CENTER FOR DISEASE CONTROL

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Recommendation of the Public Health Service

Advisory Committee on Immunization Practices

Pneumococcal Polysaccharide Vaccine

INTRODUCTION

Polyvalent polysaccharide vaccine against disease caused by *Streptococcus pneumoniae* (pneumococcus) has recently been licensed in the United States. This statement summarizes current knowledge about this vaccine and provides initial guidance for its use in this country in reducing the incidence of pneumococcal disease.

PNEUMOCOCCAL DISEASE

Pneumococcal pneumonia, meningitis, otitis media, and bacteremia occur throughout the United States. Before 1950, significant epidemics of pneumococcal disease were described in closed populations such as military recruits. Since then epidemics have been rare, perhaps because of the use of effective antibiotics. Of the 83 capsular types of pneumococci, 14 cause most of the serious pneumococcal disease.

The precise incidence of most forms of pneumococcal disease is unknown. Projections based on limited observations indicate that as many as 400,000–500,000 cases of pneumococcal pneumonia may occur annually in the United States. This disease continues to have an overall case fatality of 5-10% and, even with antibiotic therapy, may be particularly serious for some segments of the population such as the elderly. Appearance of some pneumococci with multiple antibiotic resistance could herald additional problems (*1*).

The incidence of pneumococcal meningitis is approximately 1.5 to 2.5 cases per 100,000 population per year (*2*). One-half of the cases occur in children between 1 month and 4 years of age. About 40% of these cases are fatal despite appropriate treatment; permanent sequelae occur in half the survivors.

Pneumococcal disease of all kinds is unusually common in persons with sickle cell anemia (*3*) and anatomical or functional asplenia. Pneumococcal disease is also common in patients with agammaglobulinemia, multiple myeloma, nephrotic syndrome, cirrhosis, and alcoholism. Pneumococcal meningitis has been a major complication of basilar skull fracture with cerebrospinal fluid rhinorrhea.

PNEUMOCOCCAL POLYSACCHARIDE VACCINES

Several kinds of pneumococcal vaccine were developed and tested in the 1920s, 1930s, and 1940s. A combined polysaccharide vaccine, similar to the one recently licensed, was shown to prevent pneumonia in a young male military population with a high endemic rate of disease (25 cases per 1,000 population per year) (*4*). A trivalent vaccine appeared to be effective in one elderly population (*5*). A combined polysaccharide vaccine was licensed and produced in this country from 1945-1947. However, with the availability of effective antibiotics, this vaccine was given infrequently, and the manufacturer voluntarily discontinued production.

The 14-valent polysaccharide vaccine now licensed for use in the United States contains purified capsular material of pneumococci extracted separately from those types of organisms to be combined in the final vaccine. Each dose of the vaccine contains 50 μg of each polysaccharide. The 14 particular types of pneumococci in the vaccine available in the United States—American types 1, 2, 3, 4, 6, 8, 9, 12, 14, 19, 23, 25, 51, and 56 (*6*)—cause at least 80% of all bacteremic pneumococcal disease seen in this country.

The majority of adults respond to vaccine with a severalfold rise in antibody measured by radioimmunoassay. Immunity is provided only against the pneumococcal types in the vaccine, although, theoretically, there might be some degree of cross-protection among immunologically similar types. There appears to be no booster effect with additional doses; further studies are underway to clarify this observation.

Nasopharyngeal acquisition of the pneumococcal types included in the vaccine appears to be reduced by immunization. Furthermore, there has been no evidence among the immunized of any increase in diseases caused by other Gram-positive or Gram-negative microorganisms. The duration of protection is as yet unknown, but elevated antibody levels appear to persist for at least 2 years after immunization.

Field tests of pneumococcal vaccine among young adult recruit gold miners in South Africa (who have consistently

Pneumococcal Vaccine – continued

had a high incidence of bacteremic pneumococcal pneumonia–200 cases per 1,000 population per year) have shown that a single dose of vaccine is highly effective (*7*). Several other trials in various age groups are currently under way. One involving older age adults has produced preliminary results suggesting effectiveness against pneumococcal disease.

There has been only limited vaccine evaluation in children. Preliminary trials showed that children under 2 years of age responded poorly to the vaccine. However, in a small group of older children with sickle cell anemia and splenectomy, bacteremic pneumococcal disease appeared to be less common after immunization with an 8-valent vaccine (*8*).

In trials with the currently available vaccines, about half of the recipients had erythema and mild pain at the injection site for about a day. No serious adverse reactions have been reported.

VACCINE USAGE

Because there is as yet a limited amount of information available concerning the efficacy of pneumococcal vaccine, definitive recommendations for its use cannot be formulated at the present time. Those responsible for the health of communities and of individual patients should, therefore, evaluate each possible use of pneumococcal vaccine according to the following general concepts:

Use in Communities

1. Mass immunization of healthy people is *not* currently recommended.
2. Special populations, particularly closed groups such as those in residential schools, nursing homes, and some institutions, can be at enhanced risk of systemic pneumococcal disease, either in endemic or in epidemic form. When such is the case, immunization of the entire closed population might be an effective control measure.
3. Geographically localized outbreaks in the general population can sometimes be due to the spread of a single pneumococcal type. When this is observed, selective immunization of groups in the community epidemiologically believed to be at particular risk may be useful.
4. In view of the risks of influenza to some segments of the population, consideration should be given to vaccinating patients at high risk of influenza complications (particularly pneumonia) with pneumococcal vaccine (see below).

