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MORBIDITY AND MORTALITY WEEKLY REPORT

Current Trends

National Birthweight-Specific Infant Mortality Surveillance: Preliminary Analysis — United States, 1980

Low birthweight (LBW), the greatest single problem associated with infant mortality (*1*), is related to many infant and maternal characteristics (*2*), including several that can be examined using vital records. Such records include infant's race, sex, gestational age at birth, birth order and plurality, and mother's age, educational attainment, and prenatal-care history. These maternal and infant characteristics are also related to neonatal* and postneonatal† mortality in varying degrees, in part because of their association with LBW. To examine these associations in the population, it is necessary to link individual birth and infant death certificates. While such linkage has been conducted in various states, the last national birth-death linkage was performed for infants born during 1960 (*3*). CDC, in collaboration with all states, the National Institute of Child Health and Human Development, the National Center for Health Statistics (NCHS), and the Health Resources and Services Administration, compiled birth-death linked data for live births occurring in 1980 based on linkages performed within each state, New York City, the District of Columbia, and Puerto Rico.

Preliminary analysis from this National Infant Mortality Surveillance (NIMS) shows that neonatal mortality (NNM) ranged from 647.6/1,000 live-born infants 500-999 g§ to 1.4/1,000 live-born infants 3,500-3,999 g (Figure 1). However, at 3,500 g or greater, NNM increased with increasing birthweight. Compared with black infants, white infants under 3,000 g had higher NNM, but whites 3,000 g or greater had lower NNM than blacks with comparable birthweight.

Postneonatal mortality (PNM) among neonatal survivors ranged from 135.2/1,000 survivors 500-999 g at birth to 1.9/1,000 survivors 4,000-4,499 g at birth (Figure 2). PNM rose with birthweight 4,500 g or greater for both blacks and whites. Black neonatal survivors experienced higher PNM in all birthweight categories.

There was a 93.9-fold relative risk (RR) of infant mortality for singleton infants under 1,500 g at birth (469.4 deaths/1,000 live births), compared with infants 2,500 g or greater (5.0 deaths/1,000 live births) (Table 1). When smaller white singleton infants were compared with larger white singleton infants, the RR was somewhat higher (108.0) than the RR (93.9) for those of all races. When smaller black singleton infants were compared with larger, the RR was lower (61.6), primarily because infant mortality among black infants did not improve as

*Neonatal death: death occurring from 0 days to 27 days.

†Postneonatal death: death occurring from 28 days to 1 year.

§By definition, all live-born infants under 500 g died during the neonatal period.

Infant Mortality Surveillance — Continued

greatly with increasing birthweight. Moreover, black infants under 2,500 g had a lower infant mortality than white infants of comparable birthweight (under 1,500 g and 1,500-2,499 g), while black infants 2,500 g or greater had a greater risk of infant mortality. The overall two-fold higher risk of infant mortality for blacks than for whites reflects their excess mortality

FIGURE 1. Neonatal mortality rates, by race and birthweight — United States, 1980 live birth cohort

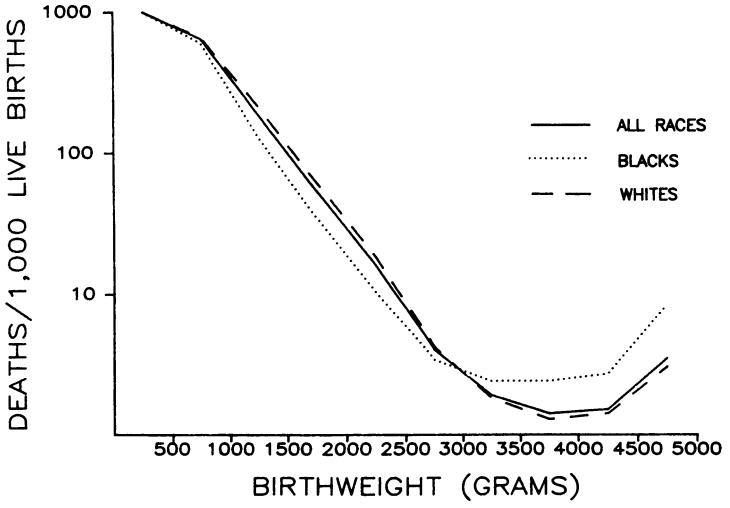
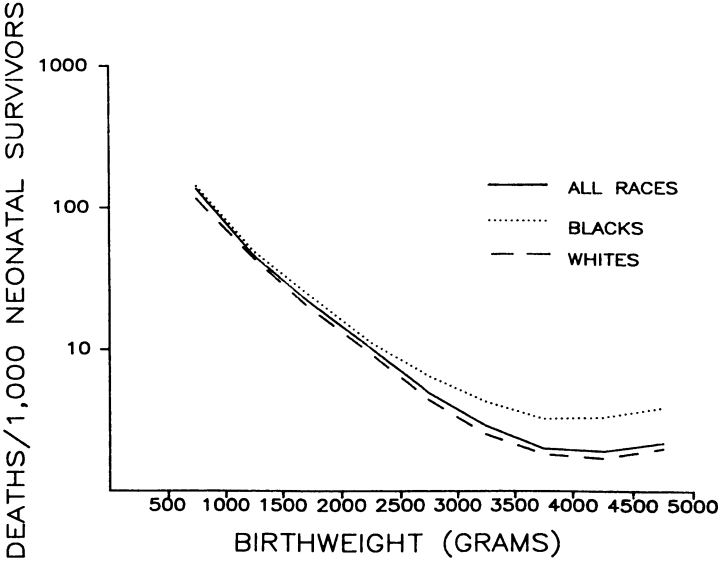


FIGURE 2. Postneonatal mortality rates, by race and birthweight — United States, neonatal survivors of 1980 live birth cohort



Infant Mortality Surveillance — Continued

among the majority of births that occur in the larger-weight categories as well as the higher risk of LBW among black infants. For singleton black infants, 2.1% were under 1,500 g, and 9.2% weighed 1,500-2,499 g; percentages for singleton white infants were 0.7% and 4.2%, respectively.

For multiple-born infants (e.g., twins, triplets), birthweight-specific infant mortality also declined with increasing birthweight (Table 1); black multiple-born infants experienced lower infant mortality than whites, only at birthweight under 1,500 g. Within races, multiple-born infants under 2,500 g had lower infant mortality than singleton infants of comparable birthweight (under 1,500 g and 1,500-2,499 g), but multiple-born infants 2,500 g or greater had higher infant mortality. Among black multiple-born infants, 16.3% were under 1,500 g, and 45.5% were 1,500-2,499 g; among whites, 9.4% were under 1,500 g, and 39.8% weighed 1,500-2,499 g. Overall, multiple-born infants experienced higher infant mortality than singleton infants because of a greater risk of both LBW and death among heavier infants.

Infant mortality was higher among singleton males than among singleton females (Table 2). Among white singletons, infant mortality improved with longer gestations to 42 weeks and was lowest for second-born infants; for blacks, infant mortality was lowest for third-born infants and decreased with increasing gestation to 40 weeks. Infant mortality was lowest for black infants born to mothers 25-34 years of age; for white infants, infant mortality was lowest among those born to mothers 30-34 years of age. For all races combined, infant mortality was lowest among infants born to college graduates and women who received prenatal care beginning in the first trimester.

Reported by all state health depts; the health depts of New York City, the District of Columbia, and Puerto Rico; Demographic and Behavioral Sciences Br, Center for Population Research, National Institute of Child Health and Human Development, National Institutes of Health; Div of Maternal and Child Health, Health Resources and Svcs Administration; National Center for Health Statistics; Pregnancy Epidemiology Br, Research and Statistics Br, Div of Reproductive Health, Center for Health Promotion and Education, CDC.

Editorial Note: The reduction of infant mortality is a major health objective in the United States (*1*). Success in improving survival of LBW infants since 1960 has not been paralleled by a decline in the incidence of LBW (*2,4-8*). Lower infant mortality rates in other industrialized nations point to further improvements that can be achieved in the United States (*8-10*), especially for black infants who continue to suffer neonatal and postneonatal mortality rates approximately twice as high as those for white infants (*11,12*).

