CENTERS FOR DISEASE CONTROL

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MORBIDITY AND MORTALITY WEEKLY REPORT

Recommendation of the Immunization Practices Advisory Committee (ACIP)

Mumps Vaccine

This revised ACIP recommendation on mumps vaccine represents an updating of the 1980 recommendation. Changes include an expanded statement on allergic reactions. There are no major changes in approach.*

INTRODUCTION

There has been a steady decrease in the incidence rate of reported mumps cases in the United States since the introduction of the live mumps virus vaccine. In 1981, there was a record low of 4,729 cases, which represents a 97% decline from the 185,691 cases reported in 1967, the year of live mumps virus vaccine licensure. Mumps is still primarily a disease of young schoolage children; only about 15% of reported cases occur among adolescents and adults.

Mumps disease is generally self-limited, but it may be moderately debilitating. Benign meningeal signs appear in up to 15% of cases, but permanent sequelae are rare. Nerve deafness is one of the most serious of the rare complications involving the central nervous system (CNS).

Orchitis (usually unilateral) has been reported as a complication in up to 20% of clinical mumps cases in postpubertal males, although sterility is a rare sequela. Symptomatic involvement of other glands and organs has been observed less frequently.

There are limited experimental, clinical, and epidemiologic data that pancreatic damage may result from injury caused by direct viral invasion. However, further research is indicated to determine whether mumps infection contributes to the pathogenesis of diabetes mellitus.

Mumps infection during the first trimester of pregnancy may increase the rate of spontaneous abortion. There is no evidence that mumps during pregnancy causes congenital malformations.

Naturally acquired mumps infection, including the estimated 30% of cases that are subclinical, confers longlasting immunity.

MUMPS VIRUS VACCINE

Live mumps virus vaccine† is prepared in chick-embryo cell culture. From its introduction in December 1967, through 1981, more than 55 million doses have been distributed in the United States. The vaccine produces a subclinical, non-communicable infection with very few side effects. Mumps vaccine is available both in monovalent (mumps only) form and in combinations: mumps-rubella and measles-mumps-rubella (MMR) vaccines. The combined MMR vaccine is the vaccine of choice. In all situations where mumps vaccine is to be used,

*Replaces previous recommendation on this subject published in *MMWR* 1980;29:87-8, 93-4.

†Official name: Mumps Virus Vaccine, Live.

Mumps Vaccine — Continued

MMR vaccine should be given if recipients are likely to be susceptible to measles and/or rubella as well as to mumps. There is a positive benefit-cost ratio for mumps immunization, that is more marked when mumps vaccine is administered as MMR. All vaccines containing measles antigen should be used at about 15 months of age under routine conditions.

Following vaccination, more than 90% of persons susceptible to mumps develop measurable antibody, which, although of considerably lower titer than that following natural infection, is protective and long-lasting. The duration of vaccine-induced immunity is unknown, but observations over 15 years of live vaccine use indicate both the persistence of antibody and continuing protection against infection. Reported clinical vaccine efficacies have ranged from 75%-90%.

A killed mumps virus vaccine was licensed for use in the United States from 1950 through 1978. This vaccine induced antibody, but the immunity was transient. From 1967, the year of licensure of live mumps vaccine, until 1978, the number of doses of killed mumps vaccine administered is unknown, but appears to have been limited.

Vaccine Shipment and Storage

Failure of protection against mumps may result from the administration of improperly stored vaccine. During storage before reconstitution, mumps vaccine must be kept at 2-8 C (35.6-46.4 F) or colder. It must also be protected from light, which may inactivate the virus. Vaccine must be shipped at 10 C (50 F) or colder and may be shipped on dry ice. After reconstitution, the vaccine should be stored in a dark place at 2-8 C and discarded if not used within 8 hours. Temperature measuring devices should be available at all sites of vaccine storage and monitored daily.

VACCINE USAGE

(See also the current ACIP statement, "General Recommendations on Immunization." *MMWR* 1980;29:76, 81-3)

General Recommendations

Susceptible children, adolescents, and adults should be vaccinated against mumps, unless vaccination is contraindicated. Mumps vaccine can be of particular value for children approaching puberty and for adolescents and adults, especially males, who have not had mumps. Persons who previously received killed mumps vaccine might benefit from revaccination with live mumps vaccine. Persons can be considered susceptible to mumps unless they have documentation of 1) physician-diagnosed mumps or laboratory evidence of immunity, or 2) adequate immunization with live mumps virus vaccine when 12 or more months of age. Most adults are likely to have been infected naturally and generally may be considered immune, even if they did not have clinically recognizable disease.

Because there is no evidence that persons who have previously either received the vaccine or had mumps are at any risk of local or systemic reactions from receiving live mumps vaccine, testing for susceptibility before vaccination is unnecessary. Furthermore, such testing may be unreliable (e.g., mumps skin test and the complement-fixation antibody test). Those tests that have demonstrated reliability (neutralization, ELISA, and radial hemolysis antibody tests) are not readily available.

Dosage: A single dose of vaccine in the volume specified by the manufacturer should be administered subcutaneously.

Age: Live mumps virus vaccine is recommended for all children at any age after 12 months. It should not be administered to younger infants because persisting maternal antibody may interfere with seroconversion. Persons vaccinated before the first birthday might benefit from revaccination after reaching one year of age.

