CENTERS FOR DISEASE CONTROL

March 7, 1986 / Vol. 35 / No. 9

MMWR

MORBIDITY AND MORTALITY WEEKLY REPORT

Current Trends

DR STEVE COCCHI
-DR. SUSAN Robertson — 1870

Rubella and Congenital Rubella Syndrome — United States, 1984-1985

RUBELLA

In 1985, a provisional total of 604 cases of rubella (0.25 cases/100,000 population) was reported in the United States. This is the lowest annual total since rubella became a nationally notifiable disease in 1966; it represents a 20% decrease from the 1984 total of 752 cases and a 99% decline from 1969, the year of rubella vaccine licensure and the year with the greatest number of cases (57,686) ever reported (Figure 1).

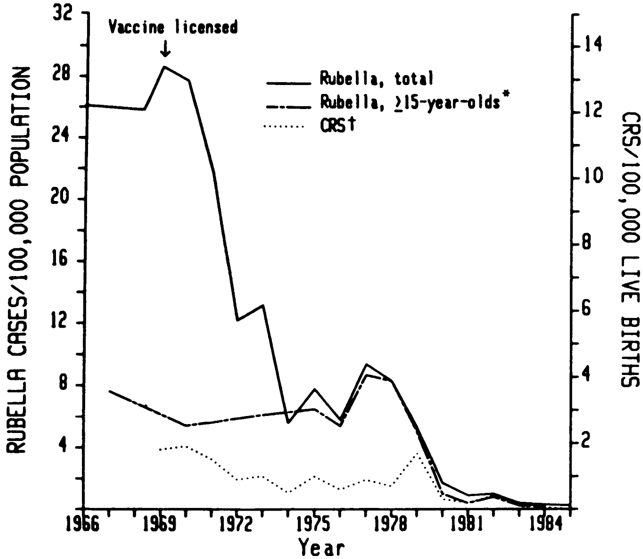
Provisionally, in 1985, 14 states and the District of Columbia reported no rubella cases, compared with 12 states and the District of Columbia in 1984 and 14 reporting areas in 1983. Age and county data are not yet available for 1985. However, the number of counties reporting rubella declined from 284 (9%) in 1983 to 219 (7%) in 1984.

Comparison of national data for 1982-1984 indicates that the reported age-specific incidence of rubella declined for virtually all age groups during the past 3 years (Table 1). Children under 5 years of age continued to have the highest overall incidence (1.4 cases/100,000 population) and accounted for one-third of all patients for whom age was reported. Incidence declined by 49% among persons under 15 years old between 1982 and 1984, and by 25% from 1983 to 1984. The incidence for persons 15 years of age or older, who accounted for 48% of cases in 1984, declined by 75% between 1982 and 1984 and by 17% between 1983 and 1984 as a result of continued efforts to identify and vaccinate susceptible persons of childbearing age, particularly postpubertal females.

Long-term data on the occurrence of rubella among specific age groups are available from Illinois, Massachusetts, and New York City (Table 2). In the 3-year period before vaccine licensure, children had the highest occurrence of rubella, with the highest incidence rate among those 5-9 years of age. Children under 10 years of age accounted for 60% of cases, while 23% of the total cases was reported among persons 15 years of age or older. Although incidence rates declined for all age groups during 1975-1977, the greatest decreases occurred among persons under 15 years of age. The highest incidence rates were then reported among 15- to 19-year-olds, rather than 5- to 9-year-olds. Children under 10 years of age accounted for 24% of cases, while persons 15 years of age or older made up 62% of cases. Among persons 15 years of age or older, incidence rates were more than tenfold higher among 15- to 19-year-olds than among persons 20 years of age or older. More recently (1982-1984), reported incidence rates have declined by approximately 90% or more for all age groups, with the greatest decreases occurring among persons 15-19 years of age. Persons 15 years of age or older still accounted for the majority (52%) of cases but experienced a greater than 90% reduction in their risk of acquiring rubella relative to prevaccine years. The differences observed earlier in attack rates within this age group are no longer evident.

Rubella and Congenital Rubella Syndrome — Continued

FIGURE 1. Incidence rates of reported rubella and congenital rubella syndrome (CRS) — United States, 1966-1985



*Includes proration of patients of unknown age 15 years of age or older (1985 provisional data). Average annual U.S. estimate based on data from Illinois, Massachusetts, and New York City for the 3-year periods 1966-1968, 1969-1971, and 1972-1974. Age-specific data were not available for U.S. totals until 1975.

†Rate per 10^5 births of confirmed and compatible cases of CRS by year of birth. Reporting for recent years is provisional, as cases may not be diagnosed until later in childhood.

TABLE 1. Age distribution of reported rubella cases and estimated incidence rates* — United States, 1982-1984

Age group	1982			1983			1984			Rate change
(yrs.)	No.	(%)	Rate	No.	(%)	Rate	No.	(%)	Rate	1982-1984 (%)
< 1	177	(8.5)	5.4	127	(15.0)	4.0	110	(16.2)	3.4	-37.0
1-4	249	(12.0)	2.0	149	(17.6)	1.2	114	(16.8)	0.9	-55.0
5-9	214	(10.3)	1.5	102	(12.1)	0.7	85	(12.5)	0.6	-60.0
10-14	155	(7.4)	1.0	93	(11.0)	0.6	44	(6.5)	0.3	-70.0
15-19	288	(13.8)	1.6	95	(11.2)	0.6	65	(9.6)	0.4	-75.0
20-24	375	(18.0)	1.9	117	(13.8)	0.6	115	(16.9)	0.6	-68.4
25-29	298	(14.3)	1.6	83	(9.8)	0.5	70	(10.3)	0.4	-75.0
≥ 30	327	(15.7)	0.3	80	(9.5)	0.1	76	(11.2)	0.1	-66.7
Total, known age	2,083	(89.6)	-	846	(87.2)	—	679	(90.3)	—	—
Total, unknown age	242	(10.4)	—	124	(12.8)	—	73	(9.7)	—	—
Total	**2,325**	**(100.0)**	**1.0**	**970**	**(100.0)**	**0.4**	**752**	**(100.0)**	**0.3**	**-70.0**

*Cases/100,000 population (projected census data) extrapolated from the age distribution of cases with known age to total cases.

Rubella and Congenital Rubella Syndrome — Continued

CONGENITAL RUBELLA SYNDROME

Data on cases of congenital rubella syndrome (CRS) are available from reports submitted weekly to *MMWR* and from the National Congenital Rubella Syndrome Register (NCRSR) maintained at the Division of Immunization, Center for Prevention Services, CDC. The *MMWR* CRS reports are case counts with no accompanying data and are tabulated by year of report. NCRSR data are obtained through reports from state and local health departments that contain clinical and laboratory information. The NCRSR monitors reports by year of birth, with cases classified into six categories, the most specific of which, for clinical CRS cases, are "confirmed"* and "compatible"† (Table 3). Since the NCRSR cases are classified by year of birth, data are considered provisional for any given year and are subject to updating because of delayed reporting. This summary updates previous reports on surveillance of CRS in the United States.

Recent declines in CRS rates recorded by NCRSR parallel the decline in overall rubella incidence and, more specifically, in the incidence for persons 15 years of age or older (Figure 1). During 1979-1984, the reported rubella rate among persons in this age group declined 96%, from 4.8 cases/100,000 population to 0.2/100,000. Similarly, 57 confirmed and compatible CRS cases occurred in 1979 and that only two such cases occurred in 1984 (a 96% decline) (Table 4). The number of reported CRS cases declined by 71% from 1983 (seven cases) to 1984 (two cases).§ Two CRS patients born in 1985 have been reported to date. Neither 1985 case was reported until 1986; one CRS patient was diagnosed within the first month of life; the second was not recognized until 8 months of age.

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

*Patients with both defects and laboratory evidence of rubella infection.

†Cases that satisfy only the clinical criteria of two complications from A or one from A and one from B, in the absence of laboratory confirmation.

§Cases reported to the *MMWR* have been reclassified by date of birth rather than date of report and stratified into confirmed and compatible cases. Annual totals may change as a result of delayed diagnoses and reporting (CDC. Rubella and congenital rubella—United States, 1983. *MMWR* 1984; 33:237-42, 247).