TABLE 1. Infant deaths and infant mortality rate per 1,000 live births, by birthweight, race, and plurality, for infants born during 1980 — U.S. National Infant Mortality Surveillance

	Birthweight (grams)							
	< 1,500		1,500-2,499		≥ 2,500		Total*	
Plurality/race	No.	Rate	No.	Rate	No.	Rate	No.	Rate
Singletons								
Blacks	5,152	443.2	1,512	29.5	3,609	7.2	10,602	18.4
Whites	9,568	475.3	4,411	38.5	11,764	4.4	26,478	9.3
All†	15,302	469.4	6,207	36.3	16,133	5.0	38,887	11.0
Multiple-borns								
Blacks	937	417.1	144	23.2	63	12.0	1,185	83.2
Whites	2,261	469.1	405	20.0	195	7.5	2,997	55.8
All†	3,312	456.7	571	21.0	264	8.2	4,330	61.9

*Total number includes infant deaths of unknown birthweight; for calculation of rates, numbers of unknown birthweights were redistributed among known birthweights.

†All races, including unknown race and infants of other races.

Infant Mortality Surveillance — Continued

Analysis of infant mortality by birthweight provides a powerful tool at both national and state levels for identifying problems in maternal and infant care and for developing intervention plans. The NIMS project represents an intermediate step towards the routine annual collection of linked birth and death information as proposed by NCHS. This project required major efforts from all states and other vital registration reporting areas to provide the first national data on birthweight-specific infant mortality since 1960.

TABLE 2. Infant mortality rate* per 1,000 live births, by race and selected characteristics, for singleton infants born during 1980 — U.S. National Infant Mortality Surveillance

Characteristic	Blacks	Whites	All races
Infant's			
Sex			
Male	20.1	10.4	12.1
Female	16.8	8.2	9.7
Gestation (wks.)			
17-27	456.1	529.0	509.3
28-31	100.0	136.7	125.0
32-35	24.2	29.4	28.3
36	12.1	14.0	13.9
37	10.9	9.3	9.9
38-39	7.2	4.8	5.3
40	8.4	4.5	5.1
41	7.9	4.1	4.7
42-45	10.0	5.6	6.3
Live-birth order			
First	18.5	9.5	10.9
Second	17.7	8.7	10.2
Third	16.6	9.2	10.7
Fourth	17.5	9.7	11.7
Fifth	20.9	11.5	14.0
Sixth or higher	20.0	11.8	14.4
Mother's			
Age (yrs.)			
10-14	35.5	25.0	31.5
15-19	20.8	13.6	15.8
20-24	18.1	9.4	11.1
25-29	16.5	8.0	9.2
30-34	16.5	7.8	9.0
35-39	18.7	9.3	10.8
40-44	19.1	14.1	15.1
45-49	35.0	21.1	22.6
Education (yrs.)			
0-8	25.3	15.1	17.2
9-11	22.0	13.7	16.3
12	17.5	8.9	10.6
13-15	15.4	7.4	8.8
⩾ 16	13.2	6.7	7.3
Month prenatal care began			
1-3	16.7	8.5	9.7
4-6	17.1	11.0	12.6
7-9	16.2	10.8	12.4
None	67.1	38.3	48.7

*Rates were based on birthweights that included redistributed unknown birthweights.

Infant Mortality Surveillance — Continued

With the exception of infant's sex and race, information on the relationship between these infant and maternal characteristics and the risk of infant death can be obtained only through linkage of the birth certificate and the death certificate with information on cause and age at death. This preliminary analysis has revealed gradients in infant mortality for all reported characteristics, including at least a twofold gradient by maternal age and education for both blacks and whites. These data confirm the findings of previous studies that indicate a crossover in NNM between blacks and whites, with black infants experiencing lower NNM at lower birthweights and white infants experiencing lower NNM at higher birthweights (*12,13*). This crossover is also evident by reported gestational age. For birthweight under 3,000 g, black infants have been reported to experience lower NNM for all combinations of birthweight and gestational age in individual states (*12,13*).

These data will be disseminated through detailed tabulations in forthcoming reports that will include numbers and rates for NNM and PNM divided into 500-g intervals (under 4,500 g). In addition to the characteristics for singleton births listed in Table 2 (i.e., infant's sex, gestation, and live-birth order; and mother's age, education, and month prenatal care began), data will be available for type of delivery, number of other previous terminations, and number of prenatal-care visits. All tables for singleton infants will be reported separately for blacks, whites, and all races. For multiple gestations, data include plurality, gestational age, type of delivery, race, and birthweight. For all singleton deaths, data will also be tabulated by underlying cause, birthweight, race, and age at death. Preliminary analysis by cause of death has previously been reported (*14*).

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Epidemiologic Notes and Reports

Ammonia Contamination in a Milk Processing Plant — Wisconsin

On October 30, 1985, the Wisconsin Division of Health was informed by the state poison control center of two elementary schoolchildren who presented with severe burning of the mouth and throat, as well as nausea. The symptoms developed within 1 hour of drinking milk packaged in half-pint containers with an expiration date of 11/9 from a Wisconsin milk processor. An investigation into the source of the milk determined that, 5 days previously, the milk processor had noted an ammonia leak in one of its cooling chambers, where approximately 250,000 half-pint milk containers with an expiration date of 11/9 were stored. The liquid ammonia, used to cool the tanks and stored under pressure, had sprayed about the storage tank for an undetermined number of hours. On discovery of the leak, the milk processors destroyed those cartons with obvious external damage to the paper and polyethylene containers. After tasting and smelling approximately 75 of the remaining 250,000 cartons, they determined the milk was safe and began distributing the product throughout the state.

Thirty milk containers with expiration date 11/9 were retrieved from the index elementary school. An analysis of these 30 containers by the Wisconsin Department of Agriculture identified seven (23%) that were contaminated with ammonia at levels ranging from 530 ppm to 1,524 ppm (normal = less than 15 ppm). The pH levels of these contaminated samples ranged from 9.1 to 10.0 (normal milk pH = 6.7-6.9).

On the basis of the initial reports of adverse symptoms associated with ingestion of the implicated milk, a case definition was established: the development of symptoms of irritation of the gastrointestinal tract, including the mouth, throat, or stomach, with onset within 1 hour of ingesting milk with expiration date 11/9 from the implicated processing plant.

Over the next 24 hours, 268 schools that had received milk with expiration date 11/9 from the implicated plant were contacted and instructed to withdraw these milk products from their schools. Additionally, each school was requested to inform the Wisconsin Division of Health if any child developed symptoms consistent with the case definition.

This surveillance effort identified approximately 520 cartons of milk ingested before notification. Twenty children fulfilling the case definition were identified (attack rate 3.9%). None required hospitalization, and no deaths occurred. Schools were instructed to return the unused cartons to the milk processer, where they were destroyed. This is the first reported incident of acute ammonia poisoning associated with contaminated milk.

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Editorial Note: Ammonia (NH_3) is a colorless gas with a characteristic strong, pungent, penetrating odor. It is one of the more common industrial chemicals; an estimated 20-30 million tons are used per year in the United States (*1,2*). It is widely used in fertilizer manufacture; other uses include dye, synthetic fiber, plastic, and nitric acid production, as well as refrigeration (*2*). In its aqueous form as ammonium hydroxide (NH_4OH), it is extremely alkaline and can be highly caustic (*2*). Aqueous ammonia is 28% (280,000 ppm) ammonia, whereas household ammonia is 10% ammonia (100,000 ppm) (*3*). Mild to moderate ammonia exposures can produce headaches, salivation, burning of the throat, anosmia, nausea, vomiting, and substernal pain. Moderate doses may produce laryngospasm or bronchospasm (*1*).

The Occupational Safety and Health Administration standard for ammonia inhalation is 50 ppm as an 8-hour time-weighted average, but the National Institute for Occupational Safety and Health has recommended that 50 ppm be a 5-minute ceiling for exposure. The characteristic ammonia odor is readily perceptible below toxic levels. Most persons can

Ammonia Contamination — Continued

detect an odor at 30 ppm, and eye and nose irritation become more severe as the levels increase to 50 ppm (*4*). The students involved in this incident were unable to smell the ammonia probably because the milk cartons were closed. The students first became aware of a problem when they felt burning in their throats.