Use in Selected Individuals

1. On the basis of preliminary evidence, persons over 2 years of age who have splenic dysfunction (due to sickle cell disease or other causes) or who have anatomical asplenia should benefit from being immunized.
2. Persons over 2 years of age with certain chronic illnesses where there is an increased risk of pneumococcal disease, such as diabetes mellitus and functional impairment of

(Continued on page 31)

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

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

DISEASE	3rd WEEK ENDING		MEDIAN	CUMULATIVE, FIRST 3 WEEKS		
	January 21, 1978	January 22, 1977†	1973–1977	January 21, 1978	January 22, 1977†	MEDIAN 1973–1977
Aseptic meningitis	43	28	36	112	125	124
Brucellosis	–	3	3	3	10	5
Chickenpox	2,974	6,107	4,791	8,209	13,524	12,147
Diphtheria	3	–	3	3	–	5
Encephalitis, Primary	9	10	11	23	40	39
Encephalitis, Post-Infectious	1	1	2	5	3	7
Hepatitis, Viral, Type B	280	278	214	764	814	564
Hepatitis, Viral, Type A	489	641	781	1,282	1,805	1,979
Hepatitis, Viral, Type unspecified	175	163		463	470	
Malaria	3	6	3	22	12	10
Measles (rubeola)	208	808	540	593	2,629	1,171
Meningococcal infections, total	44	32	32	84	109	84
Civilian	44	32	32	84	109	83
Military	–	–	1	–	–	1
Mumps	367	580	1,416	893	1,425	3,682
Pertussis	35	15	—	119	45	—
Rubella (German measles)	211	174	209	380	514	499
Tetanus	–	2	2	–	4	3
Tuberculosis	403	502	507	1,043	1,184	1,248
Tularemia	–	4	2	2	8	8
Typhoid fever	4	5	5	15	16	16
Typhus, tick-borne (Rky. Mt. spotted fever)	–	–	1	2	4	4
Venereal Diseases:						
Gonorrhea, Civilian	16,213	18,838†	18,838	50,292	56,189†	56,189
Gonorrhea, Military	325	406†	465	979	1,534†	1,613
Syphilis, primary and secondary, Civilian	337	489†	486	917	1,304†	1,417
Syphilis, primary and secondary, Military	5	8†	8	15	17†	18
Rabies in animals	47	51	46	127	135	120

Table II. Notifiable Diseases of Low Frequency: United States

	CUM.		CUM.
Anthrax:	–	Poliomyelitis, total:	–
Botulism:	–	Paralytic:	–
Congenital rubella syndrome:	–	Psittacosis:*	1
Leprosy:	1	Rabies in man:	–
Leptospirosis:	1	Trichinosis:	6
Plague:	–	Typhus, murine:*	1

†Delayed reports received for calendar year 1977 are used to update last year's weekly and cumulative totals.