TABLE 2. Age distribution of reported rubella cases* and estimated incidence rates† — Illinois, Massachusetts, New York City, 1966-1968,§ 1975-1977,§ and 1982-1984§¶

Age group (yrs.)	1966-1968**			1975-1977			1982-1984			Rate change
	No.	(%)	Rate	No.	(%)	Rate	No.	(%)	Rate	1966-1984 (%)
< 5	1,294	(21.6)	63.3	160	(9.8)	9.8	31	(20.3)	1.9	-97.0
5-9	2,304	(38.5)	101.3	233	(14.2)	11.6	28	(18.3)	1.7	-98.3
10-14	1,020	(17.1)	44.0	229	(13.9)	11.2	15	(9.8)	0.8	-98.2
15-19	759	(12.7)	35.7	634	(38.7)	27.4	11	(7.2)	0.5	-98.6
≥ 20	601	(10.2)	3.7	384	(23.4)	2.3	68	(44.3)	0.4	-89.2
Total	**5,978**	**(100.0)**	**24.3**	**1,640**	**(100.0)**	**6.7**	**153**	**(100.0)**	**0.6**	**-97.5**

*Patients of unknown age excluded.

†Reported cases/100,000 population.

§Average annual figure over 3-year period.

¶These selected data accurately reflect changes using total U.S. data; 1980 population data used.

**Represents prevaccine years.

Rubella and Congenital Rubella Syndrome — Continued

Editorial Note: The primary goal of rubella vaccination programs is to prevent congenital rubella infection (CRI).¶ When rubella vaccine was licensed in 1969, the United States adopted a policy of universal immunization of children. The focus of this rubella vaccination strategy was to control rubella in preschool-aged and young school-aged children, the primary reservoirs for rubella transmission. Such a strategy was designed to reduce and even interrupt circulation of the virus, thereby reducing the risk of exposure of susceptible pregnant women, as well as protecting children immediately and subsequently through their childbearing years (*1*). Accordingly, the primary target group for vaccine was children of both sexes. However, secondary emphasis was placed on also vaccinating susceptible adolescents and adults, especially women. By 1977, vaccination of children 12 months of age and older had resulted in marked declines in reported rubella incidence among children and had interrupted the characteristic 6- to 9-year rubella epidemic cycle; however, this strategy had a minimal effect on rubella incidence among persons 15 years of age and older (Figure 1). In addition, after some initial decreases, reported incidence rates of CRS stabilized (Table 4). Serologic studies of various postpubertal populations in the late 1970s and early 1980s showed that 10%-20% of persons still lacked serologic evidence of immunity to rubella (*2*).

By 1977, it became clear that the reason for the continued occurrence of rubella among young adults and of CRS was a failure to vaccinate persons at risk. There was no evidence of vaccine failure due to waning vaccine-induced immunity. This potential for continuing rubella transmission among populations of susceptible adults has subsequently been demonstrated

¶Intrauterine infection with rubella can result in miscarriages, abortions, stillbirths, and CRS in infants.

TABLE 3. Criteria for classifying congenital rubella syndrome (CRS) cases

I. **CRS confirmed.** Defects present and one or more of the following:
   A. Rubella virus isolated.
   B. Rubella-specific IgM present.
   C. Rubella hemagglutination-inhibition (HI) titer in the infant persisting above and beyond that expected from passive transfer of maternal antibody (i.e., rubella HI titer in the infant which does not fall off at the expected rate of one twofold dilution/month).

II. **CRS compatible.** Laboratory data insufficient for confirmation and any two complications listed in A or one from A and one from B:
   A. Cataracts/congenital glaucoma (either or both count as one), congenital heart disease, loss of hearing, pigmentary retinopathy.
   B. Purpura, splenomegaly, jaundice, microcephaly, mental retardation, meningoencephalitis, radiolucent bone disease.

III. **CRS possible**. Some compatible clinical findings which do not fulfill the criteria for a compatible case.

IV. **Congenital rubella infection only**. No defects present but laboratory evidence of infection.

V. **Stillbirths**. Stillbirths which are thought to be secondary to maternal rubella infection.

VI. **Not CRS**. One or more of any of the following inconsistent laboratory findings in a child without evidence of an immunodeficiency disease:
   A. Rubella HI titer absent in a child 24 months of age or younger.
   B. Rubella HI titer absent in mother.
   C. Rubella HI titer decline in an infant consistent with the normal decline of passively transferred maternal antibody after birth (the expected rate of decline of maternal antibodies is one twofold dilution/month).

Rubella and Congenital Rubella Syndrome – Continued

by outbreaks among military recruits (*3*), hospital personnel (*4*), office workers (*5-7*), college students (*8*), and prison inmates and staff (*9*). Beginning in 1977 with the National Childhood Immunization Initiative, and later in conjunction with the Measles Elimination Program, efforts were intensified to vaccinate all children and susceptible postpubertal females. The number of doses of rubella vaccine administered in the public sector to persons 15 years of age or older more than doubled between 1978 and 1984 (*10*). Among persons 20 years of age or older, an eightfold increase occurred.

The success of these initiatives is now apparent. During 1979-1984, the reported incidence rates of CRS and of rubella among persons 15 years of age or older declined, in parallel, by 96% to all-time low levels. Meanwhile, incidence rates of rubella among children under 15 years of age have continued to decrease. As the highly immune cohorts of young children enter childbearing age, CRS can be expected to disappear from this country.

The present situation, however, is still cause for concern. In 1984, 48% of reported rubella cases occurred among persons 15 years of age or older. Furthermore, there is as yet no evidence from serologic studies that rates of susceptibility to rubella in adults have declined appreciably from prevaccine years (*11*). These data provide evidence that the continued occurrence of rubella in the childbearing-aged population will mean that potentially preventable CRS cases will continue to occur during the next 10-30 years. These concerns led CDC to announce an initiative in February 1985 to hasten elimination of rubella and CRS by increasing efforts to effectively vaccinate the susceptible childbearing-aged population (*12*).

Even though reported CRS is now at record low levels in the United States, the reported figure is believed to be an underestimation of the actual total. CDC estimates of CRS incidence

TABLE 4. Incidence rate of congenital rubella syndrome (CRS) reported to the National Congenital Rubella Syndrome Registry (NCRSR)* — United States, 1969-1985†

Year	NCRSR Cases	Incidence rate§
1969	62	1.72
1970	68	1.82
1971	44	1.24
1972	32	0.98
1973	30	0.96
1974	22	0.70
1975	32	1.02
1976	23	0.73
1977	29	0.87
1978	30	0.90
1979	57	1.63
1980	14	0.39
1981	10	0.28
1982	12	0.33
1983	7	0.19
1984	2	0 05
1985	2	0.05

*Confirmed and compatible cases only, reported by year of birth. Data are provisional because of delayed reporting.

†Excluded is one patient with confirmed CRS born in New York City of a Dominican Republic resident who arrived in the United States 1 month before delivery (not considered U.S.-related).

§Cases/100,000 live births.

Rubella and Congenital Rubella Syndrome — Continued

rates are derived primarily from the NCRSR reporting system, a passive reporting system. Passive surveillance by its nature results in underreporting of actual disease incidence, and results in selective reporting of infants with severe and obvious CRS (e.g., cardiac or eye defects) that are recognized and reported early in life, while those with mild CRS (e.g., mental or auditory defects) are often not reported until later in life, if at all. As an example of these problems, both reported CRS patients born in 1985 were not reported until 1986, and one of the infants with cataracts and microcephaly was not diagnosed as having CRS until he was referred to a tertiary-care center at 8 months of age. Another limitation of current CRS surveillance is its inability to measure other outcomes of CRI, i.e., miscarriages, induced abortions, or stillbirths. Thus, surveillance of CRS will have to be intensified to monitor any further reduction in morbidity. Current limitations of existing surveillance for CRS underscore the need for all specialists and other individuals at tertiary-care centers who are consulted in the treatment of children with CRS-associated congenital anomalies to continue to actively consider it in the differential diagnosis and to report all suspected cases to their respective local/state health departments.

