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Perspectives in Disease Prevention and Health Promotion

1986 Surgeon General's Report: The Health Consequences of Involuntary Smoking

Inhalation of tobacco smoke during active cigarette smoking remains the largest single preventable cause of death and disability in the United States. The health consequences of cigarette smoking and of the use of other tobacco products have been extensively documented in the 18 previous Surgeon General's reports issued by the Public Health Service. More than 300,000 premature deaths that are directly attributable to tobacco use—particularly cigarette smoking—occur each year in the United States. The magnitude of the disease risk for active smokers, secondary to their high dose exposure to tobacco smoke, suggests that the lower doses of smoke received by involuntary smokers also puts them at risk. The 1986 Surgeon General's Report explores the health consequences incurred by involuntary smokers. It was developed by the Office on Smoking and Health, Center for Health Promotion and Education, Centers for Disease Control (CDC) as part of the U. S. Department of Health and Human Services' responsibility under Public Law 91-222 to report new and current information on smoking and health to the U. S. Congress.

Data in the 1986 report present evidence that the chemical composition of sidestream smoke (smoke emitted into the environment by a smoker between puffs) is qualitatively similar to the mainstream smoke inhaled by the smoker and that both mainstream and sidestream smoke act as carcinogens in bioassay systems (*1*). Data on the environmental levels of the components of tobacco smoke and on nicotine absorption in nonsmokers suggest that nonsmokers are exposed to levels of environmental tobacco smoke (ETS) that would be expected to generate a lung cancer risk. In addition, epidemiological studies of populations exposed to ETS have documented an increased risk for lung cancer in those nonsmokers with increased exposure. Of the 13 epidemiological studies that were available for review in the scientific literature, 11 reported a positive relationship and six of these observed statistically significant results. It is rare to have such detailed exposure data or human epidemiologic studies on disease occurrence when attempting to evaluate the risk of low-dose exposure to an agent with established toxicity at higher levels of exposure. The relative abundance of data reviewed in the report, their cohesiveness, and their biologic plausibility allow a judgment that involuntary smoking can cause lung cancer in nonsmokers.

The 1986 Surgeon General's Report comes to three major conclusions:

- Involuntary smoking is a cause of disease, including lung cancer, in healthy nonsmokers.
- Compared with children of nonsmoking parents, children whose parents smoke have an increased frequency of respiratory symptoms and infections. They also have slightly smaller rates of increase in lung function as the lung matures.

Involuntary Smoking — Continued

- Simple separation of smokers and nonsmokers within the same air space may reduce, but does not eliminate, ETS exposure.

The report also reviews policies restricting smoking in public places and the workplace and states that, in the 1970s, an increasing number of public and private sector institutions began adopting policies to protect individuals from ETS exposure by restricting the circumstances in which smoking is permitted. Local governments have been enacting smoking ordinances at an increasing rate since 1980. Restrictions on smoking at the workplace have resulted from both governmental action and private initiative, and an increase in workplace smoking policies has been a trend of the 1980s. Laws restricting smoking in public places have been implemented with few problems and at little cost to state and local governments. Public opinion polls document strong and growing support for restricting or banning smoking in a wide range of public places.

The Surgeon General, in his preface to the report, states, "Cigarette smoking is an addictive behavior, and the individual smoker must decide whether or not to continue that behavior; however, it is evident from the data presented in this volume that the choice to smoke cannot interfere with the nonsmokers' right to breathe air free of tobacco smoke."

Reported by Office on Smoking and Health, Center for Health Promotion and Education, CDC.

Editorial Note: A review recently published by the National Academy of Sciences states that approximately 20% of the estimated 12,200 lung cancer deaths occurring annually in nonsmokers are attributable to environmental tobacco smoke (*2*). This estimate falls close to the mid-point of the range published by Repace and Lowery, who state that between 500 and 5,000 lung cancer deaths may occur annually as a result of nonsmokers' exposure to tobacco smoke (*3*). By comparison, figures published in the *Journal of the Air Pollution Control Association* estimate that between 1,300 and 1,700 total cases of cancer resulting from other air pollutants in the general environment occur each year in the United States (*4*). Thus, while the number of lung cancer deaths that may be related to ETS exposure is small compared with those caused by active smoking, the actual number of lung cancer deaths caused annually by involuntary smoking is large. In addition, ETS causes more cases of cancer annually than many other agents in the general environment that are regulated because of their potential to cause disease.

