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Multiple Outbreaks of Kawasaki Syndrome — United States

Between August 22, 1984, and January 6, 1985, 10 outbreaks of Kawasaki syndrome (KS), a rare pediatric illness primarily affecting children under 6 years of age, were reported to CDC (Table 1). The outbreaks consisted of 187 cases meeting the CDC case definition* and 75 suspected cases. Outbreaks occurred in 10 states and the District of Columbia during the 21-week period. Cases from a number of these outbreaks continue to be reported to CDC.

Six of the 10 outbreaks occurred in major metropolitan areas: 39 (83%) of 47 cases in the Colorado outbreak occurred in the Denver metropolitan area, with the remaining eight extending south from Denver to Colorado Springs and north to Fort Collins, and to Cheyenne in southern Wyoming. Twenty (67%) of 30 cases in Massachusetts occurred in the Boston metropolitan area; all of 11 cases occurred in the Washington, D.C., metropolitan area; six (86%) of seven cases in Tennessee occurred in Memphis; 11 (92%) of 12 cases in California occurred in the Oakland/San Francisco metropolitan area; and nine of 10 cases in Texas occurred in the Houston metropolitan area. In Washington, all of 11 cases occurred in the nonmetropolitan areas of two adjacent counties (Pierce and King), and in North Carolina, cases were found in eight eastern counties. The Virginia and Indiana cases were widely scattered.

Patients' ages ranged from 7 weeks to 12 years 7 months (mean 2.6 years). Of 186 patients for whom sex was reported, 109 (59%) were males. For 177 patients for whom race was reported, 105 (59%) were white; 52 (29%), black; 16 (9%), Asian; and four (2%), Hispanic. A higher percentage of blacks was reported in Tennessee (six [86%] of seven) and eastern North Carolina (15 [56%] of 27); six of 12 California patients reported were of Asian extraction. Nationwide, 159 (85%) of 187 patients were hospitalized. Recurrent cases were reported in California (two cases) and North Carolina (one). To date, no outbreak-related fatalities have been reported.

Sixty-two (33%) of 186 patients had cardiovascular complications. Coronary artery aneurysms were reported in 37 (20%) cases; one resulted in myocardial infarction, and two were associated with pericarditis. Because coronary artery aneurysms are often not detected until 2-8 weeks after onset of KS, the number with this complication may increase. Myocarditis was reported in 12 patients, including one associated with a cardiac arrest, and another, with myocardial infarction and pericarditis. Eight additional patients had pericarditis. One child had recurrent angina episodes with a normal cardiac catheterization study; two had peripheral vascular complications resulting in gangrene and requiring amputations. One child had a stroke; and one had transient hemiparesis.

*Fever lasting 5 or more days without other more reasonable explanation and at least four of the following criteria: (1) bilateral conjunctival injection; (2) at least one of the following mucous-membrane changes: injected or fissured lips, injected pharynx, or "strawberry" tongue; (3) at least one of the following extremity changes: erythema of palms or soles, edema of the hands or feet, or generalized or periungual desquamation; (4) rash; and (5) cervical lymphadenopathy (at least one lymph node 1.5 cm or greater in diameter).

Kawasaki Syndrome – Continued

Noncardiovascular KS complications reported include: sterile pyuria/meatitis (14 cases), hydrops of the gallbladder (eight), hepatitis (six), arthritis (six), aseptic meningitis (four), uveitis (two), small bowel obstruction (one), and profound anemia requiring transfusion (one).

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Editorial Note: KS, first described by a Japanese pediatrician in 1961 (*1*), has been occurring in the United States since at least 1971 (*2*). Its etiology is unknown. Evidence for person-to-person transmission has not been demonstrated. In the United States, peaks of occurrence of KS have been observed in winter and spring. Although coronary artery aneurysms have been reported in 17%-31% of cases (*3*), fatalities are relatively rare. Case-fatality ratios of 1%-2% (*4*) have been reported in the United States and Japan.

TABLE 1. Kawasaki syndrome outbreaks — United States, August 1984-January 1985

Location	Cases reported to CDC	
	No.	Date
Northern Colorado (Denver) and southern Wyoming	47	Aug. 22, 1984-Jan. 1, 1985
Eastern North Carolina	28	Aug. 23, 1984-Jan. 3, 1985
Texas (Houston)	10	Aug. 27, 1984-Dec. 26, 1984
Virginia	11	Sept. 28, 1984-Jan. 1, 1985
Massachusetts (Boston)	30	Oct. 4, 1984-Jan. 6, 1985
Washington	11	Oct. 5, 1984-Dec. 27, 1984
California (Oakland/San Francisco)	12	Oct. 6, 1984-Jan. 6, 1985
Indiana	20	Nov. 1, 1984-Dec. 12, 1984
Washington, D.C.	11	Nov. 15, 1984-Jan. 1, 1985
Tennessee (Memphis)	7	Nov. 17, 1984-Jan. 1, 1985

Kawasaki Syndrome — Continued

Other complications of KS include pyuria and urethritis/meatitis, arthritis, aseptic meningitis, myocarditis, pericarditis, pericardial effusion, hepatitis, and hydrops of the gallbladder (*5*). Patients with gangrenous extremities, small bowel obstruction, and stroke have been very rarely reported.

The efficacy of any single therapeutic regimen has not been well established, although one study has suggested that the administration of aspirin during the acute phase (*6*), and another, that the administration of intravenous high-dose gammaglobulin during the acute phase (*7*), may reduce the frequency of coronary artery aneurysms. A multicenter study to evaluate the potential efficacy of high-dose intravenous gammaglobulin therapy is currently under way in the United States.

Physicians are encouraged to report any outbreaks or cases of KS through their local and state health departments to the Epidemiology Office, Division of Viral Diseases, Center for Infectious Diseases, CDC.

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Recent Trends in Illicit Drug Use among Young People — Canada

The findings of three national surveys carried out in 1981, 1982, and 1983 (*1-3*) by the Canadian Gallup Poll Ltd. on behalf of Health and Welfare Canada indicate an overall decline in self-reported marijuana use among Canadians aged 12-19 years (*4*). Statistically significant declines were found in frequency of self-reported annual, monthly, and weekly marijuana use from 1981 to 1982 and 1982 to 1983.

The results of repeated school surveys in Vancouver, Ontario, and Halifax (*5-7*) are generally consistent with national data. An overall decline in frequency of self-reported marijuana use from the late 1970s is indicated in all three studies. In Vancouver, the percentage of secondary-school children who reported using marijuana or hashish in the last 6 months increased between 1974 and 1978 from 34.4% to 38.2%, then decreased between 1978 and 1982 to 30.1%. Similar surveys of Ontario students found that self-reported cannabis use in the past 12 months declined from 31.7% in 1979 to 29.9% in 1981 to 23.7% in 1983. Similarly, student surveys carried out over time in Halifax suggest an increase in marijuana or hashish use (last 6 months) from 1976 to 1979 (23.8% to 43.8%) followed by a decrease from 1979 to 1983 (to 29.2%).

