CENTERS FOR DISEASE CONTROL

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Epidemiologic Notes and Reports

Acute Hemorrhagic Conjunctivitis — American Samoa

On December 30, 1981, CDC was notified of an outbreak of severe conjunctivitis on Tutuila, the main island of American Samoa. According to records from the clinics and emergency room of the Lyndon B. Johnson Tropical Medical Center (LBJTMC), the only publicly funded medical facility for the 30,000 residents of Tutuila, the outbreak began abruptly, with a mean of 4 cases/day from December 15 to 20; there was a sharp peak in the number of cases beginning December 21. A week later, on December 28, 181 cases were seen, and by January 4, 1982, a total of 1,034 cases had been diagnosed. It is estimated by health officials, however, that most affected persons have not sought medical attention. The reported cases include hospital staff, but there is no evidence of nosocomial transmission.

Illness is associated with an incubation period of I day or less, rapid intrafamily transmission and a high secondary attack rate in households, a duration of illness of 3-7 days, a clinical picture of marked bilateral subconjunctival hemorrhage or severe diffuse injection, blurred vision, eye pain or sensation of a foreign body, lid edema, and absence of either constitutional or upper-respiratory-tract signs and symptoms. Antibiotic eyedrops were given to patients visiting the LBJTMC until supplies were exhausted. Many patients treated themselves by instilling human breast milk into their eyes, or an extract from the bark of a tree (fu ' afu ' a or guesttree, *Kleinhovia hospita*). No complications, including neurologic sequelae, have been reported.

The outbreak has been largely confined to the Polynesian population, and has occurred in at least 61 of 71 villages; it accelerated during a time when school was in holiday recess. Based on reports from 4 of 4 high schools and 21 of 23 elementary schools in the first week after school reopened, January 4-8, 1982, the daily absentee rate of students was 27.0% (2,663/9,850), with a somewhat higher absentee rate in high schools (38%) than in elementary schools (24%), $p << 0.001$, X^2. The normal daily absentee rate of all students combined is 4%. The daily absentee rate of teachers for the same week was 20% (69/353). On the basis of 981 patients (95%) of known age visiting the LBJTMC between December 15, 1981, and January 4, 1982, the following calculations can be made: male-to female case ratio, 0.91; age range, 1 week to 74 years; and rough age-adjusted incidence per 1,000 persons (with age group in parentheses), 15 (0-4), 18 (5-9), 19 (10-14), 25 (15-19), 43 (20-29), 57 (30-39), 52 (40-49), 37 (50-59), and 22 ($\geq$60).

The following measures were taken to prevent further community and potential nosocomial transmission: broadcast of radio announcements advising hygienic measures to prevent intrafamily spread, school exclusion of affected pupils and teachers during the period January 4-8, and work exclusion of affected hospital staff involved in direct patient care. During the week of January 11-17, 1982, the school systems were closed. They were reopened on January 18 because of an apparent decrease in community cases.

Hemorrhagic Conjunctivitis — Continued

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Editorial Note: The clinical and epidemiologic features of this outbreak are consistent with acute hemorrhagic conjunctivitis (AHC), which has not previously been reported in American Samoa. AHC has occurred in Micronesia, Melanesia, and western Polynesia (*1,2*). In 1981, AHC epidemics first occurred in the Americas (*3*), including outbreaks in the southern United States (*4,5*). Most outbreaks of AHC have been associated with enterovirus 70; the etiologic agent in American Samoa awaits laboratory confirmation.

It is unclear whether public health measures such as school exclusion can reduce the impact of AHC epidemics in communities. Nevertheless, school exclusion has been implemented in recent outbreaks in the United States (*6*). Because of the apparent ease with which viral conjunctivitis can be transmitted via hands or fomites, special efforts to prevent nosocomial transmission may be indicated. Careful attention to thorough handwashing techniques should always be observed.

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Recommendation of the Immunization Practices Advisory Committee (ACIP)

Poliomyelitis Prevention

This revised ACIP recommendation on poliomyelitis prevention addresses issues important in poliomyelitis control in the United States today. Specifically, situations that constitute increased risk are defined, and alternatives for protection are outlined. Recommendations for immunization of adults are presented, clarifying the role of inactivated polio vaccine in immunizing adults. These recommendations also address the problems of interrupted immunization schedules and completion of primary immunization. Oral polio vaccine remains the vaccine of choice for primary immunization of children.

This recommendation supersedes the recommendation on poliomyelitis published in MMWR 1979; 28:510-20.

Poliomyelitis Prevention — Continued

INTRODUCTION

Poliovirus vaccines, used widely since 1955, have dramatically reduced the incidence of poliomyelitis in the United States. The annual number of reported cases of paralytic disease declined from more than 18,000 in 1954 to an average annual number of less than 13 in 1973-1980. The risk of poliomyelitis is generally very small in the United States today, but epidemics are likely to occur if the immunity of the population is not maintained by immunizing children beginning in the first year of life. Small outbreaks have occurred in 1970, 1972, and 1979 as a result of introduction of virus into susceptible populations in communities with low immunization levels.

As a result of the Childhood Immunization Initiative efforts 1977-1979, immunization levels in children are now higher than ever before. The School Enterer Assessments in kindergarten and first-grade levels have indicated that the percentage of these children who have completed primary vaccination against poliomyelitis reached 95% in the 1980-1981 school year. Immunization levels in preschool children and in those who are in higher grades may be substantially lower than the levels at school entry.

Laboratory surveillance of enteroviruses shows that the circulation of wild polioviruses has diminished markedly. Inapparent infection with wild strains no longer contributes significantly to establishing or maintaining immunity, making universal vaccination of infants and children even more important.

POLIOVIRUS VACCINES

Two types of poliovirus vaccines are currently licensed in the United States: Oral Polio Vaccine (OPV)* and Inactivated Polio Vaccine (IPV).†

Oral Polio Vaccine (OPV)

Within several years after it was licensed in the United States in 1963, trivalent OPV, the live attenuated vaccine combining all 3 strains of poliovirus, almost totally supplanted the individual monovalent OPV antigens used earlier. Full primary vaccination with OPV will produce long-lasting immunity to all 3 poliovirus types in more than 95% of recipients. Most recipients are protected after a single dose.

