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Premature Mortality due to Congenital Anomalies

In 1984, congenital anomalies were the fifth leading cause of years of potential life lost before age 65 (YPLL). They accounted for 684,000 YPLL, or about 6% of all YPLL (Table V, page 105).

Presented below are data on YPLL attributable to selected types of congenital anomalies by race (white, all other). Detailed mortality computer tapes available from the National Center for Health Statistics were used. The latest year for which tapes are available is 1982. Because of the year-to-year variation in YPLL (*1*), yearly average YPLL is presented for 1980-1982. To show changes over time, the 1980-1982 data were compared with 1970-1972 data.

In 1980-1982, an average yearly total of 732,549 YPLL was attributed to congenital anomalies, compared with 868,679 in 1970-1972 (Table 1), a decrease of 15.7%. For whites, the decrease was 19.0%, but for other races, YPLL increased 2.3%. In 1980-1982, 80% of YPLL due to congenital anomalies is derived from infant deaths (under 1 year of age); in 1970-1972, the figure was 78%. Compared with 1970-1972, the yearly average number of births was 3.6% higher in 1980-1982—1.0% higher for whites and 15.7% for other races. Since most YPLL due to congenital anomalies is derived from infant deaths and because the average yearly number of births was higher in 1980-1982 than in 1970-1972, particularly for other races, the changes in YPLL give a somewhat misleading picture of the impact of congenital anomalies on premature mortality. Adjusted for the change in average numbers of yearly births, YPLL decreased 18.6% overall from 1970-1972 to 1980-1982—19.8% for whites and 11.5% for other races.

Congenital anomalies of the cardiovascular system were the leading cause of premature mortality, accounting for 44.7% of YPLL due to congenital anomalies in 1980-1982 and 48.1% in 1970-1972 (Table 1); there was relatively little difference between the percentages for whites and those for other races. Nervous-system defects accounted for 17.5% of YPLL due to congenital anomalies in 1980-1982, a substantial decrease from the 1970-1972 percentage of 23.1. In 1980-1982, 7.4% of YPLL due to congenital anomalies was attributed to chromosomal anomalies, compared with 3.5% in 1970-1972. An increase in the number of YPLL from 1970-1972 to 1980-1982 was also seen for congenital anomalies of the respiratory system. The number of YPLL attributed to congenital anomalies of the digestive system decreased substantially from 1970-1972 to 1980-1982.

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Editorial Note: As infant mortality due to causes other than congenital anomalies has been reduced, congenital anomalies have become the leading cause of infant mortality and are the fifth leading cause of YPLL. Nevertheless, it appears that YPLL due to congenital anomalies

Congenital Anomalies — Continued

has decreased over the past decade, despite an increase in the number of births. Much of this decline may be attributed to improvements in the care of infants born with congenital anomalies, resulting in an increased survival rate. The decline cannot be attributed to an overall decline in the incidence rate of anomalies. According to CDC's birth defects surveillance data, the rates of occurrence of most defects have remained stable over the past decade (*2*) with a few notable exceptions. The rates of anencephaly and spina bifida have decreased substantially, which may account for some of the decrease in YPLL due to nervous-system anomalies, and the reported rate of some types of heart defects has increased.

Although new improvements in the care of affected individuals may further reduce YPLL due to congenital anomalies, the ultimate goal is reduction by primary prevention of congenital anomalies. Primary prevention will require the discovery of the causes of congenital anomalies, which are known to operate at the time of embryogenesis and organogenesis during the first trimester of pregnancy. Primary prevention is important, since many who now survive infancy with congenital anomalies face a lifetime of debilitating morbidity.

Even though congenital anomalies are among the leading causes of premature mortality, the YPLL statistics understate their true impact. One reason is that anomalies in infants who die shortly after birth may not be diagnosed and, thus, the infants' deaths may not be attributed to congenital anomalies. Another reason for understatement is that the YPLL statistics are based only on liveborn infants. A substantial number of fetuses with anomalies, however, die in utero.

The comparison of 1970-1972 data with 1980-1982 data may be clouded to some extent by changes in diagnostic acumen and cause of death attribution and in mortality coding. The 1970-1972 data were coded for cause of death by the Eighth Revision, International Classification of Diseases (ICD-8), and the 1980-1982 data were coded by the 9th Revision (ICD-9). For some categories of anomalies, code differences are very minor, but for others, ICD-9 is more detailed. For example, the coding available for chromosomal anomalies is more extensive in ICD-9. The YPLL for chromosomal anomalies was about twofold higher in 1980-1982 than in 1970-1972. Since the incidence of the common chromosomal anoma-

TABLE 1. Estimated years of potential life lost before age 65 (YPLL), per year, due to congenital anomalies, by race — United States, 1970-1972 and 1980-1982*

Cause of mortality (8th; 9th Revision ICD)	Yearly average YPLL					
	1970-1972			1980-1982		
	White	Other	Total	White	Other	Total
All congenital anomalies (740-759; 740-759)	732,594	136,086	868,680	593,366	139,181	732,549
Nervous system (740-743; 740-742)	177,037	23,559	200,596	106,948	21,230	128,178
Cardiovascular system (746-747; 745-747)	347,918	70,216	418,134	262,205	65,438	327,643
Respiratory system (748; 748)	24,930	5,659	30,589	37,739	10,387	48,126
Digestive system (749-751; 749-751)	41,844	10,539	52,383	16,048	5,167	21,215
Urinary system (753; 753)	28,409	4,569	32,978	28,204	5,255	33,459
Chromosomal (759.3-759.5; 758)	25,026	5,226	30,252	44,138	10,025	54,164
All other (Residual codes)	87,430	16,318	103,748	98,084	21,680	119,764

*1970-1972 data coded according to Eighth Revision, ICD, Adapted; 1980-1982 data coded by ICD, 9th Revision.

Congenital Anomalies — Continued

lies seems to have remained relatively stable over the past decade, and since survival has been stable or has improved, the doubling of YPLL attributed to chromosomal anomalies is likely to result from better diagnosis and cause of death attribution and/or coding.