Mumps Vaccine – Continued

Individuals Exposed to Disease

Use of Vaccine: When given after exposure to mumps, live mumps virus vaccine may not provide protection. However, if the exposure did not result in infection, the vaccine should induce protection against subsequent infection.

Use of Immune Globulin (IG): Immune globulin has not been demonstrated to be of established value in postexposure prophylaxis and is not recommended.

Adverse Effects

Parotitis after vaccination has been reported rarely. Allergic reactions including rash, pruritus, and purpura have been associated temporally with mumps vaccination but are uncommon and usually mild and of brief duration. Very rarely, manifestations of CNS involvement, such as febrile seizures, unilateral nerve deafness, and encephalitis within 30 days of mumps vaccination, are reported. No deaths have been reported among patients with such complications, and almost all have recovered completely. It should be emphasized that reports of nervous system illness following mumps vaccination do not necessarily denote an etiologic relationship between the illness and the vaccine. The frequency of reported CNS dysfunction following mumps vaccination is lower than the observed background incidence rate of CNS dysfunction in the normal population.

PRECAUTIONS AND CONTRAINDICATIONS

Pregnancy

Although mumps virus is capable of infecting the placenta and fetus, there is no good evidence that it causes congenital malformations in humans. Mumps vaccine virus also has been shown to infect the placenta, but the virus has not been isolated from the fetal tissues from susceptible women who were vaccinated and underwent elective abortions. However, because of the theoretical risk of fetal damage, it is prudent to avoid giving mumps vaccine to pregnant women.

Allergies

Live mumps vaccine is produced in chick-embryo cell culture. Persons with a history of anaphylactic reactions (hives, swelling of the mouth and throat, difficulty breathing, hypotension, or shock) subsequent to egg ingestion should be vaccinated only with extreme caution. Evidence indicates that persons are not at increased risk if they have egg allergies that are not anaphylactic in nature. Such persons may be vaccinated in the usual manner. There is no evidence to indicate that persons with allergies to chickens or feathers are at increased risk of reaction to the vaccine.

Since mumps vaccine contains trace amounts of neomycin (25 μg), persons who have experienced anaphylactic reactions to topically or systemically administered neomycin should not receive mumps vaccine. Most often, neomycin allergy is manifested as a contact dermatitis which is a delayed-type (cell-mediated) immune response rather than anaphylaxis. In such individuals, the adverse reaction, if any, to 25 μg of neomycin in the vaccine would be an erythematous, pruritic nodule or papule at 48-96 hours. A history of contact dermatitis to neomycin is not a contraindication to receiving mumps vaccine. Live mumps virus vaccine does not contain penicillin.

Recent Administration of Immune Globulin

Passively acquired antibody can interfere with the response to live, attenuated-virus vaccines. Therefore, administration of mumps vaccine should be deferred until approximately 3 months after the administration of immune globulin.

Altered Immunity

Replication of the mumps vaccine virus may be potentiated in patients with immune defi-

Mumps Vaccine – Continued

ciency diseases and by the suppressed immune responses that occur with leukemia, lymphoma, generalized malignancy, or with therapy with corticosteroids, alkylating drugs, antimetabolites, or radiation. Patients with such conditions should not be given live mumps virus vaccine. Since vaccinated persons do not transmit mumps vaccine virus, the risk of mumps exposure for those patients may be reduced by vaccinating their close susceptible contacts.

Other

There is no proven association between mumps vaccination and pancreatic damage or subsequent development of diabetes mellitus.

MUMPS CONTROL

The principal strategy to remove the burden of mumps illness is through achieving and maintaining high immunization levels. Universal immunization as a part of good health care should be routinely carried out in physicians' offices and public health clinics. Programs aimed at vaccinating children with MMR should be established and maintained in all communities. In addition, all other persons thought to be susceptible should be vaccinated unless otherwise contraindicated. Because of limited accessibility to some population subgroups, the Committee recommends taking maximal advantage of clinic visits to vaccinate susceptible persons 15 months of age or older by administering MMR, DTP and OPV simultaneously if all are

(Continued on page 625)

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

Disease	46th Week Ending			Cumulative, First 46 Weeks		
	November 20, 1982	November 21, 1981	Median 1977-1981	November 20, 1982	November 21, 1981	Median 1977-1981
Aseptic meningitis	269	191	170	8,117	8,649	6,920
Brucellosis	2	8	3	144	156	156
Encephalitis: Primary (arthropod-borne & unspec.)	36	40	25	1,268	1,343	1,070
Post-infectious	2	-	4	57	81	194
Gonorrhea: Civilian	19,591	19,765	19,472	847,524	889,063	889,063
Millitary	488	331	388	23,419	24,445	24,107
Hepatitis: Type A	526	626	603	20,027	22,316	25,806
Type B	494	465	347	18,945	18,163	14,483
Non A, Non B	62	N	N	2,047	N	N
Unspecified	214	234	189	7,799	9,588	9,173
Legionellosis	7	N	N	466	N	N
Leprosy	3	2	2	181	220	155
Malaria	19	24	20	932	1,245	685
Measles (rubeola)	29	26	92	1,554	2,829	13,163
Meningococcal infections: Total	57	64	48	2,607	3,097	2,294
Civilian	57	64	48	2,594	3,085	2,274
Military	-	-	-	13	12	18
Mumps	78	98	242	4,685	3,981	12,424
Pertussis	30	16	29	1,542	1,095	1,515
Rubella (German measles)	16	20	52	2,162	1,919	11,165
Syphilis (Primary & Secondary): Civilian	704	627	492	29,137	27,393	22,088
Military	3	4	7	393	338	273
Tuberculosis	522	668	541	22,708	24,068	24,308
Tularemia	3	12	2	230	250	175
Typhoid fever	4	7	7	352	521	468
Typhus fever, tick-borne (RMSF)	5	2	5	957	1,152	1,090
Rabies, animal	95	115	66	5,532	6,548	4,534