OPV consistently induces intestinal immunity that provides resistance to reinfection with polioviruses. Administration of OPV may interfere with simultaneous infection by wild polioviruses, a property which is of special value in epidemic-control campaigns. In rare instances (once in approximately 3.2 million doses distributed), OPV has been associated with paralytic disease in vaccine recipients or their close contacts. In the 12-year period 1969-1980, approximately 290 million doses of OPV were distributed, and 92 cases of paralysis associated with vaccine were reported. Twenty-five cases of paralysis occurred in otherwise healthy vaccine recipients, 55 cases in healthy close contacts of vaccine recipients, and 12 cases in persons (recipients or contacts) with immune-deficiency conditions.

Inactivated Polio Vaccine (IPV)

Licensed in 1955, IPV has been used extensively in this country and many other parts of the world. It is given by subcutaneous injection. Where extensively used, IPV has brought about a great reduction in paralytic poliomyelitis cases. Approximately 428 million doses have been administered in the United States, mostly before 1962. Although IPV has not been

*Official name: Poliovirus Vaccine, Live, Oral, Trivalent.
†Official name: Poliomyelitis Vaccine

Poliomyelitis Prevention — Continued

widely used in this country for more than a decade, a Canadian product licensed for use in the United States is now available.

It is generally accepted that primary vaccination with 4 doses of IPV produces immunity to all 3 poliovirus types in more than 95% of recipients. Additional experience with the IPV product available since 1968 is necessary to establish whether the duration of immunity is comparable to that induced by OPV. Experience in other countries forms the basis for the present recommendations on booster doses.

There is considerable evidence from epidemiologic studies that immunizing with IPV diminishes circulation of wild poliovirus in the community, although it is known that persons vaccinated with IPV can subsequently be infected with and excrete in feces either wild strains or attenuated vaccine virus strains. No paralytic reactions to IPV are known to have occurred since the 1955 cluster of poliomyelitis cases caused by vaccine that contained live polioviruses that had escaped inactivation. Serious adverse reactions are not anticipated with the current IPV product.

An improved IPV product with higher potency has been developed in Europe. Studies in Africa and Europe have revealed essentially 100% seroconversion following 2 doses. Duration of protection is under study. Preliminary studies are now under way in a U.S. population to compare this product with OPV.

ROUTINE IMMUNIZATION

Rationale for Choice of Vaccine

Although IPV and OPV are both effective in preventing poliomyelitis, OPV is the vaccine of choice for primary immunization of children in the United States when the benefits and risks for the entire population are considered. OPV is preferred because it induces intestinal immunity, is simple to administer, is well accepted by patients, results in immunization of some contacts of vaccinated persons, and has a record of having essentially eliminated disease associated with wild polioviruses in this country. The choice of OPV as the preferred 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*).

Some poliomyelitis experts contend that greater use of IPV in the United States for routine vaccination would provide continued control of naturally occurring poliovirus infections and simultaneously reduce the problem of OPV-associated disease. They argue that there is no substantial evidence that OPV and currently available IPV differ in their ability to protect individuals from disease. They question the public health significance of higher levels of gastrointestinal immunity achieved with OPV, and they question whether the transmission of vaccine virus to close contacts contributes substantially to the level of immunity achieved in the community.

Some countries successfully prevent poliomyelitis with IPV. However, because of many differences between these countries 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 may not be directly applicable here.

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.

Poliomyelitis Prevention — Continued

RECOMMENDATIONS FOR INFANTS, CHILDREN, AND ADOLESCENTS

Primary Immunization (Table 1)

OPV: For infants, children, and adolescents through secondary school age (generally up to age 18) the primary series of OPV consists of 3 doses. In infancy the primary series is integrated with DTP vaccination, and the first dose is commonly given at 6-12 weeks of age. At all ages the first 2 doses should be separated by at least 6, and preferably 8, weeks. The third dose is given at least 6 weeks, customarily 8-12 months, after the second dose. In high-risk areas, an additional dose of OPV is often given within the first 6 months of life. Breast feeding does not interfere with successful immunization.

IPV: The primary series consists of 4 doses of vaccine; volume and route of injection are specified by the manufacturer. In infancy, the primary schedule is usually integrated with DTP vaccination, as with OPV. Three doses can be given at 4- to 8-week intervals; the fourth dose should follow 6-12 months after the third.

All children should complete primary immunization before entering school, preferably with all OPV or all IPV. If, however, a combination of IPV and OPV is used, a total of 4 doses constitutes a primary series.

Supplementary Immunization

OPV: Before entering school, all children who previously received primary immunization with OPV (3 doses) in early childhood should be given a fourth dose. However, if the third pri-

TABLE 1. Routine poliomyelitis immunization schedule summary, 1981*

Dose	OPV age/interval	IPV age/interval
Primary 1	Initial visit, preferably 6-12 weeks of age	Initial visit, preferably 6-12 weeks of age
Primary 2	Interval of 6-8 weeks	Interval of 4-8 weeks
Primary 3	Interval of ≥6 weeks, customarily 8-12 months	Interval of 4-8 weeks
Primary 4		Interval of 6-12 months
Supplementary	4-6 years of age† (school entry)	4-6 years of age† (school entry)
Additional supplementary		Interval of every 5 years§

*Important details are in the text.
†If the third primary dose of OPV is administered on or after the fourth birthday, a fourth (supplementary) dose is not required. If the fourth primary dose of IPV is administered on or after the fourth birthday, a fifth (supplementary) dose is not required at school entry.
§Supplementary doses are recommended every 5 years after the last dose until the 18th birthday or unless a complete primary series of OPV has been completed.