References

1. CDC. Changes in premature mortality—United States, 1983-1984. MMWR 1986;35:29-31.
2. CDC. Temporal trends in the incidence of malformation in the United States, selected years, 1970-71, 1982-83. MMWR: CDC Surveillance Summaries, 1985;34 (No. 2SS);1SS-3SS.

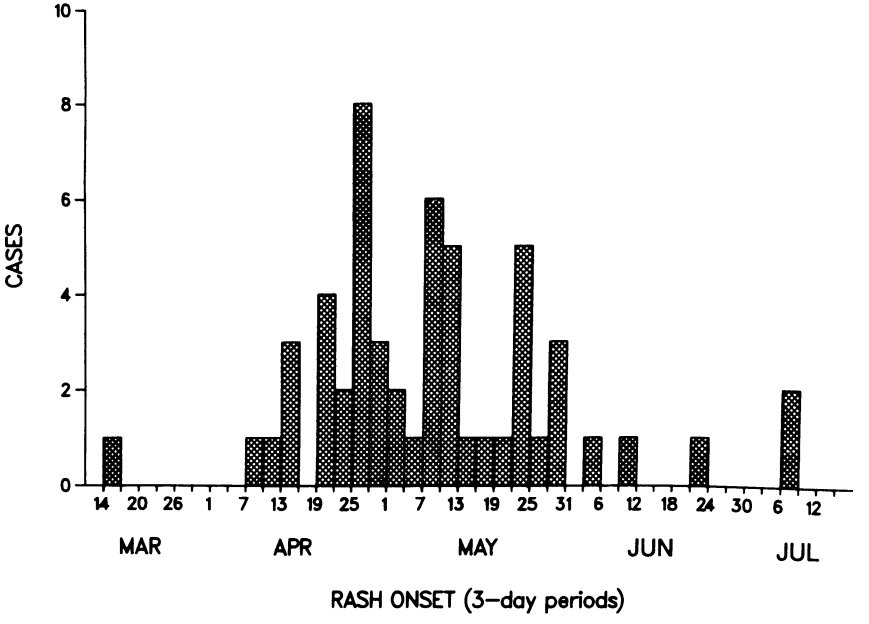
Measles — Arizona

From March 14, to July 11, 1985, 54 cases of measles were reported from Maricopa County, Arizona (Phoenix and surrounding area), to the Arizona Department of Health Services. Twenty-five (46.3%) cases were serologically confirmed.

The outbreak, which spread from a large school-based outbreak in neighboring Pima County (Tucson and surrounding area) began February 19. Two separate introductions of measles into Maricopa County apparently occurred. The first patient, a 25-year-old elementary school teacher, had onset of rash March 11 (Figure 1). The source of her infection was a Pima County student to whom she had been exposed while on a bus trip to a religious event. There was no known spread of measles from this patient. The second introduction of measles into Maricopa County involved five patients with rash onset from April 8 to April 15. Three of these patients acquired measles from a Pima County student at a swim meet in Maricopa County; one patient was in Tucson during all her probable exposure period; and the fifth had no known source.

Sixteen (29.6%) of the 54 patients were Hispanic, and 38 (70.4%) were white non-Hispanic. Sixteen (29.6%) patients were under 16 months of age; 27 (50.0%) were preschool-aged (0-4 years old); and 19 (35.2%) were school-aged (5-19 years old).

FIGURE 1. Reported measles cases, by date of rash onset — Maricopa County, Arizona, March 14-July 8, 1985



Measles — Continued

The overall attack rate in Maricopa County was 3.6 cases per 100,000 population. The highest reported attack rates were in the southwestern and western portions of the county, which are generally rural and where residents are of lower socioeconomic status. The highest attack rate occurred in the Buckeye community (378.6 cases/100,000 population), which is approximately 20 miles southwest of Phoenix. Race-specific attack rates were 8.0 cases/100,000 Hispanics and 3.1 cases/100,000 white non-Hispanics. Age-specific attack rates were calculated for the age groups for which county population data were available and ranged from a high of 22.2/100,000 children 0-5 years of age to 2.9/100,000 persons 20-29 years of age.

Sixteen (29.6%) patients had diarrhea; five (9.3%) developed otitis media; and two (3.7%) acquired pneumonia. One patient, a 19-year-old pregnant female, developed premature onset of labor and delivered an infant at 32 weeks' gestation. Eight (14.8%) patients were hospitalized. There were no measles-associated fatalities.

The probable setting or source of transmission was known for 34 (63.0%) of the patients: household/family contact—20 (58.8%); neighborhood—six (17.6%); school/school-related activity—six (17.6%); and medical facility—two (5.9%). Of 17 preschool-aged patients for whom sources were known, six (35.3%) acquired disease from another preschool-aged individual.

(Continued on page 105)

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

Disease	7th Week Ending			Cumulative, 7th Week Ending		
	Feb. 15, 1986	Feb. 16, 1985	Median 1981-1985	Feb. 15, 1986	Feb. 16, 1985	Median 1981-1985
Acquired Immunodeficiency Syndrome (AIDS)	176	178	N	1,582	786	N
Aseptic meningitis	58	65	60	536	473	575
Encephalitis: Primary (arthropod-borne & unspec.)	11	16	12	100	100	104
Post-infectious	2	3	1	8	16	10
Gonorrhea: Civilian	12,385	14,833	15,664	102,248	104,315	124,487
Military	309	445	445	1,822	2,133	3,386
Hepatitis: Type A	220	380	380	2,753	2,614	2,784
Type B	315	479	381	2,776	3,014	2,862
Non A, Non B	40	73	N	333	485	N
Unspecified	69	98	103	636	562	879
Legionellosis	6	7	N	68	89	N
Leprosy	1	18	3	33	33	30
Malaria	6	23	12	75	83	83
Measles: Total*	18	18	18	111	85	85
Indigenous	18	16	N	105	52	N
Imported	-	2	N	6	33	N
Meningococcal infections: Total	47	65	65	389	361	413
Civilian	47	65	65	388	361	408
Military	-	-	-	1	-	1
Mumps	45	97	76	280	392	523
Pertussis	49	26	26	240	153	145
Rubella (German measles)	9	3	17	44	26	102
Syphilis (Primary & Secondary): Civilian	365	464	598	2,857	3,265	3,992
Military	1	6	6	22	26	52
Toxic Shock syndrome	1	8	N	31	48	N
Tuberculosis	316	346	415	2,030	2,078	2,583
Tularemia	2	1	1	11	16	12
Typhoid fever	1	13	7	24	33	44
Typhus fever, tick-borne (RMSF)	1	1	-	7	4	7
Rabies, animal	37	91	74	470	512	546