In contrast, repeated surveys of schoolchildren in Prince Edward Island (*8*) found a significant increase in self-reported marijuana or hashish use in the past 6 months from 1976 to 1983 (15.1% to 24.9%); however, it is possible that, if measurements had been made in the middle of the period, the 25% in 1983 would have represented a decrease in reported use.

More information is available on the frequency of marijuana use in the 12- to 19-year age group than the 20- to 29-year age group. Comparative data from 1978, 1980, 1981 (*9-11*),

Illicit Drug Use — Continued

and 1983 (*3*) Gallup Poll surveys indicate that the percentage of young adults who self-reported marijuana use in the last 12 months increased from 22.8% in 1978 to 25.9% in 1981 but decreased again to 21.1 in 1983.

The school surveys (*5-7*) also provided the most comprehensive collection of data on the use of other illicit drugs among Canadian teenagers. In Vancouver, the percentage of students reporting having ever used hallucinogens declined from 22.1% in 1970 to 17.1% in 1982, while the percentage reporting use in the past 6 months remained relatively constant over the survey years. Nonprescription use of depressants also declined from 11.5% in 1974 to 9.3% and 7.5% for 1978 and 1982, respectively. Nonprescription use of stimulants remained stable at between 12.3% and 13.7%, and heroin use was similar to previous surveys, with approximately 2% of respondents indicating that they had ever used it. The percentage of respondents who indicated cocaine use increased from 8.6% in 1978 to 10.1% in 1982. Reported use of inhalants increased from 9.3% in 1974 to 10.8% and 19.2% in 1978 and 1982, respectively. The percentage of students reporting use of inhalants in the last 6 months increased from 4.4% in 1978 to 6.2% in 1982; use in the past 30 days also increased slightly from 2.8% to 3.7%.

The results of the Vancouver and Ontario student surveys are difficult to compare, since the Vancouver study reports on the percentage of respondents who have "ever used" a drug, while the Ontario study refers to "use in the last 12 months." The percentage of students reporting use of cocaine, hallucinogens, "speed," inhalants, and heroin at least once in the last 12 months did not vary significantly from 1981 to 1983 in Ontario; cocaine use decreased from 4.8% to 4.1%; lysergic acid diethylamide (LSD) use decreased from 10.2% to 8.6%; phencyclidine (PCP) decreased from 2.5% to 2.0%; other hallucinogens increased from 4.7% to 6.0%; glue and other solvent use increased from 2.3% to 3.2%; and heroin remained constant at 1.5% in 1981 and 1.6% in 1983. Nonmedical stimulants were the only substance to increase significantly in use, from 12.1% in 1981 to 15.4% in 1983. Use of nonbarbiturates and tranquilizers in the last 12 months also increased significantly between the survey years but only among students aged 18 years and those living in northern Ontario.

Similar increases in amphetamine use have been observed in Halifax, especially among female students. In 1983, 15% of the females surveyed reported use of amphetamines in the last 6 months, an increase of 4.5% from 1979, while use for the males surveyed increased only slightly from 8% to 9.7%. Use of inhalants, barbiturates, and opiates remained stable between the survey years. Approximately 6% of respondents reported using some form of inhalant in both 1979 and 1983. Use of barbiturates occurred at between 2% and 3%, with a similar pattern for opiates. Reported use of tranquilizers in the last 6 months decreased from 9.8% in 1979 to 7.4% in 1983, while hallucinogens increased substantially for the female but not the male student sample.

Editorial Note: These data suggest that, with a few exceptions, there appears to have been a stabilization or even a decrease in use of drug use among young people in Canada. This may be a reflection either of changing times or, at least in part, educational and promotional efforts carried out by national, provincial, and local organizations in the late 1970s or early 1980s. However, the importance of continuing to monitor patterns of substance use by young people in Canada is apparent.

Data from surveys sponsored by the National Institute on Drug Abuse have shown similar trends in the United States. Recently released data from the High School Senior Survey, for example, show that 5% of the seniors in the class of 1984 used marijuana daily. This figure is the lowest ever recorded by the annual survey, which began in 1975, and is less than half the peak of 11% found for the class of 1978. Other measures of marijuana use also declined.

Adapted from Chronic Diseases in Canada *(1984;5:31-3) as reported by WJ Bradley, N Jennings, Analytical Svcs Div, Information Systems Directorate, D Jossa, I Rootman, Health Promotion Directorate,*

Illicit Drug Use — Continued

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Respiratory Virus Surveillance — United States, January 1985

Reports of noninfluenza respiratory viruses received at CDC through January 18, 1985, indicate parainfluenza virus type 3 and respiratory syncytial virus (RSV) are the most common noninfluenza respiratory viruses isolated so far this respiratory virus season. Parainfluenza type 3 isolates have been reported from all nine regions and in largest numbers from the New England (NE), Mid-Atlantic (MA), East North Central (ENC), West South Central (WSC), and Mountain (MTN) regions from September through November 1984. RSV began to be isolated in increasing numbers in the MTN, NE, MA, and South Atlantic regions in December (Table 2). Parainfluenza types 1 and 2 have been reported from only three and two regions, respectively. In 1983, these two types had occurred in all nine regions by November 30.

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TABLE 2. Respiratory syncytial virus — United States, September 1984-January 1985

	Region									
	New Engl.	Mid-Atl.	E.N. Cent.	W.N. Cent.	S. Atl.	E.S. Cent.	W.S. Cent.	Mtn.	Pac.	Total
Sept.	0	0	1	0	0	0	1	0	0	**2**
Oct.	0	0	0	1	0	1	0	3	1	**6**
Nov.	1	2	0	5	1	0	0	2	0	**11**
Dec.	15	22	1	2	11	0	0	23	1	**75**
Jan.*	36	†	1	4	10	0	†	†	3	**54**
Total	**52**	**24**	**3**	**12**	**22**	**1**	**1**	**28**	**5**	**148**

*Reports through January 18, 1985.

†January data pending.

Respiratory Virus Surveillance — Continued

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Editorial Note: Reports of noninfluenza respiratory virus isolations are received from selected university and state virology laboratories in the United States. Reports will focus on RSV and parainfluenza virus types 1, 2, and 3. Parainfluenza virus type 3 is often isolated year-round, with peaks occasionally occurring in the late winter or spring (*1,2*). Outbreaks of RSV occur each year with peak isolations occurring sometime between December and March (*3*). RSV and parainfluenza type 3 are the most common causes of lower respiratory tract illness among infants and young children. Parainfluenza types 1 and 2 often cause outbreaks of croup in children in the fall of alternating years (*2*).