††Medians are based on data for 1975-1977

*Delayed reports. (1977): Psittacosis: N.H. +1, Tex. +4; Typhus, murine: Tex. +1

Table III

Cases of Specified Notifiable Diseases: United States

Weeks Ending January 21, 1978 and January 22, 1977 – 3rd 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		
	1978	1978	1978	1978	CUM. 1978	1978	1977†	1978	1978	1978	1978	1978	CUM. 1978
UNITED STATES	43	–	2,974	3	3	9	10	1	280	489	175	9	22
NEW ENGLAND	–	–	283	–	–	–	–	–	10	5	4	–	1
Maine	–	–	30	–	–	–	–	–	–	–	–	–	–
New Hampshire*	–	–	2	–	–	–	–	–	–	–	–	–	–
Vermont	–	–	11	–	–	–	–	–	–	–	–	–	–
Massachusetts	–	–	67	–	–	–	–	–	–	1	4	–	1
Rhode Island	–	–	58	–	–	–	–	–	2	3	–	–	–
Connecticut	–	–	95	–	–	–	–	–	8	1	–	–	–
MIDDLE ATLANTIC	2	–	182	–	–	1	4	–	33	31	15	5	12
Upstate New York	1	–	129	–	–	–	–	–	4	6	2	–	–
New York City	1	–	51	–	–	1	1	–	7	5	3	4	8
New Jersey	–	–	NN	–	–	–	3	–	8	8	5	–	–
Pennsylvania*	–	–	2	–	–	–	–	–	14	12	5	1	4
EAST NORTH CENTRAL	5	–	1,578	–	–	2	1	–	29	58	17	–	–
Ohio	–	–	227	–	–	1	–	–	11	21	–	–	–
Indiana	–	–	110	–	–	–	–	–	–	1	4	–	–
Illinois	–	–	138	–	–	–	–	–	3	9	5	–	–
Michigan	5	–	730	–	–	1	1	–	13	21	8	–	–
Wisconsin	–	–	373	–	–	–	–	–	2	6	–	–	–
WEST NORTH CENTRAL	–	–	309	–	–	–	1	–	16	36	8	1	2
Minnesota	–	–	3	–	–	–	–	–	7	20	–	–	–
Iowa	–	–	138	–	–	–	–	–	4	6	1	–	–
Missouri*	–	–	4	–	–	–	1	–	3	3	7	1	2
North Dakota	–	–	1	–	–	–	–	–	–	–	–	–	–
South Dakota	–	–	45	–	–	–	–	–	–	–	–	–	–
Nebraska	–	–	5	–	–	–	–	–	2	5	–	–	–
Kansas	–	–	123	–	–	–	–	–	–	2	–	–	–
SOUTH ATLANTIC	11	–	130	–	–	1	1	1	72	61	15	–	1
Delaware	–	–	7	–	–	–	–	–	1	1	–	–	–
Maryland	3	–	8	–	–	–	–	–	20	12	3	–	1
District of Columbia	–	–	–	–	–	–	–	–	–	–	–	–	–
Virginia	2	–	16	–	–	–	–	–	4	1	2	–	–
West Virginia	–	–	NA	–	–	–	–	–	–	1	–	–	–
North Carolina	1	–	NN	–	–	1	1	–	8	7	5	–	–
South Carolina	1	–	2	–	–	–	–	–	3	2	1	–	–
Georgia	–	–	–	–	–	–	–	–	10	23	–	–	–
Florida	4	–	97	–	–	–	–	1	26	14	4	–	–
EAST SOUTH CENTRAL	1	–	31	–	–	1	2	–	18	18	4	–	–
Kentucky	–	–	12	–	–	–	1	–	–	–	–	–	–
Tennessee	–	–	NN	–	–	1	–	–	12	14	–	–	–
Alabama*	1	–	16	–	–	–	–	–	6	3	4	–	–
Mississippi	–	–	3	–	–	–	1	–	–	1	–	–	–
WEST SOUTH CENTRAL	7	–	153	–	–	1	–	–	15	51	24	–	1
Arkansas	–	–	10	–	–	–	–	–	2	6	1	–	–
Louisiana	–	–	NN	–	–	–	–	–	–	–	–	–	–
Oklahoma*	–	–	–	–	–	–	–	–	2	6	–	–	–
Texas	7	–	143	–	–	1	–	–	11	39	23	–	1
MOUNTAIN	–	–	173	–	–	–	–	–	4	58	31	–	–
Montana*	–	–	65	–	–	–	–	–	–	10	1	–	–
Idaho	–	–	29	–	–	–	–	–	–	4	–	–	–
Wyoming	–	–	5	–	–	–	–	–	–	–	–	–	–
Colorado	–	–	70	–	–	–	–	–	1	5	1	–	–
New Mexico	–	–	4	–	–	–	–	–	1	8	1	–	–
Arizona	–	–	NN	–	–	–	–	–	1	21	27	–	–
Utah	–	–	–	–	–	–	–	–	1	10	1	–	–
Nevada	–	–	–	–	–	–	–	–	–	–	–	–	–
PACIFIC	17	–	135	3	3	3	1	–	83	171	57	3	5
Washington*	–	–	127	3	3	–	–	–	5	18	11	1	1
Oregon	–	–	2	–	–	–	–	–	10	22	5	–	–
California*	16	–	–	–	–	2	1	–	66	116	40	2	4
Alaska	–	–	1	–	–	1	–	–	1	14	–	–	–
Hawaii*	1	–	5	–	–	–	–	–	1	1	1	–	–
Guam	NA	NA	NA	NA	–	NA	–	–	NA	NA	NA	NA	–
Puerto Rico	–	–	7	–	–	–	–	–	3	4	1	–	–
Virgin Islands	–	–	–	–	–	–	–	–	–	–	–	–	–

†Delayed reports received for calendar year 1977 are not shown below but are used to update last year's weekly and cumulative totals.

*The following delayed reports will be reflected in next week's issue: Asep. meng.: Mo. +2, Hawaii +1; Chickenpox: Ala. +17, Wash. +12, Calif. +35; Hep. B: Pa. +9, Mo. +1, Ala. +1, Okla. +1; Hep. A: Pa. +10, Mo. –2, Ala. +1, Mont. –1; Hep. unsp.: N.H. +1, Pa. +1, Mont. +1.

Table III-Continued
Cases of Specified Notifiable Diseases: United States
Weeks Ending January 21, 1978 and January 22, 1977 — 3rd Week

