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MORBIDITY AND MORTALITY WEEKLY REPORT

*Recommendation of the Public Health Service
 Advisory Committee on Immunization Practices*

Poliomyelitis Prevention

INTRODUCTION

Poliovirus vaccines, used widely since 1955, have dramatically reduced the incidence of poliomyelitis in the United States. The number of reported cases of paralytic poliomyelitis declined from more than 18,000 in 1954 to 32 in 1970 to only 8 in 1976. The risk of poliomyelitis is generally very small in the United States today, but epidemics are certain to recur if the population's immunity is not sustained.

Vaccination levels against poliomyelitis have waned in recent years. Data from the national survey in 1976 indicated that 38% of 1- to 4-year-old children had not had primary vaccination against poliomyelitis. Rates for infants and young children in disadvantaged urban and rural areas were even lower. To ensure continuing freedom from poliomyelitis, it is essential to immunize all children, beginning in infancy.

Laboratory surveillance of enteroviruses shows that the circulation of wild polioviruses has diminished markedly as the number of poliomyelitis cases declined. Inapparent infection with wild strains no longer contributes significantly to maintaining immunity. This factor adds further importance to systematic vaccination programs for infants and children.

POLIOVIRUS VACCINES

Inactivated Polio Vaccine (IPV)*

Licensed in 1955, IPV has been used extensively in this country and many other parts of the world. Where systematically given, IPV has brought about a great reduction in paralytic poliomyelitis cases. Approximately 528 million doses have been administered in the United States, mostly before 1962. IPV has not been widely available in this country in recent years, but a Canadian product licensed for use here is now being marketed.

Primary vaccination with IPV produces immunity in more than 90% of recipients. The vaccine is given by injection and can be administered simultaneously with diphtheria, tetanus, and pertussis antigens (DTP) as a part of routine pediatric or medical clinic practice. There is considerable evidence from epidemiological studies that immunizing with IPV induces some degree of herd immuni-

*Official name: Poliomyelitis Vaccine

ty, although it is known that recipients of IPV can be infected with and become intestinal carriers of wild poliovirus or attenuated, live vaccine virus strains. No serious untoward reactions to IPV have occurred since the cluster of poliomyelitis cases in 1955 caused by vaccine that contained live polioviruses which had escaped inactivation. **Trivalent Oral Polio Vaccine (TOPV)****

Since it was licensed in the United States in 1963, TOPV, the live, attenuated vaccine combining all 3 strains of polioviruses, has almost totally supplanted the individual monovalent antigens used in the early 1960s. Full primary vaccination with TOPV will produce immunity to all 3 poliovirus types in more than 90% of recipients. A majority of recipients are protected after a single dose. The vaccine is given by mouth and can be administered concurrently with DTP as part of routine pediatric or medical clinic practice.

TOPV has several advantages over IPV. TOPV is easy to administer, confers more resistance in the alimentary tract to reinfection with polioviruses, and interferes with simultaneous infection by wild polioviruses. These properties are of special value in organized community-wide vaccination programs and epidemic-control campaigns. Primary vaccination with TOPV has been shown to produce long-lasting immunity.

In rare instances oral polio vaccine has been associated temporarily with paralytic disease in vaccine recipients or their close contacts. In the 8 years from 1969 through 1976, when approximately 193 million doses of TOPV were distributed, 10 cases of paralysis in otherwise healthy vaccine recipients were reported. Cases in healthy close contacts of vaccine recipients have been attributed to vaccine virus shed by vaccinees; 34 such cases were reported in the years 1969-1976. Eleven other "vaccine-associated" cases have been reported in persons (recipients or contacts) with immune deficiency conditions. These conditions appear to have predisposed to the atypical response to TOPV.

VACCINE USAGE

Rationale for Choice of Vaccine

Although IPV and TOPV are both effective in preventing poliomyelitis, when the benefits and risks for the popu-

**Official name: Poliovirus Vaccine, Live, Oral, Trivalent

Poliomyelitis - Continued

lation as a whole are balanced, TOPV is the vaccine of choice for primary vaccination of children in the United States. The choice of TOPV as the principal polio vaccine in the United States has also been made by the Committee on Infectious Diseases of the American Academy of Pediatrics (1) and a special expert committee of the Institute of Medicine, National Academy of Sciences (2). This is because TOPV establishes intestinal immunity to reinfection, is simple to administer, is well accepted by patients, does not require periodic booster doses, and has a record of having essentially eliminated disease associated with wild polioviruses in this country.

Some countries successfully use IPV, either wholly or in part, to control poliomyelitis. However, because of many differences between them and the United States, particularly with respect to risks of exposure to wild polioviruses and the ability to achieve and maintain very high vaccination rates in the population, their experiences with IPV are not directly applicable here. It is seriously doubted, in fact, based on current achievements in the United States with other injectable antigens, that a sufficient number of persons would regularly be given primary and booster vaccination with IPV to sustain the general level of poliomyelitis protection in the community needed to prevent recurrence of outbreaks.

When considering the immunization of specific individuals, there are occasions when TOPV and IPV are viewed

as being alternatives, or when either TOPV or IPV is the specific vaccine of choice, or when both TOPV and IPV may be useful. Prospective vaccinees or their parents should be made aware of the polio vaccines available and the reasons why recommendations are made for giving specific vaccines at particular ages and under certain circumstances. Furthermore, the benefits and risks of the vaccines for individuals and the community should be stated so that vaccination is carried out among persons who are fully informed.

