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MORBIDITY AND MORTALITY WEEKLY REPORT

Current Trends

Summary of the Second National Community Forum on Adult Immunization

From April 27-28, 1987, CDC sponsored the Second National Community Forum on Adult Immunization. Public health officials, private health-care providers, and representatives of professional medical associations participated. The main purpose of the forum was to assess progress since the first forum, held in January 1985. The following is a summary of the proceedings (*1*):

Current Status of Adult Vaccine-Preventable Diseases. Childhood vaccination programs have sharply reduced the occurrence of vaccine-preventable diseases in children. A substantial proportion of the remaining morbidity and mortality attributable to these diseases occurs among adults. The proportion of reported cases of certain vaccine-preventable diseases affecting adults ranges from 12% to 100% (Table 1). Thousands of patients with influenza or pneumococcal infection die annually. Ten thousand or more excess deaths, primarily among persons ≥65 years of age, were associated with 19 influenza epidemics from 1957 to 1986. About 40,000 pneumococcal disease-related deaths occur annually. Mortality is highest among patients with underlying medical conditions and among older persons.

Approximately 20% of persons at high risk for influenza-related complications are vaccinated each year. In 1985, less than 10% of the estimated 47.9 million persons in the United States at high risk for complications following pneumococcal infections had ever received pneumococcal vaccine. An average of no more than 30% (range,

TABLE 1. Proportion of reported cases of vaccine-preventable diseases occurring in adults — United States, 1985

	Cases	
Disease	No.	(%) Among Persons ≥20 Years
Diphtheria	3	(100.0)
Tetanus	83	(92.5)
Hepatitis B	26,611	(89.1)
Rubella	630	(58.2)
Measles	2,822	(14.1)
Mumps	2,982	(12.4)

Adult Immunization — Continued

2% to 90%) of those targeted to receive hepatitis B vaccine have been immunized. Serosurveys indicate that 49% to 66% of persons ≥60 years of age lack reliably protective levels of circulating antitoxin against tetanus, and 41% to 84% lack adequate protection against diphtheria. As many as 7 million young adults are susceptible to measles, and as many as 11 million women of childbearing age (15-44 years of age) are unprotected against rubella. The incidence, health consequences, and current protection levels of adults against these diseases illustrate the need for more prevention and control activities.

Provider Education. A supportive base of informed health-care providers is vital to establishing a system that will ensure adequate vaccination levels among adults. Representatives of the American Medical Association (AMA), American College of Physicians (ACP), American Academy of Pediatrics (AAP), American Academy of Family Physicians (AAFP), and American Dental Association (ADA) described their roles in both professional and public education.

In 1986, the AMA House of Delegates passed several resolutions that call for immunizing physicians and other adults, maintaining complete records and providing them to patients, promoting public and professional education on adult immunization, encouraging third-party payment for adult immunization, and promoting increased use of hepatitis B vaccine.

In 1985, the ACP published the *Guide for Adult Immunization*, referred to as the "Green Book" (*2*). The Green Book and the recommendations on adult immunization of the Immunization Practices Advisory Committee (*3*) have consolidated a vast amount of information into useful compendiums. The ACP plans to publish the second edition of the Green Book in early 1989.

The AAP has emphasized the need for students to be properly immunized before entering high school and college. The AAFP is preparing *Immunization Guidelines*, a reference source for its members that will provide information on appropriate vaccine usage in children and adults. The AAFP publishes articles on immunization in its monthly journal and updates its members about adult immunization and other topics in its monthly newsletter and a bulletin on preventive medicine and through workshops, annual meetings, and co-sponsorship of education conferences. The ADA has promoted improved infection control practices, including care of dental equipment, use of barrier techniques, and immunization of dental-care providers against hepatitis B infection.

Consumer Education. For 6 years, the National Foundation for Infectious Diseases (NFID) has conducted an annual fall public-awareness campaign supporting immunization against influenza and pneumococcal infections. NFID's executive director has defined four approaches to promoting adult immunization: 1) raise the consciousness of the entire nation by permanently establishing the last week of October as "National Adult Immunization Awareness Week"; 2) request financial support from other organizations for education, prevention, and control of adult vaccine-preventable diseases; 3) provide legislators with information on the cost-effectiveness of preventing influenza and other adult vaccine-preventable illnesses under Medicare and Medicaid; and 4) encourage private health insurers to cover adult immunization.

Voluntary organizations such as the American Lung Association contribute significantly to adult immunization by strongly recommending appropriate immunization to individuals they serve, by distributing educational materials and information to consumers and professionals, and through other activities.

Adult Immunization — Continued

Target Populations. While adult immunization programs encounter some of the familiar challenges faced by childhood immunization programs, they also face some unique problems: the higher cost of vaccine for adults and the lack of an easy method of identifying unprotected adults. Participants discussed ways of reaching college students, older people, and high-risk patients in health maintenance organizations (HMOs). In May 1983, the Council of Delegates of the American College Health Association adopted a pre-admission immunization policy recommending that colleges and universities require all students to present proof of immunity to measles, rubella, and other vaccine-preventable diseases as a prerequisite to matriculation or registration. Survey results in 1986 showed that 55% of responding institutions had a pre-admission immunization requirement (*4,5*). Even though the results represent significant progress, continued implementation and enforcement of matriculation requirements for immunization are essential.

The Office of Disease Prevention and Health Promotion (ODPHP), U.S. Department of Health and Human Services, has conducted a 3-year public education campaign entitled "Healthy Older People" (*6*). ODPHP pointed out that older people are willing to change their habits to maintain good health and will actively seek information on how to do so. A number of different media could be effective. These include daily newspapers (feature articles could reach the approximately 70% of older Americans who are subscribers); radio (news, talk, and call-in formats are preferred by older audiences); and television (older adults compose a large portion of the viewing audience for morning and evening news programs). Other possibilities include activities conducted by local organizations and medical institutions and health information pamphlets provided by local drugstores.

Because of their organizational structure, HMOs can determine the effectiveness of immunization coverage for their adult patients and can devise programs to improve vaccine utilization. Persons for whom vaccines are recommended can be systematically identified, sent messages recommending vaccination, and immunized during scheduled visits or at special clinics. However, successful activities may vary among HMOs with different organizational structures.

Forum participants also discussed immunization programs for health-care professionals, including those in training; patients in nursing homes and hospitals; adult clients in health department settings; and specific target groups for hepatitis B vaccine. Key suggestions for establishing effective programs included 1) obtaining administrative support, 2) devising systematic ways to identify potential vaccinees and offer them vaccine, 3) providing information on benefits and risks of vaccination, 4) delivering vaccine in ways convenient to providers and patients, and 5) keeping good records.

Future Activities. Improving immunization coverage for adults will require the development of 1) effective means of assessing both the patterns of vaccine usage and immunization coverage in target populations; 2) improved disease surveillance, particularly for influenza and pneumococcal disease; 3) improved influenza and pneumococcal vaccines; 4) effective public and professional education; 5) effective delivery systems; 6) increased resources for adult immunizations; and 7) strategies to fully implement current recommendations.