TABLE II. Notifiable diseases of low frequency, United States

	Cum 1986		Cum 1986
Anthrax	-	Leptospirosis (Hawaii 1)	7
Botulism: Foodborne (Mich. 1, Wash. 1)	2	Plague	-
Infant	6	Poliomyelitis, Paralytic	-
Other	-	Psittacosis (Vt. 1, Upstate N.Y. 1)	4
Brucellosis	5	Rabies, human	-
Cholera	-	Tetanus	4
Congenital rubella syndrome	1	Trichinosis	7
Congenital syphilis, ages < 1 year	-	Typhus fever, flea-borne (endemic, murine) (N.H. 1)	1
Diphtheria	-		

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

TABLE III. Cases of specified notifiable diseases, United States, weeks ending February 15, 1986 and February 16, 1985 (7th 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. 1986	1986	Cum. 1986	Cum. 1986	Cum. 1986	Cum. 1985	1986	1986	1986	1986	1986	Cum. 1986
UNITED STATES	1,582	58	100	8	102,248	104,315	220	315	40	69	6	33
NEW ENGLAND	90	4	7	-	2,514	3,197	5	30	1	2	1	1
Maine	3	-	-	-	119	151	-	2	-	-	-	-
N.H	3	-	2	-	69	74	1	1	-	-	-	-
Vt	1	-	2	-	43	34	-	1	-	-	-	-
Mass	57	3	2	-	1,123	1,095	4	21	1	2	1	1
R.I.	8	-	-	-	230	250	-	4	-	-	-	-
Conn	18	1	1	-	930	1,593	-	1	-	-	-	-
MID ATLANTIC	553	9	18	-	18,187	15,890	23	45	2	24	-	4
Upstate N.Y.	50	4	6	-	2,111	1,929	12	23	1	2	-	-
N.Y. City	360	2	7	-	11,030	7,378	-	-	-	21	-	4
N.J.	92	-	2	-	1,876	2,697	9	19	1	-	-	-
Pa.	51	3	3	-	3,170	3,886	2	3	-	1	-	-
E.N. CENTRAL	79	16	19	1	14,511	14,505	10	47	10	5	2	1
Ohio	27	1	6	1	4,357	3,917	7	10	1	2	2	-
Ind.	15	4	-	-	2,440	1,230	-	2	-	3	-	-
Ill.	17	4	1	-	1,962	4,289	2	9	5	-	-	-
Mich.	20	7	12	-	4,912	4,428	1	26	4	-	-	1
Wis.	-	-	-	-	840	641	-	-	-	-	-	-
W.N. CENTRAL	37	5	-	1	5,031	5,766	15	11	1	-	-	3
Minn.	17	3	-	-	753	803	1	4	1	-	-	3
Iowa	2	-	-	-	526	620	2	-	-	-	-	-
Mo.	10	-	-	-	2,477	2,675	1	6	-	-	-	-
N. Dak.	2	-	-	-	50	34	-	-	-	-	-	-
S. Dak.	1	2	-	-	84	110	11	-	-	-	-	-
Nebr.	3	-	-	-	278	506	-	1	-	-	-	-
Kans.	2	-	-	1	863	1,018	-	-	-	-	-	-
S. ATLANTIC	210	18	16	6	22,074	21,433	20	70	10	7	2	-
Del.	5	1	2	-	445	462	1	-	1	-	-	-
Md.	22	1	5	-	2,818	2,995	-	5	-	1	-	-
D.C.	20	-	-	-	2,329	1,844	-	2	-	-	-	-
Va.	26	2	6	1	2,439	2,448	2	5	1	2	-	-
W. Va.	-	-	-	-	291	319	1	-	-	-	-	-
N.C.	15	-	2	-	3,725	4,205	3	13	4	-	-	-
S.C.	11	3	-	-	2,770	2,831	-	11	-	-	-	-
Ga.	16	4	-	-	-	-	3	9	-	2	-	-
Fla.	95	7	1	5	7,257	6,329	10	25	4	2	2	-
E.S. CENTRAL	24	3	11	-	9,333	9,082	-	17	3	1	-	-
Ky.	5	-	5	-	1,072	972	-	4	-	1	-	-
Tenn.	12	1	1	-	3,785	3,642	-	10	2	-	-	-
Ala.	2	-	5	-	2,500	2,744	-	-	-	-	-	-
Miss.	5	2	-	-	1,976	1,724	-	3	1	-	-	-
W.S. CENTRAL	154	3	4	-	13,501	15,445	54	29	3	20	-	-
Ark.	5	-	-	-	1,265	1,504	1	-	1	1	-	-
La.	25	-	-	-	2,444	3,334	-	-	-	-	-	-
Okla.	2	-	-	-	1,576	1,581	4	2	-	-	-	-
Tex.	122	3	4	-	8,216	9,026	49	27	2	19	-	-
MOUNTAIN	24	-	5	-	3,177	3,537	45	35	6	9	1	2
Mont.	-	-	-	-	92	104	1	2	-	-	-	-
Idaho	1	-	-	-	102	119	-	1	-	-	-	-
Wyo.	2	-	2	-	72	104	2	-	-	-	-	-
Colo.	2	-	-	-	871	1,070	7	4	2	8	1	-
N. Mex.	4	-	-	-	389	444	9	1	-	1	-	-
Ariz.	6	-	2	-	844	998	15	16	4	-	-	1
Utah	3	-	1	-	155	161	9	2	-	-	-	-
Nev.	6	-	-	-	652	537	2	9	-	-	-	1
PACIFIC	411	-	20	-	13,920	15,460	48	31	4	1	-	22
Wash.	21	-	1	-	1,190	1,155	3	13	1	1	-	1
Oreg.	10	-	-	-	598	921	43	12	3	-	-	-
Calif.	372	U	17	-	11,453	12,761	U	U	U	U	U	21
Alaska	4	-	2	-	518	386	-	6	-	-	-	-
Hawaii	4	-	-	-	161	237	2	-	-	-	-	-
Guam	-	U	-	-	-	15	U	U	U	U	U	-
P.R.	15	U	-	-	241	594	U	U	U	U	U	-
V.I.	-	U	-	-	22	52	U	U	U	U	U	-
Pac. Trust Terr.	-	U	-	-	-	72	U	U	U	U	U	-
Amer. Samoa	-	U	-	-	-	-	U	U	U	U	U	-