TOPV**Primary Immunization****Infants, children, and adolescents through age 18 years:**

The primary series is 3 doses. The first 2 doses should be given not less than 6 and preferably 8 weeks apart. The third dose should follow in 8-12 months. For infants, the first dose is commonly given at the same time as the first dose of DTP, at 6-12 weeks of age. For older children and adolescents, the third dose may be given as early as 6 weeks after the second if circumstances do not permit the optimal 8-12 month interval.

Adults: Routine polio vaccination of adults residing in the continental United States is not necessary. This is because most adults are already immune, because the risk of exposure to poliomyelitis is generally very small, and because there may be a slightly greater risk of vaccine-

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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	39th WEEK ENDING		MEDIAN 1972-1976	CUMULATIVE, FIRST 39 WEEKS			
	October 1, 1977	October 2, 1976		October 1, 1977	October 2, 1976	MEDIAN 1972-1976	
Aseptic meningitis	150	136	160	3,266	2,289	2,748	
Brucellosis	4	3	4	174	244	148	
Chickenpox	633	409	---	159,242	151,191	---	
Diphtheria	1	—	1	70	126	143	
Encephalitis	Primary	53	36	700	1,069	1,069	
	Post-infectious	2	2	159	210	224	
	Type B	325	337	221	12,145	11,274	7,263
Hepatitis, Viral	Type A	634	771	771	23,060	25,545	31,415
	Type unspecified	196	154	9	6,901	6,218	---
	Malaria	13	10	9	407	350	315
Measles (rubeola)	152	109	83	53,435	34,600	24,371	
Meningococcal infections, total	Civilian	24	26	17	1,359	1,214	1,084
	Military	—	—	—	1,350	1,197	1,059
	Mumps	179	169	298	16,018	33,031	47,585
Pertussis	76	23	---	1,125	731	---	
Rubella (German measles)	66	54	84	18,676	10,791	14,962	
Tetanus	1	1	2	49	45	69	
Tuberculosis	570	627	---	22,846	24,989	---	
Tularia	5	—	2	125	106	106	
Typhoid fever	5	11	14	287	316	307	
Typhus, tick-borne (Rky. Mt. spotted fever)	23	22	15	1,020	779	706	
Veneral Diseases:							
Gonorrhea	Civilian	21,118	21,244	---	741,937	755,019	---
	Military	503	508	---	20,289	22,454	---
Syphilis, primary and secondary	Civilian	449	484	---	15,551	18,144	---
	Military	14	6	---	232	265	---
Rabies in animals	63	66	66	2,300	2,252	2,264	

Table II. Notifiable Diseases of Low Frequency: United States

	CUM.		CUM.
Anthrax:	—	Poliomyelitis, total:	10
Botulism: Utah 1, Calif. 4	85	Paralytic:	8
Congenital rubella syndrome:	12	Psittacosis: Calif. 1	51
Leprosy: NYC 1, Hawaii 4	100	Rabies in man:	1
Leptospirosis:	31	Trichinosis: Tex. 1	69
Plague:	15	Typhus, murine: ^a Ups. N.Y. 1, Tex. 1	59

^aDelayed report: Typhus, murine: Fla. —2

Table III
Cases of Specified Notifiable Diseases: United States
Weeks Ending October 1, 1977 and October 2, 1976 - 39th Week