TABLE II. Notifiable diseases of low frequency, United States

	Cum. 1982		Cum. 1982
Anthrax	-	Poliomyelitis: Total	5
Botulism	75	Paralytic	5
Cholera	-	Psittacosis (Ariz. 1, Wash. 1, Calif. 1)	107
Congenital rubella syndrome	6	Rabies, human	-
Diphtheria	3	Tetanus (Ga. 3, Calif. 1)	73
Leptospirosis (Mo. 2, Ala. 1, Hawaii 2)	66	Trichinosis (N.H. 1, Mo. 1)	80
Plague	18	Typhus fever, flea-borne (endemic, murine) (Hawaii 1)	39

TABLE III. Cases of specified notifiable diseases, United States, weeks ending November 20, 1982 and November 21, 1981 (46th 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	269	144	1,268	57	847,524	889,063	526	494	62	214	7	181
NEW ENGLAND	7	3	51	6	20,470	21,617	8	29	1	17	2	1
Maine	-	-	-	-	1,050	1,174	1	1	-	-	-	-
N.H.	-	-	8	-	670	803	-	2	-	-	-	-
Vt.	-	-	-	-	384	400	1	1	1	-	-	-
Mass.	4	-	21	-	9,196	9,111	4	10	-	17	-	-
R.I.	1	-	-	1	1,385	1,322	2	2	-	-	-	-
Conn.	2	3	22	5	7,785	8,807	-	13	-	-	2	1
MID. ATLANTIC	36	3	130	14	107,541	106,954	82	81	5	18	1	9
Upstate N.Y.	9	3	52	3	17,727	18,649	12	17	3	6	-	1
N.Y. City	1	-	19	-	44,300	43,478	11	22	-	2	-	6
N.J.	10	-	23	-	19,388	20,313	14	23	2	5	1	1
Pa.	16	-	36	11	26,126	24,514	45	19	-	5	-	1
E.N. CENTRAL	47	4	320	12	118,272	131,960	43	58	3	10	1	10
Ohio	22	1	121	5	32,625	41,513	14	29	1	6	-	-
Ind.	9	-	88	3	14,227	11,113	1	1	-	-	-	-
Ill.	1	2	15	2	31,624	38,005	9	6	2	1	-	8
Mich.	15	1	67	-	29,105	29,162	19	22	-	3	1	-
Wis.	-	-	29	2	10,691	12,167	-	-	-	-	-	2
W.N. CENTRAL	12	17	90	4	39,981	42,813	10	10	6	4	-	6
Minn.	-	1	27	1	5,806	6,739	1	3	2	-	-	4
Iowa	3	5	44	1	4,278	4,754	1	-	1	-	-	-
Mo.	-	4	8	-	18,855	19,840	6	2	1	4	-	1
N. Dak.	1	1	-	-	521	538	-	-	-	-	-	-
S. Dak.	-	1	-	1	1,043	1,138	-	-	-	-	-	1
Nebr.	2	2	6	-	2,374	3,183	1	3	-	-	-	-
Kans.	6	3	5	1	7,104	6,621	1	2	2	-	-	-
S. ATLANTIC	40	27	189	8	223,669	218,720	68	119	8	21	3	10
Del.	-	-	-	-	3,699	3,483	-	1	-	-	-	-
Md.	3	-	24	-	28,052	25,732	3	30	1	1	1	3
D.C.	1	-	-	-	13,551	12,347	-	1	-	-	-	-
Va.	6	9	40	1	17,846	20,135	1	16	1	4	1	1
W. Va.	5	-	16	-	2,484	3,273	2	4	1	-	-	-
N.C.	12	-	28	1	35,426	33,997	2	15	-	5	-	-
S.C.	-	2	2	-	21,623	21,225	17	12	-	1	-	-
Ga.	2	3	14	-	44,264	45,349	7	13	1	2	1	1
Fla.	11	13	65	6	56,724	53,179	36	27	4	8	-	5
E.S. CENTRAL	34	12	61	3	73,259	74,236	17	21	1	-	-	-
Ky.	1	-	1	-	9,961	9,321	9	2	-	-	-	-
Tenn.	2	7	28	-	28,956	28,149	6	10	1	-	-	-
Ala.	28	4	16	3	21,181	22,411	1	4	-	-	-	-
Miss.	3	1	16	-	13,161	14,355	1	5	-	-	-	-
W.S. CENTRAL	29	45	200	1	117,320	118,023	128	37	2	75	-	27
Ark.	-	7	19	-	9,585	8,947	-	1	-	3	-	-
La.	2	8	24	-	21,783	20,558	32	7	1	8	-	-
Okla.	8	8	37	-	12,795	12,869	19	8	1	18	-	-
Tex.	19	22	120	1	73,157	75,649	77	21	-	46	-	27
MOUNTAIN	12	3	43	3	28,707	35,085	42	24	4	24	-	2
Mont.	-	2	-	-	1,196	1,282	-	-	-	-	-	-
Idaho	1	1	-	-	1,341	1,553	1	-	-	1	-	1
Wyo.	-	-	-	-	870	935	2	-	-	2	-	-
Colo.	3	-	19	1	7,661	9,385	2	1	-	3	-	-
N. Mex.	-	-	1	-	3,954	3,978	10	2	-	-	-	-
Ariz.	-	-	11	-	7,512	10,381	17	10	3	14	-	-
Utah	3	-	7	2	1,417	1,738	6	1	-	1	-	1
Nev.	5	-	5	-	4,756	5,833	4	10	1	3	-	-
PACIFIC	52	30	184	6	118,305	139,655	128	115	32	45	-	116
Wash.	6	1	12	-	10,193	11,703	4	3	-	1	-	9
Oreg.	3	-	4	-	6,976	8,331	10	9	1	-	-	1
Calif.	38	28	154	6	95,791	113,311	114	101	31	44	-	74
Alaska	1	1	10	-	3,037	3,615	-	1	-	-	-	1
Hawaii	4	-	4	-	2,308	2,695	-	1	-	-	-	31
Guam	U	-	-	1	106	104	U	U	U	U	U	1
P.R.	1	-	1	3	2,336	2,871	18	33	-	15	-	1
V.I.	-	-	-	-	214	216	-	-	-	-	-	-
Pac. Trust Terr.	U	-	-	-	388	407	U	U	U	U	U	44