N: Not notifiable U: Unavailable

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending February 15, 1986 and February 16, 1985 (7th Week)

Reporting Area	Malaria	Measles (Rubeola)					Menin-gococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported *		Total									
	Cum. 1986	1986	Cum. 1986	1986	Cum. 1986	Cum. 1985	Cum. 1986	1986	Cum. 1986	1986	Cum. 1986	Cum. 1985	1986	Cum. 1986	Cum. 1985
UNITED STATES	75	18	105	-	6	85	389	45	280	49	240	153	9	44	26
NEW ENGLAND	1	-	-	-	-	-	32	-	6	1	16	3	-	-	2
Maine	-	-	-	-	-	-	5	-	-	-	1	-	-	-	-
N.H.	-	-	-	-	-	-	1	-	3	1	7	-	-	-	1
Vt.	-	-	-	-	-	-	4	-	-	-	1	1	-	-	-
Mass.	1	-	-	-	-	-	8	-	-	-	4	1	-	-	1
R.I.	-	-	-	-	-	-	2	-	3	-	1	1	-	-	-
Conn.	-	-	-	-	-	-	12	-	-	-	2	-	-	-	-
MID ATLANTIC	11	-	11	-	2	2	60	3	19	11	40	24	6	15	6
Upstate N.Y.	-	-	-	-	2	1	18	1	7	11	31	11	6	12	1
N.Y. City	5	-	11	-	-	1	8	-	-	-	-	5	-	3	4
N.J.	2	-	-	-	-	-	6	2	7	-	-	-	-	-	1
Pa.	4	-	-	-	-	-	28	-	5	-	9	8	-	-	-
E.N. CENTRAL	2	15	16	-	-	27	44	19	112	13	55	40	-	1	3
Ohio	1	-	-	-	-	-	19	1	32	4	36	8	-	-	-
Ind.	-	-	-	-	-	-	6	5	7	6	9	11	-	-	-
Ill.	-	15	16	-	-	3	10	10	46	1	2	5	-	-	-
Mich.	1	-	-	-	-	1	9	3	27	2	6	2	-	-	3
Wis.	-	-	-	-	-	23	-	-	-	-	2	14	-	1	-
W.N. CENTRAL	2	-	42	-	-	-	17	2	14	-	14	15	-	2	4
Minn.	1	-	-	-	-	-	2	-	-	-	7	5	-	-	-
Iowa	1	-	-	-	-	-	4	1	5	-	2	1	-	-	-
Mo.	-	-	-	-	-	-	9	1	3	-	1	3	-	1	-
N. Dak.	-	-	-	-	-	-	-	-	-	-	1	2	-	-	-
S. Dak.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nebr.	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Kans.	-	-	42	-	-	-	2	-	6	-	3	3	-	1	4
S. ATLANTIC	14	-	1	-	1	3	67	6	37	13	43	21	1	4	1
Del.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Md.	3	-	-	-	-	1	6	1	3	6	10	4	-	-	-
D.C.	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-
Va.	5	-	-	-	-	-	5	-	5	1	5	1	-	-	-
W. Va.	-	-	-	-	-	-	1	1	15	-	-	-	-	-	-
N.C.	2	-	-	-	-	-	9	-	3	-	6	5	-	-	-
S.C.	-	-	-	-	-	-	11	-	2	-	1	-	-	-	1
Ga.	2	-	-	-	-	-	8	1	2	6	17	3	-	-	-
Fla.	2	-	1	-	1	1	26	3	7	-	4	8	1	4	-
E.S. CENTRAL	2	-	-	-	-	-	34	1	4	2	8	3	-	1	1
Ky.	2	-	-	-	-	-	19	-	2	-	1	1	-	1	1
Tenn.	-	-	-	-	-	-	8	-	1	1	2	1	-	-	-
Ala.	-	-	-	-	-	-	7	1	1	1	5	1	-	-	-
Miss.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.S. CENTRAL	-	-	-	-	-	-	18	8	23	-	7	11	2	6	1
Ark.	-	-	-	-	-	-	-	-	2	-	-	6	-	-	1
La.	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Okla.	-	-	-	-	-	-	4	N	N	-	7	5	-	-	-
Tex.	-	-	-	-	-	-	13	8	21	-	-	-	2	6	-
MOUNTAIN	4	-	8	-	2	36	23	5	39	4	29	4	-	-	-
Mont.	-	-	-	-	-	36	3	-	1	-	-	-	-	-	-
Idaho	-	-	-	-	-	-	1	1	1	-	7	-	-	-	-
Wyo.	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
Colo.	1	-	-	-	-	-	3	-	3	2	6	2	-	-	-
N. Mex.	-	-	8	-	2	-	3	N	N	-	5	1	-	-	-
Ariz.	2	-	-	-	-	-	7	4	31	2	10	1	-	-	-
Utah	-	-	-	-	-	-	2	-	1	-	1	-	-	-	-
Nev.	1	-	-	-	-	-	2	-	2	-	-	-	-	-	-
PACIFIC	39	3	27	-	1	17	94	1	26	5	28	32	-	15	8
Wash.	5	3	9	-	-	1	14	1	1	4	13	2	-	-	-
Oreg.	4	-	-	-	-	-	10	N	N	-	1	4	-	-	-
Calif.	30	U	17	U	1	14	66	U	20	U	11	24	U	15	8
Alaska	-	-	-	-	-	-	4	-	2	-	1	-	-	-	-
Hawaii	-	-	1	-	-	2	-	-	3	1	2	2	-	-	-
Guam	-	U	-	U	-	8	-	U	-	U	-	-	U	-	-
P.R.	1	U	-	U	-	20	-	U	8	U	2	1	U	-	4
V.I.	-	U	-	U	-	5	-	U	2	U	-	-	U	-	-
Pac. Trust Terr.	-	U	-	U	-	-	-	U	-	U	-	-	U	-	-
Amer. Samoa	-	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 February 15, 1986 and February 16, 1985 (7th Week)