(Continued on page 43)

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

Disease	3rd Week Ending			Cumulative, 3rd Week Ending		
	Jan. 19, 1985	Jan. 21, 1984	Median 1980-1984	Jan. 19, 1985	Jan. 21, 1984	Median 1980-1984
Acquired Immunodeficiency Syndrome (AIDS)	129	99	N	283	251	N
Aseptic meningitis	64	97	91	175	282	264
Encephalitis: Primary (arthropod-borne & unspec.)	13	16	18	28	35	44
Post-infectious	1	1	2	4	4	4
Gonorrhea: Civilian	13,197	16,575	19,589	37,885	48,060	55,168
Military	240	340	520	785	1,255	1,475
Hepatitis: Type A	224	356	498	744	957	1,157
Type B	321	455	359	910	1,134	936
Non A, Non B	50	60	N	144	163	N
Unspecified	56	99	156	168	223	424
Legionellosis	1	7	N	17	15	N
Leprosy	-	3	3	4	13	7
Malaria	1	11	16	10	31	37
Measles: Total*	7	7	10	12	25	26
Indigenous	1	3	N	1	19	N
Imported	6	4	N	11	6	N
Meningococcal infections: Total	36	41	65	96	136	155
Civilian	36	41	62	96	136	148
Military	-	-	-	-	-	1
Mumps	40	55	88	103	177	218
Pertussis	8	20	14	35	72	40
Rubella (German measles)	3	6	38	11	22	90
Syphilis (Primary & Secondary): Civilian	279	591	591	953	1,480	1,718
Military	1	7	7	10	12	25
Toxic Shock syndrome	4	8	N	14	26	N
Tuberculosis	258	308	409	662	808	990
Tularemia	1	-	1	6	3	3
Typhoid fever	1	7	4	6	16	19
Typhus fever, tick-borne (RMSF)	1	1	-	4	4	4
Rabies, animal	46	59	83	131	174	237

TABLE II. Notifiable diseases of low frequency, United States

	Cum. 1985		Cum. 1985
Anthrax	-	Plague	-
Botulism: Foodborne	-	Poliomyelitis: Total	-
Infant	-	Paralytic	-
Other	-	Psittacosis (Colo. 1)	5
Brucellosis	1	Rabies, human	-
Cholera	-	Tetanus	1
Congenital rubella syndrome	-	Trichinosis	4
Diphtheria	-	Typhus fever, flea-borne (endemic, murine)	-
Leptospirosis (Mo. 1)	3		

Three of the 7 reported cases for this week were imported from a foreign country or can be directly traceable to a known internationally imported case within two generations.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending January 19, 1985 and January 21, 1984 (3rd Week)

Reporting Area	AIDS	Aseptic Menin-gitis	Encephalitis		Gonorrhea (Civilian)		Hepatitis (Viral), by type				Legionel-losis	Leprosy
			Primary	Post-in-fectious			A	B	NA,NB	Unspeci-fied		
	Cum. 1985	1985	Cum. 1985	Cum. 1985	Cum. 1985	Cum. 1984	1985	1985	1985	1985	1985	Cum. 1985
UNITED STATES	283	64	28	4	37,885	48,060	224	321	50	56	1	4
NEW ENGLAND	11	5	2	-	1,433	1,712	4	37	5	10	-	-
Maine	1	-	-	-	61	63	1	2	-	-	-	-
N.H.	-	-	1	-	32	32	-	1	1	-	-	-
Vt.	-	-	-	-	13	18	1	1	-	-	-	-
Mass.	9	2	1	-	526	568	2	27	4	10	-	-
R.I.	-	1	-	-	125	73	-	3	-	-	-	-
Conn.	1	2	-	-	676	958	-	3	-	-	-	-
MID. ATLANTIC	95	17		-	3,500	4,606	23	54	5	3	-	1
Upstate N.Y.	20	3	-	-	105	395	3	7	2	-	-	-
N.Y. City	51	1	-	-	2,319	2,230	14	35	-	-	-	1
N.J.	19	13	-	-	566	565	6	12	3	3	-	-
Pa.	5	-	-	-	510	1,416	-	-	-	-	-	-
E.N. CENTRAL	8	15	10	2	4,961	7,436	35	52	3	6	1	-
Ohio	6	10	4	1	1,995	2,094	13	38	2	4	1	-
Ind.	-	1	2	-	384	347	6	3	1	2	-	-
Ill.	1	-	-	-	854	2,175	1	-	-	-	-	-
Mich.	1	4	3	-	1,653	2,180	15	11	-	-	-	-
Wis.	-	-	1	1	75	640	-	-	-	-	-	-
W.N. CENTRAL	4	4	1	-	2,520	2,117	2	9	1	1	-	-
Minn.	1	-	-	-	360	391	-	-	-	-	-	-
Iowa	-	3	1	-	236	268	-	2	-	-	-	-
Mo.	1	-	-	-	1,148	848	-	7	-	1	-	-
N. Dak.	-	-	-	-	17	20	-	-	-	-	-	-
S. Dak.	-	-	-	-	56	67	2	-	1	-	-	-
Nebr.	-	1	-	-	286	143	-	-	-	-	-	-
Kans.	2	-	-	-	417	380	-	-	-	-	-	-
S. ATLANTIC	40	6	5	-	9,191	11,698	12	62	11	4	-	-
Del.	1	-	-	-	183	218	-	-	1	-	-	-
Md.	4	-	2	-	1,407	1,752	1	-	1	-	-	-
D.C.	5	-	-	-	716	617	-	3	-	-	-	-
Va.	3	-	-	-	1,115	1,186	-	1	-	-	-	-
W. Va.	-	-	-	-	161	110	3	1	-	-	-	-
N.C.	3	2	3	-	1,741	2,040	-	8	3	2	-	-
S.C.	-	-	-	-	1,335	1,086	-	12	2	2	-	-
Ga.	7	4	-	-	-	2,371	1	26	2	-	-	-
Fla.	17	-	-	-	2,533	2,318	7	11	2	-	-	-
E.S. CENTRAL	3	11	2	2	3,979	3,911	10	41	4	1	-	-
Ky.	1	7	-	-	392	505	5	-	-	1	-	-
Tenn.	-	-	1	-	1,636	1,623	4	12	1	-	-	-
Ala.	1	4	1	2	1,209	1,211	1	29	3	-	-	-
Miss.	1	-	-	-	742	572	-	-	-	-	-	-
W.S. CENTRAL	30	1	1	-	6,461	6,980	19	11	-	14	-	-
Ark.	-	-	-	-	600	600	-	-	-	-	-	-
La.	1	-	-	-	1,444	1,883	-	-	-	-	-	-
Okla.	-	1	1	-	700	784	8	2	-	1	-	-
Tex.	29	-	-	-	3,717	3,713	11	9	-	13	-	-
MOUNTAIN	7	-	-	-	1,567	1,376	70	40	8	15	-	-
Mont.	-	-	-	-	49	71	-	-	-	1	-	-
Idaho	-	-	-	-	36	75	-	-	-	1	-	-
Wyo.	-	-	-	-	33	31	-	1	-	-	-	-
Colo.	4	-	-	-	471	383	10	2	1	4	-	-
N. Mex.	-	-	-	-	186	160	12	13	-	-	-	-
Ariz.	1	-	-	-	474	330	27	15	3	4	-	-
Utah	-	-	-	-	54	76	11	3	4	5	-	-
Nev.	2	-	-	-	264	250	10	6	-	-	-	-
PACIFIC	85	5	7	-	4,273	8,224	49	15	13	2	-	3
Wash.	1	4	1	-	271	433	18	7	9	1	-	-
Oreg.	2	-	-	-	382	388	30	5	3	1	-	1
Calif.	82	U	6	-	3,394	7,135	U	U	U	U	U	2
Alaska	-	-	-	-	138	160	-	1	-	-	-	-
Hawaii	-	1	-	-	88	108	1	2	1	-	-	-
Guam	-	U	-	-	-	14	U	U	U	U	U	-
P.R.	1	2	1	-	137	178	2	9	-	3	-	-
V.I.	-	-	-	-	23	28	-	-	-	-	-	-
Pac. Trust Terr.	-	U	-	-	-	-	U	U	U	U	U	-