References

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3. Repace JL, Lowrey AH. A quantitative estimate of nonsmokers' lung cancer risk from passive smoking. Environ Int 1985;11:3-22.
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Epidemiologic Notes and Reports

Rubella and Congenital Rubella Syndrome — New York City

In 1985, a provisional total of 630 cases of rubella (0.26/100,000 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 16% 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 reported cases (57,686). Reported rubella activity for the first 46 weeks of 1986 was 22% below that reported for the same time period in 1985. In spite of this high

Rubella — Continued

degree of rubella control, outbreaks of rubella in New York City (NYC) in 1985, and subsequently of congenital rubella syndrome (CRS) in 1986, raise concern about the potential for similar outbreaks in other areas of the United States.

Rubella

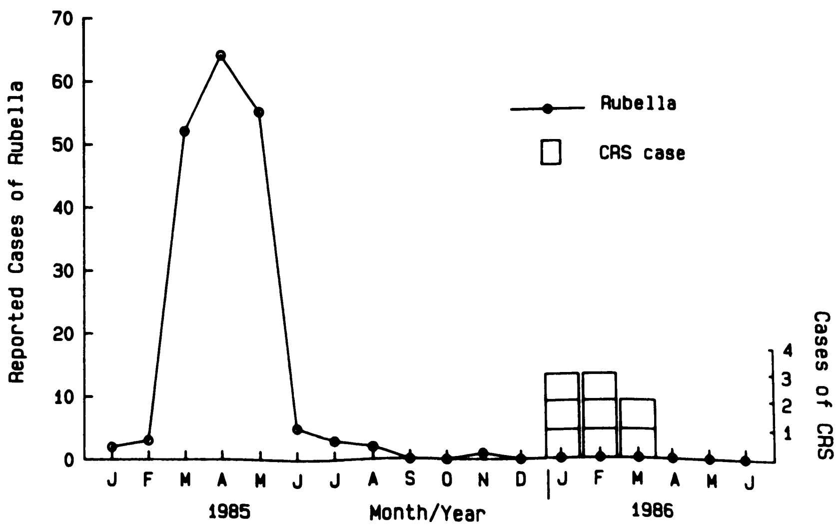
NYC experienced outbreaks of rubella each spring during the period 1983-1985 (*1-3*). These outbreaks primarily involved adults, and spread occurred in the workplace. Heightened rubella activity in 1985 (Figure 1) was associated with the recognized occurrence of outbreaks in a prison (50 cases), as previously reported (*3*); in a factory (45 cases); and in five hospitals (18 cases). Altogether, NYC* reported 184 cases of rubella to the Centers for Disease Control (CDC) in 1985. Age was reported for 173 of the patients involved; 91% of them were ≥20 years old.

Forty-five cases of rubella occurred in a population of predominantly Hispanic female workers at a factory in the South Bronx. Onsets of rash occurred between February 8 and April 8, 1985. The estimated attack rate for this facility was 7.5%. Patients ranged from 19 to 56 years of age (median = 40 years). Six pregnant women were identified among the employees; all were found to have prior immunity to rubella. Exclusion of the ill employees and of the pregnant women, pending serologic determination of immunity, resulted in 100 missed person-days of work.

During the spring of 1985, eighteen cases of rubella occurred in hospital workers from five medical facilities. Fourteen of these cases occurred in one large hospital located in the South Bronx. Ten of 14 cases were serologically confirmed by demonstration of enzyme-linked immunosorbent assay (ELISA) rubella-specific IgM. The three first-generation cases were epidemiologically linked to the rubella outbreak occurring in the factory described above. Workers from this factory had gone to the hospital's dermatology clinic, where transmission to the medical staff occurred. This hospital outbreak continued for three generations and involved four physicians, five nurses, two laboratory workers, two clerical workers, and

*Case definition used in NYC: generalized maculopapular rash and at least one of the following: fever, conjunctivitis, coryza, arthralgia, lymphadenopathy, or headache.

FIGURE 1. Reported rubella by month of rash onset, and reported CRS by month of birth, New York City, January 1985 — June 1986



Rubella – Continued

one x-ray technician. All of the patients had a rash that lasted from 1 to 7 days. Onsets of rash occurred between March 22 and May 6, 1985. Patients ranged from 24 to 37 years of age (median = 28 years).

