	77	39	27	6	4	3
Scranton, Pa.	40	27	10	-	2	5	Houston, Tex.	248	114	81	17	12	2
Syracuse, N. Y.	80	55	18	1	2	1	Little Rock, Ark.	78	39	23	3	7	3
Trenton, N. J.	32	25	6	1	-	2	New Orleans, La.	174	105	44	15	3	-
Utica, N. Y.	23	14	9	-	-	4	San Antonio, Tex.	163	90	42	17	6	4
Yonkers, N. Y.	38	28	10	-	-	4	Shreveport, La.	41	18	14	5	2	1
							Tulsa, Okla.	78	49	23	2	3	6
EAST NORTH CENTRAL	2,335	1,380	587	138	100	56	MOUNTAIN	560	331	152	36	17	13
Akron, Ohio	58	41	9	3	3	-	Albuquerque, N. Mex.	67	36	16	6	4	4
Canton, Ohio	39	26	10	2	-	2	Colorado Springs, Colo.	28	22	5	1	-	2
Chicago, Ill.	566	336	147	37	25	15	Denver, Colo.	129	67	41	12	1	4
Cincinnati, Ohio	107	69	22	5	7	2	Las Vegas, Nev.	23	10	8	3	2	-
Cleveland, Ohio	173	97	48	13	5	-	Ogden, Utah	16	10	4	-	1	1
Columbus, Ohio	130	66	38	10	5	3	Phoenix, Ariz.	144	86	42	6	4	1
Dayton, Ohio	84	44	20	6	8	3	Pueblo, Colo.	28	14	8	3	2	-
Detroit, Mich.	297	158	91	24	11	3	Salt Lake City, Utah	52	30	15	3	3	1
Evansville, Ind.	31	21	6	2	1	3	Tucson, Ariz.	73	56	13	2	-	-
Fort Wayne, Ind.	55	38	11	2	3	1							
Gary, Ind.	10	7	3	-	-	-	PACIFIC	1,364	871	320	74	45	32
Grand Rapids, Mich.	65	46	16	1	2	6	Berkeley, Calif.	16	10	5	1	-	-
Indianapolis, Ind.	176	104	48	9	4	3	Fresno, Calif.	66	37	15	7	3	1
Madison, Wis.	48	24	13	5	2	5	Glendale, Calif.	26	15	8	1	1	-
Milwaukee, Wis.	142	98	28	7	5	4	Honolulu, Hawaii	62	37	16	5	1	-
Peoria, Ill.	46	25	15	-	4	-	Long Beach, Calif.	65	42	16	4	2	4
Rockford, Ill.	55	36	12	4	2	2	Los Angeles, Calif.	336	220	80	13	11	8
South Bend, Ind.	46	25	16	1	2	2	Oakland, Calif.	45	32	10	1	1	-
Toledo, Ohio	107	76	18	4	6	-	Pasadena, Calif.	39	30	3	1	1	1
Youngstown, Ohio	70	43	16	3	5	2	Portland, Oreg.	104	73	25	5	-	1
							Sacramento, Calif.	84	44	21	8	5	5
WEST NORTH CENTRAL	703	465	145	36	29	10	San Diego, Calif.	107	65	23	8	7	3
Des Moines, Iowa	57	35	10	6	2	3	San Francisco, Calif.	143	84	33	14	7	1
Duluth, Minn.	27	14	7	2	2	-	San Jose, Calif.	52	36	12	1	-	-
Kansas City, Kans.	29	15	7	5	-	-	Seattle, Wash.	129	77	38	4	4	3
Kansas City, Mo.	121	78	31	2	8	1	Spokane, Wash.	59	46	11	-	-	2
Lincoln, Nebr.	21	17	4	-	-	1	Tacoma, Wash.	31	23	4	1	2	3
Minneapolis, Minn.	96	67	18	3	4	1							
Omaha, Nebr.	98	62	17	8	5	2							
St. Louis, Mo.	125	84	27	4	5	-							
St. Paul, Minn.	73	59	12	1	1	1							
Wichita, Kans.	56	34	12	5	2	1							
							TOTAL	11,284	6,843	2,884	706	426	368
							Expected Number	11,109	6,728	2,868	729	377	369

*By place of occurrence and week of filing certificate. Excludes fetal deaths.

The Morbidity and Mortality Weekly Report, circulation 87,500, is published by the Center 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 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.

Send mailing list additions, deletions, and address changes to: Center for Disease Control, Attn.: Distribution Services, GSO, 1-SB-36, 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.

Salmonella — continued

of egg-laying hens. Such organisms can contaminate eggs by penetrating through natural pores or cracks (checks) in the shell (1). However, for practical purposes, proper handling and inspection of eggs can eliminate this hazard.