N: Not notifiable U: Unavailable

TABLE III. (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending November 20, 1982 and November 21, 1981 (46th 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	19	932	29	1,554	2,829	57	2,607	78	4,685	30	16	2,162	1,919
NEW ENGLAND	1	47	-	16	84	4	144	2	183	-	1	21	119
Maine	-	-	-	-	5	-	9	1	42	-	-	-	33
N.H.	-	2	-	3	7	1	18	-	18	-	1	11	51
Vt.	-	-	-	2	3	-	11	-	7	-	-	-	-
Mass.	1	27	-	5	59	-	40	-	79	-	-	4	23
R.I.	-	3	-	-	-	-	16	-	16	-	-	1	-
Conn.	-	15	-	6	10	3	50	1	21	-	-	5	12
MID. ATLANTIC	4	155	1	169	928	11	469	5	313	6	-	103	222
Upstate N.Y.	1	29	-	116	217	5	162	3	85	6	-	49	107
N.Y City	2	60	1	43	101	2	92	-	47	-	-	35	55
N.J.	-	31	-	6	58	1	94	-	51	-	-	18	47
Pa.	1	35	-	4	552	3	121	2	130	-	-	1	13
E.N. CENTRAL	1	84	-	77	86	6	335	43	2,351	9	3	193	410
Ohio	-	13	-	1	16	3	121	28	1,631	2	-	2	3
Ind.	-	3	-	2	9	-	33	2	42	-	-	29	137
Ill.	1	36	-	24	25	1	81	1	197	6	3	72	111
Mich.	-	26	-	50	33	2	77	11	361	-	-	49	37
Wis.	-	6	-	-	3	-	23	1	120	1	-	41	122
W.N. CENTRAL	4	29	-	49	10	4	129	8	611	2	-	60	79
Minn.	1	3	-	-	3	1	32	3	454	-	-	6	8
Iowa	-	8	-	-	1	-	12	-	45	1	-	-	4
Mo.	1	9	-	2	1	1	35	1	20	-	-	38	2
N. Dak.	1	2	-	-	-	-	6	-	-	-	-	-	-
S. Dak.	-	-	-	-	-	-	7	-	1	-	-	1	-
Nebr.	1	4	-	3	4	-	14	-	1	-	-	-	1
Kans.	-	3	-	44	1	2	23	4	90	1	-	15	64
S. ATLANTIC	-	125	20	150	458	17	548	-	280	2	3	93	141
Del.	-	4	-	-	-	-	-	-	12	-	-	1	1
Md.	-	20	1	4	5	2	39	-	30	-	-	34	1
D.C.	-	4	-	1	1	-	4	-	-	-	-	-	-
Va.	-	39	-	14	9	1	65	-	38	-	-	13	6
W. Va.	-	7	-	3	9	-	10	-	97	-	-	3	22
N.C.	-	7	-	1	3	5	107	-	20	-	-	2	5
S.C.	-	4	-	-	2	1	65	-	17	-	-	1	8
Ga.	-	16	-	-	111	2	107	-	20	2	1	17	37
Fla.	-	24	19	127	318	6	151	-	46	-	2	22	61
E.S. CENTRAL	-	9	-	9	5	5	158	2	62	1	-	47	37
Ky.	-	5	-	1	1	-	25	-	20	1	-	29	23
Tenn.	-	-	-	6	2	2	69	1	24	-	-	2	13
Ala.	-	1	-	2	2	3	51	-	9	-	-	-	1
Miss.	-	3	-	-	-	-	13	1	9	-	-	16	-
W.S. CENTRAL	2	64	6	161	871	1	299	3	217	6	2	119	179
Ark.	-	4	-	-	23	-	15	-	7	3	-	1	7
La.	-	5	-	2	4	-	62	-	6	-	-	1	9
Okla.	-	8	-	30	6	-	28	-	-	-	-	3	2
Tex.	2	47	6	129	838	1	194	3	204	3	2	114	161
MOUNTAIN	-	30	-	28	37	2	114	2	105	-	1	81	95
Mont.	-	1	-	-	-	-	6	-	4	-	-	5	3
Idaho	-	2	-	-	1	-	7	-	4	-	1	7	4
Wyo.	-	-	-	1	1	-	5	-	2	-	-	7	12
Colo.	-	12	-	7	10	-	48	-	17	-	-	6	30
N. Mex.	-	3	-	-	8	-	15	-	-	-	-	6	5
Ariz.	-	8	-	17	7	1	21	1	50	-	-	16	21
Utah	-	4	-	3	-	1	10	-	20	-	-	22	9
Nev.	-	-	-	-	10	-	2	1	8	-	-	12	11
PACIFIC	7	389	2	895	350	7	411	13	563	4	6	1,445	637
Wash.	-	23	-	42	3	1	49	3	79	2	2	40	93
Oreg.	-	14	1	24	5	-	75	-	-	-	-	6	53
Calif.	5	345	1	823	335	6	272	10	453	2	4	1,385	475
Alaska	-	1	-	1	-	-	11	-	11	-	-	5	1
Hawaii	2	6	-	5	7	-	4	-	20	-	-	9	15
Guam	U	1	U	6	6	U	2	U	3	U	U	2	2
P.R.	-	4	1	133	293	-	8	1	81	-	-	12	5
V.I.	-	-	-	-	24	-	-	-	3	-	-	2	1
Pac. Trust Terr.	U	-	U	1	1	U	5	U	6	U	U	-	1