Reporting Area	Syphilis (Civilian) (Primary & Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1986	Cum. 1985	1986	Cum. 1986	Cum. 1985	Cum. 1986	Cum. 1986	Cum. 1986	Cum. 1986
UNITED STATES	2,857	3,265	1	2,030	2,078	11	24	7	470
NEW ENGLAND	82	71	-	68	86	-	1	1	-
Maine	3	2	-	10	2	-	-	-	-
N.H.	3	2	-	2	6	-	-	-	-
Vt.	4	-	-	3	-	-	-	-	-
Mass.	44	38	-	24	49	-	1	1	-
R.I.	5	1	-	4	13	-	-	-	-
Conn.	23	28	-	25	16	-	-	-	-
MID. ATLANTIC	406	451	-	406	445	-	2	-	64
Upstate N.Y.	23	23	-	72	44	-	-	-	9
N.Y. City	262	297	-	193	258	-	2	-	-
N.J.	100	77	-	72	23	-	-	-	-
Pa.	21	54	-	69	120	-	-	-	55
E.N. CENTRAL	62	147	1	323	260	1	2	-	7
Ohio	8	12	1	48	52	1	-	-	-
Ind.	24	10	-	36	33	-	-	-	1
Ill.	9	83	-	156	112	-	-	-	-
Mich.	14	35	-	64	47	-	2	-	2
Wis.	7	7	-	19	16	-	-	-	4
W.N. CENTRAL	27	39	-	36	51	4	2	-	60
Minn.	6	14	-	6	6	-	1	-	-
Iowa	3	7	-	4	13	1	-	-	16
Mo.	15	10	-	22	18	3	1	-	5
N. Dak.	2	-	-	3	2	-	-	-	26
S. Dak.	-	1	-	-	2	-	-	-	13
Nebr.	-	1	-	-	3	-	-	-	-
Kans.	1	6	-	1	7	-	-	-	-
S. ATLANTIC	666	845	-	356	379	2	1	3	88
Del.	4	4	-	1	4	-	-	-	-
Md.	58	70	-	15	28	1	-	-	52
D.C.	50	41	-	19	22	-	-	-	-
Va.	69	44	-	20	18	-	-	-	12
W. Va.	3	-	-	15	13	-	-	-	2
N.C.	78	96	-	43	35	-	1	2	-
S.C.	110	111	-	66	51	-	-	1	2
Ga.	-	-	-	39	52	1	-	-	15
Fla.	294	479	-	138	156	-	-	-	5
E.S. CENTRAL	224	284	-	200	177	1	-	2	23
Ky.	13	11	-	60	43	1	-	1	4
Tenn.	94	73	-	45	42	-	-	-	11
Ala.	73	118	-	84	72	-	-	1	8
Miss.	44	82	-	11	20	-	-	-	-
W.S. CENTRAL	741	786	-	249	178	3	-	1	51
Ark.	29	40	-	28	7	3	-	-	7
La.	123	148	-	83	41	-	-	-	-
Okla.	25	26	-	23	24	-	-	-	5
Tex.	564	572	-	115	106	-	-	1	39
MOUNTAIN	87	108	-	36	33	-	1	-	114
Mont.	1	1	-	1	5	-	-	-	46
Idaho	1	2	-	2	1	-	-	-	-
Wyo.	-	4	-	-	1	-	-	-	49
Colo.	29	27	-	-	-	-	-	-	-
N. Mex.	10	6	-	6	4	-	-	-	2
Ariz.	31	63	-	18	19	-	-	-	17
Utah	3	1	-	-	-	-	1	-	-
Nev.	12	4	-	9	3	-	-	-	-
PACIFIC	562	534	-	356	469	-	15	-	63
Wash.	16	20	-	22	13	-	2	-	-
Oreg.	17	19	-	16	12	-	-	-	-
Calif.	521	485	U	287	404	-	11	-	60
Alaska	-	-	-	5	18	-	-	-	3
Hawaii	8	10	-	26	22	-	2	-	-
Guam	-	2	U	-	4	-	-	-	-
P.R.	83	135	U	36	40	-	-	-	4
V.I.	-	-	U	-	1	-	-	-	-
Pac. Trust Terr.	-	9	U	-	5	-	-	-	-
Amer. Samoa	-	-	U	-	-	-	-	-	-

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending February 15, 1986 (7th Week)