Eggs that have been graded by the U.S. Department of Agriculture and are available for retail purchase have been

thoroughly inspected and sanitized. Regardless of source, however, eggs should always be refrigerated.

Reference

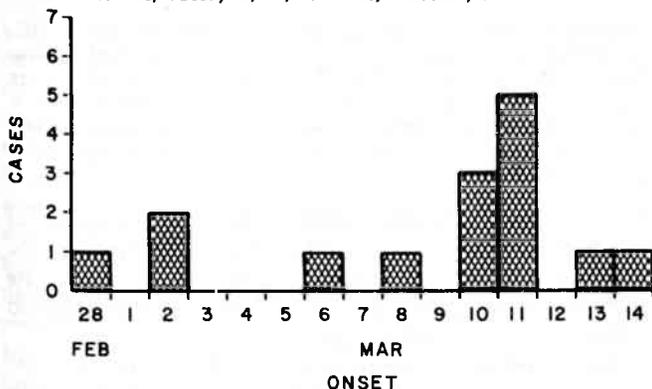
1. Williams JE, Dillard LH, Hall GO: The penetration patterns of *Salmonella typhimurium* through the outer structures of chicken eggs. *Avian Dis* 7:445-466, 1968

Epidemiologic Notes and Reports**Respiratory Syncytial Virus — Missouri**

An outbreak of upper respiratory infection and pneumonia caused by respiratory syncytial virus (RSV) occurred in residents of a nursing home in Kansas City, Missouri, from February 28 to March 14, 1977.

Fifteen of 77 residents had RSV upper respiratory infections (URI) or pneumonia (Figure 1). The age range was 57 to 98 years, the mean 84 years. Symptoms (Table 1) lasted for 1-17 days; the mean was 7 days. Seven patients developed pneumonia, and 6 were hospitalized; none died. Sex-specific attack rates were 25% for female residents and 5% for males.

FIGURE 1. Respiratory syncytial virus, Missouri, 1977



Five of the 15 cases were confirmed by a 4-fold titer rise by the complement fixation (CF) test. Ten cases were considered probable—that is, having a convalescent CF titer of $\geq 1:16$, a diagnosis of pneumonia or URI, and a temperature of ≥ 100 F. Four additional residents had URI only; 3 were negative for RSV, and 1 was not tested.

TABLE 1. Frequency of RSV signs and symptoms, Missouri

Signs and symptoms	Number	%
Temperature ≥ 100 F		
Range 100-103 F)	13	87
Cough	11	73
Rhinorrhea	7	47
Myalgia	7	47
Headache	2	13
Nausea and vomiting	1	7

The source of the outbreak could not be found. Eleven of the 15 patients lived in 1 wing, which had an attack rate of 50%. None of the 15 residents had been out of the nursing home in the few weeks prior to the outbreak. Children under age 16 were not allowed to visit in the

Follow-up on Legionnaires' Disease — Vermont

The Legionnaires' disease investigation in Vermont has identified 22 confirmed cases, 12 fatal, on the basis of seroconversion or positive direct fluorescent antibody tests on autopsy material. Twelve highly probable cases, 1 fatal, with single high titers to Legionnaires' disease and a compatible clinical history have been identified. Additional confirmations based on serologic specimens are expected.

The earliest confirmed case occurred in mid-July. The

rooms, but residents did go to the lobby and visit with the children of their families and friends. Although 3 employees were reported ill during this time, all had antibody titers of $\leq 1:8$.

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Editorial Note: RSV is a major cause of bronchiolitis and pneumonia in infants and young children and is probably the major cause of respiratory deaths in the first year of life (1). Community surveys show that the virus is responsible for yearly epidemics during the fall, winter, and spring, but especially in February and March (2). It infects adults as well as children, despite previous RSV infections or the presence of serum neutralizing antibody (1). The virus is transmitted from person to person by means of respiratory secretions, with school-age children being a common source of infection for other family members. Secondary attack rates are in the range of 20-30% (1,3).

RSV infection in adults has not been well characterized, but it is thought to be a mild illness like the common cold (1,3,4). This outbreak in an elderly population, most of whom probably had had RSV infections and had serum neutralizing antibody to RSV, underscores the question of how RSV and host factors such as serum antibody, secretory antibody, and cellular immunity interplay to cause or prevent illness. This outbreak also emphasizes that RSV infects adults as well as children and can, in some instances, be a significant respiratory pathogen for the adult population.

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latest confirmed case had a date of onset in the last week of September. Fifteen of the cases had a major underlying medical condition such as renal failure or a malignancy.

A serologic survey of hospital employees and members of the community is underway. In addition, the number of discharge diagnoses of pneumonia in recent months for all hospitals in Vermont is being compared to previous years' averages to evaluate the possible extent of the outbreak.