Reported by: Div of Immunization, Center for Prevention Svcs, CDC.

Adult Immunization — Continued

Editorial Note: Although much progress was described, the information presented at this forum highlights the need for continued efforts to improve immunization coverage among adults. The success of childhood immunization programs shows that current medical technology can control vaccine-preventable diseases; however, no such programs exist for adults. Significant improvements in the delivery of safe and effective vaccines to adults will take place only if changes occur in the practices of physicians and institutions caring for them. All persons providing health care to older adolescents and adults in private offices, clinics, hospitals, HMOs, and other health-care settings should review the immunization status of patients and provide inadequately immunized persons with influenza, pneumococcal, hepatitis B, measles, and rubella vaccines and with tetanus and diphtheria toxoids, when indicated. Establishing programs that systematically offer recommended vaccines to adults can increase vaccine coverage rates.

To raise the consciousness of the general public and practitioners regarding adult immunization, CDC is participating in a coalition of public and private organizations to promote National Adult Immunization Awareness Week, October 25-31, 1987. The coalition's activities, coordinated by the NFID, feature the development and distribution of a media kit, public service announcements, and other public and professional educational efforts designed to reach groups at risk and health-care providers.

References

1. CDC. Proceedings of the Second Community Forum on Adult Immunization. Atlanta: US Department of Health and Human Services, Public Health Service, 1987; DHHS publication no. (CDC)00-5101.
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5. Collins M, Smith DS. Prematriculation immunization requirements on college campuses: current status. J Am Coll Health 1987;35:247-51.
6. White SL. Reaching older people. In: Leathers L, ed. Proceedings of the Second Community Forum on Adult Immunization. Atlanta: US Department of Health and Human Services, Public Health Service, 1987:35-6; DHHS publication no. (CDC)00-5101.

Perspectives in Disease Prevention and Health Promotion

Guidelines for Prevention of *Herpesvirus Simiae* (B Virus) Infection in Monkey Handlers

The report of a case of encephalitis caused by B virus in a monkey handler in 1932 indicated that B virus can be highly pathogenic for humans (*1*). Seventeen additional cases of B virus infection in humans were described through 1973 (*2*)* and four cases, including the first known case of person-to-person transmission of the virus, occurred in Pensacola, Florida, in 1987 (*5*). Twenty of the 22 cases resulted in encephalitis; 15 of these patients died. This extreme degree of morbidity and mortality has given the impression that B virus infection in humans nearly always results in severe or fatal disease. The frequency of mild or asymptomatic B virus infection, however, has never been adequately assessed.

*In his review, Palmer (*2*) reports a total of 24 cases from 1932 to 1973, citing a reference from CDC (*3*). Documentation of B virus infection, however, was established in only 17 of these cases; an 18th case, which occurred in 1958 (*4*), was omitted in Palmer's review.

B Virus — Continued

The occurrence of the four 1987 cases of B virus infection prompted CDC to convene a working group to discuss guidelines for preventing B virus infection in monkey handlers. In formulating these guidelines, the working group recognizes that other methods of caring for nonhuman primates and preventing transmission of pathogenic agents from animal to human and from human to animal have been described (*6,7*). The purpose of the working group was to supplement existing methods with specific guidelines intended to minimize transmission of B virus infection from macaque monkeys to humans.

Herpesvirus simiae (B virus) is a member of the herpes group of viruses that is enzootic in rhesus (*Macaca mulatta*), cynomolgus (*M. fascicularis*) and other Asiatic monkeys of the genus Macaca. As with herpes simplex virus I infection in humans, primary infection with B virus in macaques may result in gingivostomatitis with characteristic buccal mucosal lesions, but it probably occurs frequently without such signs. Subsequently, the virus remains latent in the host and may reactivate spontaneously or in times of stress, resulting in shedding of virus in saliva and/or genital secretions. In captivity, as well as in the wild, sexually mature macaques are more likely to have been exposed to the virus and more likely than immature animals to be shedding virus at any given time.

Although it is commonly believed that transmission to humans occurs by exposure to contaminated monkey saliva through bites or scratches, such exposure has not been consistently documented. Except for one instance of person-to-person transmission, however, all cases of B virus infection in humans have occurred in persons exposed to monkeys or monkey tissues.

B virus-related disease is characterized by a variety of symptoms, which generally occur within 1 month of exposure. These symptoms include vesicular skin lesions at or near the site of inoculation, localized neurologic symptoms, and ultimately, encephalitis.

A unique feature of the 1987 Pensacola cases was the occurrence of mild disease in two of the four patients (*5*). Both of these persons received acyclovir (9-[2-hydroxyethoxymethyl]-guanine) in the early stages of disease. They became culture-negative, and their lesions healed during therapy. Whether their infections would have become more severe without therapy is not known. Both *in vivo* (*8*) and *in vitro* efficacy of acyclovir (Southwest Foundation for Biomedical Research, unpublished data) against B virus has been demonstrated.

The working group recognizes that B virus infection may occur in persons not handling live macaques. One case of B virus infection occurred following the person's exposure to contaminated cell cultures of simian origin, and one case occurred after the patient had cleaned a monkey skull (*2*). Although transmission of infection has not been documented for persons working with B virus in the laboratory, such work is potentially hazardous. Guidelines concerning appropriate biocontainment measures for working with B virus are published elsewhere (*9*). The guidelines described herein pertain only to the risk associated with the care and maintenance of living macaques.

The working group also recognizes that the paucity of information regarding the transmissibility of B virus, the efficacy of measures to prevent transmission, and the chemotherapy of B virus infection have rendered these guidelines difficult to formulate. These guidelines are therefore based on the available information, much of which is anecdotal and much of which is based on theoretical considerations from knowledge of other herpes viruses.

B Virus — Continued

The risk of acquiring B virus infection from macaques appears to be very low. Persons who have handled macaques since B virus infection was first reported in humans number in the thousands, yet only 22 well-documented cases of infection have been described. The reasons for such an apparently low rate of transmission may include infrequent B virus shedding by macaques, cross-reactive immunity against B virus stimulated by herpes simplex virus infection (*10,11*), and undetected asymptomatic infection. Nevertheless, the consequences of symptomatic infection are such that these guidelines are warranted, especially since such infections appear preventable.