REPORTING AREA	MEASLES (Rubeola)			MENINGOCOCCAL INFECTIONS TOTAL			MUMPS		PERTUSSIS	RUBELLA		TETANUS
	1978	CUMULATIVE		1978	CUMULATIVE		1978	CUM. 1978	1978	1978	CUM. 1978	CUM. 1978
		1978	1977†		1978	1977†						
UNITED STATES	208	593	2,629	44	84	109	367	893	35	211	380	–
NEW ENGLAND	10	14	54	2	4	3	41	95	1	2	9	–
Maine	6	10	–	1	1	–	35	74	–	2	3	–
New Hampshire*	2	2	28	–	–	–	1	1	–	–	1	–
Vermont	2	2	24	–	–	–	–	–	–	–	–	–
Massachusetts	–	–	–	1	2	–	2	7	1	–	4	–
Rhode Island	–	–	–	–	–	–	1	2	–	–	–	–
Connecticut	–	–	2	–	1	3	2	11	–	–	1	–
MIDDLE ATLANTIC	9	77	447	10	18	15	31	57	–	10	34	–
Upstate New York	4	46	29	6	10	3	14	20	–	2	4	–
New York City	1	20	7	2	5	4	8	19	–	–	2	–
New Jersey*	–	1	7	–	1	6	7	9	–	–	5	–
Pennsylvania	4	8	404	2	2	2	2	9	–	8	23	–
EAST NORTH CENTRAL	137	291	924	6	9	13	134	250	9	112	163	–
Ohio	1	6	28	1	1	7	7	31	–	–	1	–
Indiana	14	14	496	2	3	–	26	26	2	14	15	–
Illinois	10	10	69	–	–	2	29	53	3	–	–	–
Michigan	103	246	66	2	4	2	49	97	–	88	124	–
Wisconsin	9	13	265	1	1	2	23	43	4	10	23	–
WEST NORTH CENTRAL	2	5	701	2	5	5	58	181	3	12	21	–
Minnesota*	–	–	41	2	2	–	1	4	–	1	1	–
Iowa	–	3	462	–	1	1	3	9	–	1	1	–
Missouri*	–	–	32	–	1	4	14	61	–	–	1	–
North Dakota	–	–	2	–	–	–	3	3	3	–	–	–
South Dakota	–	–	–	–	–	–	–	–	–	8	15	–
Nebraska	–	–	1	–	–	–	–	2	–	–	–	–
Kansas	2	2	163	–	1	–	37	102	–	2	3	–
SOUTH ATLANTIC	15	61	26	10	21	20	14	59	1	3	27	–
Delaware	–	1	–	–	–	1	–	6	–	–	1	–
Maryland	–	–	–	–	–	2	–	5	–	–	–	–
District of Columbia	–	–	–	–	–	–	–	–	–	–	–	–
Virginia	5	28	15	1	3	1	5	19	1	1	9	–
West Virginia	–	16	11	–	1	4	NA	5	–	–	12	–
North Carolina	8	8	–	4	5	3	3	10	–	2	2	–
South Carolina	1	4	–	2	4	3	1	7	–	–	–	–
Georgia	–	–	–	1	4	1	1	1	–	–	–	–
Florida	1	4	–	2	4	5	4	6	–	–	3	–
EAST SOUTH CENTRAL	5	72	44	1	1	11	18	89	1	16	27	–
Kentucky	3	21	8	–	–	5	–	25	1	–	6	–
Tennessee	2	44	36	–	–	5	18	56	–	16	18	–
Alabama	–	–	–	1	1	1	–	8	–	–	–	–
Mississippi	–	7	–	–	–	–	–	–	–	–	3	–
WEST SOUTH CENTRAL	19	23	75	5	10	25	45	89	4	3	5	–
Arkansas	–	–	1	–	1	–	3	7	1	–	–	–
Louisiana	4	4	–	–	–	17	–	–	–	–	–	–
Oklahoma*	1	1	5	–	–	–	–	–	–	2	2	–
Texas	14	18	69	5	9	8	42	82	3	1	3	–
MOUNTAIN	–	23	128	–	–	2	4	16	1	2	6	–
Montana	–	22	95	–	–	–	–	–	–	–	–	–
Idaho	–	–	11	–	–	1	1	2	–	–	–	–
Wyoming	–	–	–	–	–	–	–	–	–	–	–	–
Colorado	–	1	1	–	–	–	3	6	1	–	–	–
New Mexico	–	–	16	–	–	–	–	1	–	–	–	–
Arizona	–	–	2	–	–	1	–	–	–	2	2	–
Utah	–	–	1	–	–	–	–	7	–	–	4	–
Nevada	–	–	2	–	–	–	–	–	–	–	–	–
PACIFIC	11	27	230	8	16	15	22	57	15	51	88	–
Washington	6	7	9	3	3	2	1	6	3	–	10	–
Oregon	–	1	6	–	–	–	4	10	7	8	9	–
California	5	19	215	5	13	8	16	38	5	43	68	–
Alaska	–	–	–	–	–	4	–	–	–	–	–	–
Hawaii	–	–	–	–	–	1	1	3	–	–	1	–
Guam	NA	–	–	–	–	–	NA	–	NA	NA	–	–
Puerto Rico	1	5	31	–	–	–	31	35	–	–	–	–
Virgin Islands	–	–	–	–	–	–	–	–	–	–	–	–

†Delayed reports received for calendar year 1977 are not shown below but are used to update last year's weekly and cumulative totals.
*The following delayed reports will be reflected in next week's issue: Men. inf: N.J. +1, Mo. +2, Okla. +1; Mumps: N.H. +1, Wash. +2; Pertussis: Minn. –1, Mo. +1, Rubella: N.H. +1

Table III-Continued
Cases of Specified Notifiable Diseases: United States
Weeks Ending January 21, 1978 and January 22, 1977 — 3rd Week