As for all adult immunizations, a multifaceted approach is necessary to enhance rubella immunization levels in the childbearing-aged population. Unique approaches may need to be designed. Eight states still do not require proof of rubella immunity for postpubertal elementary and secondary school students. Since many susceptible persons are no longer in school, school laws alone cannot be used to ensure immunity. One means of reaching this population is to offer rubella vaccine to susceptible postpubertal women whenever they have contact with the health-care delivery system for any reason. This approach should include postpartum vaccination, follow-up vaccination of susceptibles identified through premarital and prenatal screening, and other efforts aimed at delivering vaccine to hard-to-reach populations. The family planning clinic setting is an ideal place to offer vaccine and may represent one of the few situations where hard-to-reach individuals have contact with the health-care delivery system. An analysis of CRS surveillance indicates that one-third to one-half of mothers delivering CRS infants had a previous live birth (*13*). However, this observation did not apply to mothers 15-19 years of age. These data suggest that both postpartum vaccination and use of rubella vaccine in family planning clinics could have an important effect on the overall occurrence of reported CRS. School-based immunization programs also remain a potentially effective means of vaccinating mothers 15-19 years of age. Requiring proof of immunity to both measles and rubella as a condition for college entry can minimize the risk of rubella outbreaks in this population. Physicians and other health-care personnel must be willing to offer rubella vaccine whenever they encounter a potentially susceptible woman lacking contraindications for vaccination.

References

1. Orenstein WA, Bart KJ, Hinman AR, et al. The opportunity and obligation to eliminate rubella from the United States. JAMA 1984;251:1988-94.
2. Bart KJ, Orenstein WA, Preblud SR, Hinman AR. Universal immunization to interrupt rubella. Rev Infect Dis 1985;7(suppl 1):S177-S184.
3. Crawford GE, Gremillion DH. Epidemic measles and rubella in Air Force recruits: impact of immunization. J Infect Dis 1981;144:403-10.
4. Polk BF, White JA, DeGirolami PC, Modlin JF. An outbreak of rubella among hospital personnel. N Engl J Med 1980;303:541-5.
5. CDC. Rubella outbreak in an office building—New Jersey. MMWR 1980;29:517-8.
6. CDC. Rubella outbreak among office workers—New York City. MMWR 1983;32:349-52.
7. CDC. Rubella outbreak among office workers—New York City. MMWR 1985;34:455-9.
8. CDC. Rubella in colleges—United States. MMWR 1985;34:228-31.

Rubella and Congenital Rubella Syndrome — Continued

9. CDC. Rubella outbreaks in prisons—New York City, West Virginia, California. MMWR 1985;34:615-8.
10. CDC. Unpublished data, Division of Immunization.
11. Witte JJ, Karchmer AW, Case G, et al. Epidemiology of rubella. Am J Dis Child 1969;118:107-11.
12. CDC. Elimination of rubella and congenital rubella syndrome—United States. MMWR 1985;34:65-6.
13. Preblud SR, Williams NM, Orenstein WO, Bart KJ, Hinman AR. Elimination of congenital rubella infection from the United States (abstract). Program and abstracts of the 113th meeting of the American Public Health Association, Washington, D.C., November 17-21, 1985.

X-3591

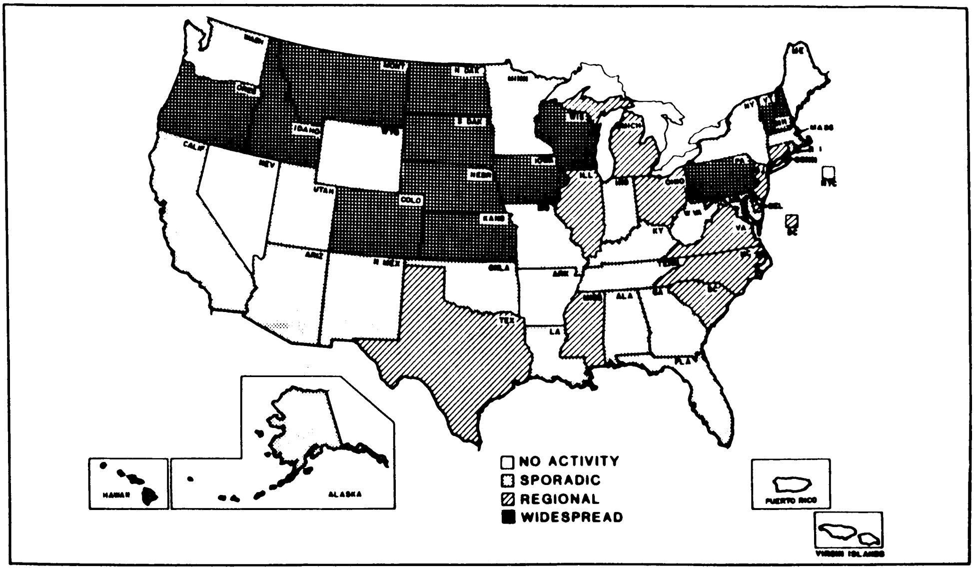
Update: Influenza Activity — United States

Reports of influenza cases from family physicians' practices and of morbidity levels from the states and collaborating diagnostic laboratories indicate that 1985-1986 national influenza activity has peaked in the United States.

Reports of influenza-like illnesses from the practices of sentinel physicians* for the week ending February 19 averaged 11.1 compared with the averages of 10.9 and 11.6 reported for the preceding weeks. Outbreaks of influenza-like illness were reported by 25 states for the week ending March 1, a decrease from the total of 33 states that reported outbreaks for the preceding week. Fourteen states indicated widespread outbreaks (Figure 2); 11 states and the District of Columbia indicated regional outbreaks.

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

FIGURE 2. Influenza activity — United States



Influenza — Continued

The numbers of type B virus isolates reported by the collaborating laboratories have peaked. Incomplete totals for the week ending February 22 include 171 type B and 39 type A(H3N2) isolates; 249 type B viruses and 65 type A(H3N2) viruses were reported for the week ending February 15. Overall, 1,538 influenza virus isolates, including 79.3% type B viruses and 20.7% type A(H3N2) viruses, have been reported this season.

The percentage of pneumonia and influenza (P&I) deaths reported from the 121 U.S. cities for the week ending March 1 was 6.3%, the same percentage reported for the preceding week. This is the eighth consecutive week the P&I percentage has exceeded the statistical limit expected in the absence of influenza outbreaks nationwide. Preliminary data for the current season indicate that the age distribution of P&I deaths is similar to that observed for the 1984-1985 influenza season.

(Continued on page 141)

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

Disease	9th Week Ending			Cumulative, 9th Week Ending		
	Mar. 1, 1986	Mar. 2, 1985	Median 1981-1985	Mar. 1, 1986	Mar. 2, 1985	Median 1981-1985
Acquired Immunodeficiency Syndrome (AIDS)	127	95	N	1,930	973	N
Aseptic meningitis	74	35	74	715	588	729
Encephalitis: Primary (arthropod-borne & unspec.)	16	15	15	137	135	135
Post-infectious	1	1	1	8	19	12
Gonorrhea: Civilian	16,261	12,994	17,957	134,239	132,542	159,013
Military	202	778	583	2,476	3,226	4,412
Hepatitis: Type A	539	412	486	3,878	3,487	3,955
Type B	581	448	438	3,891	3,980	3,779
Non A, Non B	72	89	N	482	661	N
Unspecified	141	98	161	912	716	1,207
Legionellosis	12	11	N	90	110	N
Leprosy	7	19	7	39	63	41
Malaria	11	10	12	101	112	112
Measles: Total*	37	62	62	442	174	174
Indigenous	34	52	N	429	131	N
Imported	3	10	N	13	43	N
Meningococcal infections: Total	75	77	77	533	524	573
Civilian	74	77	77	532	524	570
Military	1	-	-	1	-	1
Mumps	67	90	93	451	584	695
Pertussis	40	39	32	331	228	210
Rubella (German measles)	20	7	36	73	37	160
Syphilis (Primary & Secondary): Civilian	592	475	568	4,065	4,247	5,274
Military	5	3	5	33	29	76
Toxic Shock syndrome	7	9	N	43	71	N
Tuberculosis	461	448	484	2,971	2,873	3,483
Tularemia	-	1	3	11	20	16
Typhoid fever	2	2	5	33	41	65
Typhus fever, tick-borne (RMSF)	1	-	-	8	4	10
Rabies, animal	85	72	91	672	681	755