AREA REPORTING	ASEPTIC MENINGITIS	BRUCellosIS	CHICKEN-POX	DIPHTHERIA		ENCEPHALITIS			HEPATITIS, VIRAL			MALARIA	
						Primary: Arthropod-borne and Unspecified		Post Infectious	Type B	Type A	Type Unspecified		
						1977	CUM. 1977	1977	1976	1977	1977		
UNITED STATES	150	4	633	1	70	35	53	2	325	634	196	13	407
NEW ENGLAND	9	-	49	-	-	1	1	-	9	13	9	1	22
Maine	-	-	1	-	-	-	-	-	-	-	-	-	-
New Hampshire*	-	-	1	-	-	-	-	-	-	1	-	-	3
Vermont	-	-	-	-	-	-	-	-	-	1	-	-	2
Massachusetts	3	-	16	-	-	1	1	-	1	7	9	1	4
Rhode Island	3	-	22	-	-	-	-	-	3	2	-	-	5
Connecticut	3	-	9	-	-	-	-	-	5	2	-	-	8
MIDDLE ATLANTIC	27	-	24	-	5	4	4	2	61	59	39	1	88
Upstate New York*	8	-	11	-	-	-	2	2	18	11	9	-	21
New York City	4	-	12	-	5	1	1	-	21	15	17	1	42
New Jersey*	5	-	NN	-	-	1	-	-	15	26	12	-	9
Pennsylvania*	10	-	1	-	-	2	1	-	7	7	1	-	16
EAST NORTH CENTRAL	17	-	252	-	-	15	5	-	53	104	19	1	32
Ohio*	8	-	4	-	-	10	-	-	7	22	-	1	11
Indiana	-	-	28	-	-	1	-	-	6	14	-	-	2
Illinois	6	-	23	-	-	-	-	-	9	38	8	-	2
Michigan	6	-	167	-	-	2	3	-	26	21	11	-	14
Wisconsin	3	-	30	-	-	2	2	-	5	9	-	-	3
WEST NORTH CENTRAL	2	-	43	-	1	-	4	-	11	38	10	1	33
Minnesota	-	-	-	-	-	-	-	-	1	23	-	1	10
Iowa	-	-	28	-	-	-	-	-	-	2	-	-	1
Missouri*	1	-	1	-	1	-	1	-	5	7	5	-	16
North Dakota*	-	-	-	-	-	-	-	-	-	1	-	-	1
South Dakota	-	-	4	-	-	-	-	-	-	-	-	-	1
Nebraska	1	-	-	-	-	-	-	-	4	3	4	-	-
Kansas	-	-	10	-	-	-	3	-	1	2	1	-	4
SOUTH ATLANTIC	26	-	42	-	-	1	2	-	40	114	16	7	74
Delaware	-	-	-	-	-	-	-	-	-	-	-	-	-
Maryland	6	-	-	-	-	-	-	-	10	4	1	2	19
District of Columbia	-	-	-	-	-	-	1	-	-	-	-	-	4
Virginia*	4	-	3	-	-	-	-	-	5	5	4	5	21
West Virginia	1	-	18	-	-	1	-	-	-	5	-	-	1
North Carolina	4	-	NN	-	-	-	-	-	5	16	4	-	7
South Carolina	3	-	-	-	-	-	1	-	6	6	5	-	-
Georgia	-	-	-	-	-	-	-	-	4	44	-	-	8
Florida*	8	-	21	-	-	-	-	-	10	34	2	-	14
EAST SOUTH CENTRAL	13	-	17	-	-	7	7	-	10	37	2	-	10
Kentucky	-	-	15	-	-	-	-	-	-	-	-	-	4
Tennessee	8	-	NN	-	-	6	1	-	4	25	1	-	1
Alabama	3	-	2	-	-	-	4	-	4	5	1	-	4
Mississippi	2	-	-	-	-	1	2	-	2	7	-	-	1
WEST SOUTH CENTRAL	8	2	14	-	3	3	26	-	32	93	29	-	24
Arkansas*	-	1	-	-	-	-	-	-	3	9	-	-	2
Louisiana	-	-	NN	-	-	-	4	-	7	19	3	-	2
Oklahoma	3	-	1	-	-	1	-	-	3	10	7	-	-
Texas*	5	1	13	-	3	2	22	-	19	55	19	-	10
MOUNTAIN	1	1	162	-	5	1	-	-	12	43	18	-	12
Montana	-	-	7	-	-	-	-	-	2	-	1	-	1
Idaho*	1	-	2	-	-	-	-	-	-	2	-	-	-
Wyoming	-	-	5	-	-	-	-	-	-	-	-	-	2
Colorado	-	-	147	-	-	1	-	-	3	8	1	-	6
New Mexico	-	1	-	-	4	-	-	-	1	7	1	-	1
Arizona	-	-	NN	-	1	-	-	-	4	22	15	-	2
Utah	-	-	1	-	-	-	-	-	2	4	-	-	-
Nevada	-	-	-	-	-	-	-	-	-	-	-	-	-
PACIFIC	47	1	30	1	56	3	4	-	97	133	54	2	112
Washington	2	-	20	-	52	1	1	-	2	9	5	-	5
Oregon*	10	1	1	-	-	1	-	-	7	10	2	-	1
California*	32	-	-	1	2	1	3	-	85	111	47	2	100
Alaska	-	-	9	-	2	-	-	-	2	2	-	-	2
Hawaii	3	-	-	-	-	-	-	-	1	1	-	-	4
Guam*	NA	NA	NA	NA	-	NA	-	-	-	NA	NA	NA	-
Puerto Rico	-	-	2	-	-	-	-	-	-	-	5	-	2
Virgin Islands	-	-	-	-	-	-	-	-	-	-	1	-	-

NN: Not notifiable

NA: Not available

*Delayed reports: Aseptic meningitis: U.S. N.Y. +1, N.D. +1, Fla. -1; Brucellosis: Ark. -1, Idaho +2. Chickenpox: U.S. N.Y. +1, Fla. -1, Ark. +9, Calif. +4, Guam +1. Encephalitis, post: Ore. -1. Hep. B: N.H. +2, U.S. N.Y. +1, N.J. +1, Pa. +28, Ohio +1, Mo. -1, Fla. -4, Ark. +32, Ore. +3, Hep. A: U.S. N.Y. -3, N.J. -1, Pa. +19, Ohio -1, Mo. -1, Fla. -17, Ark. +63, Ore. -2, Guam +2. Hep. unsp.: U.S. N.Y. -5, Pa. +3, Mo. -1, Va. -1, Fla. +9, Ark. -72, Tex. -1, Ore. -1, Guam +2, Malaria: Va. -1, Fla. +1

Table III-Continued
 Cases of Specified Notifiable Diseases: United States
 Weeks Ending October 1, 1977 and October 2, 1976 - 39th Week