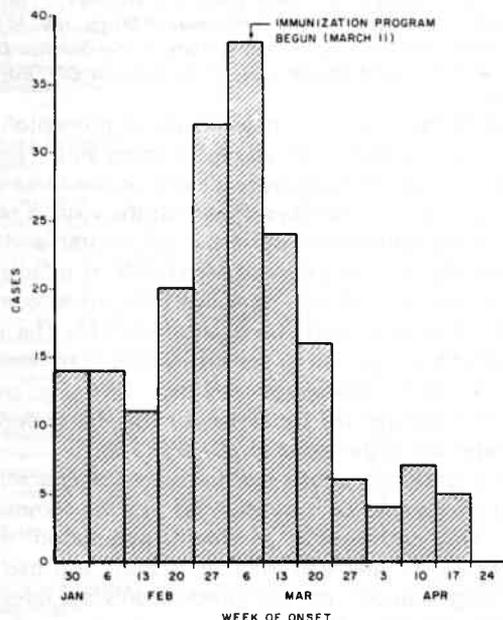
Reported by H Beaty, MD, JE Craighead, MD, CA Phillips, MD, W Winn, MD, Medical Center Hospital of Vermont; AM McBean, MD, RL Vogt, MD, Acting State Epidemiologist, Vermont State Dept of Health; Leprosy and Rickettsia Br, Virology Div, Immuno-

fluorescence Sect, Analytical Bacteriology Br, Bacteriology Div, Bur of Laboratories; Field Services Div, Epidemiologic Investigations Laboratory Br, Hospital Infections Br, and Special Pathogens Br, Bacterial Diseases Div, Bur of Epidemiology, CDC.

Rubella Outbreak Among Marine Students, Naval Air Station — Tennessee

From January 31 through April 23, 1977, 230 cases of rash-like illness clinically compatible with rubella occurred among Marines living in 4 adjoining barracks (housing 1,800 persons) at the Naval Air Station in Memphis, Tennessee (Figure 2). Forty-seven cases were serologically confirmed as rubella (greater than a 4-fold rise in hemagglutination inhibition [HI] titer) by the Tennessee Department of Public Health.

FIGURE 2. Rubella in Marine students, Memphis, Tennessee, January-April, 1977



Among 38 serologically confirmed cases the most frequently reported signs and symptoms were: diffuse macular rash (100%), sore throat (82%), post-auricular lymphadenopathy (82%), fever or chills (76%), nasal congestion (66%), arthralgia (50%), cough (47%), painful eye movement (37%), and photophobia (32%). The majority of cases were in 18- to 20-year-old enlisted Marine personnel who recently had completed recruit training and were attending aviation training schools. Ten cases were in women. A Naval physician who examined many cases also contracted rubella.

After the diagnosis of rubella was serologically confirmed in several initial patients, rubella immunizations were given to all Marine students at risk on March 11 and March 14. Female students were immunized if they could assure

that they would avoid pregnancy for the next 2 months. Subsequently, all students reporting for duty were immunized before admittance to their barracks. (Rubella immunizations are not routinely given to Naval and Marine recruits.) A total of 3,138 doses of rubella vaccine were administered from March 11 through June 13. The weekly case rate dropped significantly after March 30, suggesting that the immunization program may have been effective in terminating transmission (Figure 2).

The outbreak made it necessary to suspend the blood donor program at the Naval Regional Medical Center (NRMC) in Memphis for 2-3 months because a sizeable percentage of donors were in the population at risk. The prenatal clinic at NRMC in Memphis did not report any rubella-like illness or rubella serologic conversions in pregnant military dependents during January through April.

Reported by JV Bartlett, BS, LET, MSC, MR Frazier, MD, LCDR, MC, D Hire, MD, LCDR, MC, RM Lehman, MD, CAPT, MC, Naval Regional Medical Center, Memphis; RH Hutcheson Jr, MD, State Epidemiologist, MS Sudman, DrPH, Tennessee State Dept of Public Health; CW Juels, MD, MPH, LCDR, MC, Navy Environmental and Preventive Medicine Unit No. 2, Norfolk, Virginia; Immunization Div, Bur of State Services, CDC.

Editorial Note: Rubella outbreaks have been a source of significant morbidity on military bases for many years. Serologic studies have revealed a 10-20% susceptibility rate in these young adult populations, similar to that observed in the civilian population (1,2).

Post-adolescent women at military bases, including recruits, dependents, and civilian employees, should be serologically screened for rubella antibodies, if possible. Women who are serologically negative should be vaccinated at a time when they are willing to prevent pregnancy for an appropriate minimum time.

Rubella among military recruits can represent a substantial problem because of the cost of medical care, disruption of training, and potential transmission of rubella to pregnant females in nearby civilian populations as well as in military dependents. Because of recent outbreaks, serious consideration is being given to the routine vaccination of recruits by the U.S. Navy.

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