TABLE II. Notifiable diseases of low frequency, United States

	Cum 1986		Cum 1986
Anthrax	-	Leptospirosis (Upstate N.Y. 1, Ohio 1)	10
Botulism: Foodborne	3	Plague	-
Infant	8	Poliomyelitis, Paralytic	-
Other	-	Psittacosis (Ga. 5, Calif. 1)	10
Brucellosis (Calif. 1)	7	Rabies, human	-
Cholera	-	Tetanus (Ill. 1)	6
Congenital rubella syndrome	1	Trichinosis	7
Congenital syphilis, ages < 1 year	-	Typhus fever, flea-borne (endemic, murine)	1
Diphtheria	-		

*Three of the 37 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 March 1, 1986 and March 2, 1985 (9th 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	1,930	74	137	8	134,239	132,542	539	581	72	141	12	39
NEW ENGLAND	104	1	7	-	3,255	4,267	4	45	1	7	1	1
Maine	4	-	-	-	149	180	-	1	-	-	-	-
N H	3	-	2	-	99	90	-	-	-	-	-	-
Vt	1	-	2	-	53	40	-	-	-	-	-	-
Mass	62	-	2	-	1,417	1,534	3	33	1	7	-	1
R I	9	1	-	-	283	326	-	2	-	-	1	
Conn	25	-	1	-	1,254	2,097	1	9	-	-		
MID ATLANTIC	683	8	21	-	23,819	19,310	44	70	6	30		4
Upstate N Y	49	5	7	-	2,742	2,545	5	18	3	1	-	
N Y City	435	1	7	-	14,322	8,844	1	1	-	27	-	4
N J	149	-	2	-	2,520	3,480	8	16	-	1	-	-
Pa	50	2	5	-	4,235	4,441	30	35	3	1	-	
E N CENTRAL	106	8	24	1	17,703	19,563	33	59	6	7	7	3
Ohio	28	2	7	1	5,015	4,881	9	16	2	1	5	-
Ind	16	1	1	-	2,675	1,940	3	3	1	5	-	-
Ill	40	1	1	-	2,580	6,039	15	10	2	-	-	2
Mich	22	4	14	-	6,167	5,566	6	30	1	1	2	1
Wis	-	-	1	-	1,266	1,137	-	-	-	-	-	-
W N CENTRAL	42	-	1	1	6,442	7,047	7	8	1	-	-	1
Minn	20	-	-	-	935	1,135	1	5	-	-	-	1
Iowa	3	-	1	-	666	770	1	-	-	-	-	-
Mo	10	-	-	-	3,111	3,177	2	2	1	-	-	-
N Dak	2	-	-	-	68	46	-	-	-	-	-	-
S Dak	1	-	-	-	105	136	3	-	-	-	-	-
Nebr	3	-	-	-	394	645	-	1	-	-	-	-
Kans	3	-	-	1	1,163	1,138	-	-	-	-	-	-
S ATLANTIC	235	18	28	6	28,927	28,123	36	79	14	9	2	-
Del	7	-	2	-	596	568	4	-	-	-	-	-
Md	26	-	8	-	4,098	4,195	-	5	3	-	-	-
D C	21	-	-	-	2,699	2,425	-	-	-	1	-	-
Va	36	-	12	-	3,097	2,888	-	6	1	-	-	-
W Va	-	-	1	-	385	345	1	4	1	-	-	-
N C	17	6	4	-	4,963	5,828	2	11	1	1	2	-
S C	12	1	-	-	3,346	3,627	2	10	-	-	-	-
Ga	21	-	-	-	-	-	4	21	1	2	-	-
Fla	95	11	1	6	9,743	8,247	23	22	7	5	-	-
E S CENTRAL	24	7	12	-	12,120	11,489	9	41	1	2	2	-
Ky	6	2	6	-	1,447	1,313	2	9	-	-	2	-
Tenn	12	3	1	-	4,822	4,573	2	21	-	-	-	-
Ala	2	2	5	-	3,255	3,356	4	7	1	-	-	
Miss	4	-	-	-	2,596	2,247	1	4	-	2	-	-
W S CENTRAL	171	10	8	-	17,885	19,520	69	42	4	28	-	3
Ark	6	1	-	-	1,576	1,914	-	1	-	-	-	-
La	27	2	1	-	3,166	4,027	2	9	2	1	-	-
Okla	2	-	1	-	2,068	2,002	12	3	-	2	-	-
Tex	136	7	6	-	11,075	11,577	55	29	2	25	-	3
MOUNTAIN	64	2	6	-	3,865	4,356	70	47	4	8	-	4
Mont	-	-	-	-	112	133	6	2	-	-	-	-
Idaho	1	-	-	-	122	140	3	-	-	-	-	-
Wyo	2	-	2	-	94	127	1	2	-	-	-	-
Colo	35	-	-	-	1,122	1,233	3	7	1	1	-	1
N Mex	4	-	-	-	480	529	23	13	1	1	-	-
Ariz	11	2	2	-	1,015	1,306	26	13	2	5	-	1
Utah	5	-	1	-	194	196	3	2	-	1	-	-
Nev	6	-	1	-	726	692	5	8	-	-	-	2
PACIFIC	501	20	30	-	20,223	18,867	267	190	35	50	-	23
Wash	21	2	2	-	1,522	1,535	24	16	3	4	-	1
Oreg	10	-	-	-	774	1,125	44	15	9	-	-	-
Calif	462	11	26	-	17,095	15,448	198	155	23	46	-	21
Alaska	4	-	2	-	625	463	-	3	-	-	-	-
Hawaii	4	7	-	-	207	296	1	1	-	-	-	1
Guam	-	-	-	-	-	23	-	-	-	-	-	-
P R	16	2	2	-	380	724	2	6	-	1	-	-
V I	-	-	-	-	38	66	-	-	-	-	-	-
Pac Trust Terr	-	-	-	-	3	146	7	-	-	-	-	-
Amer Samoa	-	-	-	-	5	-	2	-	-	-	-	-