REPORTING AREA	MEASLES (Rubella)			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	152	53,435	34,600	24	1,359	1,214	179	16,018	76	66	18,676	49
NEW ENGLAND	4	2,474	387	1	54	55	1	654	1	4	1,201	1
Maine	-	170	8	-	3	1	-	54	-	-	69	-
New Hampshire	-	510	9	-	3	5	-	91	-	1	242	-
Vermont	-	293	41	-	6	3	-	8	-	-	64	-
Massachusetts	-	630	35	-	16	17	-	122	1	2	377	-
Rhode Island	-	64	15	-	1	6	-	58	-	-	134	-
Connecticut	4	807	279	1	25	23	1	321	-	1	315	1
MIDDLE ATLANTIC	8	8,350	7,012	7	191	174	14	1,307	3	7	6,015	4
Upstate New York ^a	7	3,814	2,939	2	50	65	5	288	2	3	3,369	1
New York City	1	727	458	1	47	46	7	489	-	1	317	1
New Jersey	-	195	600	2	39	25	2	352	-	1	1,781	2
Pennsylvania	-	3,614	3,015	2	55	38	-	178	1	2	548	-
EAST NORTH CENTRAL	27	11,275	14,721	2	138	150	64	5,433	26	25	3,709	5
Ohio	2	1,852	573	2	56	64	7	662	1	-	1,116	1
Indiana ^a	2	4,328	3,295	-	9	7	2	311	-	5	942	1
Illinois	15	1,732	1,612	-	22	17	23	957	21	-	321	1
Michigan	7	948	5,848	-	38	51	25	1,834	4	16	929	2
Wisconsin	1	2,415	3,393	-	13	11	7	1,669	-	4	401	-
WEST NORTH CENTRAL	4	9,779	1,229	-	71	81	25	3,615	-	2	511	8
Minnesota	-	2,620	423	-	25	14	-	6	-	-	17	2
Iowa	1	4,276	43	-	6	9	3	1,278	-	1	165	1
Missouri ^a	-	914	23	-	28	33	10	1,253	-	-	36	3
North Dakota	-	23	3	-	1	3	-	17	-	-	11	-
South Dakota	-	67	4	-	4	3	-	59	-	-	18	-
Nebraska	-	214	55	-	2	6	-	68	-	-	3	-
Kansas	3	1,665	678	-	5	13	12	934	-	1	261	2
SOUTH ATLANTIC	30	4,609	2,177	4	294	235	10	767	10	4	1,654	11
Delaware	-	22	128	-	6	8	2	128	-	-	26	-
Maryland	-	371	715	1	20	19	2	68	-	-	5	-
District of Columbia	-	14	13	-	-	2	-	5	-	-	-	-
Virginia ^a	6	2,720	766	1	26	39	-	97	-	-	576	1
West Virginia	3	246	191	-	9	7	3	168	-	-	135	-
North Carolina	-	64	17	-	62	44	-	54	1	-	446	-
South Carolina	-	153	4	-	29	36	-	11	-	-	228	-
Georgia	1	768	2	-	52	22	-	26	8	3	55	1
Florida ^a	20	251	341	2	90	58	3	210	1	1	183	9
EAST SOUTH CENTRAL	4	2,014	840	1	141	112	12	893	2	3	1,928	3
Kentucky	1	1,190	751	-	26	21	4	95	-	-	81	1
Tennessee	3	708	72	1	38	46	3	538	2	2	1,728	1
Alabama	-	78	-	-	51	32	5	222	-	1	110	1
Mississippi	-	38	17	-	26	13	-	38	-	-	9	-
WEST SOUTH CENTRAL	55	2,145	709	6	274	189	23	1,454	8	2	809	9
Arkansas ^a	-	39	3	-	15	11	4	71	1	-	3	2
Louisiana	-	74	202	3	128	33	9	48	-	-	27	1
Oklahoma	-	58	291	1	11	21	6	492	1	-	31	-
Texas	55	1,974	213	2	120	124	4	843	6	2	748	6
MOUNTAIN	6	2,521	5,026	-	31	35	1	602	4	2	365	2
Montana	-	1,162	204	-	2	4	-	11	-	-	14	1
Idaho	-	161	2,020	-	4	5	-	122	-	-	13	-
Wyoming	-	19	4	-	1	-	-	4	-	-	6	1
Colorado	1	503	258	-	1	5	1	266	-	1	234	-
New Mexico	-	256	15	-	9	4	-	105	4	-	11	-
Arizona	5	309	226	-	10	10	-	-	-	1	13	-
Utah	-	18	2,234	-	3	5	-	79	-	-	65	-
Nevada	-	93	65	-	1	2	-	15	-	-	9	-
PACIFIC	14	10,268	2,499	3	165	183	29	1,293	22	17	2,484	6
Washington	5	541	343	-	20	31	3	279	1	1	444	-
Oregon ^a	-	368	165	-	11	17	9	240	3	-	110	-
California	9	9,264	1,984	3	104	113	17	723	18	16	1,522	6
Alaska	-	60	4	-	28	19	-	27	-	-	1	-
Hawaii	-	35	3	-	2	3	-	24	-	-	407	-
Guam ^a	NA	8	15	-	1	-	NA	6	NA	NA	10	-
Puerto Rico	3	921	413	-	1	3	8	703	1	-	33	10
Virgin Islands	-	14	13	-	-	-	-	189	-	-	2	-

NA: Not available

^aDelayed reports: Measles: Ups. N. Y. -4, Ind. -1, Fla. +4, Ark. -10, Ore. -2, Men. inf.: Ups. N. Y. +1, Mo. -1, Ark. -2, Ore. +6, Mumps: Ark. +6, Ore. +1, Pertussis: Ups. N. Y. -2, Mo. +1, Va. +1, Fla. +14, Ark. +17, Ore. -1, Rubella: Ups. N. Y. -2, Tetanus: Ark. +1

Table III-Continued
 Cases of Specified Notifiable Diseases: United States
 Weeks Ending October 1, 1977 and October 2, 1976 - 39th Week