N: Not notifiable U: Unavailable

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending January 19, 1985 and January 21, 1984 (3rd Week)

Reporting Area	Malaria	Measles (Rubeola)					Menin-gococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported *		Total									
	Cum. 1985	1985	Cum 1985	1985	Cum. 1985	Cum. 1984	Cum. 1985	1985	Cum. 1985	1985	Cum. 1985	Cum. 1984	1985	Cum. 1985	Cum 1984
UNITED STATES	10	1	1	6	11	25	96	40	103	8	35	72	3	11	22
NEW ENGLAND	-	-	-	-	-	-	11	1	5	1	1	2	1	2	-
Maine	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-
N.H.	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-
Vt.	-	-	-	-	-	-	2	-	-	1	1	-	-	-	-
Mass.	-	-	-	-	-	-	3	1	4	-	-	-	1	1	-
R.I.	-	-	-	-	-	-	3	-	-	-	-	1	-	-	-
Conn.	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
MID ATLANTIC	2	1	1	1	2	-	11	3	4	4	6	2	-	3	-
Upstate N.Y.	1	-	-	-	-	-	4	3	3	1	2	2	-	-	-
N.Y. City	1	1	1	1 †	2	-	1	-	1	3	4	-	-	3	-
N.J.	-	-	-	-	-	-	6	-	-	-	-	-	-	-	-
Pa.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E.N. CENTRAL	1	-	-	-	-	4	24	11	40	-	11	5	-	-	2
Ohio	1	-	-	-	-	-	14	10	25	-	3	-	-	-	-
Ind.	-	-	-	-	-	-	3	-	3	-	8	-	-	-	-
Ill.	-	-	-	-	-	-	-	-	8	-	-	3	-	-	1
Mich.	-	-	-	-	-	4	5	1	4	-	-	-	-	-	1
Wis.	-	-	-	-	-	-	2	-	-	-	-	2	-	-	-
W.N. CENTRAL	1	-	-	-	-	-	4	3	3	-	-	32	1	1	1
Minn.	-	-	-	-	-	-	1	-	-	-	-	2	-	-	-
Iowa	-	-	-	-	-	-	1	1	1	-	-	2	-	-	-
Mo.	1	-	-	-	-	-	2	-	-	-	-	1	-	-	-
N. Dak.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
S. Dak.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nebr.	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Kans.	-	-	-	-	-	-	-	2	2	-	-	26	1	1	-
S. ATLANTIC	1	-	-	-	-	-	14	3	13	2	3	6	-	1	1
Del.	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Md.	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
D.C.	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Va.	-	-	-	-	-	-	2	1	4	-	-	1	-	-	-
W. Va.	-	-	-	-	-	-	-	-	4	-	-	1	-	-	-
N.C.	-	-	-	-	-	-	4	-	-	1	2	-	-	-	-
S.C.	-	-	-	-	-	-	4	-	1	-	-	-	-	1	-
Ga.	-	-	-	-	-	-	1	-	2	-	-	2	-	-	-
Fla.	-	-	-	-	-	-	1	2	2	1	1	2	-	-	1
E.S. CENTRAL	1	-	-	-	-	2	2	-	1	1	1	2	1	1	-
Ky.	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-
Tenn.	-	-	-	-	-	2	1	-	1	1	1	1	-	-	-
Ala.	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Miss.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.S. CENTRAL	-	-	-	-	-	-	2	4	6	-	-	4	-	-	3
Ark.	-	-	-	-	-	-	-	-	1	-	-	2	-	-	-
La.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Okla.	-	-	-	-	-	-	-	N	N	-	-	-	-	-	-
Tex.	-	-	-	-	-	-	2	4	5	-	-	2	-	-	3
MOUNTAIN	-	-	-	3	3	12	7	14	18	-	1	11	-	-	2
Mont.	-	-	-	3 §	3	-	1	-	-	-	-	1	-	-	-
Idaho	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-
Wyo.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Colo.	-	-	-	-	-	-	2	2	2	-	-	9	-	-	-
N. Mex.	-	-	-	-	-	-	1	N	N	-	1	1	-	-	-
Ariz.	-	-	-	-	-	-	3	10	14	-	-	-	-	-	-
Utah	-	-	-	-	-	12	-	-	-	-	-	-	-	-	2
Nev.	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-
PACIFIC	4	-	-	2	6	7	21	1	13	-	12	8	-	3	13
Wash.	1	-	-	-	-	-	3	-	1	-	-	5	-	-	-
Oreg.	-	-	-	-	-	-	1	N	N	-	-	-	-	-	-
Calif.	2	U	-	U	4	6	17	U	10	U	12	3	U	3	13
Alaska	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hawaii	-	-	-	2 †	2	1	-	1	2	-	-	-	-	-	-
Guam	-	U	-	U	-	1	-	U	-	U	-	-	U	-	-
P.R.	-	5	12	-	-	-	1	9	9	-	-	-	-	-	-
V.I.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pac. Trust Terr.	-	U	-	U	-	-	-	U	-	U	-	-	U	-	-

*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 January 19, 1985 and January 21, 1984 (3rd Week)