Methods used to control the outbreaks included determining the rubella status of all employees, vaccinating susceptibles, and improving active surveillance. In addition, exclusion of employees during their infectious periods was recommended. The protocol used for controlling the outbreaks was similar to that used in previous outbreaks of rubella in the workplace (*4*).

Congenital Rubella Syndrome

During the first 5 months of 1986, eight suspected cases of CRS were reported to the NYC Department of Health. The diagnosis of CRS in all infants was based on clinical and laboratory data. CRS was serologically confirmed in five cases by demonstration of ELISA rubella-specific IgM; three cases were classified as CRS compatible by CDC criteria (Table 1) (*5*).

All eight of these births occurred in major NYC medical centers between January 5 and March 11, 1986, which was 8 to 10 months after the peak of the rubella outbreak (Figure 1). All eight infants had congenital heart disease: five of them had patent ductus arteriosus; four, peripheral pulmonary artery stenosis, and one, an atrial septal defect. In addition, six of the infants had cataracts; three, hearing loss; two, purpura; one, hepatosplenomegaly; one, congenital glaucoma; and one, microcephaly. Four (50%) of the mothers reported a rubella-like illness with a rash during the first 2 months of pregnancy. However, even though two were evaluated by physicians, none were diagnosed as having rubella. None of the seven mothers interviewed were linked to any other known cases of rubella.

In an effort to determine how this outbreak might have been prevented, information on the mothers of infants with CRS was obtained from hospital records and from personal interviews

TABLE 1. CDC criteria for classification of 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 2-fold 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 present, but not sufficient to fulfill the criteria for a compatible case.

IV. CONGENITAL RUBELLA INFECTION ONLY—Laboratory evidence of infection, but no defects present.

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 $\leq$24 months.
   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 2-fold dilution/month).

Rubella — Continued

with seven of the eight women (Table 2). Information on race and ethnicity was available for all eight women: four (50%) were Hispanic, two were black, one was Asian, and one was a non-Hispanic white. In contrast, Hispanics accounted for only 28.4% of total live births in NYC in 1985 (NYC Department of Health, Bureau of Health Statistics and Analysis, unpublished data, 1985). Four of the women were immigrants: two were from the Dominican Republic (year of immigration, 1983 and 1985, respectively); one was from Guyana (1981); and one, from Poland (1976). One woman lived in a welfare hotel. The women ranged from 18 to 29 years of age (median = 24 years), and they had received from 8 to 12 years of formal education (mean = 9.6 years). Five of the women were married; none were employed. Only one lived in the South Bronx. Five of them had previously delivered live infants in NYC hospitals; two of the women had each had two previous live births. At least one woman had undergone rubella screening during a previous pregnancy and was found to be susceptible, but had not been immunized postpartum. None of the seven women interviewed had attended family planning clinics prior to conception.

Five of the seven women interviewed reported receiving prenatal care at clinics affiliated with major medical centers, beginning in the first or second trimester. Two women reported no prenatal care. Based on their ages and personal histories, only two of the eight women (ages 18 and 19) could have been enrolled in NYC schools at a time when rubella vaccine was required by law. The 18-year-old reported rubella vaccination in 1970, but investigators were unable to obtain provider verification. The 19-year-old, an intravenous drug abuser, could not be located. In addition, a 29-year-old woman reported having previously received rubella vaccine in a public clinic prior to entering school. This claim was discounted because the reported immunization would have occurred before the licensure of rubella vaccine. None of the other seven women who were interviewed reported previous rubella vaccination.

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Editorial Note: This is the first reported cluster of CRS cases in the United States since the occurrence of outbreaks in Chicago (1978-1979, 30 cases) (*6*) and the San Francisco Bay area (1979-1980, 13 cases) (*7*). So far in 1986, nine cases of CRS have been reported to the National Congenital Rubella Syndrome Register, a passive surveillance system maintained at the Division of Immunization, CDC (*5*). The outbreak in NYC accounts for eight of these and underscores two serious concerns. First, 10% to 20% of postpubertal women still lack serologic evidence of immunity to rubella (*8-10*), and, second, the continued occurrence of rubella in the childbearing-aged population means that potentially preventable CRS cases will