REPORTING AREA	TUBERCULOSIS		TULAREMIA	TYPHOID FEVER		TYPHUS-FEVER TICK-BORNE (RMSF)		VENEREAL DISEASES (Civilian Cases Only)						RABIES IN ANIMALS
								GONORRHEA			SYPHILIS (Pri. & Sec.)			
									CUMULATIVE			CUMULATIVE		
	1978	CUM. 1978	CUM. 1978	1978	CUM. 1978	1978	CUM. 1978	1978	1978	1977†	1978	1978	1977†	CUM. 1978
UNITED STATES	403	1,043	2	4	15	–	2	16,213	50,292	56,189	337	917	1,304	127
NEW ENGLAND	4	25	–	–	–	–	–	479	1,403	1,402	4	26	41	–
Maine	1	3	–	–	–	–	–	40	87	110	–	–	–	–
New Hampshire	–	1	–	–	–	–	–	23	71	56	–	–	–	–
Vermont	–	4	–	–	–	–	–	11	29	28	–	–	2	–
Massachusetts	NA	4	–	–	–	–	–	171	622	585	2	18	27	–
Rhode Island	1	5	–	–	–	–	–	36	80	68	–	1	–	–
Connecticut	2	8	–	–	–	–	–	198	514	555	2	7	12	–
MIDDLE ATLANTIC	71	188	–	1	5	–	2	992	4,519	7,434	13	96	190	1
Upstate New York	6	9	–	1	2	–	–	233	307	482	–	–	12	1
New York City*	51	117	–	–	2	–	–	NA	1,686	4,536	NA	58	121	–
New Jersey	14	62	–	–	–	–	–	411	1,393	810	8	24	31	–
Pennsylvania*	–	–	–	–	1	–	2	348	1,133	1,606	5	14	26	–
EAST NORTH CENTRAL	53	110	–	–	1	–	–	1,825	5,439	7,889	17	31	158	1
Ohio	7	43	–	–	1	–	–	423	1,561	2,578	8	11	39	–
Indiana	14	32	–	–	–	–	–	141	808	376	–	5	5	1
Illinois	NA	–	–	–	–	–	–	174	723	2,594	4	7	94	–
Michigan	28	28	–	–	–	–	–	767	1,845	1,708	4	6	14	–
Wisconsin	4	7	–	–	–	–	–	320	502	633	1	2	6	–
WEST NORTH CENTRAL	16	31	–	1	1	–	–	1,047	2,769	3,160	6	22	26	50
Minnesota	5	10	–	–	–	–	–	253	542	507	4	7	7	22
Iowa	2	3	–	–	–	–	–	220	405	360	–	1	2	10
Missouri*	5	8	–	1	1	–	–	272	1,075	1,489	2	8	10	7
North Dakota	1	1	–	–	–	–	–	23	58	41	–	–	1	11
South Dakota	2	2	–	–	–	–	–	45	104	88	–	1	–	–
Nebraska	–	–	–	–	–	–	–	74	228	219	–	–	1	–
Kansas	1	5	–	–	–	–	–	160	357	456	–	5	5	–
SOUTH ATLANTIC	100	246	1	1	2	–	–	4,123	13,148	12,762	114	300	394	14
Delaware	–	–	–	–	–	–	–	75	274	222	1	2	1	–
Maryland	26	69	1	–	–	–	–	723	2,092	1,395	2	15	20	–
District of Columbia	8	11	–	–	–	–	–	179	726	922	2	21	44	–
Virginia	3	3	–	–	1	–	–	232	1,067	1,110	21	33	32	–
West Virginia	8	18	–	–	–	–	–	64	214	167	–	–	–	–
North Carolina	18	55	–	–	–	–	–	735	1,829	2,020	9	20	63	–
South Carolina	6	27	–	–	–	–	–	437	1,101	1,281	2	13	22	2
Georgia	7	19	–	–	–	–	–	1,004	2,543	2,654	26	71	72	10
Florida	24	46	–	1	1	–	–	674	3,302	2,991	51	125	140	2
EAST SOUTH CENTRAL	52	121	1	–	1	–	–	1,154	3,969	4,286	10	40	42	1
Kentucky	11	17	–	–	1	–	–	–	162	540	–	1	6	1
Tennessee	17	30	1	–	–	–	–	336	1,289	2,051	2	15	15	–
Alabama	8	32	–	–	–	–	–	320	1,192	950	1	9	7	–
Mississippi	16	42	–	–	–	–	–	498	1,326	745	7	15	14	–
WEST SOUTH CENTRAL	33	83	–	–	1	–	–	2,630	7,911	8,268	60	151	167	23
Arkansas*	5	7	–	–	–	–	–	192	408	528	–	6	3	4
Louisiana	10	39	–	–	–	–	–	219	1,018	1,046	–	12	39	–
Oklahoma*	5	8	–	–	–	–	–	139	352	582	1	1	6	5
Texas	13	29	–	–	1	–	–	2,080	6,133	6,112	59	132	119	14
MOUNTAIN	13	40	–	–	–	–	–	719	1,831	2,185	8	19	18	1
Montana	–	9	–	–	–	–	–	51	138	135	–	–	–	–
Idaho	–	–	–	–	–	–	–	33	59	113	–	–	2	–
Wyoming	–	–	–	–	–	–	–	7	37	59	–	3	2	–
Colorado	–	–	–	–	–	–	–	226	511	521	3	6	7	–
New Mexico	1	7	–	–	–	–	–	116	260	253	2	4	–	–
Arizona	10	22	–	–	–	–	–	116	430	665	3	4	6	1
Utah	–	–	–	–	–	–	–	43	99	112	–	1	–	–
Nevada	2	2	–	–	–	–	–	127	297	327	–	1	1	–
PACIFIC	61	199	–	1	4	–	–	3,244	9,303	8,803	105	232	268	36
Washington*	NA	–	–	–	–	–	–	128	403	681	NA	–	7	–
Oregon	4	7	–	–	–	–	–	260	612	626	2	3	11	–
California	51	149	–	1	4	–	–	2,722	7,904	7,096	102	225	247	35
Alaska	–	–	–	–	–	–	–	67	205	221	–	–	–	1
Hawaii	6	43	–	–	–	–	–	67	179	179	1	4	3	–
Guam	NA	–	–	NA	–	NA	–	NA	–	21	NA	–	–	–
Puerto Rico	6	14	–	–	–	–	–	56	133	165	16	25	32	–
Virgin Islands	–	–	–	–	–	–	–	7	16	12	–	1	–	–

†Delayed reports received for calendar year 1977 are not shown below but are used to update last year's weekly and cumulative totals.
*The following delayed reports will be reflected in next week's issue: TB: Ark. +8, Tularemia: Mo. +1; GC: Pa. +470, Okla. +236 civ. +3 mil., Wash. −1; Syphilis: NYC+1, Pa. +2, Okla. +4; An. rabies: Okla. +3.