Reporting Area	Syphilis (Civilian) (Primary & Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1985	Cum. 1984	1985	Cum. 1985	Cum. 1984	Cum. 1985	Cum. 1985	Cum. 1985	Cum. 1985
UNITED STATES	953	1,480	4	662	808	6	6	4+1	131
NEW ENGLAND	25	37	-	16	22	-	-	-	-
Maine	1	-	-	1	2	-	-	-	-
N.H.	-	-	-	-	1	-	-	-	-
Vt.	-	-	-	-	-	-	-	-	-
Mass	13	23	-	12	11	-	-	-	-
R.I.	-	1	-	-	-	-	-	-	-
Conn	11	13	-	3	8	-	-	-	-
MID ATLANTIC	136	186	-	201	166	-	-	-	23
Upstate N.Y.	7	8	-	14	23	-	-	-	6
N.Y. City	94	110	-	116	67	-	-	-	-
N.J.	35	39	-	56	37	-	-	-	-
Pa.	-	29	-	15	39	-	-	-	17
E.N. CENTRAL	36	93	3	71	95	-	-	2+1	3
Ohio	6	23	2	21	22	-	-	2 1	-
Ind.	5	15	-	10	10	-	-	-	-
Ill.	13	40	-	39	37	-	-	-	-
Mich.	9	9	1	-	17	-	-	-	-
Wis.	3	6	-	1	9	-	-	-	3
W.N. CENTRAL	10	26	-	11	20	3	-	-	21
Minn.	2	6	-	-	2	-	-	-	1
Iowa	-	3	-	7	4	-	-	-	13
Mo.	6	16	-	-	8	2	-	-	3
N. Dak.	-	-	-	-	-	-	-	-	2
S. Dak.	-	-	-	1	1	-	-	-	-
Nebr.	1	-	-	-	2	1	-	-	2
Kans.	1	1	-	3	3	-	-	-	-
S. ATLANTIC	251	453	1	132	199	-	2	2	12
Del.	3	-	-	-	2	-	-	-	-
Md.	22	25	-	21	31	-	-	-	-
D.C.	6	12	-	8	6	-	-	-	-
Va.	20	20	-	-	5	-	1	-	5
W. Va.	-	3	-	9	8	-	-	-	-
N.C.	41	34	1	7	32	-	-	1	-
S.C.	45	40	-	27	29	-	-	-	1
Ga.	-	86	-	11	17	-	-	1	6
Fla.	114	233	-	49	69	-	1	-	-
E.S. CENTRAL	88	99	-	60	55	1	-	-	9
Ky.	5	4	-	15	10	-	-	-	1
Tenn.	20	27	-	16	8	1	-	-	1
Ala.	32	30	-	29	37	-	-	-	7
Miss.	31	38	-	-	-	-	-	-	-
W.S. CENTRAL	214	303	-	47	29	-	-	-	29
Ark.	13	10	-	-	-	-	-	-	5
La.	57	83	-	26	10	-	-	-	1
Okla.	4	6	-	5	-	-	-	-	4
Tex.	140	204	-	16	19	-	-	-	19
MOUNTAIN	53	35	-	10	15	2	-	-	19
Mont.	-	-	-	2	-	-	-	-	4
Idaho	1	-	-	-	-	-	-	-	-
Wyo.	-	1	-	-	-	-	-	-	2
Colo.	11	4	-	-	-	-	-	-	-
N. Mex.	-	2	-	-	5	1	-	-	1
Ariz.	41	12	-	6	8	-	-	-	12
Utah	-	2	-	-	1	1	-	-	-
Nev.	-	14	-	2	1	-	-	-	-
PACIFIC	140	248	-	114	207	-	4	-	15
Wash.	-	9	-	4	6	-	-	-	-
Oreg.	11	10	-	3	9	-	-	-	-
Calif.	123	221	U	101	174	-	4	-	15
Alaska	-	-	-	-	-	-	-	-	-
Hawaii	6	8	-	6	18	-	-	-	-
Guam	-	-	U	-	-	-	-	-	-
P.R.	25	36	-	8	12	-	-	-	-
V.I.	-	1	-	-	-	-	-	-	-
Pac. Trust Terr.	-	-	U	-	-	-	-	-	-

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending January 19, 1985 (3rd Week)