REPORTING AREA	TUBERCULOSIS		TULA-REMI	TYPHOID FEVER		TYPHUS-FEVER TICK-BORNE (RMF)		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	570	22,846	125	5	287	23	1,020	21,118	741,937	755,019	449	15,551	18,144	2,300
NEW ENGLAND	18	840	1	-	16	-	9	603	19,944	21,014	23	625	601	40
Maine	1	66	-	-	-	-	-	32	1,459	1,762	-	19	17	28
New Hampshire*	1	22	-	-	1	-	-	29	799	619	-	3	9	1
Vermont	-	27	-	-	-	-	-	9	494	523	-	6	9	-
Massachusetts	9	480	1	-	11	-	4	361	8,555	9,980	19	443	421	8
Rhode Island	2	68	-	-	2	-	3	62	1,609	1,460	-	8	17	-
Connecticut	5	177	-	-	2	-	2	110	7,028	6,670	4	146	128	3
MIDDLE ATLANTIC	103	3,663	2	1	60	-	60	2,194	76,389	86,996	68	2,139	3,038	72
Upstate New York*	30	644	2	-	8	-	30	406	13,003	14,162	3	198	176	42
New York City	27	1,146	-	-	24	-	-	933	29,945	38,799	42	1,347	1,934	-
New Jersey	24	936	-	1	18	-	10	89	13,308	13,286	11	277	425	25
Pennsylvania	22	937	-	-	10	-	20	766	20,133	20,749	12	317	503	5
EAST NORTH CENTRAL	94	3,580	3	-	25	-	28	3,835	117,420	117,835	45	1,625	1,546	98
Ohio	22	617	1	-	9	-	11	907	31,142	28,908	1	378	375	-
Indiana	9	409	-	-	1	-	2	326	10,578	11,868	-	128	82	8
Illinois	26	1,410	-	-	5	-	14	1,437	38,210	40,735	38	847	821	29
Michigan*	34	995	-	-	10	-	1	919	27,061	25,681	4	188	188	5
Wisconsin	3	149	2	-	-	-	-	246	10,429	10,643	2	84	80	56
WEST NORTH CENTRAL	13	755	23	1	18	-	30	996	39,077	39,775	15	347	336	583
Minnesota	1	165	-	-	4	-	-	185	6,974	6,921	9	109	76	208
Iowa	-	68	-	-	-	-	1	138	4,569	5,044	2	33	35	99
Missouri*	2	316	21	1	9	-	15	412	16,292	15,999	3	132	135	40
North Dakota	-	20	-	-	-	-	-	12	742	614	-	-	-	87
South Dakota	2	39	2	-	-	-	2	20	1,124	1,137	1	10	4	108
Nebraska	-	30	-	-	1	-	1	119	3,430	3,416	-	25	26	2
Kansas	8	117	-	-	3	-	11	110	5,946	6,644	-	38	60	39
SOUTH ATLANTIC	125	5,050	10	-	48	11	555	4,631	183,338	185,932	84	4,299	5,457	261
Delaware	3	52	-	-	-	-	3	64	2,528	2,569	-	18	54	2
Maryland	16	708	2	-	3	2	72	422	22,657	24,432	2	270	448	-
District of Columbia	7	255	-	-	1	-	-	306	12,055	12,756	8	441	428	-
Virginia*	12	580	1	-	9	3	151	620	19,267	19,907	11	421	499	5
West Virginia	5	192	-	-	4	-	5	54	2,423	2,333	-	3	20	9
North Carolina*	14	824	2	-	3	4	211	923	27,451	26,391	6	593	979	11
South Carolina	8	455	2	-	2	2	52	373	17,125	17,580	4	189	293	19
Georgia	28	647	3	-	13	-	60	773	35,661	35,541	22	949	820	157
Florida*	32	1,337	-	-	13	-	1	1,096	44,171	44,423	31	1,415	1,916	58
EAST SOUTH CENTRAL	44	2,095	7	-	6	7	164	1,564	65,252	66,894	10	573	712	62
Kentucky	13	550	2	-	1	-	40	322	9,026	8,725	2	76	102	21
Tennessee	19	627	5	-	2	3	98	763	26,151	26,572	2	176	238	31
Alabama	5	556	-	-	1	-	19	-	17,503	18,832	-	119	151	10
Mississippi	7	362	-	-	2	4	7	479	12,572	12,765	6	202	221	-
WEST SOUTH CENTRAL	77	2,676	63	1	24	4	156	2,358	93,329	96,217	79	2,293	2,164	637
Arkansas*	9	298	43	-	5	3	51	119	7,190	8,893	-	53	76	95
Louisiana	8	501	1	-	1	-	6	215	13,716	13,936	37	540	438	21
Oklahoma	4	237	10	-	1	-	71	258	8,935	9,244	3	62	79	204
Texas*	56	1,640	9	1	17	1	28	1,766	63,488	64,144	39	1,638	1,571	317
MOUNTAIN	20	666	10	-	25	-	13	830	30,002	30,763	12	370	467	167
Montana	1	39	1	-	-	-	6	44	1,572	1,555	-	4	7	45
Idaho*	1	30	-	-	-	-	4	32	1,393	1,658	1	15	19	-
Wyoming	-	14	1	-	-	-	2	25	725	596	-	4	3	1
Colorado	-	85	3	-	8	-	1	307	7,940	7,713	5	103	105	54
New Mexico	5	133	-	-	-	-	-	84	4,356	5,748	4	106	118	17
Arizona	11	290	2	-	11	-	-	203	8,337	9,050	1	116	168	40
Utah	-	32	3	-	5	-	-	45	1,771	1,595	-	8	18	10
Nevada	2	43	-	-	1	-	-	90	3,908	2,848	1	14	29	-
PACIFIC	76	3,521	6	2	65	1	5	4,107	117,186	109,593	113	3,280	3,823	380
Washington	NA	227	-	-	2	-	-	361	8,861	9,281	NA	158	121	2
Oregon*	3	142	1	-	3	-	1	252	8,076	8,303	8	110	84	6
California	67	2,650	5	2	59	1	4	3,236	94,077	86,794	99	2,959	3,528	335
Alaska	-	55	-	-	-	-	-	207	3,735	3,173	4	23	19	37
Hawaii	6	447	-	-	1	-	-	51	2,437	2,042	2	30	71	-
Guam*	NA	45	-	NA	1	NA	-	NA	147	248	NA	1	2	-
Puerto Rico	24	294	-	-	6	-	-	20	2,395	2,095	7	419	452	46
Virgin Islands	-	1	-	-	-	-	-	5	164	195	1	8	48	-