N: Not notifiable U: Unavailable

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending March 1, 1986 and March 2, 1985 (9th 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	101	34	429	3	13	174	533	67	451	40	331	228	20	73	37
NEW ENGLAND	5	3	8	-	-	-	43	-	7	-	24	11	-	-	2
Maine	-	-	-	-	-	-	10	-	-	-	2	2	-	-	-
N.H.	-	-	-	-	-	-	1	-	4	-	7	5	-	-	1
Vt.	-	-	-	-	-	-	7	-	-	-	1	1	-	-	-
Mass.	3	3	8	-	-	-	8	-	-	-	8	2	-	-	1
R.I.	1	-	-	-	-	-	3	-	3	-	1	1	-	-	-
Conn.	1	-	-	-	-	-	14	-	-	-	5	-	-	-	-
MID. ATLANTIC	16	5	180	-	2	8	103	5	30	14	54	41	-	17	8
Upstate N.Y.	-	-	-	-	2	3	24	1	9	5	36	20	-	12	1
N.Y. City	6	5	17	-	-	5	26	1	1	5	5	7	-	5	6
N.J.	2	-	163	-	-	-	18	-	12	-	-	-	-	-	1
Pa.	8	-	-	-	-	-	35	3	8	4	13	14	-	-	-
E.N. CENTRAL	3	-	27	-	-	63	63	43	215	2	72	49	-	1	4
Ohio	1	-	-	-	-	10	28	2	36	-	38	8	-	-	-
Ind.	-	-	-	-	-	-	9	1	8	-	9	11	-	-	-
Ill.	1	-	16	-	-	4	14	39	120	-	2	9	-	-	-
Mich.	1	-	-	-	-	18	12	1	30	2	9	4	-	-	4
Wis.	-	-	11	-	-	31	-	-	21	-	14	17	-	1	-
W.N. CENTRAL	2	2	49	-	-	-	23	-	15	2	19	22	-	2	4
Minn.	1	-	-	-	-	-	6	-	-	1	11	10	-	-	-
Iowa	1	-	-	-	-	-	4	-	5	-	2	1	-	-	-
Mo.	-	-	-	-	-	-	10	-	3	1	2	3	-	1	-
N. Dak.	-	-	-	-	-	-	-	-	1	-	1	3	-	-	-
S. Dak.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nebr.	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-
Kans.	-	2	49	-	-	-	2	-	6	-	3	4	-	1	4
S. ATLANTIC	16	10	54	-	1	3	106	2	45	15	67	41	1	6	1
Del.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Md.	3	1	1	-	-	1	11	-	3	3	16	7	-	-	-
D.C.	-	-	-	-	-	1	2	-	-	-	-	-	-	-	-
Va.	5	-	-	-	-	-	8	-	5	-	6	1	-	-	-
W. Va.	-	-	-	-	-	-	3	1	17	1	1	-	-	-	-
N.C.	2	-	-	-	-	-	14	-	4	1	11	6	-	-	-
S.C.	-	6	43	-	-	-	18	1	4	1	2	-	-	-	1
Ga.	2	-	-	-	-	-	14	-	3	9	26	16	-	-	-
Fla.	4	3	10	-	1	1	36	-	9	-	5	11	1	6	-
E.S. CENTRAL	2	-	-	-	-	-	27	-	5	3	11	3	-	1	1
Ky.	2	-	-	-	-	-	6	-	2	-	1	1	-	1	1
Tenn.	-	-	-	-	-	-	11	-	1	-	2	1	-	-	-
Ala.	-	-	-	-	-	-	8	-	1	3	8	1	-	-	-
Miss.	-	-	-	-	-	-	2	-	1	-	-	-	-	-	-
W.S. CENTRAL	5	5	26	3	4	2	26	5	31	-	15	13	4	10	4
Ark.	-	-	21	-	-	-	-	-	2	-	-	7	-	-	1
La.	1	-	-	-	-	-	3	-	-	-	1	-	-	-	-
Okla.	1	-	-	-	-	-	5	N	N	-	14	6	-	-	-
Tex.	3	5	5	3†	4	2	18	5	29	-	-	-	4	10	3
MOUNTAIN	4	4	32	-	4	71	26	3	54	-	33	9	-	-	1
Mont.	-	-	-	-	-	71	4	1	2	-	-	-	-	-	-
Idaho	-	-	-	-	-	-	1	-	2	-	7	-	-	-	-
Wyo.	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
Colo.	1	-	-	-	2	-	3	1	4	-	9	3	-	-	-
N. Mex.	-	-	13	-	2	-	4	N	N	-	6	2	-	-	-
Ariz.	2	4	19	-	-	-	8	1	42	-	10	2	-	-	1
Utah	-	-	-	-	-	-	2	-	1	-	1	2	-	-	-
Nev.	1	-	-	-	-	-	2	-	3	-	-	-	-	-	-
PACIFIC	48	5	53	-	2	27	116	9	49	4	36	39	15	36	12
Wash.	5	-	18	-	1	1	16	1	4	-	14	3	-	-	-
Oreg.	6	-	-	-	-	-	11	N	N	-	2	5	-	-	1
Calif.	37	3	30	-	1	22	84	8	40	4	17	29	15	36	10
Alaska	-	-	-	-	-	-	5	-	2	-	1	-	-	-	-
Hawaii	-	2	5	-	-	4	-	-	3	-	2	2	-	-	1
Guam	-	-	-	-	-	10	-	1	1	-	-	-	-	-	1
P.R.	1	-	-	-	-	33	1	3	11	-	2	1	-	-	4
V.I.	-	-	-	-	-	6	-	1	3	-	-	-	-	-	-
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 March 1, 1986 and March 2, 1985 (9th 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	4,065	4,247	7	2,971	2,873	11	33	8	672
NEW ENGLAND	95	95	-	91	109	-	1	1	-
Maine	4	3	-	12	5	-	-	-	-
N H	4	2	-	2	6	-	-	-	-
Vt	4	-	-	5	-	-	-	-	-
Mass	52	50	-	42	66	-	1	1	-
R I	5	2	-	4	13	-	-	-	-
Conn	26	38	-	26	19	-	-	-	-
MID ATLANTIC	561	561	-	574	602	-	3	-	81
Upstate N Y	29	29	-	91	78	-	1	-	12
N Y City	336	371	-	270	343	-	2	-	-
N J	125	107	-	106	43	-	-	-	-
Pa	71	54	-	107	138	-	-	-	69
E N CENTRAL	86	223	1	411	369	1	3	-	7
Ohio	17	16	1	58	75	1	-	-	-
Ind	24	17	-	41	44	-	-	-	1
Ill	18	126	-	192	163	-	-	-	-
Mich	16	53	-	94	66	-	3	-	2
Wis	11	11	-	26	21	-	-	-	4
W N CENTRAL	42	54	-	65	71	4	2	-	72
Minn	6	18	-	13	11	-	1	-	-
Iowa	4	9	-	9	13	1	-	-	24
Mo	20	15	-	31	27	3	1	-	7
N Dak	2	-	-	3	2	-	-	-	28
S Dak	-	3	-	2	4	-	-	-	13
Nebr	7	1	-	3	4	-	-	-	-
Kans	3	8	-	4	10	-	-	-	-
S ATLANTIC	1,043	1,085	1	569	558	2	2	3	166
Del	6	6	-	6	6	-	-	-	-
Md	78	89	-	35	53	1	-	-	116
D C	63	55	-	29	28	-	-	-	-
Va	82	56	-	36	27	-	-	-	15
W Va	4	1	-	23	13	-	-	-	3
N C	104	128	1	79	62	-	2	2	-
S C	141	135	-	77	79	-	-	1	4
Ga	-	-	-	59	81	1	-	-	23
Fla	565	615	-	225	209	-	-	-	5
E S CENTRAL	311	393	-	282	242	2	-	2	29
Ky	21	13	-	69	55	1	-	1	6
Tenn	150	87	-	80	63	1	-	-	12
Ala	96	140	-	107	96	-	-	1	11
Miss	44	153	-	26	28	-	-	-	-
W S CENTRAL	948	1,055	3	361	289	2	1	2	64
Ark	44	64	-	36	19	2	-	-	10
La	154	186	-	107	58	-	-	-	-
Okla	33	40	3	29	36	-	-	-	7
Tex	717	765	-	189	176	-	1	2	47
MOUNTAIN	121	147	-	62	42	-	1	-	145
Mont	2	1	-	2	5	-	-	-	59
Idaho	1	2	-	4	1	-	-	-	-
Wyo	-	4	-	-	1	-	-	-	60
Colo	32	34	-	-	-	-	-	-	-
N Mex	17	17	-	17	7	-	-	-	2
Ariz	54	81	-	29	23	-	-	-	24
Utah	3	1	-	-	2	-	1	-	-
Nev	12	7	-	10	3	-	-	-	-
PACIFIC	858	634	2	556	591	-	20	-	108
Wash	16	25	-	31	22	-	2	-	-
Oreg	22	20	-	25	19	-	-	-	-
Calif	812	579	2	461	479	-	16	-	105
Alaska	-	-	-	5	37	-	-	-	3
Hawaii	8	10	-	34	34	-	2	-	-
Guam	-	2	-	-	5	-	-	-	-
P R	146	165	-	48	51	-	-	-	6
V I	-	-	-	-	1	-	-	-	-
Pac Trust Terr	-	13	-	2	16	-	-	-	-
Amer Samoa	-	-	-	-	-	-	-	-	-

U Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending March 1, 1986 (9th Week)