Reporting Area	All Causes, By Age (Years)						P&I** Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	785	567	152	40	8	18	59
Boston, Mass.	205	132	44	16	3	10	24
Bridgeport, Conn.	62	47	10	3	1	1	1
Cambridge, Mass.	32	28	2	2	-	-	5
Fall River, Mass.	27	24	2	1	-	-	-
Hartford, Conn.	69	47	18	2	1	1	6
Lowell, Mass.	26	20	4	2	-	-	-
Lynn, Mass.	27	20	4	2	1	-	-
New Bedford, Mass	28	20	7	1	-	-	-
New Haven, Conn.	72	42	23	4	-	3	1
Providence, R.I.	85	67	12	3	-	3	6
Somerville, Mass.	5	5	-	-	-	-	-
Springfield, Mass.	52	36	13	2	1	-	5
Waterbury, Conn.	32	28	2	2	-	-	3
Worcester, Mass.	63	51	11	-	1	-	8
MID. ATLANTIC	3,301	2,188	701	259	70	82	181
Albany, N.Y.	42	29	5	4	3	1	-
Allentown, Pa.	18	14	4	-	-	-	-
Buffalo, N.Y.	116	72	28	7	4	5	15
Camden, N.J.	42	21	10	8	-	3	1
Elizabeth, N.J.	27	20	5	-	2	-	-
Erie, Pa.†	43	30	7	1	2	3	4
Jersey City, N.J.	54	41	7	4	1	1	-
N.Y. City, N.Y.	1,920	1,286	392	160	41	41	105
Newark, N.J.	107	41	32	13	9	11	10
Paterson, N.J.	35	27	5	3	-	-	-
Philadelphia, Pa.†	403	252	111	32	4	4	16
Pittsburgh, Pa.†	74	45	18	6	1	4	3
Reading, Pa.	39	35	2	-	-	2	1
Rochester, N.Y.	117	83	25	5	-	4	16
Schenectady, N.Y.	23	17	3	2	1	-	1
Scranton, Pa.†	27	20	7	-	-	-	-
Syracuse, N.Y.	108	68	27	8	2	3	5
Trenton, N.J.	32	26	4	2	-	-	1
Utica, N.Y.	26	20	4	2	-	-	-
Yonkers, N.Y.	48	41	5	2	-	-	3
E.N. CENTRAL	2,439	1,730	432	125	66	83	105
Akron, Ohio	76	51	21	2	1	1	-
Canton, Ohio	39	28	10	1	-	-	3
Chicago, Ill. §	533	452	10	21	16	31	15
Cincinnati, Ohio	120	72	33	5	8	2	12
Cleveland, Ohio	162	103	41	10	3	5	7
Columbus, Ohio	130	80	29	11	8	2	3
Dayton, Ohio	114	82	25	2	3	2	6
Detroit, Mich.	290	181	63	28	10	8	6
Evansville, Ind.	40	25	11	1	1	2	-
Fort Wayne, Ind.	71	54	14	2	1	-	2
Gary, Ind.	23	10	6	6	1	-	2
Grand Rapids, Mich	48	28	11	6	2	1	6
Indianapolis, Ind.	174	122	33	10	4	5	9
Madison, Wis.	47	34	10	1	2	-	6
Milwaukee, Wis.	164	109	36	6	-	13	3
Peoria, Ill.	55	39	10	2	1	3	5
Rockford, Ill.	50	36	10	1	2	1	2
South Bend, Ind.	68	50	11	3	1	3	8
Toledo, Ohio	136	95	33	5	1	2	9
Youngstown, Ohio	99	79	15	2	1	2	1
W.N. CENTRAL	930	632	194	59	15	30	36
Des Moines, Iowa	103	70	21	8	-	4	2
Duluth, Minn.	50	39	6	2	1	2	-
Kansas City, Kans.	43	22	12	6	3	-	1
Kansas City, Mo.	170	109	37	17	2	5	12
Lincoln, Nebr.	48	33	11	2	1	1	2
Minneapolis, Minn	86	61	13	6	-	6	1
Omaha, Nebr.	105	68	25	3	5	4	4
St. Louis, Mo.	169	119	40	4	1	5	4
St. Paul, Minn.	71	55	7	7	1	1	4
Wichita, Kans.	85	56	22	4	1	2	6
S. ATLANTIC	1,164	765	257	67	34	40	53
Atlanta, Ga.	157	101	37	13	4	2	5
Baltimore, Md.	162	100	49	7	4	2	7
Charlotte, N.C.	87	51	20	5	7	4	3
Jacksonville, Fla.	116	71	28	10	4	3	7
Miami, Fla.	97	62	20	7	4	4	6
Norfolk, Va.	62	37	15	1	4	5	5
Richmond, Va.	83	54	20	5	-	4	-
Savannah, Ga.	52	31	18	1	2	-	3
St. Petersburg, Fla.	144	130	10	1	-	3	6
Tampa, Fla.	88	55	15	13	2	2	7
Washington, D.C.	44	20	9	3	2	10	1
Wilmington, Del.	72	53	16	1	1	1	3
E.S. CENTRAL	902	586	209	61	20	26	53
Birmingham, Ala.	151	90	39	17	3	2	3
Chattanooga, Tenn.	71	46	17	5	2	1	7
Knoxville, Tenn.	89	58	24	5	-	2	8
Louisville, Ky.	132	91	23	4	4	10	11
Memphis, Tenn.	215	149	49	13	4	-	12
Mobile, Ala.	54	42	8	2	2	-	5
Montgomery, Ala.	58	36	11	4	2	5	2
Nashville, Tenn.	132	74	38	11	3	6	5
W.S. CENTRAL	1,601	943	402	134	49	73	73
Austin, Tex.	100	63	18	10	5	4	4
Baton Rouge, La.	37	29	5	-	1	2	5
Corpus Christi, Tex.	17	7	8	-	1	1	2
Dallas, Tex.	232	132	58	19	8	15	5
El Paso, Tex.	52	34	11	5	-	2	2
Fort Worth, Tex.	127	78	28	10	2	9	12
Houston, Tex.	428	211	125	57	15	20	13
Little Rock, Ark.	37	19	13	2	1	2	4
New Orleans, La.	152	89	45	9	5	4	1
San Antonio, Tex.	230	144	54	17	6	9	17
Shreveport, La.	65	53	9	-	2	1	-
Tulsa, Okla.	124	84	28	5	3	4	8
MOUNTAIN	778	537	159	41	22	19	54
Albuquerque, N.Mex.	91	62	23	3	2	1	8
Colo. Springs, Colo.	41	31	8	1	-	1	10
Denver, Colo.	136	96	28	6	3	3	11
Las Vegas, Nev.	99	57	28	9	4	1	2
Ogden, Utah	26	25	-	-	1	-	7
Phoenix, Ariz.	176	127	33	10	3	3	5
Pueblo, Colo.	30	21	6	1	1	1	2
Salt Lake City, Utah	47	30	7	7	1	2	1
Tucson, Ariz.	132	88	26	4	7	7	8
PACIFIC	2,276	1,705	331	118	59	57	164
Berkeley, Calif.	21	19	-	2	-	-	1
Fresno, Calif.	98	73	16	3	1	5	15
Glendale, Calif. §	25	25	-	-	-	-	-
Honolulu, Hawaii	87	57	24	3	2	1	6
Long Beach, Calif.	113	79	26	3	1	4	-
Los Angeles, Calif. §	519	468	6	5	23	11	17
Oakland, Calif.	84	58	17	6	1	2	5
Pasadena, Calif.	41	28	6	5	-	2	4
Portland, Oreg.	134	103	22	4	3	2	10
Sacramento, Calif.	178	125	31	11	9	2	20
San Diego, Calif.	202	138	42	10	8	4	21
San Francisco, Calif.	235	144	49	29	5	8	17
San Jose, Calif.	240	180	32	14	4	10	25
Seattle, Wash.	195	131	38	20	1	5	7
Spokane, Wash.	56	43	12	1	-	-	7
Tacoma, Wash.	48	34	10	2	1	1	9
TOTAL	14,176††	9,653	2,837	904	343	428	778

* 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.

Respiratory Virus Surveillance — Continued

References

1. Glezen WP, Frank AL, Taber LH, Kasel JA. Parainfluenza virus type 3: seasonality and risk of infection and reinfection in young children. J Infect Dis 1984; 150:851-7.
2. Glezen WP, Loda FA, Denny FW. Parainfluenza viruses. In: Evans AS, ed. Viral infections of humans; epidemiology and control. New York: Plenum, 1982:441-53.
3. Chanock RM, Kim HW, Brandt CD, Parrott RH. Respiratory syncytial virus. In: Evans AS, ed. Viral infections of humans; epidemiology and control. New York: Plenum, 1982:471-89.

Adverse Events Following Immunization

Identification of adverse events caused by vaccine occurs both before and after licensure. Before licensure, candidate vaccines undergo clinical trials to evaluate safety and efficacy. These trials typically involve several thousand individuals and are able to identify relatively frequent events causally associated with vaccination. However, rare adverse events may not be detected in prelicensure testing and can only be detected by postmarketing surveillance as the vaccine becomes widely used. Postmarketing surveillance is complicated by the fact that events that follow vaccination are not necessarily caused by the vaccine. Establishing that an adverse event after immunization was caused by a particular vaccine requires careful weighing of clinical, laboratory, and epidemiologic evidence. Epidemiologically, a cause-and-effect association is greatly strengthened by a determination that the rate of a given illness following immunization is significantly higher than the rate of that illness in the absence of vaccination. Ascertaining this may require detailed study. In addition, issues of reporting and design bias, reproducibility of findings, consistency with other data, and biologic plausibility must be weighed to infer causality when epidemiologic association exists. Consequently, considerable caution must be used in interpreting reports of adverse events temporally associated with immunization before inferring causality.