Outbreaks of ammonia poisoning of milk, other beverages, or food have not been previously documented. The ammonium hydroxide apparently penetrated the milk cartons when the refrigerant tank leaked. Additional studies need to be done to determine how the ammonia contaminated the milk, and criteria need to be established to prevent contaminated milk from being distributed.

Recommendations for ammonia spills are as follows (*1,5*):

1. Following ammonia ingestion, a conscious person should immediately be given large quantities of water to dilute the ammonia.
2. Persons who have inhaled ammonia should be observed closely for visual disturbances, upper airway obstruction, and hypoxia.
3. The area of the ammonia spill or leak should be ventilated to disperse the gas. A flow of gaseous ammonia should be stopped; liquid ammonia should be allowed to vaporize.
4. Persons not wearing protective equipment and clothing should be restricted from areas of spills or leaks until the clean-up has been completed.

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Current Trends

Rubella Vaccination during Pregnancy — United States, 1971-1985

From January 1971 through December 1985, 1,142 pregnant women who received rubella vaccine either within 3 months before or 3 months after their presumed dates of conception were reported to CDC. These women were followed prospectively to determine the risk of fetal abnormalities following exposure to the vaccine.

Cendehill and HPV-77 Vaccines. Before April 1979, data were collected on 538 women vaccinated during pregnancy with either Cendehill or HPV-77 rubella vaccine (*1*). The outcomes of conception—live birth, stillbirth, or spontaneous or induced abortion—were known for 143 (96%) of the 149 women known to be susceptible at the time of vaccination. Ninety-four (66%) of these 143 women carried their infants to term. All gave birth to infants free of defects compatible with congenital rubella syndrome (CRS) (*2*), although eight infants had serologic evidence of intrauterine infection (*1,3*). These eight children were all followed for at least 2 years, at which time all were growing and developing normally. The longest follow-up

Rubella Vaccination — Continued

is for a child who is now 10½ years old who had both an elevated rubella-specific immunoglobulin M (IgM) titer at birth and persistence of hemagglutination inhibition (HI) antibodies. Although he is still HI-antibody positive (he has not been vaccinated), he continues to grow and develop normally.

An additional 196 infants born to women who either were immune (22) or of unknown immune status (174) at the time of vaccination were also free of CRS-associated defects. Three other women (one susceptible, one immune, and one of unknown immune status) received unknown strains of rubella vaccine. All three delivered normal-appearing, healthy infants.

RA 27/3 Vaccine. Since licensure of the RA 27/3 rubella vaccine in January 1979, 614 pregnant women who received this vaccine during pregnancy have been reported to CDC (Table 3). Two hundred three (33%) of these 614 women were known to be susceptible at the time of vaccination. Outcomes of pregnancy are known for 191 (94%) of these susceptible women. Of the 191 women, 153 (80%) delivered 155 live infants. An additional 30 immune women and 319 women of unknown immune status delivered 350 live infants. All 505 infants were free of defects compatible with CRS.

(Continued on page 281)

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

Disease	17th Week Ending			Cumulative, 17th Week Ending		
	Apr. 26, 1986	Apr. 27, 1985	Median 1981-1985	Apr. 26, 1986	Apr. 27, 1985	Median 1981-1985
Acquired Immunodeficiency Syndrome (AIDS)	253	180	N	4,111	2,210	N
Aseptic meningitis	100	81	69	1,391	1,164	1,301
Encephalitis: Primary (arthropod-borne & unspec.)	10	12	16	253	295	295
Post-infectious	1	5	2	26	45	31
Gonorrhea: Civilian	14,655	15,252	16,983	260,725	254,401	289,192
Military	270	478	450	5,060	6,078	7,851
Hepatitis: Type A	426	436	438	7,243	7,002	7,439
Type B	528	495	473	8,080	8,081	7,436
Non A, Non B	76	88	N	1,083	1,373	N
Unspecified	89	114	158	1,612	1,712	2,375
Legionellosis	15	17	N	181	201	N
Leprosy	7	7	6	93	137	73
Malaria	18	23	25	227	230	230
Measles: Total*	185	185	134	2,040	1,001	1,001
Indigenous	176	140	N	1,976	816	N
Imported	9	45	N	64	185	N
Meningococcal infections: Total	54	61	70	1,050	1,012	1,185
Civilian	54	60	70	1,048	1,009	1,183
Military	-	1	-	2	3	5
Mumps	67	80	110	1,103	1,358	1,414
Pertussis	61	26	33	708	495	495
Rubella (German measles)	10	13	58	172	135	396
Syphilis (Primary & Secondary): Civilian	532	574	586	7,971	8,125	9,838
Military	2	9	11	72	67	122
Toxic Shock syndrome	11	9	N	123	128	N
Tuberculosis	431	532	499	6,280	6,364	7,157
Tularemia	-	1	1	19	26	32
Typhoid fever	7	6	7	72	85	121
Typhus fever, tick-borne (RMSF)	8	10	10	28	34	36
Rabies, animal	140	151	151	1,664	1,567	1,885

TABLE II. Notifiable diseases of low frequency, United States

	Cum 1986		Cum 1986
Anthrax	-	Leptospirosis (N.C. 1)	15
Botulism: Foodborne (Mich. 1)	4	Plague	-
Infant (Md. 1, Ariz. 1, Calif. 2)	20	Poliomyelitis, Paralytic	-
Other	-	Psittacosis	16
Brucellosis (Nebr. 1)	17	Rabies, human	-
Cholera	-	Tetanus	12
Congenital rubella syndrome	1	Trichinosis	7
Congenital syphilis, ages < 1 year	11	Typhus fever, flea-borne (endemic, murine)	6
Diphtheria	-		

*Four of the 185 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 April 26, 1986 and April 27, 1985 (17th Week)