NA: Not available
 *Delayed reports: TB: N.H. -1, Ups. N.Y. -8, Mich. -1, N.C. -4, Fla. -30, Idaho -5, Guam +2, Typhoid fever: Mo. +1, Fla. +1, RMSF: Mo. -1, Va. -1, Ark. +8, GC: Ups. N.Y. -89 civ. +1 mil., Fla. -3 civ., Tex. +3 civ., Guam +10 civ. Syphilis: Ups. N.Y. +2, Fla. -15, Ark. -1, Ors. -1, Guam +1 civ., An. rabies: Ups. N.Y. +4, Fla. -1, Tex. +3

Table IV
Deaths in 121 United States Cities*
Week Ending October 1, 1977 - 39th Week

REPORTING AREA	ALL CAUSES					Pneumonia and Influenza ALL AGES	REPORTING AREA	ALL CAUSES					Pneumonia and Influenza ALL AGES
	ALL AGES	65 Years and Over	45-64 Years	25-44 Years	Under 1 Year			ALL AGES	65 Years and Over	45-64 Years	25-44 Years	Under 1 Year	
NEW ENGLAND	639	413	153	30	23	25	SOUTH ATLANTIC	1,133	664	297	81	56	39
Boston, Mass.	199	116	47	16	11	8	Atlanta, Ga.	100	48	39	4	6	1
Bridgport, Conn.	30	16	13	1	-	-	Baltimore, Md.	228	144	45	19	11	2
Cambridge, Mass.	30	23	7	-	-	3	Charlotte, N. C.	84	45	25	7	3	5
Fall River, Mass.	28	21	5	1	-	1	Jacksonville, Fla.	68	36	22	6	1	4
Hartford, Conn.	48	29	11	4	1	2	Miami, Fla.	117	68	35	8	1	7
Lowell, Mass.	20	10	8	2	-	-	Norfolk, Va.	46	30	11	2	3	1
Lynn, Mass.	17	13	3	-	-	1	Richmond, Va.	68	45	17	1	3	2
New Bedford, Mass.	19	15	4	-	-	1	Savannah, Ga.	41	26	8	4	2	3
New Haven, Conn.	59	39	14	2	3	-	St. Petersburg, Fla.	81	71	8	-	2	2
Providence, R.I.	62	45	9	1	5	4	Tampa, Fla.	87	50	22	8	5	5
Somerville, Mass.	8	6	1	-	-	1	Washington, D. C.	188	87	59	19	17	4
Springfield, Mass.	39	24	9	1	3	1	Wilmington, Del.	25	14	6	3	2	3
Waterbury, Conn.	25	14	10	1	-	-							
Worcester, Mass.	55	42	12	1	-	3							
MIDDLE ATLANTIC	2,915	1,841	726	177	91	131	EAST SOUTH CENTRAL	676	421	165	34	27	39
Albany, N. Y.	49	39	9	-	1	1	Birmingham, Ala.	107	64	31	9	2	-
Allentown, Pa.	16	10	5	1	-	-	Chattanooga, Tenn.	61	38	12	4	2	9
Buffalo, N. Y.	104	64	26	7	4	1	Knoxville, Tenn.	38	30	7	-	-	-
Camden, N. J.	36	19	9	5	3	1	Louisville, Ky.	110	63	27	3	10	8
Elizabeth, N. J.	26	12	6	2	1	-	Memphis, Tenn.	168	110	39	10	3	2
Erie, Pa.	34	22	10	2	-	2	Mobile, Ala.	68	39	17	2	5	10
Jersey City, N. J.	49	33	11	3	2	1	Montgomery, Ala.	35	21	8	1	2	2
Newark, N. J.	53	27	17	6	1	2	Nashville, Tenn.	89	56	24	5	3	8
New York City, N. Y.	1,373	886	326	99	23	49	WEST SOUTH CENTRAL	1,111	615	298	90	48	24
Paterson, N. J.	25	14	6	1	2	1	Austin, Tex.	35	21	10	4	-	2
Philadelphia, Pa.	493	285	126	29	38	32	Baton Rouge, La.	19	15	3	1	-	2
Pittsburgh, Pa.	245	137	79	12	9	18	Corpus Christi, Tex.	19	10	2	2	3	-
Reading, Pa.	35	24	9	1	-	1	Dallas, Tex.	179	105	37	15	9	3
Rochester, N. Y.	118	85	26	4	2	11	El Paso, Tex.	46	29	10	2	1	5
Schenectady, N. Y.	28	24	4	-	-	1	Fort Worth, Tex.	94	52	28	6	1	-
Scranton, Pa.	50	36	13	1	-	3	Houston, Tex.	363	189	105	34	14	-
Syracuse, N. Y.	91	53	29	3	4	3	Little Rock, Ark.	65	41	14	3	3	1
Trenton, N. J.	35	26	9	-	-	3	New Orleans, La.	105	51	33	6	11	-
Utica, N. Y.	23	19	4	-	-	1	San Antonio, Tex.	128	74	36	9	4	9
Yonkers, N. Y.	32	26	2	1	1	-	Shreveport, La.	29	14	10	4	1	1
							Tulsa, Okla.	29	14	10	4	1	1
EAST NORTH CENTRAL	2,167	1,263	584	150	83	47	MOUNTAIN	559	337	129	48	14	17
Akron, Ohio	65	44	12	3	5	-	Albuquerque, N. Mex.	69	31	13	16	1	7
Canton, Ohio	26	19	5	1	-	-	Colorado Springs, Colo.	32	20	9	2	-	1
Chicago, Ill.	538	293	156	46	12	6	Denver, Colo.	116	76	27	5	3	1
Cincinnati, Ohio	134	78	28	16	8	2	Las Vegas, Nev.	29	17	7	2	-	1
Cleveland, Ohio	171	89	59	7	5	2	Ogden, Utah	27	20	4	1	-	4
Columbus, Ohio	139	87	26	9	9	7	Phoenix, Ariz.	144	91	33	8	6	1
Dayton, Ohio	107	68	24	8	6	1	Pueblo, Colo.	19	15	4	-	-	1
Detroit, Mich.	258	147	77	18	6	7	Salt Lake City, Utah	52	31	10	3	4	1
Evansville, Ind.	32	18	10	1	2	2	Tucson, Ariz.	71	36	22	11	-	-
Fort Wayne, Ind.	42	26	11	2	3	4							
Gary, Ind.	21	8	10	1	1	2	PACIFIC	1,562	970	394	104	31	37
Grand Rapids, Mich.	63	47	11	2	1	3	Berkeley, Calif.	15	12	2	1	-	-
Indianapolis, Ind.	157	81	46	13	10	1	Fresno, Calif.	56	29	11	11	1	-
Madison, Wis.	40	28	8	2	2	4	Glendale, Calif.	28	24	3	-	1	-
Milwaukee, Wis.	102	70	23	4	2	1	Honolulu, Hawaii	58	29	21	3	3	1
Peoria, Ill.	39	23	9	6	1	1	Long Beach, Calif.	92	59	25	3	1	1
Rockford, Ill.	43	26	12	1	3	-	Los Angeles, Calif.	530	306	140	46	10	13
South Bend, Ind.	38	20	14	2	1	1	Oakland, Calif.	55	32	14	4	3	-
Toledo, Ohio	88	54	24	3	4	1	Pasadena, Calif.	33	23	7	-	1	1
Youngstown, Ohio	64	37	19	5	2	2	Portland, Oreg.	112	77	26	3	4	2
							Sacramento, Calif.	71	42	20	1	1	2
WEST NORTH CENTRAL	742	473	166	37	40	20	San Diego, Calif.	108	63	37	2	-	2
Des Moines, Iowa	36	24	8	-	2	-	San Francisco, Calif.	125	78	35	9	1	1
Duluth, Minn.	30	17	10	1	1	2	San Jose, Calif.	64	47	8	6	1	5
Kansas City, Kans.	36	19	11	4	1	-	Seattle, Wash.	126	79	33	8	4	2
Kansas City, Mo.	156	96	37	6	10	4	Spokane, Wash.	34	29	3	2	-	6
Lincoln, Nebr.	20	15	4	1	-	-	Tacoma, Wash.	55	41	9	5	-	1
Minneapolis, Minn.	89	57	19	6	5	3							
Omaha, Nebr.	77	45	19	5	3	-							
St. Louis, Mo.	171	106	42	6	12	6							
St. Paul, Minn.	54	43	6	1	3	-	TOTAL	11,504	6,997	2,912	751	413	379
Wichita, Kans.	73	51	10	7	3	5	Expected Number	11,092	6,696	2,863	735	379	370