TABLE 3. Rates* of reports of adverse events occurring within 30 days after immunization by public providers, by vaccine type administered — United States, 1979-1982†

Vaccine	Rates, by year					Change between 1979 and 1982 (%)
	1979	1980	1981	1982	1979-1982§	
DTP	53.3	64.2	65.2	102.0	70.8	+91.4
Td	32.8	37.1	31.5	31.6	33.5	−3.7
DT	9.7	42.3	44.2	104.1	38.4	+973.2
Measles¶	44.4	73.7	83.2	114.0	74.8	+156.8
Mumps**	50.3	71.3	88.5	106.6	77.2	+111.9
Rubella††	54.6	77.0	91.6	122.5	83.8	+124.4

*Number of reports per million doses administered. Because of underreporting, these rates should be interpreted as indexes of the true rates.

†Reports received as of February 15, 1983. Persons who received more than one vaccine are counted for each vaccine received.

§Rates of reports of adverse events for 1979-1982 combined.

¶For all measles-containing vaccines (MMR + MR + single-antigen measles).

**For all mumps-containing vaccines (MMR + single-antigen mumps).

††For all rubella-containing vaccines (MMR + MR + single-antigen rubella).

Adverse Events — Continued

At present, there are two complementary national postmarketing surveillance systems for vaccines in the United States. The U.S. Food and Drug Administration receives reports from manufacturers, pharmacists, physicians, and the military services of adverse events following immunization. Almost all reports to this system come from the private sector. In late 1978, CDC established the Monitoring System for Adverse Events Following Immunization (MSAEFI) to collect reports from the public sector concerning adverse events following immunization. Each parent or guardian of a child who receives publicly funded vaccines is requested to report any illness that occurs within 30 days of receiving vaccine and that is severe enough to require a visit to a doctor, clinic, or hospital. Approximately half of all childhood vaccines administered are provided with public funds.

In the 4-year period 1979-1982, 4,503 reports were submitted to MSAEFI; 3,708 (83%) of these came from the public sector. The remainder came from private physicians, the military services, or other sources. Only analyses of public-sector reports are included in this article. Since the system was first implemented, the number of reports has increased each year. During the 4 years, it has increased 40%. Table 3 presents rates of reports for different types of vaccines administered during 1979-1982. Oral polio vaccine (OPV) is not listed separately in this table, since virtually all OPV-associated events reported to this system occurred among individuals who also received diphtheria-tetanus-pertussis (DTP), diphtheria-tetanus (DT), or tetanus-diphtheria (Td) vaccines, and the events reported seemed more likely to be due to these vaccines. Twenty-four reports were received regarding events following receipt of OPV alone.

TABLE 4. Rates* of selected adverse events occurring within 30 days after immunization by public providers, by selected vaccines — United States, 1979-1982† combined

Clinical category	Rates, by vaccine type					
	DTP	Td	DT	Measles§	Mumps¶	Rubella**
Local reactions	30.4	20.1	10.7	11.2	9.7	10.4
Fever	45.8	11.7	23.5	52.8	56.5	58.5
Allergic reactions	5.0	2.6	2.1	4.5	5.3	5.2
Arthritis and/or arthralgia	0.8	1.3	2.1	3.1	2.3	7.2
Febrile convulsions	7.5	0.5	2.1	9.3	10.4	10.5
Nonfebrile convulsions	1.5	1.2	—	1.3	0.9	1.0
Encephalitis and/or encephalopathy	0.2	0.4	—	0.3	0.3	0.2
SIDS††	1.5	—	—	—	—	—
Deaths from all other causes	0.6	—	—	0.7	0.5	0.5
Overall rates	**70.8**	**33.5**	**38.4**	**74.8**	**77.2**	**83.8**

*Number of reported clinical illnesses per million doses administered. Because of underreporting, these rates should be interpreted as indexes of the true rates.

†Reports received as of February 15, 1983. Persons who received more than one vaccine are counted for each vaccine received.

§For all measles-containing vaccines (MMR + MR + single-antigen measles).

¶For all mumps-containing vaccines (MMR + single-antigen mumps).

**For all rubella-containing vaccines (MMR + MR + single-antigen rubella).

††Children under 1 year of age whose deaths occurred within 30 days of receipt of vaccine and who had no clinical or autopsy findings to explain the deaths. Since, by definition, SIDS occurs only among infants under a year of age and only DTP or DT and OPV (or IPV) are recommended in this age group, SIDS would not be expected to be reported following the receipt of other vaccines.

Adverse Events — Continued

The reporting rate was highest for events following measles-, mumps-, and rubella-containing vaccines, with 74.8 to 83.8 reports per million doses administered (Table 3). Since the majority of measles, mumps, and rubella is administered as combined vaccine (measles-mumps-rubella [MMR]), adverse events to individual vaccine antigens cannot be dissociated. This is a limitation of the surveillance system. All reports of events associated with MMR vaccine are attributed to each of the vaccine antigens, making the rates of reported events for measles, mumps, and rubella antigens appear approximately the same. When arthralgia and arthritis associated with single-antigen rubella vaccine are added to those events that are attributed to MMR vaccine, rubella antigen has the highest reported rate of adverse events (Table 4).

Rates of adverse events associated with DTP were somewhat lower, with 70.8 reports received per million doses administered (Table 3). More doses of DTP are administered per child than measles, mumps, and rubella vaccines (five doses of DTP are routinely recommended, compared to one dose of measles-, mumps-, and rubella-containing vaccines). Therefore, although rates per dose may be similar, the actual number of children with adverse events after DTP is higher than the number after measles-, mumps-, and rubella-containing vaccines. The rate for DTP was about twice that of Td or DT. Rates of reporting increased progressively throughout the 4-year period for all these vaccines except Td.

Reported rates of encephalitis and/or encephalopathy are low and similar for all vaccines (Table 4). Rates of febrile convulsions are similar for DTP and for measles-, mumps-, and rubella-containing vaccines.

The increases in reporting were principally due to increased reporting of local reactions, fever, or rash (Table 5). Seventy-four percent of all persons reported to MSAEFI had experienced only these minor events. By contrast, except for febrile convulsions, there was no increase in reporting for other, potentially more serious, events. Between 1979 and 1982, the total number of vaccine doses administered did not increase.

Seventy-eight deaths were reported among vaccine recipients during the 4-year period; 45 (58%) of these were classified as sudden infant death syndrome (SIDS). Except for a single SIDS death, which was temporally associated with the administration of inactivated polio vaccine (IPV) in 1982, all SIDS deaths were reported in temporal association with DTP or DTP and OPV vaccine administration. This temporal association might be expected, since, by defi-

TABLE 5. Secular trends in MSAEFI reporting — United States, 1979-1982*

Adverse event	No. persons†					Change
	1979	1980	1981	1982	1979-1982	1979-1982 (%)
1. Local reactions, fever, or rash only	530	700	695	817	2,742	+54.2
2. Febrile convulsions	63	68	72	112	315	+77.8
3. Nonfebrile convulsions	23	14	13	17	67	-26.1
4. Anaphylaxis	5	4	3	3	15	—
5. Encephalitis and/or encephalopathy	5	5	5	1	16	—
6. Guillain-Barré syndrome	7	—	1	1	9	—
7. Reye syndrome	1	1	—	—	2	—
8. SIDS§ or non-SIDS deaths	30	16	11	21	78	-30.0

*Reports received as of February 15, 1983.