Reporting Area	All Causes, By Age (Years)						P&I** Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	766	558	138	38	9	23	80
Boston, Mass	176	118	31	11	5	11	26
Bridgeport, Conn	50	35	11	3	-	1	6
Cambridge, Mass	25	24	1	-	-	-	3
Fall River, Mass	31	22	6	3	-	-	-
Hartford, Conn	85	60	18	4	1	2	11
Lowell, Mass	37	25	10	2	-	-	2
Lynn, Mass	24	18	5	1	-	-	-
New Bedford, Mass	25	20	3	2	-	-	1
New Haven, Conn	57	38	12	4	1	2	-
Providence, R I	77	61	9	2	-	5	10
Somerville, Mass	8	7	1	-	-	-	-
Springfield, Mass	65	46	15	3	-	1	4
Waterbury, Conn	40	30	6	2	1	1	10
Worcester, Mass	66	54	10	1	1	-	7
MID ATLANTIC	3,401	2,290	673	279	75	84	175
Albany, N Y	66	46	10	2	4	4	3
Allentown, Pa	20	18	2	-	-	-	-
Buffalo, N Y	151	105	31	6	6	3	15
Camden, N J	49	32	8	4	-	5	1
Elizabeth, N J	26	21	3	2	-	-	1
Erie, Pa †	41	26	9	3	2	1	2
Jersey City, N J	42	29	9	3	1	-	-
N Y City, N Y	1,780	1,137	367	195	42	39	68
Newark, N J	61	32	16	10	2	1	3
Paterson, N J	40	27	7	5	1	-	4
Philadelphia, Pa	600	402	133	30	12	23	36
Pittsburgh, Pa †	100	74	21	3	-	2	5
Reading, Pa	36	33	1	2	-	-	5
Rochester, N Y	137	113	15	4	2	3	18
Schenectady, N Y	35	27	5	2	1	-	2
Scranton, Pa †	32	23	8	1	-	-	3
Syracuse, N Y	82	65	15	1	-	1	8
Trenton, N J	44	34	8	2	-	-	-
Utica, N Y	20	18	1	-	-	1	-
Yonkers, N Y	39	28	4	4	2	1	1
E N CENTRAL	2,508	1,775	442	132	66	92	145
Akron, Ohio	78	56	13	4	1	4	4
Canton, Ohio	31	23	7	-	1	-	4
Chicago, Ill §	553	462	11	26	16	37	16
Cincinnati, Ohio	160	109	38	12	1	-	18
Cleveland, Ohio	201	125	55	12	2	7	8
Columbus, Ohio	140	91	30	5	4	10	7
Dayton, Ohio	105	70	25	5	2	3	2
Detroit, Mich	329	196	80	32	15	6	13
Evansville, Ind	50	42	6	1	1	-	1
Fort Wayne, Ind	80	59	13	3	4	1	4
Gary, Ind	19	9	4	1	3	2	-
Grand Rapids, Mich	63	50	8	2	1	2	15
Indianapolis, Ind	188	114	49	12	8	5	5
Madison, Wis	40	23	10	2	2	3	3
Milwaukee, Wis	132	91	29	6	1	5	10
Peoria, Ill	48	35	10	-	2	1	8
Rockford, Ill	42	26	14	1	1	-	5
South Bend, Ind	62	53	7	1	1	-	10
Toledo, Ohio	106	80	18	4	-	4	3
Youngstown, Ohio	81	61	15	3	-	2	9
W N CENTRAL	838	595	157	30	27	29	65
Des Moines, Iowa	71	54	10	2	1	4	7
Duluth, Minn	41	34	4	1	-	2	5
Kansas City, Kans	44	32	7	2	1	2	2
Kansas City, Mo	142	92	40	9	-	1	10
Lincoln, Nebr	33	25	5	2	1	-	4
Minneapolis, Minn	102	67	17	4	6	8	5
Omaha, Nebr	106	80	21	-	3	2	13
St Louis, Mo	141	100	19	7	8	7	9
St Paul, Minn	79	55	17	2	3	2	3
Wichita, Kans	79	56	17	1	4	1	7
S ATLANTIC	1,271	816	295	89	31	37	94
Atlanta, Ga	215	142	49	20	3	1	7
Baltimore, Md	109	76	23	8	2	-	7
Charlotte, N C	94	63	21	3	4	3	11
Jacksonville, Fla	116	68	34	5	5	4	12
Miami, Fla	159	80	53	13	4	9	5
Norfolk, Va	72	44	21	4	2	1	7
Richmond, Va	95	56	27	6	2	4	15
Savannah, Ga	24	13	4	2	3	2	1
St Petersburg, Fla	142	116	20	-	2	4	10
Tampa, Fla	75	44	17	8	-	3	8
Washington, D C	135	85	24	18	2	6	9
Wilmington, Del	35	29	2	2	2	-	2
E S CENTRAL	944	625	203	68	24	24	57
Birmingham, Ala	157	98	26	14	4	15	5
Chattanooga, Tenn	81	55	18	7	1	-	5
Knoxville, Tenn	105	73	21	7	4	-	11
Louisville, Ky	87	53	24	7	1	2	-
Memphis, Tenn	201	136	45	14	5	1	17
Mobile, Ala	82	55	20	5	1	1	8
Montgomery, Ala	69	53	12	3	-	1	-
Nashville, Tenn	162	102	37	11	8	4	11
W S CENTRAL	1,538	1,060	264	95	52	67	84
Austin, Tex	60	41	8	7	2	2	5
Baton Rouge, La	52	29	12	3	2	6	3
Corpus Christi, Tex	39	24	9	3	2	1	1
Dallas, Tex	266	159	66	22	7	12	14
El Paso, Tex	70	48	13	4	1	4	2
Fort Worth, Tex	135	89	27	8	6	5	12
Houston, Tex §	328	290	7	6	12	13	6
Little Rock, Ark	73	42	14	5	4	8	9
New Orleans, La	133	82	30	17	3	1	-
San Antonio, Tex	208	131	46	11	11	9	18
Shreveport, La	41	29	9	3	-	-	[illegible]
Tulsa, Okla	133	96	23	6	2	6	[illegible]
MOUNTAIN	798	547	137	56	30	28	57
Albuquerque, N Mex	106	65	17	12	10	2	9
Colo Springs, Colo	48	36	6	5	-	1	10
Denver, Colo	124	83	23	3	4	11	7
Las Vegas, Nev	94	63	20	6	3	2	7
Ogden, Utah	20	17	3	-	-	-	5
Phoenix, Ariz	192	129	39	9	6	9	5
Pueblo, Colo	37	25	8	2	2	-	6
Salt Lake City, Utah	49	33	7	6	2	1	1
Tucson, Ariz	128	96	14	13	3	2	7
PACIFIC	2,252	1,524	397	185	77	60	[illegible]
Berkeley, Calif	24	16	6	1	-	1	[illegible]
Fresno, Calif	94	66	16	5	5	2	[illegible]
Glendale, Calif	42	30	6	6	-	-	[illegible]
Honolulu, Hawaii	74	52	11	4	3	4	[illegible]
Long Beach, Calif	89	61	18	5	1	4	[illegible]
Los Angeles, Calif	726	502	124	57	24	10	[illegible]
Oakland, Calif	96	64	15	9	3	5	[illegible]
Pasadena, Calif §	31	31	-	-	-	-	[illegible]
Portland, Oreg	139	93	22	11	5	8	[illegible]
Sacramento, Calif	128	89	17	14	5	3	[illegible]
San Diego, Calif	144	101	25	10	4	4	[illegible]
San Francisco, Calif	185	99	40	35	8	3	[illegible]
San Jose, Calif	187	123	40	14	6	4	[illegible]
Seattle, Wash	177	116	39	9	9	4	[illegible]
Spokane, Wash	68	46	9	4	4	5	[illegible]
Tacoma, Wash	48	35	9	1	-	3	[illegible]
TOTAL	14,316††	9,790	2,706	972	391	444	[illegible]

* 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

Influenza — Continued

Many outbreaks of influenza in schools have been associated with type B virus, and a mixed outbreak of types A(H3N2) and B viruses in a North Carolina college was reported earlier (*1*). Laboratory evidence of a college outbreak associated primarily with type A(H3N2) has now been reported from Alabama; type A(H3N2) influenza viruses were isolated from eight of 10 ill students tested at Samford University's student health clinic in Birmingham during an outbreak that began in late January and continued into mid-February.

Reported by J Shaw, MPA, WJ Alexander, MD, Jefferson County Health Dept, B Edwards, Birmingham Br Laboratory, Alabama State Dept of Public Health; 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.