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

The Morbidity and Mortality Weekly Report, circulation 67,600, 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 are officially released to the public on the succeeding Friday.

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Poliomyelitis—Continued

associated paralysis among adults than among children receiving TOPV. However, a susceptible adult at increased risk of exposure to infection by virtue of travel to an area where poliomyelitis is common should complete primary immunization with either IPV or TOPV. The schedules are the same as for other age groups.

Supplementary Doses

Entering school: On entering kindergarten or first grade, all children who completed the primary series of TOPV in early childhood should be given a single dose of TOPV. This additional dose will assure immunity to all 3 poliovirus types in the event the original primary series failed to do so. All other children should complete the primary series.

Preadolescent vaccination: A special expert committee of the Institute of Medicine, National Academy of Sciences, reviewing poliomyelitis immunization proposed giving a single dose of TOPV (or completing a full series if required) to children (about 11-12 years old) entering seventh grade. In the committee's view, this supplementary dose could help to assure solid immunity among young adult parents who if susceptible might contract vaccine-associated polio through household contact with infant or childhood vaccinees. The Advisory Committee on Immunization Practices (ACIP) considers the available serologic data to be an insufficient basis on which to recommend routine revaccination of this particular age group. However, the preadolescent years are a good time to evaluate polio immunity and to complete vaccination of those who are inadequately protected. If serologic evidence indicates the value of more generalized revaccination at this time, such an effort could be useful.

Increased risk: Anyone who has completed the primary TOPV series in the past should be given a single additional dose of TOPV when there is a substantial risk of exposure to poliomyelitis, as in traveling. The actual need for this supplementary dose has not been established, but there is value in assuring protection against infection with wild polioviruses when exposure can reasonably be expected.

Pregnancy: Pregnancy is neither an indication for vaccination against poliomyelitis nor a contraindication when protection is needed, as during an epidemic. There is no evidence to suggest that a pregnant woman or her fetus is at greater risk from TOPV than are other persons. (See also, General Recommendations on Immunization, in MMWR 25(44), 1976.)

TOPV-Associated Risk

As indicated above, administration of oral polio vaccines has been associated temporally with paralysis in healthy recipients and their contacts. Other than efforts to identify persons with immune deficiency conditions, no currently available screening procedures can identify those persons likely to experience such an adverse reaction. Although the risk of vaccine-associated paralysis is extremely small for vaccinees and their susceptible family and other close personal contacts, they should be informed of this risk. When the attenuated vaccine strains are to be introduced into a household with adults who have never been vaccinated, some physicians may choose to give these adults at least 2 doses of IPV a month apart, if not the full primary series, before the children receive TOPV. (Vaccination of

the children should be assured and not unnecessarily delayed by this process.)