Reporting Area	All Causes, By Age (Years)						P&I** Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	654	468	121	41	15	9	75
Boston, Mass.	157	102	35	13	2	5	27
Bridgeport, Conn.	33	23	6	2	2	-	4
Cambridge, Mass.	29	26	2	1	-	-	4
Fall River, Mass.	40	29	7	3	1	-	2
Hartford, Conn.	56	36	15	2	2	1	5
Lowell, Mass.	32	23	8	1	-	-	1
Lynn, Mass.	20	15	4	1	-	-	1
New Bedford, Mass.	25	18	5	1	-	1	-
New Haven, Conn.	42	27	11	4	-	-	3
Providence, R.I.	69	56	9	3	-	1	5
Somerville, Mass.	6	4	-	2	-	-	-
Springfield, Mass.	53	38	8	3	3	1	13
Waterbury, Conn.	30	23	3	2	2	-	5
Worcester, Mass.	62	48	8	3	3	-	5
MID ATLANTIC	3,035	2,493	293	119	60	70	170
Albany, N.Y.	52	35	8	1	1	7	1
Allentown, Pa.	14	11	3	-	-	-	-
Buffalo, N.Y.	146	108	29	2	3	4	9
Camden, N.J.	46	30	7	5	3	1	2
Elizabeth, N.J.	34	26	6	1	1	-	2
Erie, Pa.†	21	18	2	1	-	-	2
Jersey City, N.J.	40	28	7	3	-	2	1
N.Y. City, N.Y. §	1,587	1,497	10	20	30	30	74
Newark, N.J.	55	31	12	9	1	2	6
Paterson, N.J.	34	15	11	6	1	1	6
Philadelphia, Pa.	419	266	99	34	9	11	18
Pittsburgh, Pa.†	104	72	21	8	1	2	6
Reading, Pa.	44	29	12	2	-	1	4
Rochester, N.Y.	157	113	26	10	1	7	16
Schenectady, N.Y.	39	30	6	1	2	-	4
Scranton, Pa.†	36	31	5	-	-	-	7
Syracuse, N.Y.	124	93	18	6	5	2	5
Trenton, N.J.	30	22	1	5	2	-	1
Utica, N.Y.	24	20	4	-	-	-	2
Yonkers, N.Y.	29	18	6	5	-	-	4
E.N. CENTRAL	2,385	1,726	374	120	65	99	131
Akron, Ohio	81	59	15	2	2	3	4
Canton, Ohio	26	18	4	4	-	-	5
Chicago, Ill.§	553	462	11	26	16	37	16
Cincinnati, Ohio	133	87	35	3	3	5	15
Cleveland, Ohio	184	117	32	15	8	12	4
Columbus, Ohio	163	109	34	6	6	8	7
Dayton, Ohio	119	75	31	7	5	1	2
Detroit, Mich.	242	151	53	19	7	12	12
Evansville, Ind.	57	44	9	2	1	1	4
Fort Wayne, Ind.	53	41	10	2	-	-	3
Gary, Ind.	13	8	4	-	-	1	-
Grand Rapids, Mich.	59	42	9	6	1	1	9
Indianapolis, Ind.	174	113	43	7	4	7	2
Madison, Wis.	51	36	5	4	3	3	11
Milwaukee, Wis.	157	125	25	3	4	-	4
Peoria, Ill.	58	42	8	3	1	4	7
Rockford, Ill.	41	32	7	1	-	1	3
South Bend, Ind.	50	37	10	3	-	-	9
Toledo, Ohio	107	77	22	4	2	2	10
Youngstown, Ohio	64	51	7	3	2	1	4
W.N. CENTRAL	791	551	156	37	21	26	59
Des Moines, Iowa	73	48	17	3	3	2	13
Duluth, Minn.	29	27	2	-	-	-	1
Kansas City, Kans.	41	27	7	5	2	-	-
Kansas City, Mo.	123	91	24	4	2	2	7
Lincoln, Nebr.	41	31	10	-	-	-	5
Minneapolis, Minn.	85	53	19	6	2	5	4
Omaha, Nebr.	104	69	23	3	5	4	10
St. Louis, Mo.	159	114	28	7	4	6	10
St. Paul, Minn.	50	35	9	1	3	2	2
Wichita, Kans.	86	56	17	8	-	5	7

Reporting Area	All Causes, By Age (Years)						P&I** Total
	All Ages	≥65	45-64	25-44	1-24	<1	
S. ATLANTIC	1,658	1,065	357	138	46	48	85
Atlanta, Ga.	163	104	37	19	-	3	9
Baltimore, Md.	371	225	90	29	16	11	9
Charlotte, N.C.	79	46	23	5	-	5	5
Jacksonville, Fla.	160	103	33	13	7	4	10
Miami, Fla.	143	90	25	20	6	2	6
Norfolk, Va.	73	45	19	3	3	3	5
Richmond, Va.	84	54	25	3	-	2	9
Savannah, Ga.	43	24	9	4	1	5	4
St. Petersburg, Fla.	135	105	14	7	3	6	12
Tampa, Fla.	79	53	14	6	1	2	4
Washington, D.C.	290	191	58	26	9	5	12
Wilmington, Del.	38	25	10	3	-	-	-
E.S. CENTRAL	860	551	179	55	25	50	61
Birmingham, Ala.	126	77	30	9	3	7	4
Chattanooga, Tenn.	75	53	13	6	1	2	7
Knoxville, Tenn.	98	66	23	7	1	1	6
Louisville, Ky.	114	84	23	6	-	1	15
Memphis, Tenn.	195	107	34	16	6	32	11
Mobile, Ala.	88	55	19	4	6	4	11
Montgomery, Ala.	55	40	8	2	2	3	2
Nashville, Tenn.	109	69	29	5	6	-	5
W.S. CENTRAL	1,325	885	260	86	45	49	59
Austin, Tex.	47	31	10	4	-	2	4
Baton Rouge, La.	31	14	9	7	-	1	1
Corpus Christi, Tex.	49	32	8	2	3	4	-
Dallas, Tex.	210	120	52	24	6	8	9
El Paso, Tex.	72	41	19	5	2	5	6
Fort Worth, Tex.	78	48	18	4	3	5	4
Houston, Tex. §	300	270	5	5	10	10	6
Little Rock, Ark.	45	23	14	3	5	-	5
New Orleans, La.	135	81	33	11	5	5	-
San Antonio, Tex.	180	101	52	12	9	6	11
Shreveport, La.	38	24	9	3	1	1	2
Tulsa, Okla.	140	100	31	6	1	2	11
MOUNTAIN	706	450	151	60	21	23	48
Albuquerque, N.Mex.	107	66	22	10	5	4	10
Colo. Springs, Colo.	35	25	6	1	3	-	6
Denver, Colo.	124	79	29	11	-	5	3
Las Vegas, Nev.	90	55	22	9	-	3	4
Ogden, Utah	31	21	7	2	-	1	7
Phoenix, Ariz.	143	81	36	14	6	6	6
Pueblo, Colo.	15	13	2	-	-	-	2
Salt Lake City, Utah	47	24	10	6	3	4	1
Tucson, Ariz.	114	86	17	7	4	-	9
PACIFIC	2,047	1,385	383	148	63	60	142
Berkeley, Calif.	27	23	1	1	-	2	1
Fresno, Calif.	81	53	13	5	3	7	-
Glendale, Calif.	43	35	3	4	-	1	2
Honolulu, Hawaii	77	50	20	2	3	2	5
Long Beach, Calif.	97	74	13	7	1	2	12
Los Angeles, Calif.	601	412	109	47	17	8	33
Oakland, Calif.	65	41	14	3	4	3	2
Pasadena, Calif.	43	30	9	2	2	-	2
Portland, Oreg.	114	85	16	4	4	5	4
Sacramento, Calif.	165	112	30	11	6	6	18
San Diego, Calif.	150	90	34	13	7	6	22
San Francisco, Calif.	184	117	34	26	4	3	5
San Jose, Calif.	186	112	46	17	8	3	19
Seattle, Wash.	112	75	26	4	3	4	4
Spokane, Wash.	59	43	10	2	1	3	10
Tacoma, Wash.	43	33	5	-	-	5	3
TOTAL	13,461††	9,574	2,274	804	361	434	830