U: Unavailable

TABLE III. (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending November 20, 1982 and November 21, 1981 (46th week)

Reporting Area	Syphilis (Civilian) (Primary & Secondary)		Tuberculosis		Tula-remia	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	29,137	27,393	522	22,708	230	4	352	5	957	5,532
NEW ENGLAND	523	522	20	638	7	-	18	-	11	41
Maine	7	5	-	53	-	-	-	-	-	26
N.H.	5	14	-	26	-	-	-	-	1	1
Vt.	4	17	-	10	-	-	2	-	-	2
Mass.	356	332	12	404	7	-	14	-	6	6
R.I.	22	32	2	28	-	-	-	-	2	-
Conn.	129	122	6	117	-	-	2	-	2	6
MID. ATLANTIC	3,916	3,936	83	3,825	7	-	63	-	44	190
Upstate N.Y.	390	397	17	660	7	-	9	-	16	104
N.Y. City	2,334	2,335	12	1,461	-	-	34	-	3	-
N.J.	572	548	29	754	-	-	12	-	13	17
Pa.	620	656	25	950	-	-	8	-	12	69
E.N. CENTRAL	1,673	2,069	82	3,456	1	-	32	-	84	560
Ohio	292	289	9	558	-	-	12	-	76	78
Ind.	182	271	8	420	-	-	2	-	2	71
Ill.	852	1,097	36	1,509	-	-	6	-	6	287
Mich.	257	332	22	776	-	-	9	-	-	6
Wis.	90	80	7	193	1	-	3	-	-	118
W.N. CENTRAL	497	604	16	678	36	-	16	1	34	1,112
Minn.	124	176	5	125	-	-	8	-	-	189
Iowa	30	24	2	69	3	-	1	-	4	361
Mo.	269	348	-	320	23	-	4	1	13	115
N. Dak.	7	11	2	15	-	-	-	-	-	91
S. Dak.	2	2	1	30	1	-	-	-	4	95
Nebr.	14	10	3	29	4	-	2	-	2	120
Kans.	51	33	3	90	5	-	1	-	11	141
S. ATLANTIC	7,999	7,302	99	4,709	13	2	43	4	514	1,135
Del.	24	13	-	42	-	-	-	-	-	2
Md.	439	527	11	545	1	1	10	-	49	60
D.C.	432	585	7	235	-	-	-	-	-	-
Va.	549	631	24	533	5	1	4	-	73	637
W. Va.	29	24	1	138	-	-	4	-	8	43
N.C.	650	582	7	690	-	-	3	2	221	65
S.C.	501	502	14	455	6	-	3	1	106	64
Ga.	1,665	1,789	7	750	-	-	-	1	51	197
Fla.	3,710	2,649	28	1,321	1	-	19	-	6	67
E.S. CENTRAL	2,029	1,790	35	2,061	8	-	20	-	94	602
Ky.	123	96	8	544	-	-	4	-	1	124
Tenn.	572	637	8	671	6	-	4	-	59	333
Ala.	764	533	12	558	-	-	9	-	15	138
Miss.	570	524	7	288	2	-	3	-	19	7
W.S. CENTRAL	7,662	6,568	84	2,741	117	2	39	-	157	1,066
Ark.	192	148	10	320	72	1	8	-	22	148
La.	1,678	1,469	12	424	3	-	3	-	2	31
Okla.	166	155	4	295	32	-	3	-	76	182
Tex.	5,626	4,796	58	1,702	10	1	25	-	57	705
MOUNTAIN	734	673	24	637	31	-	14	-	13	266
Mont.	5	11	1	39	4	-	-	-	4	85
Idaho	25	18	-	28	1	-	-	-	4	11
Wyo.	16	17	-	6	5	-	-	-	1	21
Colo.	197	204	8	87	7	-	3	-	1	48
N. Mex.	171	118	8	109	3	-	-	-	1	23
Ariz.	204	163	7	264	-	-	8	-	-	56
Utah	21	27	-	41	11	-	2	-	-	18
Nev.	95	115	-	63	-	-	1	-	2	4
PACIFIC	4,104	3,929	79	3,963	10	-	107	-	6	560
Wash.	146	168	6	240	1	-	7	-	-	8
Oreg.	101	105	4	175	2	-	4	-	1	5
Calif.	3,744	3,577	66	3,225	6	-	92	-	5	468
Alaska	15	11	-	80	1	-	1	-	-	79
Hawaii	98	68	3	243	-	-	3	-	-	-
Guam	1	-	U	38	-	U	-	U	-	-
P.R.	724	567	-	391	-	1	3	-	-	48
V.I.	24	16	-	1	-	-	-	-	-	-
Pac. Trust Terr.	-	-	U	114	-	U	1	U	-	-