Reporting Area	AIDS	Aseptic Meningitis	Encephalitis		Gonorrhea (Civilian)		Hepatitis (Viral), by type				Legionellosis	Leprosy
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
	Cum. 1986	1986	Cum. 1986	Cum. 1986	Cum. 1986	Cum. 1985	1986	1986	1986	1986	1986	Cum. 1986
UNITED STATES	4,111	100	253	26	260,725	254,401	426	528	76	89	15	93
NEW ENGLAND	171	4	9	1	6,022	7,865	7	25	3	4	1	1
Maine	9	-	-	-	306	323	-	-	1	-	-	-
N.H.	7	-	2	-	162	163	-	-	-	-	1	-
Vt.	2	1	2	1	94	81	1	-	1	-	-	-
Mass.	92	1	2	-	2,601	2,893	2	17	-	3	-	1
R.I.	9	-	-	-	567	571	1	3	-	1	-	-
Conn.	52	2	3	-	2,292	3,834	3	5	1	-	-	-
MID ATLANTIC	1,567	9	43	-	46,216	35,689	27	44	6	21	-	9
Upstate N.Y.	122	2	15	-	5,236	5,053	3	4	1	3	-	1
N.Y. City	1,107	-	10	-	27,015	16,159	2	2	-	17	-	7
N.J.	251	6	5	-	6,154	7,048	6	17	3	-	-	-
Pa.	87	1	13	-	7,811	7,429	16	21	2	1	-	1
E.N. CENTRAL	215	10	49	4	30,177	36,038	16	42	1	3	3	4
Ohio	30	3	15	2	8,812	9,457	6	9	-	2	2	-
Ind.	25	2	5	2	4,059	3,326	3	3	-	-	-	-
Ill.	106	-	7	-	4,638	9,726	-	-	-	-	-	3
Mich.	49	5	21	-	10,797	10,699	7	30	1	1	1	1
Wis.	5	-	1	-	1,871	2,830	-	-	-	-	-	-
W.N. CENTRAL	78	2	7	5	11,778	13,060	14	15	2	-	1	1
Minn.	37	-	4	-	1,787	1,904	7	5	1	-	-	1
Iowa	8	-	3	-	1,166	1,386	-	2	-	-	-	-
Mo.	19	-	-	-	5,770	6,004	3	5	1	-	-	-
N. Dak.	2	-	-	-	112	93	-	-	-	-	-	-
S. Dak.	1	1	-	-	235	239	1	-	-	-	1	-
Nebr.	3	-	-	-	867	1,304	-	2	-	-	-	-
Kans.	8	1	-	5	1,841	2,130	3	1	-	-	-	-
S. ATLANTIC	555	26	44	11	63,670	54,830	46	100	16	13	8	1
Del.	10	1	3	-	1,098	1,202	1	1	-	-	-	-
Md.	59	5	10	-	7,901	8,745	12	13	1	2	-	-
D.C.	78	-	-	-	5,271	4,655	-	11	-	-	-	-
Va.	59	5	17	-	5,764	5,867	1	7	2	1	1	1
W. Va.	2	-	6	-	830	774	2	3	2	-	-	-
N.C.	24	3	7	1	11,225	10,179	2	12	2	2	2	-
S.C.	15	1	-	-	6,081	6,911	-	19	-	1	2	-
Ga.	64	2	-	-	6,682	-	1	8	1	1	1	-
Fla.	244	9	1	10	18,818	16,497	27	26	8	6	2	-
E.S. CENTRAL	39	4	19	1	22,367	22,242	14	45	4	5	1	-
Ky.	12	2	8	-	2,623	2,449	9	8	-	3	-	-
Tenn.	17	2	1	1	8,815	8,792	3	19	-	2	-	-
Ala.	6	-	9	-	6,256	7,023	2	14	4	-	1	-
Miss.	4	-	1	-	4,673	3,978	-	4	-	-	-	-
W.S. CENTRAL	344	13	20	1	33,371	35,834	42	56	7	21	-	6
Ark.	10	-	-	-	3,170	3,440	-	2	-	2	-	-
La.	51	-	2	-	5,952	7,340	1	2	2	-	-	-
Okla.	16	-	4	-	3,856	3,698	9	7	1	1	-	-
Tex.	267	13	14	1	20,393	21,356	32	45	4	18	-	6
MOUNTAIN	86	6	12	1	8,588	8,436	43	35	8	1	-	7
Mont.	2	-	-	1	220	255	1	1	-	-	-	-
Idaho	1	-	-	-	254	278	1	-	-	-	-	-
Wyo.	2	-	2	-	195	211	1	1	1	-	-	-
Colo.	37	3	2	-	2,178	2,571	4	6	-	-	-	3
N. Mex.	6	1	1	-	847	991	7	4	-	-	-	-
Ariz.	22	2	5	-	2,745	2,462	20	19	6	1	-	2
Utah	6	-	1	-	346	351	1	1	-	-	-	-
Nev.	10	-	1	-	1,803	1,317	8	3	1	-	-	2
PACIFIC	1,056	26	50	2	38,536	40,407	217	166	29	21	1	64
Wash.	34	3	5	-	2,854	2,870	11	15	4	1	-	7
Oreg.	21	-	-	-	1,503	2,036	25	10	6	-	-	-
Calif.	983	23	43	2	32,761	33,886	181	136	18	20	1	48
Alaska	8	-	2	-	1,000	987	-	3	1	-	-	-
Hawaii	10	-	-	-	418	628	-	2	-	-	-	9
Guam	-	-	-	-	32	59	1	2	-	-	-	1
P.R.	31	1	2	-	748	1,263	-	6	-	14	-	-
V.I.	-	U	-	-	71	151	U	U	U	U	U	-
Pac. Trust Terr.	-	-	-	-	57	322	14	-	-	2	-	1
Amer. Samoa	-	-	-	-	13	-	4	-	-	-	-	-