Poliomyelitis Prevention – Continued

mary dose is administered on or after the fourth birthday, a fourth (supplementary) dose is not required. The additional dose will increase the likelihood of complete immunity in the small percentage of children who have not previously developed serum antibodies to all 3 types of polioviruses. The need for supplementary doses after 4 doses of OPV has not been established, but children considered to be at increased risk of exposure to poliovirus (as noted below under **RECOMMENDATIONS FOR ADULTS**) may be given a single additional dose of OPV.

IPV: Before entering school, all children who previously received primary immunization with either IPV alone or a combination of IPV and OPV (a total of 4 doses) in early childhood should be given at least 1 dose of OPV or 1 additional dose of IPV. However, if the fourth primary dose is administered on or after the fourth birthday, a fifth (supplementary) dose is not required at school entry. Use of a primary series of OPV would eliminate the need for subsequent booster doses of IPV. Children who received primary immunization with IPV should obtain a booster dose of IPV every 5 years until the age of 18 years, unless a primary series of OPV is given. The need for such supplementary doses after the 5 basic doses of the currently available IPV product has not been firmly established. Further experience may lead to alteration of this recommendation.

(Continued on page 31)

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

DISEASE		3rd WEEK ENDING			CUMULATIVE, FIRST 3 WEEKS		
		January 23 1982	January 24 1981	MEDIAN 1977-1981	January 23 1982	January 24 1981	MEDIAN 1977-1981
Aseptic meningitis		92	41	43	253	185	162
Brucellosis		–	2	1	3	5	5
Encephalitis:	Primary (arthropod-borne & unspec.)	10	21	10	27	42	28
	Post-infectious	1	2	2	1	4	4
Gonorrhea:	Civilian	19,656	21,045	18,832	56,659	58,173	52,402
	Military	415	637	418	1,447	1,864	1,531
Hepatitis:	Type A	372	528	528	985	1,246	1,331
	Type B	328	324	282	825	909	802
	Non A, Non B	14	N	N	42	N	N
	Unspecified	163	234	172	449	554	468
Legionellosis		4	N	N	8	N	N
Leprosy		1	1	1	1	7	6
Malaria		17	23	10	31	77	26
Measles (rubeola)		10	24	157	27	88	356
Meningococcal infections:	Total	55	96	49	141	198	131
	Civilian	55	95	49	141	197	131
	Military	–	1	–	–	1	–
Mumps		80	129	269	192	272	632
Pertussis		6	13	17	24	34	46
Rubella(German measles)		39	50	104	91	117	246
Syphilis (Primary & Secondary):	Civilian	694	582	489	1,817	1,717	1,351
	Military	7	7	7	25	21	17
Tuberculosis		431	430	430	1,064	1,073	1,075
Tularemia		2	–	1	3	4	5
Typhoid fever		3	4	4	14	23	14
Typhus fever, tick-borne (RMSF)		–	–	–	5	4	2
Rabies, animal		79	100	52	224	268	139

TABLE II. Notifiable diseases of low frequency, United States

	CUM. 1982		CUM. 1982
Anthrax	–	Poliomyelitis: Total	–
Botulism (Wis. 1)	6	Paralytic	–
Cholera	1	Psittacosis (Calif. 1)	5
Congenital rubella syndrome	–	Rabies, human	–
Diphtheria	–	Tetanus	1
Leptospirosis (Hawaii 2)	2	Trichinosis	3
Plague (Ariz. 1)	1	Typhus fever, flea-borne (endemic, murine)	–

N: Not notifiable

TABLE III. Cases of specified notifiable diseases, United States, weeks ending January 23, 1982 and January 24, 1981 (3rd week)