TABLE 2. Characteristics of mothers of infants with congenital rubella syndrome — New York City, 1986

Case #	Age	Race/ Ethnicity	History of illness with rash	Prenatal care	Number of previous live births
1	24	Hispanic	Yes	Yes	1
2	26	Hispanic	No	Yes	2
3	29	Black	Yes	Yes	0
4	27	Asian	Yes	Yes	0
5	18	Hispanic	No	No	1
6	29	White	Yes	Yes	1
7	19	Hispanic	No	No	0
8	19	Black	Unknown	Unknown	2

Rubella — Continued

occur during the next 10 to 30 years until highly immune cohorts of persons vaccinated as children make up the entire childbearing-aged population.

Since the spring of 1985, the NYC Department of Health has maintained a pregnancy log to follow prospectively the outcomes of pregnant women with serologically confirmed rubella. Nine such women were enrolled for followup in 1985; seven of them elected to carry their pregnancies to term. No CRS cases have been identified from these pregnancies. None of the mothers of the infants with reported cases of CRS were included in this pregnancy log. This observation and the failure to directly link any CRS cases with recognized outbreaks of rubella in NYC emphasize the fact that reported rubella cases monitored only the trend in rubella activity in NYC and did not include all rubella cases that occurred in 1985.

To increase levels of rubella immunization in the childbearing-aged population, a multifaceted approach is necessary. Rubella vaccine should be offered to susceptible postpubertal women whenever they have contact with the health care system. Specific settings where immunization of hard-to-reach adult populations might be accomplished include colleges, family planning clinics, health care institutions, and places of employment. There should also be both followup immunization of women found to be susceptible by premarital rubella screening and postpartum and postabortion immunization of susceptibles identified by screening during pregnancy.

(Continued on page 779)

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

Disease	50th Week Ending			Cumulative, 50th Week Ending		
	Dec. 13, 1986	Dec. 14, 1985	Median 1981-1985	Dec. 13, 1986	Dec. 14, 1985	Median 1981-1985
Acquired Immunodeficiency Syndrome (AIDS)	417	176	N	12,405	7,653	N
Aseptic meningitis	205	179	170	10,257	9,999	9,340
Encephalitis: Primary (arthropod-borne & unspec.)	13	29	24	1,164	1,264	1,478
Post-infectious	2	-	3	95	114	91
Gonorrhea: Civilian	15,596	17,444	20,470	852,103	853,899	869,203
Military	482	211	358	16,309	19,805	23,154
Hepatitis: Type A	471	414	460	21,768	22,043	22,043
Type B	496	534	534	24,559	25,209	23,130
Non A, Non B	47	70	N	3,324	3,910	N
Unspecified	95	124	124	4,214	5,536	6,951
Legionellosis	15	9	N	773	734	N
Leprosy	12	1	5	245	346	233
Malaria	8	15	10	1,049	988	988
Measles: Total*	169	9	18	6,133	2,726	2,548
Indigenous	165	7	N	5,830	2,290	N
Imported	4	2	N	297	436	N
Meningococcal infections: Total	36	54	54	2,321	2,308	2,600
Civilian	36	54	54	2,319	2,301	2,584
Military	-	-	-	2	7	13
Mumps	171	74	75	5,344	2,843	3,237
Pertussis	34	62	40	4,041	3,406	2,197
Rubella (German measles)	3	4	12	483	605	938
Syphilis (Primary & Secondary): Civilian	452	431	622	25,914	25,676	30,023
Military	10	2	5	160	153	357
Toxic Shock syndrome	4	4	N	333	353	N
Tuberculosis	419	482	597	21,047	20,594	22,663
Tularemia	6	1	5	160	173	276
Typhoid fever	14	3	8	306	369	385
Typhus fever, tick-borne (RMSF)	6	2	3	744	685	956
Rabies, animal	64	98	70	5,134	5,194	5,719

TABLE II. Notifiable diseases of low frequency, United States

	Cum. 1986		Cum. 1986
Anthrax	-	Leptospirosis (La. 1)	39
Botulism: Foodborne	18	Plague (Calif. 1)	9
Infant (Upstate N.Y. 1, Ohio 1, Idaho 1)	67	Poliomyelitis, Paralytic	1
Other	1	Psittacosis (Ohio 2)	90
Brucellosis	78	Rabies, human	-
Cholera	17	Tetanus (Ind. 1)	61
Congenital rubella syndrome (N.Y. City 1)	11	Trichinosis	31
Congenital syphilis, ages < 1 year	107	Typhus fever, flea-borne (endemic, murine) (Ohio 1)	48
Diphtheria	-		