Table IV
Deaths in 121 United States Cities*
Week Ending January 21, 1978 – 3rd Week

REPORTING AREA	ALL CAUSES					Pneumonia and Influenza
	ALL AGES	65 Years and Over	45-64 Years	25-44 Years	Under 1 Year	ALL AGES
NEW ENGLAND	762	523	167	32	21	62
Boston, Mass.	194	116	53	13	8	12
Bridgeport, Conn.	48	34	8	3	1	5
Cambridge, Mass.	35	26	9	–	–	6
Fall River, Mass.	28	22	6	–	–	4
Hartford, Conn.	63	42	13	3	1	4
Lowell, Mass.	30	17	11	1	–	2
Lynn, Mass.	20	16	4	–	–	–
New Bedford, Mass.	32	27	5	–	–	1
New Haven, Conn.	57	40	12	–	1	1
Providence, R.I.	69	47	13	3	6	9
Somerville, Mass.	9	9	–	–	–	2
Springfield, Mass.	59	36	15	4	3	5
Waterbury, Conn.	44	34	9	1	–	5
Worcester, Mass.	74	57	9	4	1	6
MIDDLE ATLANTIC	3,320	2,160	798	209	77	251
Albany, N. Y.	59	41	8	4	3	2
Allentown, Pa.	29	19	10	–	–	2
Buffalo, N. Y.	150	107	36	4	2	12
Camden, N. J.	35	22	9	2	1	3
Elizabeth, N. J.	43	27	11	2	2	3
Erie, Pa.	36	27	9	–	–	7
Jersey City, N. J.	46	28	13	3	1	2
Newark, N. J.	100	44	41	12	–	9
New York City, N. Y.	1,882	1,204	441	139	48	123
Paterson, N. J.	41	23	9	2	1	6
Philadelphia, Pa.	299	178	90	18	6	40
Pittsburgh, Pa.	138	86	35	6	7	16
Reading, Pa.	59	49	7	3	–	3
Rochester, N. Y.	125	99	19	3	2	7
Schenectady, N. Y.	23	23	–	–	–	4
Scranton, Pa.	50	36	9	4	1	1
Syracuse, N. Y.	121	77	38	3	2	3
Trenton, N. J.	30	23	5	–	1	4
Utica, N. Y.	29	22	5	2	–	4
Yonkers, N. Y.	25	20	3	2	–	–
EAST NORTH CENTRAL	2,823	1,829	681	134	96	172
Akron, Ohio	81	56	18	5	–	–
Canton, Ohio	43	26	13	1	1	1
Chicago, Ill.	668	408	179	38	18	32
Cincinnati, Ohio	162	113	41	3	1	11
Cleveland, Ohio	186	97	51	13	21	8
Columbus, Ohio	184	118	52	9	4	8
Dayton, Ohio	82	56	17	5	1	3
Detroit, Mich.	417	270	97	21	16	13
Evansville, Ind.	38	31	7	–	–	7
Fort Wayne, Ind.	61	39	12	4	5	10
Gary, Ind.	18	12	6	–	–	1
Grand Rapids, Mich.	65	51	9	1	3	6
Indianapolis, Ind.	183	115	49	9	6	7
Madison, Wis.	56	36	7	4	4	12
Milwaukee, Wis.	181	131	33	6	5	7
Peoria, Ill.	59	42	7	2	6	34
Rockford, Ill.	51	36	9	3	1	6
South Bend, Ind.	74	52	18	3	–	4
Toledo, Ohio	143	94	39	4	2	2
Youngstown, Ohio	71	48	17	3	2	–
WEST NORTH CENTRAL	820	538	191	40	25	46
Des Moines, Iowa	65	45	13	4	1	2
Duluth, Minn.	29	23	5	1	–	7
Kansas City, Kans.	37	18	12	3	2	1
Kansas City, Mo.	139	98	26	6	3	7
Lincoln, Nebr.	33	23	8	2	–	3
Minneapolis, Minn.	99	66	20	4	8	2
Omaha, Nebr.	89	54	26	2	4	1
St. Louis, Mo.	171	105	48	7	5	8
St. Paul, Minn.	86	62	16	4	–	3
Wichita, Kans.	72	44	17	7	2	12