REPORTING AREA	ASEPTIC MENINGITIS	BRUCELLOSIS	ENCEPHALITIS		GONORRHEA (Civilian)		HEPATITIS (Viral), by type				LEGIONELLOSIS	LEPROSY
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
	1982	CUM. 1982	CUM. 1982	CUM. 1982	CUM. 1982	CUM. 1981	1982	1982	1982	1982	1982	CUM. 1982
UNITED STATES	92	3	27	1	56,659	58,173	372	328	14	163	4	1
NEW ENGLAND	2	–	–	–	1,246	1,544	9	10	–	18	–	–
Maine	–	–	–	–	80	73	–	1	–	–	–	–
N.H.	1	–	–	–	51	66	1	–	–	–	–	–
Vt.	–	–	–	–	34	32	3	–	–	2	–	–
Mass.	–	–	–	–	495	603	3	7	–	16	–	–
R.I.	1	–	–	–	79	75	1	1	–	–	–	–
Conn.	–	–	–	–	507	695	1	1	–	–	–	–
MID. ATLANTIC	6	–	6	–	6,088	5,588	29	36	2	13	–	–
Upstate N.Y.	2	–	3	–	808	505	8	17	2	2	–	–
N.Y. City	2	–	3	–	3,281	2,325	9	10	–	5	–	–
N.J.	1	–	–	–	719	1,099	12	9	–	6	–	–
Pa.	1	–	–	–	1,280	1,659	U	U	U	U	–	–
E.N. CENTRAL	13	–	8	–	7,529	8,905	67	38	1	15	1	–
Ohio	–	–	–	–	2,442	3,622	9	4	1	3	–	–
Ind.	11	–	4	–	1,463	804	28	15	–	12	1	–
Ill.	–	–	–	–	996	1,798	22	8	–	–	–	–
Mich.	1	–	3	–	1,965	1,876	5	10	–	–	–	–
Wis.	1	–	1	–	663	805	3	1	–	–	–	–
W.N. CENTRAL	12	–	–	–	2,528	3,104	18	22	2	4	3	–
Minn.	3	–	–	–	511	484	6	3	2	–	–	–
Iowa	1	–	–	–	244	293	1	5	–	–	3	–
Mo.	6	–	–	–	1,070	1,441	8	14	–	4	–	–
N. Dak.	1	–	–	–	30	35	–	–	–	–	–	–
S. Dak.	–	–	–	–	79	87	–	–	–	–	–	–
Nebr.	–	–	–	–	106	246	–	–	–	–	–	–
Kans.	1	–	–	–	488	518	3	–	–	–	–	–
S. ATLANTIC	8	–	1	–	15,314	14,305	38	70	2	18	–	–
Del.	–	–	–	–	236	270	2	1	–	–	–	–
Md.	1	–	1	–	2,044	1,409	4	7	–	1	–	–
D.C.	–	–	–	–	657	881	1	1	–	–	–	–
Va.	–	–	–	–	1,148	1,524	3	11	1	6	–	–
W. Va.	1	–	–	–	140	182	1	2	–	1	–	–
N.C.	–	–	–	–	2,740	2,450	3	8	–	4	–	–
S.C.	–	–	–	–	962	1,261	7	19	–	2	–	–
Ga.	–	–	–	–	2,917	3,128	7	9	–	2	–	–
Fla.	6	–	–	–	4,470	3,200	10	12	1	2	–	–
E.S. CENTRAL	12	–	2	–	4,246	4,676	13	17	4	4	–	–
Ky.	–	–	–	–	605	616	1	–	–	–	–	–
Tenn.	1	–	1	–	1,605	1,679	9	7	1	–	–	–
Ala.	11	–	1	–	1,141	1,365	3	10	3	4	–	–
Miss.	–	–	–	–	895	1,016	–	–	–	–	–	–
W.S. CENTRAL	5	–	1	–	9,075	9,635	51	23	–	16	–	–
Ark.	–	–	–	–	936	584	–	1	–	1	–	–
La.	1	–	–	–	1,169	1,316	5	1	–	–	–	–
Okla.	2	–	–	–	859	889	7	4	–	1	–	–
Tex.	2	–	1	–	6,111	6,846	39	17	–	14	–	–
MOUNTAIN	1	–	2	1	2,046	2,040	60	11	2	19	–	–
Mont.	–	–	–	–	104	71	1	–	–	–	–	–
Idaho	–	–	–	–	67	61	–	–	–	–	–	–
Wyo.	–	–	–	–	72	56	1	–	–	–	–	–
Colo.	1	–	–	1	581	676	22	1	–	–	–	–
N. Mex.	–	–	–	–	250	264	9	1	1	–	–	–
Ariz.	–	–	–	–	602	498	19	4	–	13	–	–
Utah	–	–	–	–	83	89	2	1	1	1	–	–
Nev.	–	–	2	–	287	325	6	4	–	5	–	–
PACIFIC	33	3	7	–	8,587	8,376	87	101	1	56	–	1
Wash.	–	–	1	–	716	713	10	13	–	6	–	–
Oreg.	–	–	–	–	515	545	5	5	1	1	–	–
Calif.	21	3	6	–	6,956	6,739	68	78	–	48	–	1
Alaska	1	–	–	–	241	192	1	–	–	–	–	–
Hawaii	11	–	–	–	159	187	3	5	–	1	–	–
Guam	U	–	–	–	–	18	U	U	U	U	U	–
P.R.	2	–	–	–	86	171	–	–	–	3	–	–
V.I.	–	–	–	–	12	–	–	2	–	–	–	–
Pac. Trust Terr.	U	–	–	–	–	34	U	U	U	U	U	–

N: Not notifiable U: Unavailable

TABLE III (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending January 23, 1982 and January 24, 1981 (3rd week)