Contraindications

Immune deficiency diseases and altered immune states: Patients with immune deficiency diseases, such as combined immunodeficiency, hypogammaglobulinemia, and agammaglobulinemia, should not be given TOPV because of their significantly increased risk of vaccine-associated disease. Furthermore, patients with altered immune states such as those occurring in leukemia, lymphoma, or generalized malignancy or by lowered resistance from therapy with corticosteroids, alkylating drugs, antimetabolites, or radiation should not be given TOPV because replication of the vaccine viruses theoretically might be potentiated. When possible, all patients with altered immunity should avoid close, household-type contact with recipients of TOPV for at least 2-3 weeks after vaccination. IPV may be the preferable vaccine for immunizing all persons in this setting. (See also: IPV—Other Uses.)

IPV**Primary Immunization**

All ages: Four doses should be given; volume and route of injection are specified by the manufacturer. Of these, 3 doses should be given at approximately 1- to 2-month intervals, and the fourth, 6-12 months after the third. This schedule should be integrated with DTP vaccination beginning at 6-12 weeks of age.

Booster Doses

A booster dose every 2-3 years has generally been recommended to sustain optimal levels of antibody. It should be noted that this recommendation was developed when the IPV in use was less potent than that available today. As experience is gained with newer IPV products, the recommended interval between booster doses will probably be increased.

The need for IPV boosters could be obviated by supplementing IPV vaccination with primary vaccination with TOPV. In this regard, individuals at particular risk of exposure to poliomyelitis who have received 3 or more doses of IPV should be given at least 1 dose of TOPV, preferably the full primary series.

Other Uses

Children or adults with immune deficiency diseases or altered immune states who are at risk of exposure to poliomyelitis should be vaccinated with IPV. Their antibody responses cannot be assured, but they may derive some protection from vaccination.

Physicians may elect to give a primary series of IPV or, when constrained by time, at least 2 doses 1 month apart to adults who have never been vaccinated and who: (1) by reason of travel are at risk of exposure to poliomyelitis, or (2) are likely to come in contact with vaccine virus following routine immunization of their children. Less than full primary immunization should be supplemented later with the additionally recommended doses.

Precautions

Since IPV contains trace amounts of streptomycin and neomycin, there is a possibility of hypersensitivity reactions in individuals sensitive to these antibiotics.

IPV-Associated Risk

No serious side effects of IPV have been reported.

CASE INVESTIGATION AND EPIDEMIC CONTROL

The occurrence of a single case of polio should prompt an immediate epidemiologic investigation, including an active search for other cases. If evidence implicates wild poliovirus, a vaccination plan designed to contain spread should be developed. Within an epidemic area, TOPV should be provided for all persons over 6 weeks of age who have not been completely immunized or whose immunization status is unknown.

Epidemiologic Notes and Reports

Legionnaires' Disease — Tennessee, Vermont

Tennessee: The diagnosis of Legionnaires' disease has been confirmed in 2 of 47 cases of severe atypical pneumonia seen from August 1 through September 30, 1977, at a Kingsport, Tennessee, hospital; diagnosis of the other patients is pending. Twenty-seven patients were initially recognized through hospital infection-control surveillance; 20 more cases were found in a retrospective review of hospital charts.

All 47 patients had a temperature of ≥ 103 F and radiologically documented pneumonia without apparent bacterial etiology; 6 died. Six other patients meeting this case definition, including 1 who died, were hospitalized at 3 other area hospitals in the same period.

An epidemiologic investigation in which patients admitted to the hospital for other medical problems were compared with cases has shown a significant risk ($p < .003$) with visiting the neighborhood surrounding the hospital in the 2-week period before onset of illness. Four of the 6 cases admitted to the other local hospitals had had such area contact.

Further studies that are underway include a case-control study to evaluate locations of high risk within the community and a questionnaire and serologic survey of neighborhood residents and hospital employees. Sentinel guinea pigs—a species previously shown to be susceptible to the Legionnaires' disease bacterium by airborne transmission—have been placed within the hospital and in 7 homes in the neighboring community. No cases have been reported by area hospitals since September 29.

Vermont: Sixteen confirmed cases of Legionnaires' disease have been identified in patients admitted to the Mary Fletcher Hospital since August 1, 1977; 12 of the cases

SIMULTANEOUS ADMINISTRATION OF LIVE VIRUS VACCINES

(See General Recommendations on Immunization, in MMWR 25 (44), 1976.)

References

1. Committee on Infectious Diseases, American Academy of Pediatrics: Poliovirus immunization re-examined. News and Comment 27(12 Suppl), 1976
2. Nightingale E: Recommendations for a national policy on poliomyelitis vaccination. N Engl J Med 297:249-253, 1977

were fatal. The most recent death occurred the week of September 17. The case-fatality ratio may be artificially inflated, however, because review of autopsy specimens by direct fluorescent antibody (FA) testing is relatively complete whereas the obtaining and testing of serum specimens from survivors of pneumonias that occurred in recent months continues. Review of culture-negative pneumonia cases suggests that the outbreak peaked in the period September 4-17 and has decreased since.

Underlying medical conditions of confirmed cases included renal failure requiring hemodialysis or renal homografting (5 cases) and carcinomatosis (5 cases). Eleven persons with confirmed cases had visited or been patients in the hospital in the 2 weeks before onset of pneumonia; 4 had not. In 1 case this exposure could not be determined. No pneumonia cases have been found in hospital staff.

To date, a serologic survey of dialysis patients and staff has not shown any additional persons with reciprocal indirect FA titers of ≥ 128 . A study has been initiated to compare potential exposures of cases and controls within and outside the hospital in an attempt to determine the sources of infection and the mode of spread.

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