Guidelines for prevention of B virus infection in monkey handlers:

1. Macaque monkeys should be used for research purposes only when clearly indicated.
2. When feasible, monkeys that are required for research purposes should be free of B virus infection and should be maintained under conditions that are appropriate

(Continued on page 687)

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

Disease	41st Week Ending			Cumulative, 41st Week Ending		
	Oct. 17, 1987	Oct. 11, 1986	Median 1982-1986	Oct. 17, 1987	Oct. 11, 1986	Median 1982-1986
Acquired Immunodeficiency Syndrome (AIDS)	536	200	N	14,604	10,093	N
Aseptic meningitis	341	343	343	9,094	8,201	7,854
Encephalitis: Primary (arthropod-borne & unspec)	51	46	50	1,027	948	1,002
Post-infectious	1	2	2	85	89	89
Gonorrhea: Civilian	15,707	20,037	18,245	610,447	697,224	699,654
Military	188	299	299	12,782	13,070	16,877
Hepatitis: Type A	531	536	482	19,262	17,682	17,577
Type B	486	537	522	19,999	20,334	20,159
Non A, Non B	71	60	N	2,344	2,797	N
Unspecified	48	96	133	2,483	3,501	4,513
Legionellosis	14	20	N	682	594	N
Leprosy	-	5	2	156	207	195
Malaria	18	32	13	702	898	825
Measles: Total*	66	48	35	3,439	5,611	2,372
Indigenous	66	47	N	3,033	5,313	N
Imported	-	1	N	406	292	N
Meningococcal infections: Total	43	32	36	2,276	2,003	2,170
Civilian	43	32	36	2,275	2,001	2,166
Military	-	-	-	1	2	6
Mumps	214	110	49	10,833	4,016	2,623
Pertussis	61	119	58	1,972	2,757	1,924
Rubella (German measles)	6	9	6	313	462	630
Syphilis (Primary & Secondary): Civilian	806	491	528	27,738	20,715	21,918
Military	-	1	4	130	131	245
Toxic Shock syndrome	11	6	N	263	281	N
Tuberculosis	407	422	422	16,593	17,238	17,238
Tularemia	3	2	6	163	119	209
Typhoid Fever	7	15	13	254	257	303
Typhus fever, tick-borne (RMSF)	11	18	14	546	658	758
Rabies, animal	66	95	100	3,739	4,455	4,455

TABLE II. Notifiable diseases of low frequency, United States

	Cum. 1987		Cum. 1987
Anthrax	1	Leptospirosis	18
Botulism: Foodborne (Ohio 1)	10	Plague	9
Infant (Idaho 1)	42	Poliomyelitis, Paralytic	-
Other	-	Psittacosis	68
Brucellosis (Tex. 3; Calif. 1)	91	Rabies, human	-
Cholera	4	Tetanus (Calif. 1)	34
Congenital rubella syndrome	5	Trichinosis	32
Congenital Syphilis, <1 year	27	Typhus fever, flea-borne (endemic, murine)	31
Diphtheria	3		

*There were no cases of internationally imported measles reported for this week.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending October 17, 1987 and October 11, 1986 (41st Week)

Reporting Area	AIDS	Aseptic Meningitis	Encephalitis		Gonorrhea (Civilian)		Hepatitis (Viral), by type				Legionellosis	Leprosy
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
	Cum. 1987	1987	Cum. 1987	Cum. 1987	Cum. 1987	Cum. 1986	1987	1987	1987	1987	1987	Cum. 1987
UNITED STATES	14,604	341	1,027	85	610,447	697,224	531	486	71	48	14	156
NEW ENGLAND	574	9	36	2	18,759	17,125	2	12	-	-	-	12
Maine	16	1	2	-	556	691	-	1	-	-	-	-
N.H.	16	2	2	-	316	449	-	1	-	-	-	2
Vt.	8	1	5	-	177	209	-	1	-	-	-	-
Mass.	355	2	17	1	6,601	7,071	2	9	-	-	-	9
R.I.	46	3	3	1	1,714	1,401	-	-	-	-	-	-
Conn.	133	-	7	-	9,395	7,304	-	-	-	-	-	1
MID. ATLANTIC	4,419	71	118	7	94,451	117,533	19	44	-	4	-	18
Upstate N.Y.	548	41	43	3	13,187	14,443	13	16	-	2	-	-
N.Y. City	2,589	5	10	-	48,921	67,320	3	9	-	2	-	18
N.J.	832	8	7	-	13,280	15,293	-	-	-	-	-	-
Pa.	450	17	58	4	19,063	20,477	3	19	-	-	-	-
E.N. CENTRAL	982	80	300	12	93,900	95,349	19	41	4	5	4	7
Ohio	199	30	132	5	20,629	23,223	4	9	1	-	4	2
Ind.	87	6	43	-	7,327	10,153	2	9	-	1	-	-
Ill.	474	16	25	7	28,633	23,150	8	6	-	1	-	1
Mich.	145	28	67	-	29,571	28,886	5	17	3	3	-	3
Wis.	77	-	33	-	7,740	9,937	-	-	-	-	-	1
W.N. CENTRAL	326	18	63	-	24,659	29,935	33	33	6	2	2	-
Minn.	80	-	40	-	3,756	4,243	7	13	3	-	-	-
Iowa	22	5	11	-	2,419	3,059	-	-	-	-	2	-
Mo.	165	2	-	-	12,911	15,153	16	17	-	-	-	-
N. Dak.	1	-	-	-	219	261	-	-	-	-	-	-
S. Dak.	2	-	-	-	483	622	-	-	1	-	-	-
Nebr.	18	-	10	-	1,597	2,243	1	-	-	-	-	-
Kans.	38	11	2	-	3,274	4,354	9	3	2	2	-	-
S. ATLANTIC	2,249	65	135	29	160,094	180,299	32	69	8	3	2	5
Del.	16	2	4	1	2,696	3,003	-	2	-	-	-	-
Md.	202	21	16	5	18,100	21,182	4	18	1	-	1	2
D.C.	305	-	-	-	10,631	13,387	-	1	-	-	-	-
Va.	173	15	30	2	11,909	14,849	4	5	1	-	-	-
W. Va.	20	3	47	-	1,176	1,803	1	2	-	-	-	-
N.C.	129	6	23	-	23,377	27,772	8	9	2	2	1	-
S.C.	59	1	-	-	12,801	15,688	1	7	-	-	-	1
Ga.	321	3	1	-	28,671	30,017	5	8	-	-	-	-
Fla.	1,024	14	14	21	50,733	52,598	9	17	4	1	-	2
E.S. CENTRAL	205	13	53	7	46,029	55,945	15	38	1	1	-	-
Ky.	36	9	26	1	4,669	6,206	8	7	1	-	-	-
Tenn.	33	-	11	-	16,123	21,374	2	11	-	-	-	-
Ala.	115	4	16	1	14,668	16,199	4	18	-	1	-	-
Miss.	21	-	-	5	10,569	12,166	1	2	-	-	-	-
W.S. CENTRAL	1,506	26	126	4	69,777	81,463	43	35	6	5	-	4
Ark.	31	1	2	2	7,938	7,540	-	3	-	-	-	-
La.	243	3	20	-	12,232	14,351	-	3	-	1	-	-
Okla.	74	4	22	1	7,606	9,458	9	10	1	2	-	-
Tex.	1,158	18	82	1	42,001	50,114	34	19	5	2	-	4
MOUNTAIN	436	12	66	4	16,109	20,637	75	27	3	4	3	2
Mont.	3	-	1	-	452	555	-	3	-	-	-	-
Idaho	7	-	-	-	576	688	4	1	-	-	-	1
Wyo.	3	-	1	-	345	446	-	-	-	-	-	-
Colo.	179	7	38	-	3,617	5,323	2	8	1	4	1	-
N. Mex.	31	-	5	-	1,760	2,203	8	3	-	-	-	-
Ariz.	138	3	16	1	5,478	6,672	56	12	2	-	1	-
Utah	29	1	1	3	494	870	4	-	-	-	1	-
Nev.	46	1	4	-	3,387	3,880	1	-	-	-	-	1
PACIFIC	3,907	47	130	20	86,669	98,938	293	187	43	24	3	108
Wash.	170	-	10	4	6,649	7,417	33	26	2	-	2	5
Oreg.	123	-	-	-	3,257	4,213	42	18	4	-	-	-
Calif.	3,540	40	115	16	74,692	84,146	213	141	36	24	1	81
Alaska	12	7	2	-	1,401	2,137	5	1	1	-	-	1
Hawaii	62	-	3	-	670	1,025	-	1	-	-	-	21
Guam	3	-	-	-	159	158	-	-	-	-	-	-
P.R.	84	1	1	1	1,607	1,895	-	5	-	1	-	5
V.I.	-	-	-	-	218	222	-	-	-	-	-	-
Pac. Trust Terr.	-	-	-	-	316	389	-	-	-	-	-	45
Amer. Samoa	-	-	-	-	66	42	-	-	-	-	-	-