REPORTING AREA	MALARIA		MEASLES (RUBEOLA)			MENINGOCOCCAL INFECTIONS (Total)		MUMPS		PERTUSSIS	RUBELLA		
	1982	CUM. 1982	1982	CUM. 1982	CUM. 1981	1982	CUM. 1982	1982	CUM. 1982	1982	1982	CUM. 1982	CUM. 1981
UNITED STATES	17	31	10	27	88	55	141	80	192	6	39	91	117
NEW ENGLAND	1	1	–	2	3	1	8	8	18	–	2	5	23
Maine	–	–	–	–	–	1	2	2	4	–	–	–	12
N.H.	–	–	–	1	1	–	3	1	3	–	1	4	10
Vt.	–	–	–	1	1	–	1	–	1	–	–	–	–
Mass.	1	1	–	–	–	–	–	2	7	–	1	1	1
R.I.	–	–	–	–	–	–	1	1	1	–	–	–	–
Conn.	–	–	–	–	1	–	1	2	2	–	–	–	–
MID. ATLANTIC	1	2	6	10	27	6	18	7	14	2	2	3	28
Upstate N.Y.	–	–	2	5	17	3	4	1	4	1	–	1	11
N.Y. City	1	2	4	4	2	1	5	3	4	1	2	2	4
N.J.	–	–	–	–	5	2	7	1	2	–	–	–	11
Pa.	–	–	–	1	3	–	2	2	4	–	–	–	2
E.N. CENTRAL	3	4	–	–	4	5	9	21	69	2	6	9	19
Ohio	–	–	–	–	–	3	3	9	33	1	–	–	–
Ind.	–	–	–	–	–	–	–	1	6	–	1	1	10
Ill.	–	–	–	–	–	–	–	2	4	1	5	5	2
Mich.	2	3	–	–	4	2	6	5	20	–	–	1	3
Wis.	1	1	–	–	–	–	–	4	6	–	–	2	4
W.N. CENTRAL	–	–	–	–	–	3	8	4	12	–	2	4	5
Minn.	–	–	–	–	–	–	3	–	–	–	–	1	–
Iowa	–	–	–	–	–	–	1	1	3	–	–	–	–
Mo.	–	–	–	–	–	3	4	–	2	–	2	2	–
N. Dak.	–	–	–	–	–	–	–	–	–	–	–	–	–
S. Dak.	–	–	–	–	–	–	–	–	–	–	–	–	–
Nebr.	–	–	–	–	–	–	–	–	–	–	–	–	–
Kans.	–	–	–	–	–	–	–	3	7	–	–	1	5
S. ATLANTIC	1	3	–	6	11	19	32	20	30	1	2	6	7
Del.	–	–	–	–	–	–	–	–	–	–	–	–	–
Md.	–	–	–	–	–	–	1	–	1	–	–	–	–
D.C.	1	1	–	–	–	–	–	–	–	–	–	–	–
Va.	–	1	–	6	–	1	3	2	3	–	2	6	–
W. Va.	–	–	–	–	2	–	1	14	21	–	–	–	5
N.C.	–	–	–	–	–	3	3	2	2	–	–	–	2
S.C.	–	1	–	–	–	2	5	1	2	–	–	–	–
Ga.	–	–	–	–	6	9	13	–	–	–	–	–	–
Fla.	–	–	–	–	3	4	6	1	1	1	–	–	–
E.S. CENTRAL	–	–	–	1	–	4	11	1	2	–	–	3	2
Ky.	–	–	–	–	–	–	1	–	1	–	–	3	2
Tenn.	–	–	–	1	–	2	5	1	1	–	–	–	–
Ala.	–	–	–	–	–	2	5	–	–	–	–	–	–
Miss.	–	–	–	–	–	–	–	–	–	–	–	–	–
W.S. CENTRAL	–	–	–	–	3	5	16	3	6	–	4	10	6
Ark.	–	–	–	–	–	–	–	–	1	–	–	–	–
La.	–	–	–	–	–	1	3	–	–	–	–	–	–
Okla.	–	–	–	–	–	1	1	–	–	–	–	–	–
Tex.	–	–	–	–	3	3	12	3	5	–	4	10	6
MOUNTAIN	–	1	–	–	4	5	10	1	4	–	–	2	–
Mont.	–	–	–	–	–	–	1	–	–	–	–	–	–
Idaho	–	–	–	–	–	–	–	1	2	–	–	–	–
Wyo.	–	–	–	–	–	–	–	–	–	–	–	1	–
Colo.	–	1	–	–	–	2	3	–	–	–	–	–	–
N. Mex.	–	–	–	–	–	–	1	–	–	–	–	–	–
Ariz.	–	–	–	–	–	1	2	–	1	–	–	–	–
Utah	–	–	–	–	–	–	1	–	1	–	–	1	–
Nev.	–	–	–	–	4	2	2	–	–	–	–	–	–
PACIFIC	11	20	4	8	36	7	29	15	37	1	21	49	27
Wash.	–	1	–	–	–	1	4	1	9	–	–	1	4
Oreg.	2	2	–	–	–	–	7	–	–	–	–	–	–
Calif.	9	17	4	7	36	6	17	14	28	1	21	47	23
Alaska	–	–	–	–	–	–	1	–	–	–	–	–	–
Hawaii	–	–	–	1	–	–	–	–	–	–	–	1	–
Guam	U	–	U	–	2	U	–	U	–	U	U	–	–
P.R.	–	–	1	1	3	–	–	2	2	–	–	–	–
V.I.	–	–	–	–	–	–	–	–	–	–	–	–	–
Pac. Trust Terr.	U	–	U	–	–	U	–	U	–	U	U	–	–

U: Unavailable

TABLE III (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending January 23, 1982 and January 24, 1981 (3rd week)

REPORTING AREA	SYPHILIS (Civilian) (Primary & Secondary)		TUBERCULOSIS		TULAREMIA	TYPHOID FEVER		TYPHUS FEVER (Tick-borne) (RMSF)		RABIES, Animal
	CUM. 1982	CUM. 1981	1982	CUM. 1982	CUM. 1982	1982	CUM. 1982	1982	CUM. 1982	CUM. 1982
UNITED STATES	1,817	1,717	431	1,064	3	3	14	–	5	224
NEW ENGLAND	32	36	21	30	–	–	–	–	–	3
Maine	–	1	–	1	–	–	–	–	–	3
N.H.	–	–	2	2	–	–	–	–	–	–
Vt.	–	–	1	3	–	–	–	–	–	–
Mass.	22	24	15	16	–	–	–	–	–	–
R.I.	2	1	3	6	–	–	–	–	–	–
Conn.	8	10	–	2	–	–	–	–	–	–
MID. ATLANTIC	267	254	63	138	–	1	2	–	–	–
Upstate N.Y.	18	25	–	20	–	–	1	–	–	–
N.Y. City	190	151	24	74	–	1	1	–	–	–
N.J.	22	29	–	–	–	–	–	–	–	–
Pa.	37	49	39	44	–	–	–	–	–	–
E.N. CENTRAL	71	133	85	174	–	1	1	–	–	20
Ohio	14	28	19	50	–	–	–	–	–	1
Ind.	17	7	3	17	–	–	–	–	–	2
Ill.	20	79	25	61	–	–	–	–	–	7
Mich.	13	9	34	34	–	1	1	–	–	–
Wis.	7	10	4	12	–	–	–	–	–	10
W.N. CENTRAL	43	27	9	14	3	–	–	–	–	81
Minn.	10	5	–	–	–	–	–	–	–	18
Iowa	1	–	2	3	–	–	–	–	–	28
Mo.	28	17	3	4	2	–	–	–	–	9
N. Dak.	1	–	1	1	–	–	–	–	–	11
S. Dak.	–	–	1	2	–	–	–	–	–	–
Nebr.	–	2	–	–	–	–	–	–	–	10
Kans.	3	3	2	4	1	–	–	–	–	5
S. ATLANTIC	495	389	89	219	–	–	1	–	2	35
Del.	2	1	–	1	–	–	–	–	–	–
Md.	31	32	18	43	–	–	–	–	–	2
D.C.	32	44	5	11	–	–	–	–	–	–
Va.	34	24	2	7	–	–	1	–	–	12
W. Va.	2	–	2	6	–	–	–	–	–	2
N.C.	45	39	18	33	–	–	–	–	2	–
S.C.	25	26	7	24	–	–	–	–	–	3
Ga.	102	102	8	45	–	–	–	–	–	14
Fla.	222	121	29	49	–	–	–	–	–	2
E.S. CENTRAL	138	146	49	104	–	1	1	–	2	15
Ky.	8	8	15	28	–	–	–	–	–	3
Tenn.	20	47	8	32	–	1	1	–	–	8
Ala.	51	51	26	44	–	–	–	–	2	4
Miss.	59	40	–	–	–	–	–	–	–	–
W.S. CENTRAL	532	437	22	57	–	–	1	–	–	28
Ark.	11	6	–	–	–	–	–	–	–	7
La.	60	76	–	2	–	–	–	–	–	–
Okla.	12	12	11	16	–	–	1	–	–	7
Tex.	449	343	11	39	–	–	–	–	–	14
MOUNTAIN	33	31	14	31	–	–	–	–	–	3
Mont.	–	–	1	1	–	–	–	–	–	1
Idaho	1	–	–	–	–	–	–	–	–	–
Wyo.	1	1	–	–	–	–	–	–	–	1
Colo.	15	12	2	8	–	–	–	–	–	–
N. Mex.	4	7	2	5	–	–	–	–	–	–
Ariz.	1	–	6	14	–	–	–	–	–	1
Utah	2	–	–	–	–	–	–	–	–	–
Nev.	9	11	3	3	–	–	–	–	–	–
PACIFIC	206	264	79	297	–	–	8	–	1	39
Wash.	–	6	7	8	–	–	–	–	–	–
Oreg.	8	8	–	6	–	–	–	–	–	–
Calif.	193	241	69	275	–	–	8	–	1	35
Alaska	1	1	–	–	–	–	–	–	–	4
Hawaii	4	8	3	8	–	–	–	–	–	–
Guam	–	–	U	–	–	U	–	U	–	–
P.R.	–	15	–	–	–	–	–	–	–	–
V.I.	–	–	–	1	–	–	–	–	–	–
Pac. Trust Terr.	–	–	U	–	–	U	–	U	–	–