N: Not notifiable U: Unavailable

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending April 26, 1986 and April 27, 1985 (17th 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	227	176	1,976	9	64	1,001	1,050	67	1,103	61	708	495	10	172	135
NEW ENGLAND	13	6	16	-	-	69	77	2	34	4	42	23	-	1	5
Maine	-	-	-	-	-	-	16	-	-	-	2	2	-	-	-
N.H.	-	-	-	-	-	-	3	1	10	-	14	13	-	1	2
Vt.	1	-	-	-	-	-	11	-	-	1	2	2	-	-	-
Mass.	8	6	15	-	-	68	16	-	1	-	9	3	-	-	3
R.I.	1	-	1	-	-	-	11	1	5	-	1	1	-	-	-
Conn.	3	-	-	-	-	1	20	-	18	3	14	2	-	-	-
MID ATLANTIC	26	60	785	-	3	66	170	1	61	1	83	57	-	23	35
Upstate N.Y.	4	-	2	-	2	30	49	-	25	1	57	32	-	15	8
N.Y. City	8	10	101	-	1	23	36	-	5	-	3	8	-	5	10
N.J.	3	50	682	-	-	7	27	1	15	-	5	1	-	3	5
Pa.	11	-	-	-	-	6	58	-	16	-	18	16	-	-	12
E.N. CENTRAL	6	7	211	-	2	350	126	20	529	1	138	72	-	5	11
Ohio	1	-	-	-	-	38	56	4	57	1	63	13	-	-	-
Ind.	-	-	-	-	-	1	13	-	15	-	16	11	-	-	-
Ill.	3	7	125	-	-	216	27	-	276	-	16	12	-	4	5
Mich.	2	-	-	-	-	48	30	16	90	-	16	7	-	-	5
Wis.	-	-	86	-	2	47	-	-	91	-	27	29	-	1	1
W.N. CENTRAL	6	3	86	1	3	5	59	8	55	-	33	44	1	7	8
Minn.	2	-	1	-	-	2	12	-	1	-	16	11	-	-	-
Iowa	1	-	-	-	1	-	6	2	10	-	5	3	-	-	-
Mo.	2	2	2	-	1	2	22	4	13	-	4	8	-	1	-
N. Dak.	-	-	-	-	-	-	-	-	2	-	2	6	-	-	1
S. Dak.	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-
Nebr.	1	-	-	-	-	-	7	-	-	-	-	1	-	-	-
Kans.	-	1	83	1 †	1	1	11	2	28	-	6	15	1	6	7
S. ATLANTIC	29	23	284	1	8	115	224	5	83	40	213	120	-	6	12
Del.	-	1	1	-	-	-	1	-	-	34	102	-	-	-	-
Md.	3	2	11	1 †	5	12	29	2	6	1	24	41	-	-	1
D.C.	-	-	-	-	-	2	2	-	-	-	-	-	-	-	-
Va.	6	1	3	-	1	12	40	3	15	-	9	3	-	-	-
W. Va.	-	-	2	-	-	3	3	-	26	-	4	-	-	-	2
N.C.	3	-	-	-	-	-	37	-	7	-	15	7	-	-	-
S.C.	2	19	256	-	-	-	24	-	11	1	3	-	-	-	2
Ga.	3	-	-	-	1	8	32	-	5	4	49	46	-	-	-
Fla.	12	-	11	-	1	78	56	-	13	-	7	23	-	6	7
E.S. CENTRAL	5	-	1	-	-	-	58	1	14	-	15	4	-	1	1
Ky.	2	-	-	-	-	-	10	-	2	-	1	1	-	1	1
Tenn.	-	-	1	-	-	-	26	1	10	-	5	1	-	-	-
Ala.	2	-	-	-	-	-	15	-	1	-	9	2	-	-	-
Miss.	1	-	-	-	-	-	7	-	1	-	-	-	-	-	-
W.S. CENTRAL	17	9	304	4	22	48	78	9	84	1	26	57	-	35	13
Ark.	-	-	273	-	-	-	10	-	6	-	2	9	-	-	1
La.	4	-	-	-	-	1	9	-	-	-	3	2	-	-	-
Okla.	2	-	-	2 §	4	-	12	N	N	1	21	46	-	-	-
Tex.	11	9	31	2 †	18	47	47	9	78	-	-	-	-	35	12
MOUNTAIN	6	21	115	2	10	255	42	16	125	4	86	22	1	1	3
Mont.	-	-	-	-	1	129	4	1	3	1	1	3	-	-	-
Idaho	1	-	-	-	-	4	1	-	2	-	26	-	-	-	1
Wyo.	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
Colo.	1	-	-	2 §	5	5	8	-	6	2	18	8	-	-	-
N. Mex.	-	1	16	-	4	2	4	N	N	1	9	3	-	-	1
Ariz.	2	20	99	-	-	115	13	15	110	-	23	4	1	1	1
Utah	1	-	-	-	-	-	4	-	1	-	9	4	-	-	-
Nev.	1	-	-	-	-	-	6	-	3	-	-	-	-	-	-
PACIFIC	119	47	174	1	16	93	216	5	118	10	72	96	8	93	47
Wash.	10	12	35	-	7	1	30	-	5	1	26	15	-	1	-
Oreg.	9	-	-	-	2	3	15	N	N	-	5	16	-	-	1
Calif.	100	35	120	1 §	6	82	163	5	103	9	38	60	8	91	34
Alaska	-	-	-	-	-	-	7	-	4	-	1	2	-	-	-
Hawaii	-	-	19	-	1	7	1	-	6	-	2	3	-	1	12
Guam	1	-	3	-	-	10	-	-	2	-	-	-	-	2	1
P.R.	3	-	-	-	-	40	2	-	15	1	4	1	-	58	6
V.I.	-	U	-	U	-	9	-	U	7	U	-	-	U	-	-
Pac. Trust Terr.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amer. Samoa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*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 April 26, 1986 and April 27, 1985 (17th 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	7,971	8,125	11	6,280	6,364	19	72	28 +8	1,664
NEW ENGLAND	158	183	-	195	222	-	3	1	1
Maine	10	7	-	18	16	-	-	-	-
N.H.	6	3	-	4	7	-	-	-	-
Vt.	6	-	-	7	3	-	-	-	-
Mass.	75	96	-	103	132	-	2	1	-
R.I.	10	6	-	11	21	-	-	-	1
Conn.	51	71	-	52	43	-	1	-	-
MID ATLANTIC	1,140	1,078	-	1,244	1,190	-	7	1	151
Upstate N.Y.	62	77	-	197	189	-	1	1	24
N.Y. City	636	671	-	610	620	-	4	-	1
N.J.	224	229	-	239	116	-	2	-	-
Pa.	218	101	-	198	265	-	-	-	126
E.N. CENTRAL	210	378	1	796	772	-	4	2 +2	30
Ohio	45	39	-	122	140	-	-	2 2	2
Ind.	41	32	-	96	90	-	-	-	7
Ill.	58	192	1	340	343	-	-	-	10
Mich.	46	96	-	193	156	-	3	-	4
Wis.	20	19	-	45	43	-	1	-	7
W.N. CENTRAL	80	86	1	173	165	6	3	1	227
Minn.	12	23	-	45	33	-	1	-	26
Iowa	5	12	1	14	26	1	-	-	54
Mo.	45	32	-	85	74	5	2	-	22
N. Dak.	2	-	-	2	2	-	-	-	58
S. Dak.	1	4	-	6	7	-	-	-	41
Nebr.	8	6	-	4	7	-	-	-	5
Kans.	7	9	-	17	16	-	-	1	21
S. ATLANTIC	2,274	2,027	6	1,251	1,279	4	7	7 +1	393
Del.	12	16	-	13	13	-	-	-	-
Md.	155	142	2	92	110	1	1	-	231
D.C.	116	118	-	51	60	-	-	-	-
Va.	147	111	1	120	105	1	2	1	73
W. Va.	7	4	-	43	28	-	-	-	9
N.C.	176	237	2	183	162	1	2	2	1
S.C.	235	253	1	139	150	-	-	3 1	11
Ga.	256	-	-	163	185	1	-	1	47
Fla.	1,170	1,146	-	447	466	-	2	-	21
E.S. CENTRAL	584	742	-	570	568	3	-	7 +2	104
Ky.	25	31	-	150	112	2	-	1	25
Tenn.	223	207	-	154	170	1	-	1 1	55
Ala.	194	236	-	182	196	-	-	2 1	24
Miss.	142	268	-	84	90	-	-	3	-
W.S. CENTRAL	1,725	2,062	-	757	715	5	3	8 +3	247
Ark.	88	105	-	90	75	3	-	-	51
La.	293	352	-	145	119	-	-	-	6
Okla.	51	60	-	65	75	2	1	6 3	20
Tex.	1,293	1,545	-	457	446	-	2	2	170
MOUNTAIN	206	259	2	117	149	-	2	1	293
Mont.	2	1	-	5	19	-	-	-	110
Idaho	1	2	-	5	4	-	-	-	-
Wyo.	-	5	-	-	3	-	-	1	129
Colo.	63	62	-	1	18	-	-	-	-
N. Mex.	26	36	-	32	27	-	-	-	3
Ariz.	90	136	1	57	67	-	1	-	51
Utah	4	3	-	4	5	-	1	-	-
Nev.	20	14	1	13	6	-	-	-	-
PACIFIC	1,594	1,310	1	1,177	1,304	1	43	-	218
Wash.	27	51	-	67	64	-	2	-	-
Oreg.	33	31	-	44	44	-	-	-	-
Calif.	1,517	1,201	1	991	1,087	-	39	-	212
Alaska	-	1	-	17	50	1	-	-	6
Hawaii	17	26	-	58	59	-	2	-	-
Guam	1	2	-	-	12	-	-	-	-
P.R.	284	302	-	81	99	-	2	-	15
V.I.	-	1	U	1	1	-	-	-	-
Pac. Trust Terr.	96	22	-	9	26	-	14	-	-
Amer. Samoa	-	-	-	-	-	-	-	-	-

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending April 26, 1986 (17th Week)