Editorial Note: As the data above demonstrate, influenza activity is now peaking or declining in most regions of the country. Reports of P&I-associated deaths typically lag several weeks behind reports of influenza illness and viral diagnostic results. Consequently, the P&I percentages reported from the 121 cities may continue near the current levels in the near future while other indices of influenza activity decline.

Reference

1. CDC. Update: influenza activity—United States. MMWR 1986;35:65-6.

DR Chester Moore
Ft. Collins 303-221-6423

Epidemiologic Notes and Reports

Aedes albopictus Introduction — Texas

On August 2, 1985, the Harris County Mosquito Control District in Houston, Texas, discovered that *Aedes albopictus*, a mosquito of Asian origin, was established in Harris County (*1*); the identity of the species was confirmed by the U.S. National Museum. In a preliminary survey, *A. albopictus* larvae were collected at 55.8% of 163 sites inspected, suggesting the original introduction occurred some time ago. The species was most prevalent on the east side of Harris County, where the Houston Ship Channel, Ellington Field (U.S. Air Force and National Aeronautics and Space Administration), Hobby Airport, and Houston Intercontinental Airport are located.

The full distribution of *A. albopictus* in the Houston-Galveston area is unknown because surveys were conducted only to the Harris County line. It may extend to several adjoining counties.

Reported by RE Bartnett, Harris County Mosquito Control District, BL Davis, Environmental and Consumer Health Protection, Texas Dept of Health; Div of Vector-Borne Viral Diseases, Center for Infectious Diseases, CDC.

Editorial Note: *A. albopictus* is a vector for dengue (*2*) and other arboviral diseases of humans and is susceptible to a variety of arboviruses in the laboratory (*3*). *A. albopictus* specimens have been collected or intercepted in the contiguous United States on three previous occasions, but this is the first report that breeding populations are established in this

Aedes albopictus — *Continued*

hemisphere. In a previous report identifying *A. albopictus* in Memphis, Tennessee (*4*), the source of introduction was presumed to be cargo from international shipping. However, the Memphis collection may have originated in Houston. With the discovery of an established focus of the mosquito in Texas, it is important to determine whether the species has spread to other areas and states.

In Asia, *A. albopictus* is primarily a woodland species that has become adapted to the urban environment. It breeds in tree holes, bamboo stumps, coconut husks, and other natural containers, as well as in tires and other discarded water-holding containers. It is not as strongly dependent on humans as *A. aegypti*, and it could colonize tree holes and other similar habitats in the southeastern United States. Control of this species in such natural habitats would be difficult. Competition from *A. aegypti* and from native tree-hole *Aedes* species may help retard the spread of *A. albopictus* (*5,6*). As in Hawaii (*7*), however, *A. albopictus* appears to have replaced *A. aegypti*. This species has apparently been established in Hawaii for a long period, but Hawaii appears to be free of dengue infections.

In Asia, *A. albopictus* extends as far north as Beijing, China (*4*), and Sendai, Japan (*8*). This is the approximate latitude of Philadelphia, Pennsylvania, and Denver, Colorado, well north of the distribution of the other major dengue vector, *A. aegypti*. Although U.S. dengue epidemics have occurred principally in the Gulf Coast states, a major *A. aegypti*-transmitted dengue epidemic occurred in Philadelphia in the late 18th century (*9*), well north of the present distribution of *A. aegypti*.

The efficiency of the Houston *A. albopictus* population in transmitting dengue is unknown. The susceptibility of native populations of this species is known to vary from 8% to 46% (*10*).

In response to the introduction of *A. albopictus*, CDC has notified appropriate state, federal, and international agencies; has modified and intensified an ongoing surveillance program in the southeastern United States to determine the current distribution of *A. albopictus*; and is preparing training materials on the biology and taxonomy of the species. Meetings are planned to involve CDC, state directors of public health, and other key personnel in appropriate regional areas to develop surveillance and control strategies.

References

1. Sprenger D, Wuithiranyagool T. The discovery and distribution of *Aedes albopictus* (Skuse) in Harris County, Texas. J Am Mosq Contr Assoc (in press).
2. Russell PK, Gould DJ, Yuill TM, Nisalak Y, Winter PE. Recovery of dengue-4 viruses from mosquito vectors and patients during an epidemic of dengue hemorrhagic fever. Am J Trop Med Hyg 1969; 18:580-3.
3. Tesh RB. Experimental studies on the transovarial transmission of Kunjin and San Angelo viruses in mosquitoes. Am J Trop Med Hyg 1980;29:657-66.
4. Reiter P, Darsie RF Jr. *Aedes albopictus* in Memphis, Tennessee (USA): an achievement of modern transportation? Mosq News 1984;44:396-9.
5. Gilotra SK, Rozeboom LE, Bhattacharya NC. Observations on possible competitive displacement between populations of *Aedes aegypti* Linnaeus and *Aedes albopictus* Skuse in Calcutta. Bull WHO 1967;37:437-46.
6. Moore CG, Fisher BR. Competition in mosquitoes. Density and species ratio effects on growth, mortality, fecundity, and production of growth retardant. Ann Entomol Soc Am 1969;62:1325-31.
7. Usinger RL. Entomological phases of the recent dengue epidemic in Honolulu. Public Health Rep 1944;59:423-30.
8. Mori A, Wada Y. The seasonal abundance of *Aedes albopictus* in Nagasaki. Trop Med 1978;20: 29-37.
9. Anonymous. Dengue. Off Res Report Publ Response, National Institute of Allergy and Infectious Diseases, National Institutes of Health, October 1977.
10. Gubler DJ, Rosen L. Variation among geographic strains of *Aedes albopictus* in susceptibility to infection with dengue viruses. Am J Trop Med Hyg 1976;25:318-25.

DR. CAROL Ciesielski – X-3687

Toxic Shock Syndrome Associated with Influenza — Minnesota

During February 1986, the Minnesota Department of Health (MDH) identified two cases of toxic shock syndrome (TSS) following influenza infection. Both patients were male, 15 and 16 years of age. Both met the CDC case definition as confirmed TSS cases. Both had laboratory confirmation of influenza B infection. One patient died. In each, an infiltrate was noted on chest x-ray; *Staphylococcus aureus* was isolated from respiratory secretions; one strain produced TSS toxin-1, and the other was positive for staphylococcal enterotoxin B.

After report of the first case, to identify other potential cases of TSS following influenza-like illness, the MDH conducted initial surveillance by contacting major pediatric hospitals and trauma centers in the state and infectious disease specialists in the Twin Cities (Minneapolis-St. Paul) metropolitan area. The MDH surveillance case definition included the presence of an antecedent respiratory illness, followed by hypotension (systolic blood pressure 90 mm/Hg or lower), fever (38.8 C [102 F]), and negative blood cultures. This led to identification of the second confirmed TSS case. Four other patients with probable TSS following influenza-like illnesses were identified. All four of the patients were hospitalized with severe shock, fever, and multisystem involvement. None had observed erythoderma, but three of the four desquamated. The fourth patient died 3 days after admission. These cases are currently under investigation. The MDH is maintaining surveillance to identify additional cases.

Reported by P Bitterman, MD, University of Minnesota Hospitals, G Peterson, MD, Hennepin County Medical Examiner's Office, P Schlievert, PhD, University of Minnesota, G Lehman, MD, C Schrock, MD, North Memorial Medical Center, Robbinsdale, MJ Connolly, MD, St. Joseph's Hospital, J Flink, MD, United Hospitals, G Kravitz, MD, St. Joseph's Hospital and St. John's Hospital, S Leonard, MD, Children's Hospital, St. Paul, M Osterholm, PhD, State Epidemiologist, Minnesota Dept of Health; Div of Field Svcs, Epidemiology Program Office, CDC.

Editorial Note: National surveillance of influenza indicates this influenza season has a high level of activity, which increases the chances of detecting rare sequelae of influenza infections. The cases described above and 14 additional cases reported to CDC of profound hypotension in previously healthy persons following influenza-like illness warrant investigation to clarify the pathogenesis of these unusual cases and to confirm the relationship to influenza infection.