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending January 23,1982 (3rd week)

REPORTING AREA	ALL CAUSES, BY AGE (YEARS)						P&I** TOTAL
	ALL AGES	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	849	608	169	35	12	25	77
Boston, Mass.	206	133	49	14	1	9	29
Bridgeport, Conn.	55	44	9	–	1	1	3
Cambridge, Mass.	28	26	2	–	–	–	7
Fall River, Mass.	42	34	7	–	1	–	2
Hartford, Conn.	86	58	21	3	1	3	6
Lowell, Mass.	31	24	5	1	1	–	2
Lynn, Mass.	32	23	6	3	–	–	–
New Bedford, Mass.	34	28	6	–	–	–	3
New Haven, Conn.	62	40	11	5	2	4	4
Providence, R.I.	84	59	14	4	3	4	7
Somerville, Mass.	7	4	3	–	–	–	1
Springfield, Mass.	56	42	10	2	1	1	5
Waterbury, Conn.	46	35	10	–	–	1	2
Worcester, Mass.	80	58	16	3	1	2	6
MID. ATLANTIC	2,856	1,879	638	175	62	102	115
Albany, N.Y.	62	46	16	–	–	–	6
Allentown, Pa.	17	14	3	–	–	–	–
Buffalo, N.Y.	150	101	31	11	2	5	11
Camden, N.J.	50	23	17	1	1	8	2
Elizabeth, N.J.	34	25	7	2	–	–	2
Erie, Pa.†	32	22	8	1	1	–	2
Jersey City, N.J.	50	36	11	1	–	2	–
N.Y. City, N.Y.	1,569	1,027	340	118	33	51	47
Newark, N.J.	58	21	15	5	4	13	8
Paterson, N.J. §	31	27	–	2	–	2	–
Philadelphia, Pa.†	280	155	80	17	15	13	17
Pittsburgh, Pa.†	78	49	23	4	1	1	4
Reading, Pa.	40	37	3	–	–	–	4
Rochester, N.Y.	149	111	30	5	2	1	6
Schenectady, N.Y.	21	20	1	–	–	–	–
Scranton, Pa.†	32	24	8	–	–	–	1
Syracuse, N.Y.	105	67	27	4	2	5	1
Trenton, N.J.	31	22	6	2	–	1	1
Utica, N.Y.	35	25	8	1	1	–	2
Yonkers, N.Y.	32	27	4	1	–	–	1
E.N. CENTRAL	2,547	1,623	628	142	73	81	56
Akron, Ohio	67	43	18	4	1	1	–
Canton, Ohio	49	35	11	1	2	–	3
Chicago, Ill.	625	368	166	40	29	22	9
Cincinnati, Ohio	166	103	45	7	6	5	9
Cleveland, Ohio	232	142	61	15	3	11	1
Columbus, Ohio	137	82	32	10	8	5	3
Dayton, Ohio	113	78	27	4	2	2	2
Detroit, Mich.	285	166	80	26	5	8	4
Evansville, Ind.	46	37	8	1	–	–	–
Fort Wayne, Ind.	54	37	11	4	–	2	–
Gary, Ind.	13	6	4	2	1	–	–
Grand Rapids, Mich.	52	34	11	2	2	3	2
Indianapolis, Ind.	176	108	48	9	4	7	2
Madison, Wis.	36	25	8	1	–	2	5
Milwaukee, Wis.	143	98	28	6	3	8	2
Peoria, Ill.	34	26	5	3	–	–	5
Rockford, Ill.	53	39	11	–	2	1	8
South Bend, Ind.	54	40	12	1	1	–	1
Toledo, Ohio	139	108	21	6	2	2	–
Youngstown, Ohio	73	48	21	–	2	2	–
W.N. CENTRAL	797	531	181	35	21	29	40
Des Moines, Iowa	94	69	15	4	2	4	2
Duluth, Minn.	38	28	8	1	1	–	5
Kansas City, Kans.	36	24	5	4	1	2	–
Kansas City, Mo.	121	81	33	1	2	4	10
Lincoln, Nebr.	41	31	8	1	1	–	3
Minneapolis, Minn.	108	73	24	4	3	4	3
Omaha, Nebr.	81	56	17	4	1	3	5
St. Louis, Mo.	148	88	38	8	5	9	6
St. Paul, Minn.	68	51	11	4	1	1	1
Wichita, Kans.	62	30	22	4	4	2	5