Reporting Area	All Causes, By Age (Years)						P&I** Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	612	435	122	28	16	11	45
Boston, Mass.	156	99	37	12	7	1	16
Bridgeport, Conn.	35	25	7	3	-	-	1
Cambridge, Mass.	27	25	1	1	-	-	2
Fall River, Mass.	33	27	4	-	2	-	1
Hartford, Conn.	56	39	11	3	2	1	4
Lowell, Mass.	15	13	1	1	-	-	-
Lynn, Mass.	15	12	3	-	-	-	1
New Bedford, Mass.	21	17	3	-	-	1	1
New Haven, Conn.	48	27	11	4	4	2	3
Providence, R.I.	69	52	15	-	-	2	4
Somerville, Mass.	5	3	2	-	-	-	-
Springfield, Mass.	47	29	13	2	-	3	6
Waterbury, Conn.	35	30	4	1	-	-	2
Worcester, Mass.	50	37	10	1	1	1	4
MID ATLANTIC	2,594	1,703	546	232	51	60	122
Albany, N.Y.	48	29	13	2	1	3	2
Allentown, Pa.	15	13	2	-	-	-	-
Buffalo, N.Y.	111	67	30	9	3	2	4
Camden, N.J.	32	21	8	-	-	3	-
Elizabeth, N.J.	26	16	6	4	-	-	2
Erie, Pa.†	49	33	14	1	-	1	-
Jersey City, N.J.	53	42	5	3	2	1	1
N.Y. City, N.Y.	1,320	838	265	152	32	33	52
Newark, N.J.	56	19	17	16	-	2	2
Paterson, N.J.	30	18	10	2	-	-	5
Philadelphia, Pa.	392	262	93	22	6	9	30
Pittsburgh, Pa.†	68	47	13	5	2	1	2
Reading, Pa.	38	27	8	2	1	-	5
Rochester, N.Y.	136	103	23	4	2	4	8
Schenectady, N.Y.	22	16	2	3	1	-	-
Scranton, Pa.†	39	27	11	-	1	-	1
Syracuse, N.Y.	81	66	12	3	-	-	4
Trenton, N.J.	31	21	7	2	-	1	-
Utica, N.Y.	16	11	4	1	-	-	2
Yonkers, N.Y.	31	27	3	1	-	-	2
E.N. CENTRAL	2,346	1,534	516	156	70	70	105
Akron, Ohio	63	43	16	1	1	2	3
Canton, Ohio	35	29	5	-	-	1	1
Chicago, Ill.§	561	353	127	47	11	23	16
Cincinnati, Ohio	169	113	39	7	6	4	22
Cleveland, Ohio	190	116	47	10	11	6	6
Columbus, Ohio	173	99	52	10	7	5	2
Dayton, Ohio	109	73	22	8	3	3	2
Detroit, Mich.	234	150	50	18	11	5	8
Evansville, Ind.	40	31	7	-	2	-	1
Fort Wayne, Ind.	53	34	15	2	1	1	6
Gary, Ind.	13	9	2	2	-	-	-
Grand Rapids, Mich.	69	46	13	4	3	3	2
Indianapolis, Ind.	148	95	37	12	-	4	7
Madison, Wis.	43	28	8	1	3	3	4
Milwaukee, Wis.	167	125	28	8	4	2	6
Peoria, Ill.	44	30	7	4	2	1	4
Rockford, Ill.	36	23	8	3	1	1	4
South Bend, Ind.	39	24	6	5	1	3	1
Toledo, Ohio	97	66	17	10	3	1	9
Youngstown, Ohio	63	47	10	4	-	2	1
W.N. CENTRAL	740	484	155	51	23	27	28
Des Moines, Iowa	51	39	10	1	-	1	1
Duluth, Minn.	15	11	4	-	-	-	-
Kansas City, Kans.	44	26	13	3	1	1	-
Kansas City, Mo.	110	71	26	5	3	5	4
Lincoln, Nebr.	44	33	7	3	-	1	3
Minneapolis, Minn.	79	56	14	5	1	3	2
Omaha, Nebr.	88	56	24	3	3	2	9
St. Louis, Mo.	154	91	20	22	13	8	2
St. Paul, Minn.	65	45	16	-	1	3	1
Wichita, Kans.	90	56	21	9	1	3	6
S. ATLANTIC	1,255	792	290	104	37	32	66
Atlanta, Ga.	146	83	40	12	4	7	4
Baltimore, Md.	226	148	49	17	9	3	7
Charlotte, N.C.	61	33	14	9	2	3	7
Jacksonville, Fla.	129	84	28	7	7	3	10
Miami, Fla.	108	59	38	9	1	1	2
Norfolk, Va.	38	19	13	5	-	1	6
Richmond, Va.	78	49	18	6	3	2	2
Savannah, Ga.	54	39	10	2	2	1	10
St. Petersburg, Fla.	116	95	14	5	-	2	9
Tampa, Fla.	62	47	10	2	1	2	3
Washington, D.C.	208	122	46	27	6	7	6
Wilmington, Del.	29	14	10	3	2	-	-
E.S. CENTRAL	697	425	177	49	25	21	32
Birmingham, Ala.	125	79	36	6	2	2	1
Chattanooga, Tenn.	66	43	14	4	1	4	6
Knoxville, Tenn.	101	57	30	5	6	3	9
Louisville, Ky.	102	62	24	9	4	3	5
Memphis, Tenn.	98	59	17	12	5	5	2
Mobile, Ala.	70	44	20	5	1	-	4
Montgomery, Ala.	30	16	10	-	2	2	1
Nashville, Tenn.	105	65	26	8	4	2	4
W.S. CENTRAL	1,356	771	328	129	74	53	55
Austin, Tex.	52	28	13	6	3	2	4
Baton Rouge, La.	31	22	5	-	-	4	3
Corpus Christi, Tex.	32	21	6	2	1	2	3
Dallas, Tex.	220	121	52	24	13	10	4
El Paso, Tex.	69	38	17	3	6	5	4
Fort Worth, Tex.	89	50	23	8	6	2	3
Houston, Tex	433	237	102	56	23	15	12
Little Rock, Ark.	37	21	7	7	1	1	2
New Orleans, La.	121	68	37	7	5	3	-
San Antonio, Tex.	133	76	30	9	12	6	11
Shreveport, La.	49	32	14	1	1	1	3
Tulsa, Okla.	90	57	22	6	3	2	6
MOUNTAIN	694	432	143	71	23	24	43
Albuquerque, N.Mex.	97	55	19	10	8	4	4
Colo. Springs, Colo.	39	26	8	4	-	1	8
Denver, Colo.	121	65	32	10	4	10	3
Las Vegas, Nev.	98	55	28	12	2	1	9
Ogden, Utah	20	15	5	-	-	-	1
Phoenix, Ariz.	135	86	22	20	4	3	3
Pueblo, Colo.	26	19	6	1	-	-	4
Salt Lake City, Utah	49	30	8	5	2	4	-
Tucson, Ariz.	109	81	15	9	3	1	11
PACIFIC	1,979	1,313	366	179	62	51	102
Berkeley, Calif.	21	16	3	-	1	1	1
Fresno, Calif.	80	50	17	4	3	6	6
Glendale, Calif.	19	14	4	-	1	-	3
Honolulu, Hawaii	59	38	12	6	2	1	3
Long Beach, Calif.	79	52	14	9	2	2	8
Los Angeles, Calif.	663	412	136	74	26	8	26
Oakland, Calif.	42	31	5	1	2	3	1
Pasadena, Calif.§	31	24	5	1	-	1	2
Portland, Oreg.	136	96	22	13	2	3	9
Sacramento, Calif.	137	92	21	15	2	7	8
San Diego, Calif.	132	88	25	9	7	3	13
San Francisco, Calif.	155	100	26	19	2	8	6
San Jose, Calif.	176	121	34	13	4	3	7
Seattle, Wash.	147	104	23	10	6	4	2
Spokane, Wash.	53	41	8	3	1	-	6
Tacoma, Wash.	49	34	11	2	1	1	1
TOTAL	12,273††	7,889	2,643	999	381	349	598

* 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.

Rubella Vaccination — Continued

The dates of vaccination and estimated dates of confinement were known for all 153 susceptible women who had full-term pregnancies (Figure 3). Fifty-three (35%) women were vaccinated within 1 week before to 4 weeks after conception, the period of presumed highest risk.

Serologic evaluations (rubella HI and specific IgM titers on cord or neonatal blood specimens) were performed on 121 (78%) of the 155 infants whose mothers were susceptible. One normal-appearing infant had a rubella-specific IgM antibody titer of 1:8 in cord blood and a corresponding HI titer of 1:128. The maternal titer was also 1:128. Retesting of cord blood and testing of a 2-month follow-up specimen run simultaneously showed a decline in HI antibody over the 2-month period from a titer of 1:64 to 1:16, suggesting that subclinical infection may not have occurred, since this pattern of decrease would be expected in maternally

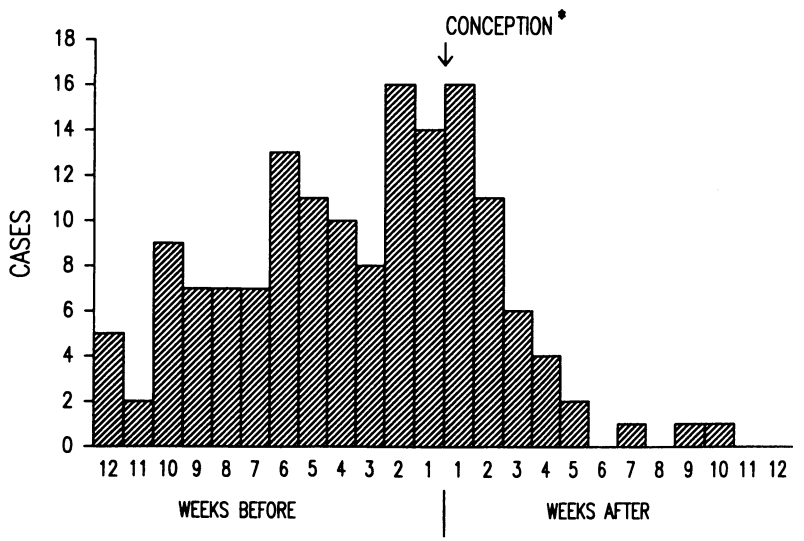
TABLE 3. Pregnancy outcomes for 614 recipients of RA 27/3 vaccine — United States, January 1979 through December 1985

Prevaccination immunity status	Total women	Live births	Spontaneous abortions and stillbirths	Induced abortions	Outcome unknown
Susceptible	203	155*	8	30	12
Immune	32	30	1	0	1
Unknown	379	320†	8	24	28
Total	**614**	**505**	**17**	**54**	**41**

*Includes two twin births.

†Includes one twin birth.

FIGURE 3. Interval between receipt of rubella RA 27/3 vaccine and estimated date of conception, in weeks, among 153 susceptible women with live births — United States, January 1979 through December 1985



*Two cases not included on estimated day of conception.