N: Not notifiable U: Unavailable

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending October 17, 1987 and October 11, 1986 (41st Week)

Reporting Area	Malaria	Measles (Rubeola)					Menin-gococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported*		Total									
	Cum. 1987	1987	Cum. 1987	1987	Cum. 1987	Cum. 1986	Cum. 1987	1987	Cum. 1987	1987	Cum. 1987	Cum. 1986	1987	Cum. 1987	Cum. 1986
UNITED STATES	702	66	3,033	-	406	5,611	2,276	214	10,833	61	1,972	2,757	6	313	462
NEW ENGLAND	47	-	114	-	156	96	192	1	46	8	136	132	-	1	9
Maine	2	-	3	-	-	13	10	-	-	1	27	2	-	1	-
N.H.	2	-	61	-	102	43	18	1	10	7	36	68	-	-	1
Vt.	-	-	11	-	15	-	15	-	5	-	4	3	-	-	1
Mass.	18	-	22	-	32	35	96	-	13	-	42	29	-	-	4
R.I.	7	-	1	-	1	2	14	-	2	-	2	6	-	-	2
Conn.	18	-	16	-	6	3	39	-	16	-	25	24	-	-	1
MID. ATLANTIC	88	2	522	-	57	1,718	286	2	208	3	227	173	-	11	34
Upstate N.Y.	32	-	26	-	14	100	100	-	92	1	129	109	-	9	26
N.Y. City	7	2	443	-	19	685	22	-	10	-	8	10	-	1	5
N.J.	24	-	32	-	7	909	53	1	56	-	13	17	-	1	3
Pa.	25	-	21	-	17	24	111	1	50	2	77	37	-	-	-
E.N. CENTRAL	46	9	320	-	25	1,071	340	23	6,080	2	195	344	-	36	74
Ohio	12	-	1	-	4	10	116	4	88	2	57	145	-	-	1
Ind.	4	-	-	-	-	36	36	1	923	-	16	26	-	-	-
Ill.	7	9	153	-	18	675	78	6	2,510	-	14	37	-	25	64
Mich.	17	-	29	-	-	59	88	12	926	-	45	33	-	9	8
Wis.	6	-	137	-	3	286	22	-	1,633	-	63	103	-	2	1
W.N. CENTRAL	25	-	208	-	22	339	94	7	1,358	-	119	485	-	1	13
Minn.	8	-	19	-	20	49	27	-	774	-	13	45	-	-	1
Iowa	5	-	-	-	-	134	3	1	406	-	48	19	-	1	1
Mo.	6	-	188	-	1	31	26	1	26	-	30	18	-	-	1
N. Dak.	-	-	1	-	-	25	1	-	6	-	11	5	-	-	1
S. Dak.	-	-	-	-	-	-	2	-	90	-	3	14	-	-	-
Nebr.	5	-	-	-	-	1	6	-	4	-	1	7	-	-	-
Kans.	1	-	-	-	1	99	29	5	52	-	13	377	-	-	9
S. ATLANTIC	116	1	131	-	12	730	371	12	260	4	289	710	2	18	7
Del.	1	-	32	-	-	1	5	-	-	-	5	227	-	2	-
Md.	26	-	5	-	2	35	36	-	25	-	16	161	1	3	-
D.C.	15	-	-	-	1	2	7	-	1	-	-	-	-	1	-
Va.	23	-	1	-	-	60	62	2	72	1	49	36	-	1	-
W. Va.	2	-	-	-	-	2	2	1	35	1	49	23	-	-	-
N.C.	10	-	2	-	3	4	46	7	24	1	115	66	-	1	-
S.C.	6	-	2	-	-	301	35	1	15	-	-	18	-	-	-
Ga.	4	-	-	-	1	93	73	-	40	-	23	122	1	2	-
Fla.	29	1	89	-	5	232	105	1	48	1	32	57	-	8	7
E.S. CENTRAL	12	-	3	-	3	67	115	15	1,252	1	40	49	-	3	4
Ky.	1	-	-	-	-	6	20	2	216	-	1	5	-	2	4
Tenn.	1	-	-	-	-	56	47	13	976	1	12	18	-	1	-
Ala.	5	-	1	-	3	2	40	-	60	-	21	25	-	-	-
Miss.	5	-	2	-	-	3	8	N	N	-	6	1	-	-	-
W.S. CENTRAL	48	38	443	-	4	647	161	135	1,050	18	259	217	-	11	63
Ark.	1	-	-	-	-	283	20	1	285	-	12	15	-	2	-
La.	1	-	-	-	-	4	21	126	513	2	47	13	-	-	-
Okla.	4	-	2	-	1	39	19	N	N	16	149	106	-	5	-
Tex.	42	38	441	-	3	321	101	8	251	-	51	83	-	4	63
MOUNTAIN	31	-	481	-	19	329	75	4	210	4	161	237	-	24	23
Mont.	-	-	127	-	1	8	4	-	6	-	6	14	-	8	2
Idaho	2	-	-	-	-	1	5	-	5	4	46	40	-	1	-
Wyo.	1	-	-	-	2	-	-	-	-	-	5	4	-	1	1
Colo.	7	-	5	-	4	10	24	-	28	-	55	62	-	-	1
N. Mex.	2	-	313	-	9	38	5	N	N	-	11	20	-	-	-
Ariz.	15	-	34	-	1	258	24	2	155	-	30	56	-	4	2
Utah	1	-	-	-	1	12	9	2	12	-	8	37	-	10	14
Nev.	3	-	2	-	1	2	4	-	4	-	-	4	-	-	3
PACIFIC	289	16	811	-	108	614	642	15	369	21	546	410	4	208	235
Wash.	21	-	34	-	7	164	72	-	46	-	77	138	-	2	16
Oreg.	5	1	8	-	80	12	26	N	N	5	65	12	-	2	3
Calif.	259	15	769	-	17	410	530	15	301	13	196	244	4	133	211
Alaska	3	-	-	-	-	-	5	-	7	-	10	2	-	2	-
Hawaii	1	-	-	-	4	28	9	-	15	3	198	14	-	69	5
Guam	-	-	2	-	-	5	4	-	5	-	-	-	-	1	3
P.R.	1	-	755	-	-	36	5	-	11	-	16	15	-	3	60
V.I.	-	-	-	-	-	-	-	1	13	-	-	-	-	1	-
Pac. Trust Terr.	-	-	1	-	-	-	1	-	5	-	1	-	-	1	2
Amer. Samoa	-	-	-	-	-	2	-	1	4	-	-	-	-	-	1