REPORTING AREA	ALL CAUSES					Pneumonia and Influenza
	ALL AGES	65 Years and Over	45-64 Years	25-44 Years	Under 1 Year	ALL AGES
SOUTH ATLANTIC	1,526	951	394	87	51	113
Atlanta, Ga.	143	87	36	7	10	7
Baltimore, Md.	214	122	65	13	6	6
Charlotte, N. C.	71	34	29	3	4	5
Jacksonville, Fla.	144	93	35	9	4	18
Miami, Fla.	256	152	73	13	13	14
Norfolk, Va.	61	37	12	6	3	8
Richmond, Va.	100	66	25	4	–	13
Savannah, Ga.	61	27	25	6	2	5
St. Petersburg, Fla.	154	129	18	3	–	11
Tampa, Fla.	111	67	27	10	3	14
Washington, D. C.	139	89	33	8	5	7
Wilmington, Del.	72	48	16	5	1	5
EAST SOUTH CENTRAL	702	433	169	39	27	37
Birmingham, Ala.	150	84	45	7	8	2
Chattanooga, Tenn.	56	35	15	4	1	9
Knoxville, Tenn.	32	21	6	2	1	1
Louisville, Ky.	63	42	7	5	8	7
Memphis, Tenn.	171	110	42	5	3	4
Mobile, Ala.	75	55	9	5	–	4
Montgomery, Ala.	54	34	13	1	4	5
Nashville, Tenn.	101	52	32	10	2	5
WEST SOUTH CENTRAL	1,172	706	279	91	54	59
Austin, Tex.	48	36	8	3	–	3
Baton Rouge, La.	29	16	10	3	–	2
Corpus Christi, Tex.	54	30	10	6	5	3
Dallas, Tex.	182	110	50	11	7	9
El Paso, Tex.	49	32	11	3	3	9
Fort Worth, Tex.	76	46	13	10	2	3
Houston, Tex.	215	124	56	18	10	4
Little Rock, Ark.	50	25	16	3	3	4
New Orleans, La.	124	78	31	9	2	–
San Antonio, Tex.	168	98	38	13	12	4
Shreveport, La.	78	49	16	4	7	10
Tulsa, Okla.	99	62	20	8	3	8
MOUNTAIN	650	421	146	36	15	48
Albuquerque, N. Mex.	72	42	17	6	–	11
Colorado Springs, Colo.	26	15	8	1	–	3
Denver, Colo.	160	111	31	10	5	9
Las Vegas, Nev.	32	15	14	3	–	5
Ogden, Utah	20	14	4	1	–	5
Phoenix, Ariz.	162	109	35	6	5	9
Pueblo, Colo.	24	19	4	–	–	4
Salt Lake City, Utah	58	35	9	5	4	2
Tucson, Ariz.	96	61	24	4	1	–
PACIFIC	1,634	1,112	349	84	44	60
Berkeley, Calif.	17	11	3	1	1	–
Fresno, Calif.	58	43	7	3	4	4
Glendale, Calif.	21	18	2	1	–	–
Honolulu, Hawaii	59	31	18	6	1	2
Long Beach, Calif.	119	85	25	1	4	8
Los Angeles, Calif.	368	264	73	19	6	7
Oakland, Calif.	74	46	20	4	2	4
Pasadena, Calif.	34	24	8	1	1	–
Portland, Oreg.	160	118	24	9	3	4
Sacramento, Calif.	65	40	19	1	2	2
San Diego, Calif.	154	100	31	12	6	4
San Francisco, Calif.	153	99	31	12	6	1
San Jose, Calif.	73	51	16	4	1	3
Seattle, Wash.	164	106	42	6	4	7
Spokane, Wash.	59	36	17	3	1	11
Tacoma, Wash.	56	40	13	1	2	3
TOTAL	13,409	8,673	3,174	752	410	848
Expected Number	12,478	7,636	3,200	734	432	512

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

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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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Pneumococcal Vaccine — continued

cardiorespiratory, hepatic, and renal systems, might benefit from immunization. Because the risk of and case-fatality rate from pneumococcal disease increase with increasing age, the benefits of vaccination should increase with increasing age.

Use in Pregnancy

There is no specific information on the safety of pneumococcal vaccine administered during pregnancy. Theoretically, it should not be harmful. However, in view of recommendations that unnecessary drugs and vaccines should not be given during pregnancy, pneumococcal vaccine should only be used when there is substantial risk of infection.

SUMMARY

1. Despite antibiotic therapy, morbidity and mortality from pneumococcal disease remain problems; the emergence of pneumococcal strains that are resistant to antibiotics further emphasizes the value of effective vaccine prophylaxis.
2. Evidence from studies done several decades ago and those in recent years leads to the following conclusions:
   a. Pneumococcal vaccine induces satisfactory antibody response in persons over 2 years of age.
   b. Antibody titers are likely to remain high for several years.
   c. Vaccination reduces by 80% or more the incidence of bacteremic pneumococcal pneumonia caused by the bacterial types included in the vaccine. Since these types account for about 80% of the pneumococcal disease in the United States, there is a resulting potential for reducing pneumococcal disease by 60-65%.
   d. In experience to date, the vaccine has proved to be safe; side effects, although frequent, are not severe.

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Current Trends

Primary and Secondary Syphilis — United States, November 1977

Reported cases of primary and secondary syphilis numbered 1,722 in November 1977, down 4.5% from the 1,804 cases reported in November 1976 (Table 1). Comparing cases by month with the number reported in the same month of the previous year, such cases have declined steadily for the past 20 months. In the first 11 months of 1977, 18,699 cases were reported, representing a decline of 14.4% from the 21,841 such cases reported in the same time period of 1976. Seventeen areas reported more cases during the first 11 months of 1977 compared to the same time period of 1976. Reported early latent syphilis cases (less than 1 year's duration) declined 2.3% in November 1977 versus November 1976, and during the first 11 months of 1977 some 15,003 cases were reported, representing a decline of 14.2% from the 17,491 such cases reported during the same 11-month period of 1976.