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending November 20, 1982 (46th week)

Reporting Area	All Causes, By Age (Years)						P&I** Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	716	484	155	37	16	23	56
Boston, Mass.	197	125	42	14	6	10	24
Bridgeport, Conn.	53	34	13	-	2	4	3
Cambridge, Mass.	19	15	2	2	-	-	2
Fall River, Mass.	17	15	2	-	-	-	1
Hartford, Conn.	62	42	18	-	1	1	3
Lowell, Mass.	31	24	5	1	1	-	1
Lynn, Mass.	19	11	3	2	2	-	-
New Bedford, Mass.	31	26	2	1	-	2	-
New Haven, Conn.	61	38	12	7	1	3	3
Providence, R.I.	62	41	16	1	3	1	5
Somerville, Mass.	8	8	-	-	-	-	-
Springfield, Mass.	52	35	14	1	-	2	5
Waterbury, Conn.	42	29	11	2	-	-	5
Worcester, Mass.	62	41	15	6	-	-	4
MID. ATLANTIC	2,836	1,927	579	186	63	81	96
Albany, N.Y.	48	30	8	6	2	2	2
Allentown, Pa.	18	16	2	-	-	-	-
Buffalo, N.Y.	128	75	37	11	1	4	6
Camden, N.J.	53	43	7	2	-	1	2
Elizabeth, N.J.	29	27	2	-	-	-	-
Erie, Pa.†	37	26	9	1	-	1	1
Jersey City, N.J.	39	28	5	3	-	3	2
N.Y. City, N.Y.	1,591	1,065	317	120	40	49	40
Newark, N.J.	73	39	19	8	3	4	5
Paterson, N.J.	21	17	3	-	-	1	3
Philadelphia, Pa.†	329	215	81	17	6	10	18
Pittsburgh, Pa.†	75	48	17	5	3	2	2
Reading, Pa.	34	30	3	-	1	-	2
Rochester, N.Y.	109	82	18	7	2	-	5
Schenectady, N.Y.	41	28	12	1	-	-	-
Scranton, Pa.†	17	13	4	-	-	-	2
Syracuse, N.Y.	92	68	16	3	3	2	3
Trenton, N.J.	42	32	7	2	-	1	-
Utica, N.Y.	31	24	6	-	-	1	1
Yonkers, N.Y.	29	21	6	-	2	-	2
E.N. CENTRAL	2,378	1,542	561	119	69	87	73
Akron, Ohio	94	66	17	6	2	3	-
Canton, Ohio	56	45	10	-	1	-	2
Chicago, Ill	511	286	138	39	14	34	8
Cincinnati, Ohio	159	114	36	5	2	2	14
Cleveland, Ohio	173	111	43	5	5	9	5
Columbus, Ohio	137	86	27	9	9	6	6
Dayton, Ohio	122	75	34	6	2	5	3
Detroit, Mich.	289	186	70	17	9	7	3
Evansville, Ind.	56	44	9	-	1	2	3
Fort Wayne, Ind.	57	37	14	2	4	-	4
Gary, Ind.	13	4	4	1	3	1	1
Grand Rapids, Mich.	67	50	12	2	1	2	2
Indianapolis, Ind.	148	93	37	12	3	3	2
Madison, Wis.	35	21	10	3	1	-	5
Milwaukee, Wis.	154	113	35	2	2	2	5
Peoria, Ill.	59	35	17	4	1	2	4
Rockford, Ill.	37	28	7	1	-	1	-
South Bend, Ind.	51	34	12	2	1	2	1
Toledo, Ohio	110	82	15	2	6	5	5
Youngstown, Ohio	50	32	14	1	2	1	-
W.N. CENTRAL	881	587	172	55	23	42	25
Des Moines, Iowa	59	45	7	3	-	4	6
Duluth, Minn.	28	20	7	-	-	1	-
Kansas City, Kans.	38	19	9	7	2	1	2
Kansas City, Mo.	151	104	25	9	3	9	2
Lincoln, Nebr.	31	22	7	2	-	-	2
Minneapolis, Minn.	107	70	16	8	4	9	3
Omaha, Nebr.	86	56	24	3	1	1	2
St. Louis, Mo.	203	139	37	10	10	7	5
St. Paul, Minn.	96	65	18	4	2	7	-
Wichita, Kans.	82	47	22	9	1	3	3