Rubella Vaccination — Continued

derived antibody. The infant had no evidence of defects compatible with CRS at birth or at the 18-month and 29-month follow-up examinations. Further follow-up sera could not be obtained to document persistence or disappearance of HI antibodies.

Blood studies were also obtained on 156 of the 320 infants born to mothers whose immune status was unknown at the time of vaccination. Subclinical infection was documented in two infants. One infant had a rubella-specific IgM antibody titer of 1:16 in cord blood. Both mother and infant had HI titers of 1:32 at the time of birth; the infant had a persistent HI titer of 1:32 at 4 months of age. This infant had no evidence of defects compatible with CRS at birth or at the 10-month and 17-month examinations. A serum specimen was not obtained at the follow-up visits. The second infant had a persistent HI titer of 1:8 at 3 months of age, suggesting that there had been subclinical infection. This infant was diagnosed as normal at the 3-month follow-up visit.

While none of the 155 infants born to susceptible women had defects compatible with CRS, two infants did have asymptomatic glandular hypospadias. However, both had negative rubella-specific IgM titers (less than 1:4) in cord blood at birth. A 6-month follow-up serum was available for one of the infants; he had a rubella HI antibody titer of less than 1:8 (i.e., a negative titer).

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

Editorial Note: Since 1971, CDC has maintained a register to monitor and quantitate the risks to the fetus following exposure to attenuated rubella vaccine virus. Data are obtained through reports from physicians and from state and local health departments, as well as directly from women vaccinated either within 3 months before or 3 months after conception. The patients are followed prospectively to determine the outcome of pregnancy. In 1979, when RA 27/3 rubella vaccine replaced the other rubella vaccines, concern was raised that it might have greater fetotropic and teratogenic potential than earlier vaccines. As with the other vaccines, data collected so far show no evidence that the RA 27/3 rubella vaccine can cause defects compatible with CRS.

Fifty-three (35%) of the 153 susceptible mothers were vaccinated with RA 27/3 vaccine during the presumed highest-risk period for viremia and fetal defects (1 week before to 4 weeks after conception) (*4,5*). None of their infants were born with CRS; therefore, the observed risk of CRS following rubella vaccination continues to be zero (Table 4). The theoretical maximum risk for the occurrence of CRS in this group of 155 children, however, based on the 95% confidence limits of the binomial distribution, could be as high as 2.4%. (If the 95 infants exposed to other rubella vaccines are included, the maximum theoretical risk is 1.5%.) This overall maximum risk remains far less than the 20% or greater risk of CRS associated with maternal infection with wild rubella virus during the first trimester of pregnancy (*3*) and is no greater than the 2%-3% rate of major birth defects in the absence of exposure to rubella vaccine (*6*).

These favorable data are consistent with the experiences in the Federal Republic of Germany and the United Kingdom (*7,8*). In neither country has the vaccine been associated with the occurrence of CRS among infants born to susceptible mothers who had been vaccinated. In Germany, 98 susceptible women vaccinated with either the Cendehill or RA 27/3 strain of vaccine gave birth to infants with no evidence of CRS. In the United Kingdom, one of 42 infants born to vaccinated mothers (rubella-immune status not specified) had pulmonic valve atresia but had no rubella-specific IgM or other serologic evidence of rubella infection.

The occurrence of any congenital defect following maternal vaccination deserves careful analysis and follow-up. In the U.S. series, two infants born to susceptible mothers had asymptomatic glandular hypospadias. While hypospadias has been noted in CRS cases (*9,10*),

Rubella Vaccination — Continued

there are no data to suggest that glandular hypospadias should be considered a CRS-associated defect. In any case, neither of the two infants in question had serologic evidence of rubella virus infection. Ten other infants born to mothers of unknown immune status (eight) or known to be immune (two) at the time of vaccination had some type of defect (*11*). However, none of the defects were compatible with CRS, and serologic testing, when done, did not confirm rubella virus infection.

While no CRS-like defects have been noted, it is clear that rubella vaccine viruses, including the RA 27/3 strain, can cross the placenta and infect the fetus. Approximately 1%-2% of infants born to susceptible vaccinees had serologic evidence of subclinical infection, regardless of vaccine strain (*3*). On the other hand, while the rubella virus isolation rate from the products of conception for the RA 27/3 vaccine is only 3% (1/34), the rate of virus isolation for Cendehill and HPV-77 vaccines is 20% (17/85) (*3*). These data indicate that the risk of placental or fetal infection from RA 27/3 vaccine is minimal.

In view of the data collected through 1985, the Immunization Practices Advisory Committee (ACIP) continues to state that: (1) pregnancy remains a contraindication to rubella vaccination because of the theoretical, albeit small, risk of CRS; (2) reasonable precautions should be taken to preclude vaccination of pregnant women, including asking women if they are pregnant, excluding those who say they are, and explaining the theoretical risks to the others; and (3) if vaccination does occur within 3 months before or after conception, the risk of CRS is so small as to be negligible; thus, rubella vaccination of a pregnant woman should not ordinarily be a reason to consider interruption of pregnancy. The patient and her physician, however, should make the final decision (*12*).

CDC encourages reporting of cases to its register. Only cases involving women known to have been susceptible at the time of vaccination, by virtue of a negative serology obtained within the preceding year, should be reported to the Division of Immunization (telephone: [404] 329-1870). Although laboratory services for culture of placental and fetal tissue are no longer routinely available at CDC, services for serologic determination continue to be available for susceptible cases that are reported.

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TABLE 4. Maximum theoretical risks of congenital rubella syndrome (CRS) following rubella vaccination, by vaccine strain — United States, 1971-1985*

Vaccine strain	Susceptible vaccinees	Normal live births	Risk of CRS	
			Observed	Theoretical
RA 27/3	153	155†	0	0%-2.4%
Cendehill or HPV-77	94	94	0	0%-3.8%
Unknown	1	1	0	—
Total	**248**	**250**	**0**	**0%-1.5%**

*Through December 31, 1985. No women entered in the register after 1980 were vaccinated with Cendehill or HPV-77 vaccine.

†Includes two twin births.

Rubella Vaccination — Continued

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Human T-Lymphotropic Virus Type III/ Lymphadenopathy-Associated Virus Antibody Testing at Alternate Sites

On March 2, 1985, an enzyme-linked immunosorbant assay (ELISA) test to detect antibodies to human T-lymphotropic virus type III/lymphadenopathy-associated virus (HTLV-III/LAV) was licensed by the U.S. Food and Drug Administration to screen blood and plasma collected for transfusion or manufactured into other products. Since it was recognized that many individuals in groups at high risk for AIDS might want testing to determine their antibody status, federal funds for alternate testing sites were made available so that HTLV-III/LAV antibody tests could be obtained free of charge outside the blood-bank setting. A primary goal was to protect the nation's blood supply by limiting the potential for donation of false-negative units. The alternate sites were also needed to ensure that individuals wishing to be tested would receive appropriate pretest counseling, post-test counseling, and referral for medical evaluation, if indicated.

Cooperative agreements between CDC and 55 state and local health departments began April 26, 1985. The cooperative agreements were for a 90-day period, since they were intended to defray start-up costs only. Most agreements were subsequently extended for an additional 90 days without additional funding at the request of the individual health departments. Preliminary data on the activities supported by the cooperative agreements were reported to CDC in September 1985 and January 1986. As of September 6, 1985, at least one alternate testing site had been established by 52 of the 55 project areas; an estimated 518 sites had been established nationwide; and 21,200 persons had been tested.