*For measles only, imported cases includes both out-of-state and international importations.

N: Not notifiable U: Unavailable †International §Out-of-state

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending October 17, 1987 and October 11, 1986 (41st Week)

Reporting Area	Syphilis (Civilian) (Primary & Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1987	Cum. 1986	1987	Cum. 1987	Cum. 1986	Cum. 1987	Cum. 1987	Cum. 1987	Cum. 1987
UNITED STATES	27,738	20,715	11	16,593	17,238	163	254	546	3,739
NEW ENGLAND	483	367	-	499	560	1	26	7	7
Maine	1	15	-	22	34	-	1	-	3
N.H.	3	10	-	17	26	-	-	-	-
Vt.	2	8	-	10	15	-	1	-	-
Mass.	224	198	-	277	302	1	14	4	-
R.I.	10	18	-	46	40	-	3	-	1
Conn.	243	118	-	127	143	-	7	3	3
MID. ATLANTIC	5,219	2,952	-	2,927	3,456	-	29	21	327
Upstate N.Y.	187	159	-	401	492	-	8	11	52
N.Y. City	3,873	1,669	-	1,399	1,811	-	3	5	-
N.J.	543	515	-	548	589	-	18	1	13
Pa.	616	609	-	579	564	-	-	4	262
E.N. CENTRAL	740	718	2	1,890	2,055	3	29	44	142
Ohio	84	101	1	344	364	1	8	29	14
Ind.	50	93	-	185	230	-	4	-	17
Ill.	393	351	-	831	873	-	9	7	42
Mich.	157	139	1	445	492	-	5	5	26
Wis.	56	34	-	85	96	2	3	3	43
W.N. CENTRAL	150	169	2	477	520	59	9	53	797
Minn.	14	28	2	95	120	-	4	-	188
Iowa	25	6	-	32	41	4	2	1	229
Mo.	71	89	-	261	258	37	3	18	52
N. Dak.	-	6	-	6	10	1	-	-	92
S. Dak.	10	7	-	23	23	9	-	1	184
Nebr.	10	12	-	21	13	2	-	3	16
Kans.	20	21	-	39	55	6	-	30	36
S. ATLANTIC	9,503	6,273	-	3,597	3,359	5	27	207	1,048
Del.	61	51	-	34	36	1	-	2	-
Md.	494	367	-	319	241	-	3	45	354
D.C.	286	245	-	132	116	-	2	-	40
Va.	244	286	-	360	276	2	6	17	294
W. Va.	10	18	-	82	97	-	1	7	54
N.C.	543	407	-	407	449	2	3	75	8
S.C.	594	540	-	372	432	-	-	33	46
Ga.	1,330	1,188	-	628	575	-	-	26	170
Fla.	5,941	3,171	-	1,263	1,137	-	12	2	82
E.S. CENTRAL	1,497	1,410	-	1,427	1,534	7	3	90	250
Ky.	14	60	-	342	344	2	2	9	122
Tenn.	572	495	-	383	455	1	1	56	57
Ala.	395	428	-	437	480	1	-	15	71
Miss.	516	427	-	265	255	3	-	10	-
W.S. CENTRAL	3,412	4,131	3	1,970	2,157	61	20	110	506
Ark.	204	188	-	238	297	29	2	12	108
La.	643	710	-	211	346	3	-	-	12
Okla.	123	103	1	185	205	26	5	85	30
Tex.	2,442	3,130	2	1,336	1,309	3	13	13	356
MOUNTAIN	544	473	2	402	420	15	13	12	312
Mont.	9	6	-	11	21	2	-	10	138
Idaho	5	13	-	17	20	1	-	-	8
Wyo.	3	2	-	-	-	-	-	1	67
Colo.	95	107	1	40	47	4	-	-	7
N. Mex.	48	54	-	75	80	1	9	-	3
Ariz.	251	195	1	211	193	3	3	-	69
Utah	22	15	-	24	29	2	-	1	7
Nev.	111	81	-	24	30	2	1	-	13
PACIFIC	6,190	4,222	2	3,404	3,177	12	98	2	350
Wash.	77	132	-	199	160	4	7	-	-
Oreg.	238	91	-	93	107	5	2	-	-
Calif.	5,861	3,973	2	2,903	2,732	2	83	2	347
Alaska	3	-	-	57	41	1	-	-	3
Hawaii	11	26	-	152	137	-	6	-	-
Guam	2	1	-	26	34	-	-	-	-
P.R.	730	716	-	236	281	-	-	-	54
V.I.	9	1	-	2	1	-	-	-	-
Pac. Trust Terr.	188	213	-	137	58	-	19	-	-
Amer. Samoa	2	-	-	1	5	-	1	-	-

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending October 17, 1987 (41st Week)