* 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.

Table V. Estimated years of potential life lost before age 65 and cause-specific mortality, by cause of death — United States, 1984

Cause of mortality (Ninth Revision ICD)	Years of potential life lost by persons dying in 1984*	Cause-specific mortality† (rate/100,000)
ALL CAUSES (Total)	11,761,000	866.7
Unintentional injuries§ (E800-E949)	2,308,000	40.1
Malignant neoplasms (140-208)	1,803,000	191.6
Diseases of the heart (390-398, 402, 404-429)	1,563,000	324.4
Suicide, homicide (E950-E978)	1,247,000	20.6
Congenital anomalies (740-759)	684,000	5.6
Prematurity¶ (765, 769)	470,000	3.5
Sudden infant death syndrome (798)	314,000	2.4
Cerebrovascular diseases (430-438)	266,000	65.6
Chronic liver diseases and cirrhosis (571)	233,000	11.3
Pneumonia and influenza (480-487)	163,000	25.0
Chronic obstructive pulmonary diseases (490-496)	123,000	29.8
Diabetes mellitus (250)	119,000	15.6

*Years of potential life lost before age 65 for persons dying in the year are derived from the number of deaths in each age category as reported by the National Center for Health Statistics, *Monthly Vital Statistics Report* (MVSR), Vol. 33, No. 13, September 26, 1985, multiplied by the difference between age 65 years and the age at the midpoint of each category. As a measure of mortality, "Years of potential life lost" underestimate the importance of diseases that contribute to death without being the underlying cause of death.

†Cause-specific mortality rates as reported in the MVSR are compiled from a 10% sample of all deaths.

§Equivalent to accidents and adverse effects.

¶Category derived from disorders relating to short gestation and respiratory distress syndrome.

Measles — Continued

Twenty-nine (53.7%) cases were considered preventable, according to the CDC classification.* Of the 25 patients with nonpreventable measles, 13 (52.0%) had histories of appropriate vaccination; 10 (40.0%) were under 16 months of age; and two (8.0%) were born before 1957. All 17 patients from 16 months through 4 years of age were unvaccinated (i.e., preventable cases). Measles was preventable in five (41.7%) of the 12 school-aged patients.

*A case is considered preventable if measles illness occurs in a U.S. citizen: (1) at least 16 months of age; (2) born after 1956; (3) lacking adequate evidence of immunity to measles (documented receipt of live measles vaccine on or after the first birthday and at least 2 weeks before onset of disease, or physician-diagnosed measles illness, or laboratory evidence of immunity); (4) without a medical contraindication to receiving vaccine; and (5) with no religious or philosophic exemption under state law.

Measles — Continued

Outbreak-control activities included intensified surveillance through publicity in the local press, improved case investigation, special vaccination clinics at various locations throughout the county, and exclusion of students who did not have adequate evidence of measles immunity in their school health records. Based on the schools' assessments of student immunization records, 7,098 (2.5%) of the 288,919 students enrolled in the county were excluded from school on May 8. By May 13, 6,280 (88.5%) of the 7,098 excluded students had provided documentation of measles immunity and were allowed to return to school.

To assess the accuracy of school immunization records, state and local health officials reviewed every tenth record in each of 48 schools in the county (20 high schools and 28 elementary schools) during the first week of exclusion. These schools had an overall enrollment of approximately 55,500. Of 5,302 records reviewed that had been reported to contain adequate evidence of measles immunity, 419 (7.9%) were inadequate according to the criteria of the Immunization Practices Advisory Committee.† To be considered complete, dates of measles vaccination needed to include at least the month and year of vaccination. The inadequacy rates were 2.2% (45/2,041) in elementary school records and 11.5% (374/3,261) in high school records. School-specific inadequate-record rates ranged from 0.0% to 9.5% in elementary schools (median 0.6%) and from 0.0% to 27.3% in high schools (median 8.2%). In 14 elementary schools and one high school, all records audited were found to be adequate.

Reported by J Swanson, D Campos-Outcalt, MD, R Harmon, MD, Maricopa County Div of Public Health, B Olson, SJ Englender, MD, LF Novick, MD, GG Caldwell, MD, State Epidemiologist, Arizona Dept of Health Svcs; Div of Field Svcs, Epidemiology Program Office, Div of Immunization, Center for Prevention Svcs, CDC.

Editorial Note: In 1985, 241 measles cases were provisionally reported in Arizona, including 234 indigenous cases and seven out-of-state or international importations. Over 90% of these 241 cases occurred in the Pima County and Maricopa County outbreaks. The 241 Arizona cases represent 8.9% of the provisional total of 2,704 cases reported in the United States. The only states reporting more cases in 1985 were Texas (409 cases), Illinois (303), and California (269). In contrast to 1985, a total of only 26 cases was reported from Arizona during the 4-year period 1981-1984.