Activities increased substantially during the last quarter of 1985. By December 31, 1985, 874 testing sites had been established in 53 project areas (Table 5). This total included 275 sites in New York City located in private physicians' offices. Nationwide, 79,100 persons had been tested. Pretest counseling had been provided to 93,900 persons, and post-test counseling, to 55,500. A total of 17.3% of the individuals tested at these sites had repeatedly reactive ELISA tests. No relationship was noted between the number of acquired immunodeficiency syndrome (AIDS) cases reported in a particular project area and the number of tests per-

HTLV-III/LAV — Continued

TABLE 5. Alternate testing site activities — United States, 1985

Area	Testing sites	Pretest sessions	Persons tested	Post-test sessions	Percent positive*
UNITED STATES	**874**	**93,917**	**79,083**	**55,499**	**17.3**
New England					
Maine	4	42	42	42	9.5
N.H.	1	73	429	53	9.8
Vt.	19	0	110	110	2.7
Mass.	7	1,400	600	450	11.8
R.I.	1	308	695	214	10.6
Conn.	0	0	0	0	—
Mid-Atlantic					
Upstate N.Y.	8	2,376	1,697	1,254	9.0
N.Y. City	275	7,042	2,032	2,032	30.7
N.J.	4	1,844	1,818	246	13.5
Pa.	7	2,204	1,608	1,333	10.1
E.N. Central					
Ohio	7	3,174	2,780	2,500	17.2
Ind.	9	3,338	827	756	18.1
Ill.	3	280	221	0	13.1
Mich.	5	2,633	1,897	303	15.1
Wis.	30	1,050	1,021	1,010	12.2
W.N. Central					
Minn.	4	1,730	1,717	1,614	13.8
Iowa	11	947	947	67	7.1
Mo.	12	1,241	1,026	851	18.6
N. Dak.	2	120	120	120	5.0
S. Dak.	2	4	4	4	50.0
Nebr.	11	235	199	141	24.6
Kans.	18	651	306	289	9.8
S. Atlantic					
Del.	7	785	198	190	8.1
Md.	26	1,586	1,467	952	12.7
D.C.	2	1,269	1,235	1,235	19.0
Va.	5	687	611	587	15.1
W. Va.	7	269	240	178	11.7
N.C.	93	923	711	461	18.3
S.C.	46	1,131	1,064	990	12.0
Ga.	10	525	554	161	12.3
Fla.	23	6,074	5,811	3,756	21.4
E.S. Central					
Ky.	5	417	152	132	17.1
Tenn.	5	946	684	513	13.0
Ala.	5	564	518	70	16.4
Miss.	14	150	143	0	18.2
W.S. Central					
Ark.	1	120	106	93	17.9
La.	7	1,644	921	695	23.3
Okla.	7	711	691	595	21.4
Tex.	27	8,773	7,564	5,379	12.5
Mountain					
Mont.	7	170	177	168	6.8
Idaho	1	137	380	109	8.4
Wyo.	1	0	39	1	0.0
Colo.	10	4,252	4,252	4,252	41.5
N. Mex.	6	434	243	170	17.3
Ariz.	1	662	427	427	20.1
Utah	21	216	416	148	39.4
Nev.	3	984	458	63	13.8

HTLV-III/LAV — Continued

TABLE 5. Alternate testing site activities — United States, 1985 (Continued)

Area	Testing sites	Pretest sessions	Persons tested	Post-test sessions	Percent positive*
Pacific					
Wash.	18	3,136	2,569	2,330	12.7
Oreg.	15	829	1,435	829	21.2
Calif.	51	17,721	17,546	11,552	13.7
San Fran.	2	5,898	5,898	5,047	19.9
Alaska	5	824	915	77	9.3
Hawaii	1	793	658	599	17.3
Guam	0	0	0	0	—
P.R.	2	595	904	351	40.7
V.I.	0	0	0	0	—
Pac. Trust Terr.	0	0	0	0	—

*On at least two ELISA tests.

Reported by Div of Sexually Transmitted Diseases, Center for Prevention Svcs, CDC.

Editorial Note: Many of the project areas reported they had underestimated the difficulty of establishing alternate sites on a short-term basis. Start-up delays were common because of administrative procedures and such factors as general hiring freezes and the development of systems to assure strict confidentiality of all records related to counseling and clinical laboratory test results. Moreover, the initial demand for services was less than most areas had anticipated. The number of tests performed in each area depended on many factors, including accessibility of services, perception of the benefits or risks of testing, and awareness of the existence of services by those at risk. The utilization of the sites varied widely in both high and low AIDS-incidence areas (Table 6), perhaps indicating that demand for testing depends on the degree to which it is encouraged and made accessible for persons at risk. In one project area with a high test-to-case ratio, testing was actively promoted by both public health authorities and AIDS risk-group representatives (*1*).

The goal of protecting the blood supply by providing alternate sites at which persons could be tested was achieved. In addition, experience with the HTLV-III/LAV ELISA tests since licensure in March 1985 has shown them to be remarkably sensitive and specific (*2*) and to be useful, not only for preventive purposes, but also for the diagnosis and differential diagnosis of clinical illness. An evaluation of the tests used to screen blood donors in a large metropolitan area showed a specificity of 99.8% (*3*). Thus, they have value in identifying individuals who are infected, and who are likely to be able to transmit the infection to others by the established routes of transmission, even if such individuals themselves are asymptomatic.

Accordingly, the U.S. Public Health Service has proposed additional applications to prevent perinatal transmission (*4*) and to help reduce drug abuse-related and sexual transmission of HTLV-III/LAV virus by infected persons (*5*). The main purpose of the additional applications is to facilitate identification of seropositive asymptomatic persons, both for medical evaluation and for counseling to prevent transmission. Reduction of sexual and drug-related transmission of HTLV-III/LAV should be enhanced by using available serologic tests to give asymptomatic, infected individuals in high-risk groups the opportunity to know their status so they can take appropriate steps to prevent further transmission (*6*).

The wide network of alternate testing sites that has been established by state and local health departments, frequently in cooperation with local community groups, may facilitate extension of testing services to selected populations at increased risk for HTLV-III/LAV infection.

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HTLV-III/LAV — Continued

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TABLE 6. Reported AIDS cases and tests for HTLV-III/LAV antibody performed at alternate sites, for 10 project areas — United States, 1985*

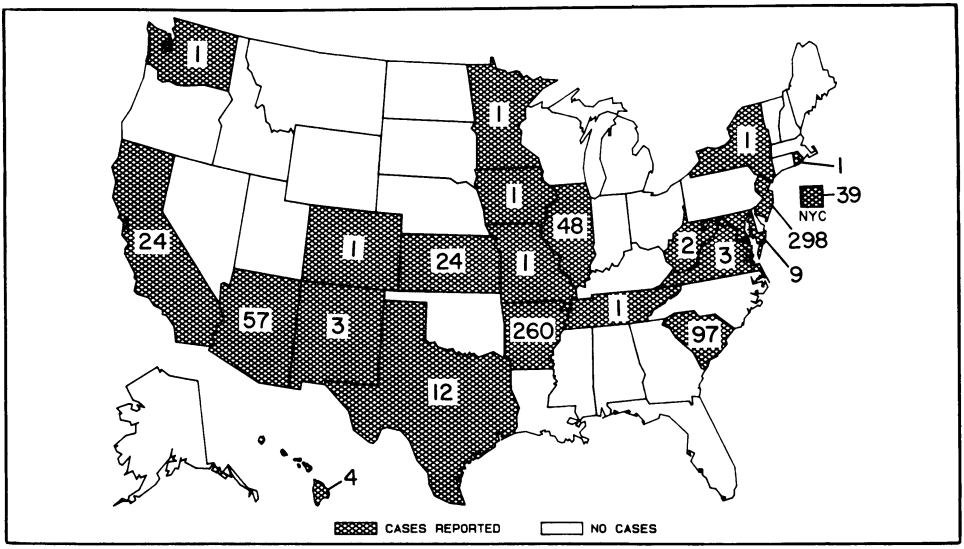
Project area	Reported AIDS cases†	HTLV-III/LAV tests	Tests per case
New York City	2,140	2,032	1.0
California§	1,923	23,444	12.2
Florida	516	5,811	11.3
Texas	483	7,564	15.7
New Jersey	460	1,818	4.0
Colorado	61	4,252	69.7
Ohio	53	2,780	52.5
Oregon	33	1,435	43.5
Iowa	13	947	72.9
Alaska	5	915	183.0
United States	**8,072**	**79,083**	**9.8**

*This table shows five project areas with the highest number of reported cases and five project areas with the highest rates of tests per case.

†Provisional totals reported to *MMWR* through week 52, 1985.

§Includes the separately funded San Francisco project area.

FIGURE I. Reported measles cases — United States, weeks 13-16, 1986



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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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