Reporting Area	All Causes, By Age (Years)						P&I**
	All Ages	≥65	45-64	25-44	1-24	<1	Total
NEW ENGLAND	669	460	118	53	17	21	57
Boston, Mass.	169	93	40	19	3	14	17
Bridgeport, Conn.	40	30	6	2	2	-	5
Cambridge, Mass.	26	21	3	1	1	-	3
Fall River, Mass.	35	27	7	1	-	-	-
Hartford, Conn.	69	43	13	9	3	1	3
Lowell, Mass.	26	21	5	-	-	-	2
Lynn, Mass.	15	15	-	-	-	-	2
New Bedford, Mass.	22	19	1	-	1	1	1
New Haven, Conn.	69	48	11	7	1	2	5
Providence, R.I.	50	35	10	4	1	-	3
Somerville, Mass.	6	4	2	-	-	-	-
Springfield, Mass.	54	40	6	4	3	1	6
Waterbury, Conn.	24	19	3	1	1	-	2
Worcester, Mass.	64	45	11	5	1	2	8
MID. ATLANTIC	2,640	1,718	536	262	58	66	134
Albany, N.Y.	65	43	11	2	6	3	3
Allentown, Pa.	20	17	3	-	-	-	-
Buffalo, N.Y.	101	68	22	7	1	3	7
Camden, N.J.	43	29	7	5	1	1	2
Elizabeth, N.J.	19	13	2	-	4	-	-
Erie, Pa.†	46	40	5	-	-	1	4
Jersey City, N.J.	44	27	7	8	-	2	2
N.Y. City, N.Y.	1,455	890	309	184	34	38	72
Newark, N.J.	50	21	9	16	-	4	1
Paterson, N.J.	35	22	5	7	-	1	1
Philadelphia, Pa.	297	211	60	16	7	3	11
Pittsburgh, Pa.†	94	67	22	2	1	2	4
Reading, Pa.	33	23	8	1	1	-	7
Rochester, N.Y.	109	84	17	5	1	2	13
Schenectady, N.Y.	36	23	11	1	-	1	-
Scranton, Pa.†	20	14	6	-	-	-	1
Syracuse, N.Y.	88	63	17	3	1	4	2
Trenton, N.J.	37	28	6	3	-	-	-
Utica, N.Y.	21	17	3	1	-	-	1
Yonkers, N.Y.	27	18	6	1	1	1	3
E.N. CENTRAL	2,196	1,404	491	165	66	70	97
Akron, Ohio	52	36	8	2	2	4	-
Canton, Ohio	27	18	7	1	1	-	4
Chicago, Ill.§	564	362	125	45	10	22	16
Cincinnati, Ohio	72	43	18	6	4	1	9
Cleveland, Ohio	141	82	36	16	2	5	5
Columbus, Ohio	173	109	41	10	7	6	-
Dayton, Ohio	116	78	21	10	5	2	5
Detroit, Mich.	239	129	62	29	10	9	8
Evansville, Ind.	36	26	6	2	-	2	3
Fort Wayne, Ind.	51	42	5	2	1	1	7
Gary, Ind.	20	9	7	1	3	-	-
Grand Rapids, Mich.	59	44	12	1	2	-	6
Indianapolis, Ind.	178	101	48	18	4	7	3
Madison, Wis.	38	19	10	3	4	2	2
Milwaukee, Wis.	149	105	24	8	8	4	4
Peoria, Ill.	51	37	12	-	-	2	10
Rockford, Ill.	35	25	7	2	1	-	5
South Bend, Ind.	40	28	10	2	-	-	2
Toledo, Ohio	87	59	18	7	1	2	7
Youngstown, Ohio	68	52	14	-	1	1	1
W.N. CENTRAL	764	509	171	41	15	27	34
Des Moines, Iowa	70	48	16	5	-	1	6
Duluth, Minn.	34	27	6	-	-	-	3
Kansas City, Kans.	32	19	6	3	2	2	1
Kansas City, Mo.	136	92	33	5	4	2	7
Lincoln, Nebr.	29	21	5	3	-	-	-
Minneapolis, Minn.	150	102	31	8	2	7	8
Omaha, Nebr.	76	46	18	5	2	5	3
St. Louis, Mo.	121	74	30	7	4	6	4
St. Paul, Minn.	54	39	11	4	-	-	-
Wichita, Kans.	62	41	15	1	1	4	2

Reporting Area	All Causes, By Age (Years)						P&I**
	All Ages	≥65	45-64	25-44	1-24	<1	Total
S. ATLANTIC	1,223	735	267	124	48	46	41
Atlanta, Ga.	129	74	26	13	8	8	4
Baltimore, Md.	244	149	57	23	10	5	4
Charlotte, N.C.	67	37	20	5	2	3	2
Jacksonville, Fla.	99	59	26	7	5	2	4
Miami, Fla.	139	83	28	17	5	6	4
Norfolk, Va.	67	42	14	6	4	1	3
Richmond, Va.	62	31	16	10	3	2	5
Savannah, Ga.	38	25	8	2	3	-	3
St. Petersburg, Fla.	68	49	6	4	4	5	6
Tampa, Fla.	70	48	14	1	1	3	2
Washington, D.C.	222	124	49	35	3	11	4
Wilmington, Del.	18	14	3	1	-	-	-
E.S. CENTRAL	691	479	125	41	20	26	36
Birmingham, Ala.	119	75	31	6	3	4	3
Chattanooga, Tenn.	65	47	8	2	3	5	6
Knoxville, Tenn.	61	41	9	6	2	3	4
Louisville, Ky.	74	55	16	2	1	-	2
Memphis, Tenn.§	170	114	32	15	5	4	14
Mobile, Ala.	45	35	3	1	3	3	-
Montgomery, Ala.	34	21	8	2	-	3	1
Nashville, Tenn.	123	91	18	7	3	4	6
W.S. CENTRAL	1,280	781	283	113	57	46	45
Austin, Tex.	55	32	11	3	6	3	2
Baton Rouge, La.	47	27	12	4	2	2	1
Corpus Christi, Tex.	45	30	8	4	3	-	1
Dallas, Tex.	187	100	47	20	12	8	2
El Paso, Tex.	67	41	15	6	1	4	5
Fort Worth, Tex	85	53	18	10	4	-	5
Houston, Tex.§	308	176	74	34	13	11	7
Little Rock, Ark.	71	39	20	4	4	4	3
New Orleans, La.	102	73	16	9	3	1	-
San Antonio, Tex.	139	82	34	11	6	6	9
Shreveport, La.	70	48	12	3	3	4	4
Tulsa, Okla.	104	80	16	5	-	3	6
MOUNTAIN	655	421	137	52	21	24	37
Albuquerque, N. Mex.	70	48	16	5	1	-	6
Colo. Springs, Colo.	42	27	9	2	3	1	6
Denver, Colo.	108	70	17	11	2	8	5
Las Vegas, Nev.	92	53	30	6	1	2	8
Ogden, Utah	18	13	2	1	1	1	3
Phoenix, Ariz.	149	85	39	13	6	6	4
Pueblo, Colo.§	26	20	5	1	-	-	-
Salt Lake City, Utah	47	27	6	8	2	4	1
Tucson, Ariz.	103	78	13	5	5	2	4
PACIFIC	1,892	1,206	374	168	78	63	100
Berkeley, Calif.	24	14	7	1	-	2	1
Fresno, Calif.	72	51	13	5	1	2	2
Glendale, Calif.	31	28	3	-	-	-	2
Honolulu, Hawaii	68	38	14	10	5	1	5
Long Beach, Calif.	105	70	21	2	3	9	4
Los Angeles Calif.	454	266	98	46	29	12	14
Oakland, Calif.	54	35	11	5	1	2	3
Pasadena, Calif.	29	17	4	5	-	3	1
Portland, Oreg.	126	91	24	5	3	3	9
Sacramento, Calif.	159	99	32	12	10	6	19
San Diego, Calif.	175	116	33	15	6	5	10
San Francisco, Calif.	196	104	45	34	6	7	7
San Jose, Calif.	171	117	34	10	6	4	9
Seattle, Wash.	139	90	22	16	7	4	7
Spokane, Wash.	49	41	6	-	1	1	4
Tacoma, Wash.	40	29	7	2	-	2	3
TOTAL	12,010††	7,713	2,502	1,019	380	389	581

*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 3 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.