Reporting Area	All Causes, By Age (Years)						P&I** Total
	All Ages	≥65	45-64	25-44	1-24	<1	
S. ATLANTIC	1,414	854	359	108	40	53	50
Atlanta, Ga.	173	107	35	18	4	9	5
Baltimore, Md.	262	152	68	26	10	6	5
Charlotte, N.C.	92	53	22	12	4	1	3
Jacksonville, Fla.	128	73	38	7	4	6	1
Miami, Fla.	131	88	34	6	1	2	5
Norfolk, Va.	48	24	11	2	4	7	3
Richmond, Va.	80	49	18	6	3	4	5
Savannah, Ga.	61	40	17	2	2	-	3
St. Petersburg, Fla.	93	79	11	1	1	1	2
Tampa, Fla.	90	52	24	5	2	7	9
Washington, D.C.	181	91	55	22	4	9	5
Wilmington, Del.	75	46	26	1	1	1	4
E.S. CENTRAL	815	485	215	49	32	34	37
Birmingham, Ala.	125	74	34	10	2	5	5
Chattanooga, Tenn.	54	32	8	8	5	1	1
Knoxville, Tenn.	67	43	17	2	4	1	1
Louisville, Ky.	151	87	43	8	6	7	9
Memphis, Tenn.	197	115	51	12	9	10	7
Mobile, Ala.	57	40	12	3	-	2	5
Montgomery, Ala.	31	18	5	2	-	6	2
Nashville, Tenn.	133	76	45	4	6	2	7
W.S. CENTRAL	1,350	758	369	105	64	54	46
Austin, Tex.	61	36	13	7	5	-	2
Baton Rouge, La.	36	22	8	4	-	2	4
Corpus Christi, Tex.	28	14	8	2	3	1	-
Dallas, Tex.	178	106	39	15	7	11	3
El Paso, Tex.	61	30	22	1	2	6	7
Fort Worth, Tex.	108	70	23	6	5	4	7
Houston, Tex.	369	163	126	40	24	16	8
Little Rock, Ark.	83	56	17	5	2	3	5
New Orleans, La.	118	70	36	7	2	3	-
San Antonio, Tex.	185	106	52	10	10	7	6
Shreveport, La.	40	24	11	3	1	1	2
Tulsa, Okla.	83	61	14	5	3	-	2
MOUNTAIN	708	480	129	52	22	24	24
Albuquerque, N.Mex.	75	50	17	6	-	2	3
Colo. Springs, Colo.	36	25	6	1	1	2	2
Denver, Colo.	120	87	19	9	3	2	4
Las Vegas, Nev.	82	43	24	10	4	1	2
Ogden, Utah	28	19	2	4	1	2	2
Phoenix, Ariz.	191	142	28	11	6	4	5
Pueblo, Colo.	26	20	4	2	-	-	2
Salt Lake City, Utah	48	23	12	2	2	9	-
Tucson, Ariz.	102	71	17	7	5	2	4
PACIFIC	1,669	1,102	355	104	49	57	92
Berkeley, Calif.	21	16	3	2	-	-	1
Fresno, Calif.	50	32	8	6	3	1	3
Glendale, Calif.	9	9	-	-	-	-	-
Honolulu, Hawaii	73	43	20	5	4	1	8
Long Beach, Calif.	73	49	15	5	2	2	5
Los Angeles, Calif.	355	227	87	22	11	6	11
Oakland, Calif.	65	37	12	7	4	5	4
Pasadena, Calif.	33	23	9	-	-	1	3
Portland, Oreg.	101	77	15	4	1	4	-
Sacramento, Calif.	92	63	21	4	1	3	4
San Diego, Calif.	154	97	32	12	7	6	13
San Francisco, Calif.	196	121	45	13	5	12	7
San Jose, Calif.	184	125	36	7	8	8	13
Seattle, Wash.	147	103	30	12	1	1	7
Spokane, Wash.	56	41	11	2	-	2	5
Tacoma, Wash.	60	39	11	3	2	5	8
TOTAL	12,767††	8,219	2,894	815	378	455	499

* 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.

Mumps Vaccine — Continued

needed. Health agencies should take necessary steps, including the development and enforcement of school immunization requirements, to assure that all persons in schools at all grade levels and in day-care settings are protected against mumps.

SURVEILLANCE

There is a continuing need to improve the reporting of mumps cases and mumps complications and to document the duration of vaccine effectiveness. Continuous and careful review of adverse reactions is also important. All severe reactions in vaccinated individuals should be evaluated and reported in detail to local or state health officials and to the manufacturer. Even though there are no data to raise concern about a teratogenic effect of mumps vaccine, the Centers for Disease Control would like to collect prospective data on mumps vaccination of women in early pregnancy. Therefore, administration of mumps vaccine to a woman within 3 months of conception should be reported through state health departments to the Immunization Division, Centers for Disease Control, (404/329-3747).

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Epidemiologic Notes and Reports

Update: Deaths among Patients Using Continuous Subcutaneous Insulin Infusion Pumps — United States

Insulin infusion pumps are small, external, battery-powered devices that administer insulin through a subcutaneous catheter. Regular insulin is administered at a slow constant rate, and additional amounts are given before meals. Continuous subcutaneous insulin infusion (CSII) pumps do not have glucose sensors, and patients using them generally monitor their own blood glucose levels. CSII pumps were introduced in the United States in the late 1970's and have been used by increasing numbers of diabetics to improve their glycemic control.