REPORTING AREA	ALL CAUSES, BY AGE (YEARS)						P&I** TOTAL
	ALL AGES	≥65	45-64	25-44	1-24	<1	
S. ATLANTIC	1,196	720	309	70	44	52	65
Atlanta, Ga.	159	100	43	6	2	8	5
Baltimore, Md.	229	135	57	19	6	12	–
Charlotte, N.C.	83	39	26	8	6	3	5
Jacksonville, Fla.	116	76	27	1	7	5	4
Miami, Fla.	120	66	43	8	2	1	4
Norfolk, Va.	61	35	15	5	2	4	5
Richmond, Va.	64	33	21	3	4	3	12
Savannah, Ga.	46	23	16	2	2	3	2
St. Petersburg, Fla.	102	84	12	2	1	3	11
Tampa, Fla.	78	51	19	3	2	3	10
Washington, D.C.	105	57	23	12	7	6	6
Wilmington, Del.	33	21	7	1	3	1	1
E.S. CENTRAL	801	487	200	56	32	26	46
Birmingham, Ala.	129	72	35	7	10	5	3
Chattanooga, Tenn.	59	39	8	8	3	1	4
Knoxville, Tenn.	37	26	5	1	4	1	–
Louisville, Ky.	117	67	35	6	3	6	14
Memphis, Tenn.	177	103	51	15	6	2	10
Mobile, Ala.	94	60	20	9	2	3	4
Montgomery, Ala.	55	35	16	2	1	1	3
Nashville, Tenn.	133	85	30	8	3	7	8
W.S. CENTRAL	1,398	846	346	105	52	49	64
Austin, Tex.	50	32	8	4	1	5	1
Baton Rouge, La.	60	33	20	3	3	1	2
Corpus Christi, Tex.	64	44	11	2	5	2	2
Dallas, Tex.	212	113	62	19	10	8	3
El Paso, Tex.	60	44	10	1	2	3	9
Fort Worth, Tex.	134	77	32	10	3	12	12
Houston, Tex.	231	122	62	30	13	4	5
Little Rock, Ark.	88	51	29	5	1	2	10
New Orleans, La.	150	95	36	13	3	3	3
San Antonio, Tex.	204	138	46	8	5	7	10
Shreveport, La.	33	22	9	2	–	–	–
Tulsa, Okla.	112	75	21	8	6	2	7
MOUNTAIN	630	381	172	39	15	23	37
Albuquerque, N. Mex.	58	39	12	5	1	1	2
Colo. Springs, Colo.	37	23	11	2	–	1	8
Denver, Colo.	134	80	40	7	2	5	5
Las Vegas, Nev.	70	38	22	7	2	1	4
Ogden, Utah	29	16	10	1	1	1	2
Phoenix, Ariz.	101	62	25	4	4	6	3
Pueblo, Colo.	30	21	6	1	1	1	2
Salt Lake City, Utah	56	28	14	7	2	5	2
Tucson, Ariz.	115	74	32	5	2	2	9
PACIFIC	2,341	1,598	447	149	72	74	108
Berkeley, Calif.	19	13	5	1	–	–	2
Fresno, Calif.	84	53	17	9	4	1	4
Glendale, Calif.	47	35	8	1	–	3	3
Honolulu, Hawaii	59	41	14	3	–	1	5
Long Beach, Calif.	108	80	16	8	1	3	2
Los Angeles, Calif.	887	576	177	60	35	39	26
Oakland, Calif.	108	73	27	4	1	2	10
Pasadena, Calif.	30	23	4	–	1	2	2
Portland, Oreg.	121	92	18	4	5	2	5
Sacramento, Calif.	94	72	11	5	3	3	6
San Diego, Calif.	141	93	35	11	1	1	6
San Francisco, Calif.	182	123	37	14	4	4	4
San Jose, Calif.	184	129	29	12	9	5	16
Seattle, Wash.	163	111	36	10	4	2	9
Spokane, Wash.	69	47	9	6	4	3	5
Tacoma, Wash.	45	37	4	1	–	3	3
TOTAL	13,415††	8,673	3,090	806	383	461	608

*Mortality data in this table are voluntarily reported from 121 cities in the United States, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

**Pneumonia and influenza

†Because of changes in reporting methods in these 4 Pennsylvania cities, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

††Total includes unknown ages.

§Data not available. Figures are estimates based on average of past 4 weeks.

Poliomyelitis Prevention — Continued

Children Incompletely Immunized

Polio vaccination status should be reevaluated periodically, and those who are inadequately protected should complete their immunizations.

OPV: To help assure seroconversion to all 3 serotypes of poliovirus, completion of the primary series of 3 doses of OPV is recommended. Time intervals between doses longer than those recommended for routine primary immunization do not necessitate additional doses of vaccine. Individuals who received only 1 dose of each of the monovalent OPVs in the past should receive 2 doses of trivalent OPV at least 6 weeks apart. One dose of each monovalent OPV (poliovirus types 1, 2, and 3) is at least equivalent to 1 dose of trivalent OPV.

IPV: Regulations for vaccine licensure adopted since 1968 require a higher potency IPV than was previously manufactured. Four doses of IPV administered after 1968 are considered a complete primary series. As with OPV, time intervals between doses longer than those recommended for routine primary immunization do not necessitate additional doses.

Incompletely immunized children who are at increased risk of exposure to poliovirus (as noted below under **RECOMMENDATIONS FOR ADULTS**) should be given the remaining required dose or, if time is a limiting factor, at least a single dose of OPV.