B Virus — Continued

to assure their B virus-free status. The possibility of acquiring and maintaining such a B virus-free colony should be explored by each animal facility.

3. All macaque monkeys not known to be free of B virus infection should be regarded as infected because viral shedding is intermittent and can occur in the absence of visible lesions. Direct handling of macaques should be minimized as much as possible. Capturing, restraining, or otherwise handling fully awake macaques by hand is not recommended. Rather, such procedures should be accomplished using acceptable physical and chemical restraint methods. Macaques that are handled regularly should be housed in squeeze-back cages that permit physical restraint of the animal before handling. When a number of animals are caged together, tunnels or chutes should be provided whenever feasible so that individual monkeys can be separated and restrained before handling. When feasible, chemical restraint by injection (e.g., ketamine HCl) may be used before removing the animal from the cage, particularly for larger animals or for animals that are otherwise difficult to handle. Behavioral conditioning of macaques is a practical and useful adjunct to the application of these restraint procedures and is particularly recommended where several animals are caged together.
4. Macaque handlers should remove physically active animals from cages only with arm-length reinforced leather gloves. Handlers should be additionally protected with a long-sleeved garment to prevent scratches and a face shield (or surgical mask and goggles or glasses) to prevent exposure of eyes and mucous membranes to macaque secretions. In warm climates, where use of long-sleeved garments and leather gloves may be uncomfortable, supervisors may wish to rotate work schedules or have workers handle animals at cooler times of the day to minimize such discomfort in the daily work routine. If macaque handlers choose not to handle chemically restrained animals with arm-length leather gloves, latex or vinyl gloves should be worn to prevent direct contact with macaque secretions.
5. Cages and other equipment that may be contaminated with virus should be free of sharp edges and corners that may cause scratches or wounds to workers. Cages should be designed and arranged in animal housing areas so that the risk of workers being accidentally grabbed or scratched is minimized. Access to areas where macaques are maintained and used should be limited either to workers who are properly trained in procedures to avoid risk of infection or to those accompanied by such workers.
6. The routine screening of macaques for evidence of B virus infection is not recommended. Even animals previously found to be negative for virus or antibody might be positive at the time of a human exposure. Also, screening may increase the risk of infection to workers. In situations in which laboratory studies may cause immunosuppression of the animals, the investigator may elect to determine the infection status of the animals to be used, since virus shedding might be enhanced under such circumstances. Macaques with oral lesions suggestive of active B virus infection should be quarantined until the lesions have healed to reduce the risk of virus transmission to workers and other macaques.
7. Persons who handle macaques, including primate veterinarians and scientific investigators, should be trained in proper methods of restraint and in the use of protective clothing to help prevent bites and scratches. Such persons should be acquainted with standard operating procedures and other available training materials before handling animals. Training should be followed up with continual

B Virus — Continued

observation for lapses in these procedures as they occur. Macaque handlers should also be educated concerning the nature of B virus infection; the need to prevent bites, scratches, and other exposure to macaque secretions; and the need to clean wounds immediately. They should be educated concerning the early symptoms of B virus infection and the need to report injuries and/or symptoms suggestive of B virus infection to supervisors immediately. Animal handlers should be advised that persons who are immunosuppressed because of medication or underlying medical conditions may be at higher risk for B virus infection. A pre-employment serum sample should be obtained from all persons who work with macaques, and additional samples should be obtained annually to serve as a baseline for retrospective studies in the event of a suspected B virus infection. Such specimens should be aliquoted and frozen, preferably at –70°C.

8. All bite or scratch wounds incurred from macaques or from cages that might be contaminated with macaque secretions and that result in bleeding should be immediately and thoroughly scrubbed and cleansed with soap and water. Such incidents should be reported to the animal-care supervisor and recorded in a bite/scratch log. Superficial wounds that can be adequately cleansed probably require no further treatment. More extensive wounds should be referred to a medical consultant. Each animal-care facility should identify a medical consultant who will be on call to assist in such situations. Such consultants, in addition to having general knowledge concerning animal bites, should be knowledgeable concerning the hazard of B virus infection, its symptoms, and treatment. Following a bite or scratch, the animal handler should be instructed to report immediately any skin lesions or neurologic symptoms (such as itching, pain, or numbness) near the site of the wound or any other unusual illness. It is the responsibility of the supervisor, when no illness is reported, to determine the clinical status of the handler at weekly intervals for 1 month after the exposure. Symptoms suggestive of B virus infection should be reported immediately to the medical consultant. When the possibility of B virus illness is seriously entertained, appropriate diagnostic studies should be performed and specific antiviral therapy should be instituted. (At the time of this writing, experimental and limited clinical data indicate acyclovir to be the drug of choice.) The physician may wish to consult the Viral Exanthems and Herpesvirus Branch, Division of Viral Diseases, CDC (Dr. Gary Holmes, [404] 329-1338) and, for laboratory assistance, the Southwest Foundation for Biomedical Research (Dr. Julia Hilliard, [512] 674-1410).
9. In some situations, prophylactic treatment with an antiviral agent may be considered in the absence of signs or symptoms suggestive of B virus infection. Such a situation might arise when an animal handler sustains a deep, penetrating wound that cannot be adequately cleansed. In such situations, studies to determine the B virus status of the animal should be considered, especially if the animal has clinical findings suggestive of B virus infection. These situations should be managed by the medical consultant, who may wish to consult the resource persons mentioned above. There is no evidence that pooled immune globulin is effective in preventing or ameliorating B virus infection. Neither hyperimmune human B virus globulin nor vaccine against B virus is currently available.

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B Virus — Continued

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Epidemiologic Notes and Reports

Reye Syndrome Surveillance — United States, 1986

For the 1986 surveillance year (December 1, 1985-November 30, 1986), 101 cases of Reye syndrome (RS) were reported to the CDC National Reye Syndrome Surveillance System (NRSS). All met CDC's case definition.* In the past, influenza B has been associated with an increased incidence of RS. However, from December 1985 through November 1986, a period that encompassed widespread influenza B activity, the number of RS cases reported was less than half the lowest number previously reported during a year with extensive influenza B activity. In addition, the reported number of varicella-associated RS cases (5) was the lowest since continuous national Reye syndrome surveillance began in 1977 (Table 1).