†Persons in row 1 had only the specified events. Persons in rows 2-8 may have had other clinical events, both minor and more serious, than the clinical event listed, since each event is listed separately.

§Sudden infant death syndrome: children less than 1 year of age whose deaths occurred within 30 days of receipt of vaccine and who have no clinical or autopsy findings to explain the deaths.

Adverse Events — Continued

nition, SIDS occurs only in infants under 1 year of age, a period during which the only vaccines recommended for routine use are DTP and OPV. The National Institutes of Health has recently completed a case-control study that found no evidence of causal relationship between administration of DTP or OPV and subsequent sudden infant death (*1*). These results have been supported by a smaller case-control study in the United Kingdom (*2*). Of the 33 non-SIDS deaths reported to MSAEFI, 18 (55%) had a defined cause clearly not related to vaccine, such as severe congenital birth defects, sepsis, or meningitis. Of the remaining 15 deaths, nine were temporally associated with DTP and OPV; two, with DTP, OPV, and MMR; two, with MMR; and two, with measles vaccine. Specific causes of death could not be found, nor could vaccine causation be proved. No deaths were reported following administration of Td, DT, measles-rubella (MR), single-antigen mumps, or single-antigen rubella vaccines.

MSAEFI data have assisted in identifying risk factors that may predispose to adverse events. As an example, a comparison of personal history of convulsions in those who had convulsions following receipt of DTP was compared with those who had other (nonneurologic) adverse events following receipt of DTP (Table 6). Persons who had convulsions following DTP vaccination were significantly more likely to have had convulsions previously than persons who had other adverse events following DTP vaccination. The risk of convulsions following DTP vaccination was 8.1 times higher for persons with histories of convulsions than for persons without such histories (95% confidence limits, 5.0-13.0).

Reported by Surveillance, Investigations, and Research Br, Div of Immunization, Center for Prevention Svcs, CDC.

Editorial Note: MSAEFI collects data on adverse events temporally associated with vaccine administration. The system probably receives only a proportion of potential case reports, since it relies on parents or guardians to retain the phone number and instructions for reporting events, recognize that the event occurred within 30 days of vaccination, and initiate the report. Events occurring 1 week or more after vaccination are probably less likely to be reported than those occurring soon after vaccination. It is also probable that less serious events are not as likely to be reported as are more serious events. It is not possible at this time to esti-

TABLE 6. Personal histories of convulsions in 2,062 reported cases of adverse events following receipt of DTP vaccine by public providers — United States, 1979-1982* combined

	Personal history of convulsions						
Adverse event	No. persons responding	Percentage responding	No. with positive history	Percentage with positive history	Odds ratio	95% confidence limits	p value§
Febrile convulsions (219)	173	79.0	24	13.9	7.7	4.6, 12.8	< 0.0001
Nonfebrile convulsions (44)	34	77.3	6	17.6	10.2	4.6, 22.5	< 0.0001
All convulsions (263)	207	78.7	30	14.5	8.1	5.0, 13.0	< 0.0001
Nonneurologic adverse events (1,747)†	1,219	69.8	25	2.1	—	—	—

*Reports received as of February 15, 1983.

†Excludes reports in any of the following categories: convulsions, encephalitis and/or encephalopathy, Guillain-Barré syndrome, Reye syndrome, and other neurologic symptoms.

§Compared to nonneurologic adverse events.

Adverse Events – Continued

mate the degree of underreporting. As a result of the incompleteness of reporting, rates derived from MSAEFI data must be viewed only as an approximation of the true rates. Moreover, since reporting may be influenced by the type of reaction, the timing of the occurrence of the reaction, patient age, and other factors, comparison of rates by antigen should be interpreted with caution.

The increases in reported rates of adverse events during the 4-year period are probably due to improved reporting, as would be expected during the first years of implementation of the surveillance system. The greatest increase occurred in 1982, a year in which national attention was focused on adverse events associated with vaccines. The data are presented as rates, and, therefore, the increases cannot be attributed to greater utilization of vaccines. Also, these increases cannot be attributed to any documented changes in vaccine quality. Although the reported rate of febrile convulsions was greater in 1982 than in the preceding 3 years, the other more serious events were reported at a constant low rate over the 4-year period. During the first years of MSAEFI operation, a number of data-collection problems were detected. Operational revisions are now being made, including institution of a revised data collection form.

Analysis of MSAEFI data on histories of convulsions in all children who had adverse events reported after receipt of DTP showed that prior convulsions were a risk factor for having a convulsion after receipt of DTP. This, along with other published data, led to a recent clarification of the recommendations of the Immunization Practices Advisory Committee (ACIP) of the U.S. Public Health Service and the Committee on Infectious Diseases of the American Academy of Pediatrics. These groups now recommend that children with histories of convulsions not be given pertussis vaccine until it can be determined that there is not an evolving neurologic disorder present (*3,4*).

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Update: Influenza Activity — United States

Reports of influenza-like morbidity, virus isolates, and mortality from state epidemiologists, family physicians, and health officials in 121 U.S. cities continue to indicate increased influenza activity during January. Wyoming reported widespread outbreaks, and eight states (California, Illinois, Kentucky, Nebraska, New Mexico, Oregon, Pennsylvania, Utah) reported regional outbreaks for the week ending January 19, 1985. By January 22, influenza virus isolates had been reported from 27 states (26 with type A[H3N2] isolates, five with type B isolates, and one (Texas) with type A[H1N1]), compared with the nine states where influenza virus had been reported at the end of December. Only type A(H3N2) viruses have been associated with outbreaks. Family physicians who report weekly to CDC reported an average of eight patients with influenza-like illnesses for the reporting week ending January 9. This is about twice the average reported before influenza activity began but only about half of the average 14 cases weekly reported at the peak of the 1983-1984 influenza epidemic, when many outbreaks of type A(H1N1) influenza were occurring.

Influenza — Continued

Of total deaths reported from 121 U.S. cities, the percentage attributed to influenza and pneumonia (P&I) (Table IV) increased from a range of 4.8 to 5.0 in December to one of 5.5 and 5.7 in mid-January. P&I ratios in excess of 5% rarely occur in the absence of influenza epidemics, and the last time the percentage of deaths attributed to P&I exceeded 5.5% was in 1980-1981. In that epidemic, when many type A(H2N3) virus outbreaks were occurring, the P&I ratio peaked at 7.0.

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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: ATTN: Editor, *Morbidity and Mortality Weekly Report*, Centers for Disease Control, Atlanta, Georgia 30333.

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