RECOMMENDATIONS FOR ADULTS

Routine primary poliovirus vaccination of adults (generally those 18 years old or older) residing in the United States is not necessary. Most adults are already immune and also have a very small risk of exposure to poliomyelitis in the United States. Immunization is recommended for certain adults who are at greater risk of exposure to wild polioviruses than the general population, including:

1. travelers to areas or countries where poliomyelitis is epidemic or endemic;
2. members of communities or specific population groups with disease caused by wild polioviruses;
3. laboratory workers handling specimens which may contain polioviruses;
4. health-care workers in close contact with patients who may be excreting polioviruses.

For individuals in the above categories, polio vaccination is recommended as detailed below.

Unvaccinated Adults

For adults at increased risk of exposure to poliomyelitis, primary immunization with IPV is recommended whenever this is feasible. IPV is preferred because the risk of vaccine-associated paralysis following OPV is slightly higher in adults than in children. Three doses should be given at intervals of 1-2 months; a fourth dose should follow 6-12 months after the third.

In circumstances where time will not allow at least 3 doses of IPV to be given before protection is required, the following alternatives are recommended:

1. If less than 8, but more than 4, weeks are available before protection is needed, 2 doses of IPV should be given at least 4 weeks apart.
2. If less than 4 weeks are available before protection is needed, a single dose of OPV is recommended.

In both instances, the remaining doses of vaccine should be given later at the recommended intervals, if the person remains at increased risk.

Incompletely Immunized Adults

Adults who are at increased risk of exposure to poliomyelitis and who have previously re-

Poliomyelitis Prevention — Continued

ceived less than a full primary course of OPV or IPV should be given the remaining required doses of either vaccine, regardless of the interval since the last dose and the type of vaccine previously received.

Adults Previously Given a Complete Primary Course of OPV or IPV

Adults who are at increased risk of exposure to poliomyelitis and who have previously completed a primary course of OPV may be given another dose of OPV. The need for further supplementary doses has not been established. Those adults who previously completed a primary course of IPV may be given a dose of either IPV or OPV. If IPV is used exclusively, additional doses may be given every 5 years, but their need also has not been established.

UNIMMUNIZED OR INADEQUATELY IMMUNIZED ADULTS IN HOUSEHOLDS IN WHICH CHILDREN ARE TO BE GIVEN OPV

Adults who have not been adequately immunized against poliomyelitis with OPV or IPV are at a very small risk of developing OPV-associated paralytic poliomyelitis when children in the household are given OPV. About 4 such cases have occurred annually among contacts since 1969, during which time about 24 million doses of OPV were distributed yearly. (See **ADVERSE REACTIONS**.)

Because of the overriding importance of ensuring prompt and complete immunization of the child and the extreme rarity of OPV-associated disease in contacts, the Committee recommends the administration of OPV to a child regardless of the poliovirus-vaccine status of adult household contacts. This is the usual practice in the United States. The responsible adult should be informed of the small risk involved. An acceptable alternative, if there is strong assurance that ultimate, full immunization of the child will not be jeopardized or unduly delayed, is to immunize adults according to the schedule outlined above before giving OPV to the child.

PRECAUTIONS AND CONTRAINDICATIONS

Pregnancy

Although there is no convincing evidence documenting adverse effects of either OPV or IPV on the pregnant woman or developing fetus, it is prudent on theoretical grounds to avoid vaccinating pregnant women. However, if immediate protection against poliomyelitis is needed, OPV is recommended.

Immunodeficiency

Patients with immune-deficiency diseases, such as combined immunodeficiency, hypogammaglobulinemia and agammaglobulinemia, should not be given OPV because of their substantially increased risk of vaccine-associated disease. Furthermore, patients with altered immune states due to diseases such as leukemia, lymphoma, or generalized malignancy, or with immune systems compromised by therapy with corticosteroids, alkylating drugs, antimetabolites, or radiation should not receive OPV because of the theoretical risk of paralytic disease. OPV should not be used for immunizing immunodeficient patients and their household contacts; IPV is recommended. Many immunosuppressed patients will be immune to polioviruses by virtue of previous immunization or exposure to wild-type virus at a time when they were immunologically competent. Although these persons should not receive OPV, their risk of paralytic disease is thought to be less than that of naturally immunodeficient individuals. Although a protective immune response to IPV in the immunodeficient patient cannot be assured, the vaccine is safe and some protection may result from its administration. If OPV is

Poliomyelitis Prevention — Continued

inadvertently administered to a household-type contact of an immunodeficient patient, close contact between the patient and the recipient of OPV should be avoided for approximately 1 month after vaccination. This is the period of maximum excretion of vaccine virus. Because of the possibility of immunodeficiency in other children born to a family in which there has been 1 such case, OPV should not be given to a member of a household in which there is a family history of immunodeficiency until the immune status of the recipient and other children in the family is documented.

ADVERSE REACTIONS

OPV

In rare instances, administration of OPV has been associated with paralysis in healthy recipients and their contacts. Other than efforts to identify persons with immune-deficiency conditions, no procedures are currently available for identifying persons likely to experience such adverse reactions. Although the risk of vaccine-associated paralysis is extremely small for vaccinees and their susceptible, close, personal contacts, they should be informed of this risk.

IPV

No serious side effects of currently available IPV have been documented. Since IPV contains trace amounts of streptomycin and neomycin, there is a possibility of hypersensitivity reactions in individuals sensitive to these antibiotics.

CASE INVESTIGATION AND EPIDEMIC CONTROL

Each suspected case of poliomyelitis should prompt an immediate epidemiologic investigation, including an active search for other cases. If evidence implicates wild poliovirus and there is a possibility of transmission, a vaccination plan designed to contain spread should be developed. If evidence implicates vaccine-derived poliovirus, no vaccination plan need be developed, as no outbreaks associated with vaccine virus have been documented to date. Within an epidemic area, OPV should be provided for all persons over 6 weeks of age who have not been completely immunized or whose immunization status is unknown, with the exceptions noted above under **Immunodeficiency.**

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Poliomyelitis Prevention – Continued

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