*The CDC case definition is (1) acute noninflammatory encephalopathy documented by alteration in the level of consciousness and, if available, a record of cerebrospinal fluid containing eight leukocytes or less per mm^3, or histologic sections of the brain demonstrating cerebral edema without perivascular or meningeal inflammation; (2) hepatopathy documented by either biopsy or autopsy considered to be diagnostic of RS or by a threefold or greater rise in the levels of either serum glutamic-oxaloacetic transaminase (SGOT), serum glutamic-pyruvic transaminase (SGPT), or serum ammonia; and (3) no more reasonable explanation for the cerebral or hepatic abnormalities.

Reye Syndrome — Continued

Thirty states and the Pacific Island Territories reported cases. Distributions by sex and race were similar to those of previous years: 52% of patients for whom this information was reported were female; 88% were white; 8%, black; and 4%, Asian or Pacific Islanders. Thirty-eight percent of patients with RS were 0-4 years of age; 12%, 5-9 years; 34%, 10-14 years; 15%, 15-19 years; and 2%, ≥20 years. Despite heavy influenza B activity in early 1986, the reported incidence of RS among children<10 years of age was lower that year than in 1985. However, the incidence of RS among children ≥10 years of age was higher in 1986.

Consistent with previous temporal associations between incidences of RS and influenza, 74% of patients reported in 1986 were hospitalized during January, February, and March, the peak months of influenza B activity. Early 1986 had, by several measures, the most widespread influenza B activity in the past 10 years (*1*). Compared with the other recent influenza B seasons—1979/80, a season of relatively heavy influenza virus activity; 1981/82, a season of minimal influenza virus activity; and 1983/84, a season of combined A(H1N1) and B activity—the 1985/86 season showed a decline in incidence of RS for all age groups, with the smallest decline being in the 15- to 19-year age group.

Ninety-two patients (91%) had an antecedent illness within 3 weeks before the onset of vomiting or neurologic symptoms compatible with RS. For 74% of these patients, the antecedent illness was primarily respiratory. Five percent had had varicella; another 5%, diarrhea without respiratory symptoms; 10%, fever or nonvaricella rash without respiratory symptoms; and 5%, other or unknown signs and symptoms.

Most patients were admitted to hospitals in the three precomatose stages of RS: 3% in stage 0, 36% in stage 1, and 40% in stage 2. Twenty-two percent of the 93 patients whose most severe stage of RS was reported reached only stage 1; 25% reached stage 2; 8%, stage 3; 6%, stage 4; 27%, stage 5. Thirteen percent received

TABLE 1. Reported cases of Reye syndrome (RS) and varicella-associated RS and incidence of RS — United States, 1974 and 1977-1986

Year*	Predominant Influenza Strains Jan.-May	RS Cases	No. Varicella-Associated RS Cases	Incidence of RS†	Fatality Rate (%)
1974	B	379	—	0.58	41
1977	B	454	73	0.71	42
1978	A(H3N2)	236	69	0.37	29
1979	A(H1N1)	389	113	0.62	32
1980	B	555	103	0.88	23
1981	A(H3N2)	297	77	0.47	30
1982	B	213	45	0.34	35
1983	A(H3N2)	198	28	0.32	31
1984	A(H1N1)+B	204	26	0.33	26
1985	A(H3N2)	93	15	0.15	31
1986	B	101	5	0.16	27

*RS reporting year begins December 1 of previous year.
†Per 100,000 U.S. population <18 years of age (U.S. Bureau of the Census data).

Reye Syndrome — Continued

treatment that precluded classification. Twenty-five of the 92 patients with reported outcome died, for a fatality rate of 27%.

Reported by: Div of Viral Diseases, Center for Infectious Diseases, CDC.

Editorial Note: Although the number of cases reported to the NRSS is presumably less than the true number of cases occurring in the United States each year, the NRSS provides crude annual comparisons of RS activity. Since a major multicenter study on RS (Public Health Service [PHS] Main Study on Reye Syndrome and Medications) was carried out during 1985 and 1986, it is unlikely that the decline in number of cases reported is an artifact of decreased reporting over these years.

The total number of reported cases of RS for 1986 is lower than would be expected based on influenza B activity during previous years. Although the number of cases reported in 1986 is slightly higher than that reported in 1985, the 1986 total is less than 30% that reported for any previous year with extensive influenza B activity and less than half the total for 1982, when there was a very low level of influenza B activity (Table 1). By available surveillance parameters, influenza B activity was heavier during the 1985/86 season than during any previous season for which simultaneous RS surveillance was conducted (*1*). Also, the number of reported varicella-associated RS cases was unusually low despite evidence of relatively stable national varicella activity (*2*).

Both the pilot phase of the PHS study on RS and medications, published in 1985, and the main study, published in 1987, have confirmed prior reports of an association between ingestion of aspirin during an antecedent viral illness and subsequent development of RS (*3,4*). Since the increasing publicity about the association between RS and aspirin began in late 1980, much of the decline in the reported incidence of RS in the United States may be attributable to possible decreases in the frequency and/or dose of this medication used in treating children with influenza-like illness or varicella (*4-6*).

Preliminary results from 1987 surveillance indicate further decreases in the reported number of RS cases in the United States. As RS becomes increasingly rare in this country, interest in reporting may also start to wane. Health-care personnel and agencies are urged to continue reporting to the NRSS to assure the best possible epidemiologic monitoring of this illness. In addition, physicians, parents, and older children who self-medicate should be aware of the increased risk of RS associated with using aspirin (and possibly all salicylates) to treat children, including teenagers, with influenza-like illness or chickenpox (varicella). RS cases should be reported through local and state health departments to the Reye Syndrome Surveillance System, Division of Viral Diseases, Bldg. 6, Rm. 115, Centers for Disease Control, Atlanta, Georgia 30333.

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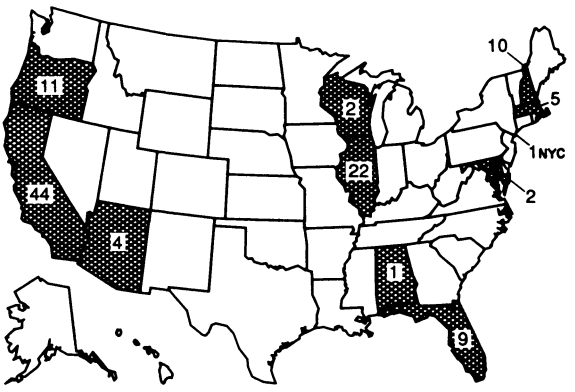
FIGURE I. Reported measles cases — United States, Weeks 37-40



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The data in this report are provisional, based on weekly reports 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: Editor, *Morbidity and Mortality Weekly Report*, Centers for Disease Control, Atlanta, Georgia 30333.

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