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

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

Reporting Area by HEW Regions	November		Calendar Year Cumulative January–November	
	1977	1976	1977	1976
Connecticut	17	17	169	153
Maine	4	1	27	23
Massachusetts	42	71	509	536
New Hampshire	0	1	5	9
Rhode Island	2	1	11	18
Vermont	0	0	6	9
REGION I TOTAL	65	91	727	748
New Jersey	33	43	333	518
New York (Excl. NYC)	23	24	249	227
New York City	180	200	1,669	2,230
REGION II TOTAL	236	267	2,251	2,975
Delaware	0	7	16	63
District of Columbia	47	40	509	526
Maryland (Excl. Baltimore)	17	8	149	167
Baltimore	16	15	247	340
Pennsylvania (Excl. Phila.)	12	19	155	218
Philadelphia	27	27	235	373
Virginia	25	45	490	630
West Virginia	1	1	4	22
REGION III TOTAL	145	162	1,805	2,339
Alabama	12	14	153	171
Florida	126	146	1,667	2,281
Georgia (Excl. Atlanta)	58	48	736	555
Atlanta*	43	31	415	432
Kentucky	19	5	104	115
Mississippi	13	21	231	262
North Carolina	40	78	734	1,175
South Carolina	22	31	241	352
Tennessee	19	16	230	271
REGION IV TOTAL	352	390	4,611	5,814
Illinois (Excl. Chicago)	4	14	138	142
Chicago	93	84	940	870
Indiana (Excl. Indianapolis)	4	2	84	72
Indianapolis*	4	6	54	36
Michigan	19	26	238	236
Minnesota	20	13	143	97
Ohio	25	34	437	458
Wisconsin	8	10	102	103
REGION V TOTAL	177	189	2,136	2,014
Arkansas	2	4	63	93
Louisiana	18	45	606	546
New Mexico	8	5	82	135
Oklahoma	6	6	75	90
Texas	218	176	1,911	1,877
REGION VI TOTAL	252	236	2,737	2,741
Iowa	2	4	36	40
Kansas	2	9	54	79
Missouri	6	12	151	166
Nebraska	0	7	25	40
REGION VII TOTAL	10	32	266	325
Colorado	9	12	111	129
Montana	1	0	6	12
North Dakota	0	0	3	2
South Dakota	0	1	11	6
Utah	0	0	10	23
Wyoming	1	3	3	8
REGION VIII TOTAL	11	16	144	180
Arizona	17	13	147	194
California (Excl. LA & SF)	187	141	1,435	1,841
Los Angeles*	166	169	1,315	1,691
San Francisco*	61	73	766	757
Hawaii	4	4	32	81
Nevada	2	2	17	39
REGION IX TOTAL	437	402	3,712	4,603
Alaska	2	2	29	27
Idaho	1	0	7	23
Oregon	9	1	131	97
Washington	25	16	243	155
REGION X TOTAL	37	19	410	302
UNITED STATES TOTAL	1,722	1,804	18,699	21,841
Puerto Rico	50	61	558	589
Virgin Islands	1	0	12	32
United States, Including Outlying Areas	1,773	1,865	19,269	22,462

*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

Influenza — Taiwan, England, United States

Taiwan: Two hundred cases of clinical influenza were recently reported on board a U.S. Navy ship in the South China Sea. Of 36 viral isolates obtained from throat washings, 4 have been preliminarily identified as resembling A/USSR/90/77 (H1N1). Strain characterization is proceeding on the remaining isolates. Early epidemiologic data indicate that the outbreak was exclusively in personnel under age 26.

England: Forty isolates of an H1N1 virus similar to A/USSR/90/77 were recently made during an influenza outbreak among U.S. Air Force personnel stationed in Heyford, England. The outbreak began January 4, peaked January 9, and has now subsided. Epidemiologic investigation is in progress.

United States: Influenza continues to be widespread in 15 states: Connecticut, Maine, New Hampshire, Rhode Island, Vermont, New Jersey, New York, Maryland, Pennsylvania, Florida, North Carolina, Illinois, Indiana, Wisconsin, and Oregon. The majority of viruses isolated resemble A/Texas/1/77, although in some regions isolation rates of A/Victoria/3/75-like strains have been equal to or greater than those for A/Texas/1/77-like strains. No H1N1 viruses have been isolated in the United States. Pneumonia and influenza deaths continue to be elevated above the epidemic threshold, according to reports received from 121 cities for the week ending January 21, 1978 (Figure 1).

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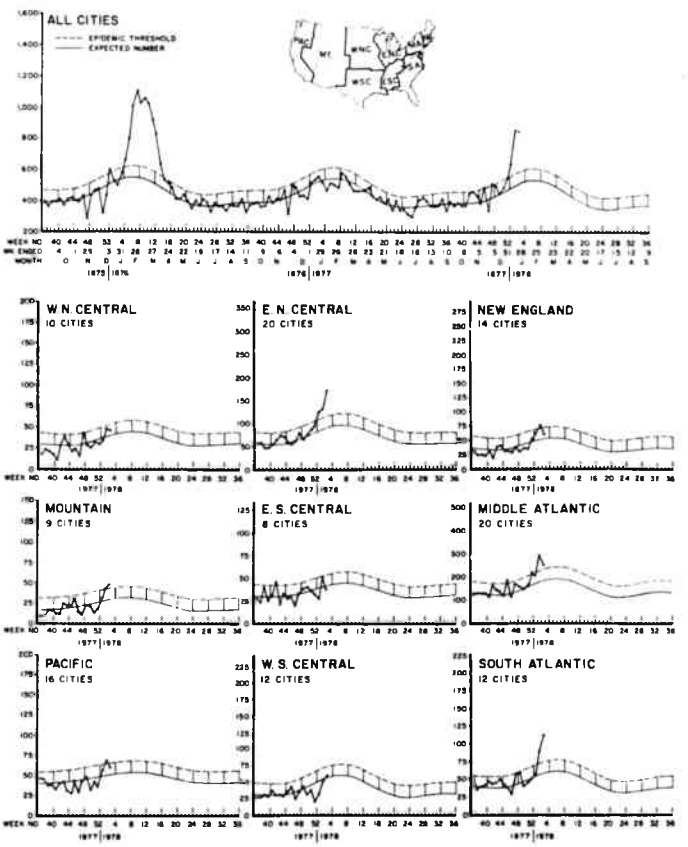
FIGURE 1. Pneumonia-influenza deaths in 121 United States cities



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