Eleven deaths among patients using these devices were reported in February 1982 (*1*). Since then, 24 additional deaths have been reported to CDC. Deaths were identified by physician reports, a mail survey of diabetologists conducted in April 1982, and a 10-state survey

Subcutaneous Insulin Infusion Pumps — Continued

of physicians conducted in August 1982. Of the 35 deaths reported among pump users in the United States, one occurred in 1980, 20 in 1981, and 14 in 1982. The patients who died ranged in age from 11 to 66 years, and 33 were insulin-dependent (Type I) diabetics. One death has been attributed to device malfunction and one to endocarditis secondary to an abscess at the catheter insertion site. Seven patients were found dead, and three died suddenly. One died with status epilepticus, one drowned, and one died after a fall. Six deaths were related to ketoacidosis and 14 to myocardial infarction, cerebrovascular disease, and renal failure. Two-thirds of those who died had significant autonomic neuropathy, and one-third had advanced renal disease with serum creatinine levels greater than 5.0 mg/dl. The observed number of deaths was not greater than the expected number calculated from the age-specific death rates for Type I diabetics.

On November 9, 1982, a panel of experts* met at CDC to discuss these findings. After a review of the data, it was the panel's consensus that:

1. CSII pump therapy is not associated with excess mortality.
2. Physicians should take great care in selecting patients for intensive glycemic control.

Reported by Technology and Operational Research Br, Div of Diabetes Control, Center for Prevention Svcs, CDC.

Editorial Note: The number of deaths observed among diabetic patients using CSII pumps does not appear to be excessive. Nevertheless, because of the demands that pump therapy places on both the physician and patient and because of the potential problems inherent in the device (i.e., pump slowing, pump runaway, and catheter-induced infection), great care should be used in its application. In selecting patients, physicians should be aware that pump therapy is unlikely to reverse the severe complications of diabetes once they have developed. Patients selected for pump therapy should be willing to monitor their own blood glucose levels regularly and to test their urines for ketones during intercurrent illnesses. In addition, patients should have access to local medical care and should be encouraged to seek assistance in the event of intercurrent illnesses.

Reference

1. CDC. Deaths among patients using continuous subcutaneous insulin infusion pumps—United States. MMWR 1982;31:80-2, 87.

*M Haffner, MD, Food and Drug Administration; N Berlin, J Field, MD, National Diabetes Advisory Board; E Johnson, PhD, National Institutes of Health; R Guthrie, MD, University of Kansas at Wichita; J Holcombe, MD, University of Oklahoma; R LaPorte, PhD, University of Pittsburgh; R Mecklenburg, MD, Mason Clinic, Seattle; P Raskin, MD, Southwestern Medical Center, Dallas; J Santiago, MD, Washington University, St Louis; and CDC staff.

Current Trends

Measles — United States, First 39 Weeks, 1982

During the first 39 weeks of 1982, 1,284 measles cases were reported in the United States, a record low for the first 9 months of any year and a 51.5% decrease from the 2,646 cases reported during the same period last year. Fewer than 100 cases were reported in each week for the first 39 weeks of 1982, and record low numbers of cases in any 1 week were reported for 34 of those weeks. Fewer than 100 cases of measles per week have now been reported for 68 consecutive weeks.

Measles — Continued

A provisional total of 96 cases of imported measles was reported to CDC during the first 39 weeks of 1982, an average of 2.5 importations per week. Sixteen of these 96 imported cases led to 278 additional cases within the United States. Measles importations and importation-related cases accounted for 29.1% of the total cases reported. Of the 96 measles importations, 60 (62.5%) occurred among U.S. citizens.

Provisional information indicates that, as of week 43, there are only two reported active chains of transmission in the United States.

Reported by the Div of Immunization, Center for Prevention Svcs, CDC

Editorial Note: The measles elimination campaign has made great progress since its inception in 1978. However, the ultimate benefit of the current low incidence in the United States will only be determined by success in maintaining these low incidence levels. To assist in making measles elimination permanent, the Department of Health and Human Services has initiated a national education and promotion campaign on the theme, "Keep Measles A Memory." This phase of the measles elimination program began October 1, with the enlistment and aid of major national medical, educational, and voluntary organizations. These organizations and their local and state chapters and affiliates have worked as a coalition with numerous government agencies to achieve childhood immunization goals, particularly during and since the National Immunization Initiative in 1977-1979. Elimination of vaccine preventable childhood diseases has documented economic benefit whether measured in short- or long-term financial advantages to individuals or to society (*1*).

Reference

1. Koplan JP, Axnick NW. The benefits, risks and costs of viral vaccines. In: Melnick JL, ed. Progress in medical virology. Basel, Switzerland: S Karger, 1982:180-91.

The *Morbidity and Mortality Weekly Report* is prepared by the Centers for Disease Control, Atlanta, Georgia, and distributed by the National Technical Information Service, Springfield, Virginia. The data in this report are provisional, based on weekly telegrams to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the succeeding Friday.

The editor welcomes accounts of interesting cases, outbreaks, environmental hazards, or other public health problems of current interest to health officials. Such reports and any other matters pertaining to editorial or other textual considerations should be addressed to: ATTN: Editor, *Morbidity and Mortality Weekly Report*, Centers for Disease Control, Atlanta, Georgia 30333.

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