In the patients reported to CDC, the etiology of the rapidly developing, sometimes refractory, hypotension is under investigation. Blood cultures have been negative, and in most, severe pneumonia with consolidation has not been a prominent feature. The differential diagnosis of sudden shock in this clinical setting includes myocarditis, TSS, and septic shock. The differentiation of these illnesses can be difficult, often requiring hemodynamic monitoring, serologic testing, and cultures from appropriate clinical specimens. Myocarditis has been described as a complication of influenza infections (*1,2*), although documentation can be difficult. The TSS diagnosis is based on a clinical case definition (*3*), but the rash is not always apparent and may be overlooked.

Staphylococcus aureus pneumonia following influenza has been well documented (*4,5*). The occurrence of a toxic-shock-like syndrome after antecedent influenza is consistent with this pattern (*6*), as TSS is caused by toxin-producing *S. aureus* strains.

Physicians who have seen patients with severe shock following influenza-like illness in previously healthy individuals are encouraged to report such cases through their local/state health departments to the Meningitis and Special Pathogens Branch, Division of Bacterial Diseases, Center for Infectious Diseases, CDC, Atlanta, Georgia 30333; telephone (404) 329-3687. Consultation is available regarding the collection of clinical information and laboratory specimens that may help define the etiology of these illnesses.

Toxic Shock Syndrome — Continued

Reported by Meningitis and Special Pathogens Br, Div of Bacterial Diseases, Epidemiology Office, Influenza Br, Div of Viral Diseases, Center for Infectious Diseases, CDC.

References

1. Finland M, Parker F, Barnes MW, Jolitte LS. Acute myocarditis in influenza A infections. Two cases of non-bacterial myocarditis with isolation of virus from the lungs. Am J Med Sci 1945;209:455-68.
2. Adams CW. Postviral myopericarditis associated with influenza virus: Report of eight cases. Am J Cardiol 1959;4:56-67.
3. Reingold AL, Hargrett NT, Shands KN, et al. Toxic shock syndrome surveillance in the United States, 1980 to 1981. Ann Intern Med 1982;96:875-80.
4. Martin LM, Kunin CM, Gottlieb LS, et al. Asian influenza A in Boston, 1957-1958 II. Severe staphylococcal pneumonia complicating influenza. Arch Intern Med 1959;103:532-42.
5. Schwarzmann SW, Adler JL, Sullivan RJ Jr, Marine WM. Bacterial pneumonia during the Hong Kong influenza epidemic of 1968-1969. Experience in a city-county hospital. Arch Intern Med 1971;127:1037-41.
6. Langmuir AD, Worthen TD, Solomon J, Ray CG, Petersen E. The Thucydides syndrome. N Engl J Med 1985;313:1027-30.

DR. MARGARET OXTOBY
X-3687

Notice to Readers

Update: *Haemophilus influenzae* b Polysaccharide Vaccine

Since the licensure of the first polysaccharide vaccine against *Haemophilus influenzae* b (Hib) in April 1985, over 3 million U.S. children have been immunized against this bacterial disease. The vaccine is recommended for all children at the age of 24 months, and as early as 18 months of age for children at highest risk of Hib disease (*1*). Currently, three manufacturers are licensed to produce the vaccine (Praxis: b-Capsa-1®; Lederle: Hib-imune®; and Connaught: Hibvax®).

As part of the continuing evaluation of the vaccine, CDC, the U.S. Food and Drug Administration (FDA), and the vaccine manufacturers are collaborating in gathering information on children who have developed invasive Hib disease after vaccination. As with any vaccine, a certain number of cases of disease may be expected to occur among vaccinated persons.

To ensure a more complete ascertainment of cases, practitioners and health departments are requested to report all cases of Hib disease (e.g., meningitis, bacteremia, epiglottitis) occurring after vaccination. Cases from 1985, as well as current cases, are solicited; complete case ascertainment for this entire time is important for the most accurate interpretation of these reports. Reports can be made directly to the manufacturers*; by sending Form 1639 "Adverse Reaction Report," to FDA (the form is available by calling FDA at 301-443-4580); or by writing or telephoning the Meningitis and Special Pathogens Branch, Division of Bacterial

*Manufacturers' addresses and telephone numbers are as follows: Mead-Johnson Nutritional Division, Evansville, Indiana 47721 (distributors of the Praxis vaccine); telephone (812) 429-7480. Lederle Laboratories, Pearl River, New York 10965; telephone (914) 735-5000. Connaught Laboratories, Inc., Swiftwater, Pennsylvania 18370; telephone (717) 839-7187.

Haemophilus influenzae *Vaccine – Continued*

Diseases, Center for Infectious Diseases, CDC, Atlanta, Georgia 30333; telephone (404) 329-3687.

In addition to this request for information on Hib cases, it is also important to report any serious adverse events that occur within 28 days of receipt of vaccine. Such events occurring among recipients of Hib vaccine purchased with public funds should be reported to the appropriate city or state health department, which will complete an investigation and send a report to CDC. Adverse events occurring among recipients of privately purchased Hib vaccine should be reported directly to the manufacturers or to FDA (Form 1639).

Reference

1. ACIP. Polysaccharide vaccine for prevention of *Haemophilus influenzae* type b disease. MMWR 1985;34:201-5.

International Notes

Quarantine Measures

The following changes should be made in *Health Information for International Travel 1985*. The situation as of January 1, 1986:

AUSTRALIA

On page 12, delete Note. Insert: Note: Australia is not bound by the International Health Regulations. All persons over 1 year of age arriving in Australia and who have within the previous 6 days been in any part of Burkina Faso, Gambia, Nigeria, or Zaire *or* in a yellow fever-infected area of Bolivia, Brazil, Colombia, Ecuador, Peru, or Sudan may be detained in quarantine if they do not have a valid international yellow fever vaccination certificate.

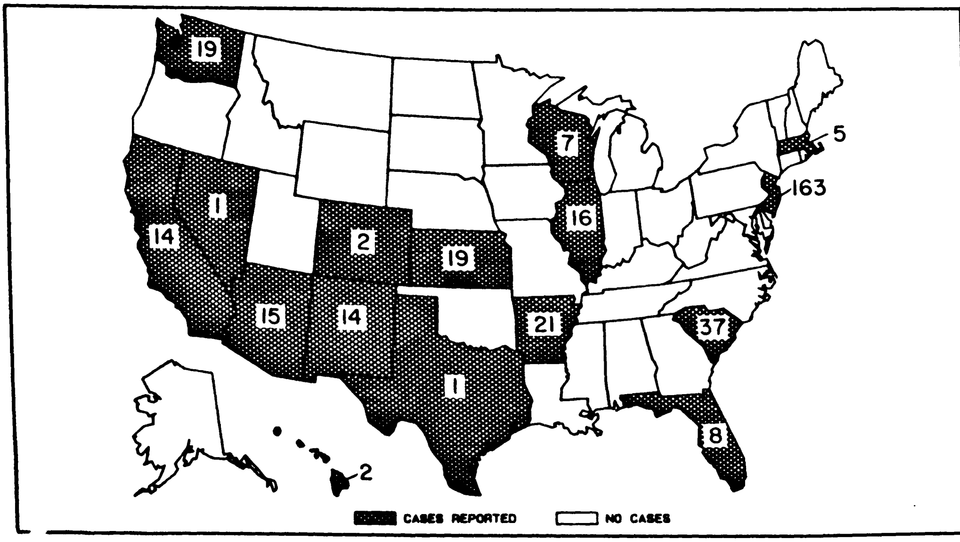
CHRISTMAS ISLAND

On page 19, delete Note. Insert: Note: Christmas Island is not bound by the International Health Regulations. All persons over 1 year of age arriving in Christmas Island and who have within the previous 6 days been in any part of Burkina Faso, Gambia, Nigeria, or Zaire *or* in a yellow fever-infected area of Bolivia, Brazil, Colombia, Ecuador, Peru, or Sudan may be detained in quarantine if they do not have a valid international yellow fever vaccination certificate.

PANAMA

Yellow Fever — On pages 9 and 42, delete Bocas del Toro.

FIGURE I. Reported measles cases — United States, weeks 5-8, 1986



The *Morbidity and Mortality Weekly Report* is prepared by the Centers for Disease Control, Atlanta, Georgia, and available on a paid subscription basis from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, (202) 783-3238.

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.