The three major components of the current measles elimination strategy are: (1) high immunization levels; (2) effective surveillance; and (3) aggressive outbreak control. The Maricopa County outbreak illustrates two important aspects of achieving and maintaining high immunization levels: age-appropriate vaccination and school immunization laws. Fifty percent of the cases in the Maricopa County outbreak occurred among preschool-aged children. By contrast, preschool-aged children accounted for 25.9% of all reported cases in the United States in the first 26 weeks of 1985 (*1*). This and other outbreaks (*2-5*) suggest that preschool-aged children can contribute substantially to ongoing transmission. The high proportion of preschool-aged children who were unvaccinated emphasizes the need to vaccinate children promptly at 15 months of age.

Fifty-four percent of cases in this outbreak were preventable. According to preliminary data for 1985, approximately 29% of all reported cases in the United States were preventable. The higher proportion of preventable cases in Maricopa County is primarily due to the fact that measles was preventable in all the preschool-aged patients above the recommended age for vaccination.

Reported school vaccination levels for Maricopa and Pima Counties were 97.2% and 95.5%, respectively. A review of school immunization records in Maricopa County revealed a relatively high proportion considered to be inadequate. Other studies have shown that inability to obtain provider verification of school immunization data is a risk factor for developing mea-

†Adequate evidence of measles immunity is: (1) receipt of live measles vaccine on or after the first birthday, (2) history of physician-diagnosed measles illness, or (3) laboratory evidence of immunity.

Measles — Continued

sles (*6-7*). These studies provide additional evidence that school immunization records may be inaccurate in some areas. The accuracy of school immunization records probably varies depending on the degree of enforcement of school immunization requirements.

Elementary school immunization records in Maricopa County were more accurate than high school records. Immunization records for high school and college students may be less accurate than those for younger students because of the greater time lapse since vaccination and because many of the older students may have enrolled in school before the vigorous enforcement of school immunization laws.

All 50 states and the District of Columbia have school immunization requirements for measles. As of September 1985, they applied to grades K-12 in 44 states (including Arizona) and the District of Columbia, grades K-5 in Idaho, and new entrants in the remaining four states (*8*). The Maricopa County outbreak illustrates the need for vigorous enforcement of these requirements to maintain accurate immunization records and high immunization levels in schools. Since the majority of preventable measles cases occurs among school-aged individuals (*1*), stronger enforcement of school immunization requirements will hasten the elimination of indigenous measles in the United States.

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Update: Influenza Activity — United States

Influenza outbreaks continue to be widely reported throughout the United States. For the week ending February 14, 1986, 19 states* and the District of Columbia reported widespread outbreaks of influenza-like illness, and 18 states† reported regional outbreaks. This is the second consecutive week with more states reporting outbreaks than for any week since January 1981. Preliminary tallies of patients with influenza-like illnesses seen by the network of family physicians§ nationwide averaged 11.5 cases for the reporting week ending February 5, compared with the 10.8 average for the preceding week and the maximum 11-12 cases for the two preceding seasons.

The numbers of influenza viruses isolated by the collaborating diagnostic laboratories continued to increase, with 83% of the reports for the 2 most recent weeks represented by type B, and 17%, by type A(H3N2). Maine (type B virus) and Vermont (virus types A[H3N2] and B) reported their first influenza isolates of the season. Forty-three states have now reported type B virus isolates; 26 states, type A(H3N2) isolates; and 25 states, both types.

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*Colorado, Georgia, Idaho, Iowa, Kansas, Louisiana, Montana, Nebraska, New Hampshire, New Jersey, North Carolina, Pennsylvania, South Carolina, South Dakota, Vermont, Virginia, Washington, Wisconsin, and Wyoming.

†Alabama, Arizona, California, Connecticut, Delaware, Illinois, Maine, Maryland, Michigan, Minnesota, Mississippi, North Dakota, Ohio, Oklahoma, Oregon, Rhode Island, Tennessee, and Texas.

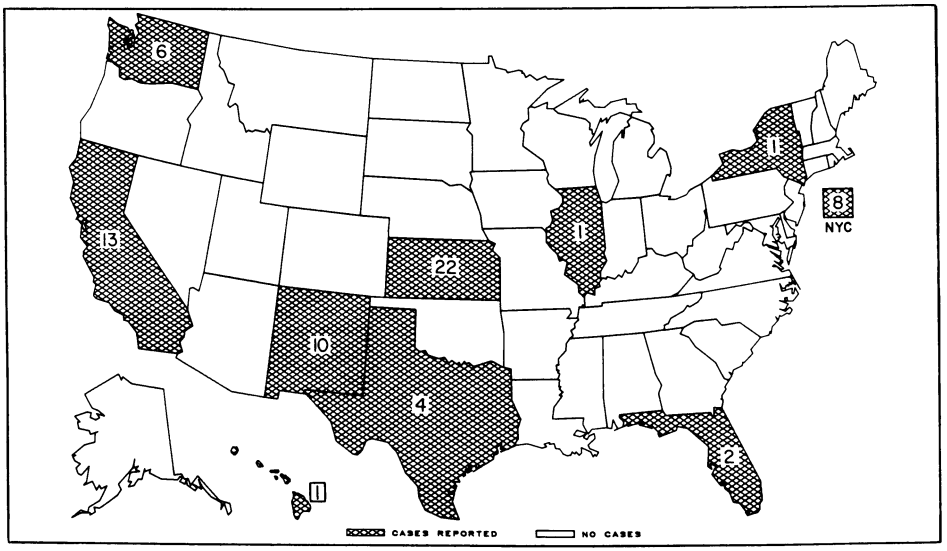
§Cases reported by those members of the American Academy of Family Physicians Research Panel who serve as sentinel physicians for influenza.

Influenza — Continued

The percentage of pneumonia and influenza deaths reported from the 121 U.S. cities for the week ending February 14 was 6.2%, compared with the 5.8% for the preceding 2 weeks.

Reported by State and Territorial Epidemiologists; State Laboratory Directors; Statistical Svcs Br, Div of Surveillance and Epidemiologic Studies, Div of Field Svcs, Epidemiology Program Office, WHO Collaborating Center for Influenza, Influenza Br, Div of Viral Diseases, Center for Infectious Diseases, CDC.

FIGURE I. Reported measles cases — United States, weeks 3-6, 1986



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