*Four of the 169 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 December 13, 1986 and December 14, 1985 (50th Week)

Reporting Area	AIDS	Aseptic Menin-gitis	Encephalitis Primary	Encephalitis Post-in-fectious	Gonorrhea (Civilian)	Gonorrhea (Civilian)	Hepatitis (Viral), by type A	Hepatitis (Viral), by type B	Hepatitis (Viral), by type NA,NB	Hepatitis (Viral), by type Unspeci-fied	Legionel-losis	Leprosy
	Cum 1986	1986	Cum 1986	Cum 1986	Cum 1986	Cum 1985	1986	1986	1986	1986	1986	Cum 1986
UNITED STATES	12,405	205	1,164	95	852,103	853,899	471	496	47	95	15	245
NEW ENGLAND	489	7	30	3	23,080	21,828	16	40	1	3	-	8
Maine	20	1	2	-	800	1,110	-	1	-	-	-	-
N H	13	-	2	-	562	547	-	-	-	-	-	-
Vt	5	2	4	2	260	326	1	1	1	-	-	-
Mass	272	3	6	-	8,297	9,145	7	29	-	3	-	8
R I	31	-	-	-	1,780	1,811	-	-	-	-	-	-
Conn	148	1	16	1	11,381	8,889	8	9	-	-	-	-
MID ATLANTIC	4,510	12	107	10	148,431	124,888	8	34	4	35	-	19
Upstate N Y	471	12	36	6	17,983	17,413	3	18	4	2	-	1
N Y City	2,998	-	20	1	85,702	61,145	-	2	-	31	-	17
N J	738	-	10	-	19,444	18,909	5	14	-	2	-	-
Pa	303	-	41	3	25,302	27,421	-	-	-	-	-	1
E N CENTRAL	756	26	354	11	109,959	111,454	27	41	1	2	6	4
Ohio	154	15	137	3	28,160	30,288	16	21	-	1	6	-
Ind	59	2	82	3	12,131	12,389	3	6	-	-	-	-
Ill	363	-	50	4	25,710	25,656	-	-	-	-	-	4
Mich	139	9	57	1	36,344	32,462	8	14	1	1	-	1
Wis	41	-	28	-	7,362	10,659	-	-	-	-	-	-
W N CENTRAL	230	8	88	9	36,594	39,873	13	19	1	1	-	4
Minn	88	1	39	-	5,272	5,867	5	4	-	1	-	2
Iowa	19	-	27	-	3,717	4,215	1	2	1	-	-	-
Mo	73	5	3	-	18,075	19,410	-	11	-	-	-	-
N Dak	3	-	4	-	298	272	1	-	-	-	-	-
S Dak	2	1	11	-	749	767	6	-	-	-	-	-
Nebr	11	-	1	1	2,682	3,339	-	2	-	-	-	-
Kans	34	1	3	8	5,801	6,003	-	-	-	-	-	2
S ATLANTIC	1,812	28	147	39	221,248	222,493	28	91	2	12	5	3
Del	23	-	6	-	3,625	4,319	5	1	-	-	-	-
Md	180	3	33	1	26,316	28,291	4	16	-	-	1	-
D C	229	-	1	1	16,592	15,289	1	2	-	-	1	-
Va	152	4	40	1	18,337	18,589	7	12	-	4	2	1
W Va	8	1	45	-	2,114	2,472	-	2	1	2	-	-
N C	78	10	18	2	34,548	35,283	-	8	-	2	-	-
S C	49	-	-	-	18,737	20,954	-	11	-	-	1	-
Ga	262	1	-	1	36,722	43,165	3	8	-	2	-	-
Fla	831	9	4	33	64,257	54,131	8	31	1	2	-	2
E S CENTRAL	150	34	66	4	67,716	73,927	3	40	3	1	-	1
Ky	28	19	32	1	7,516	8,467	-	4	-	-	-	-
Tenn	70	8	8	1	25,494	28,354	2	16	2	-	-	-
Ala	28	5	25	2	19,946	22,148	-	13	-	-	-	1
Miss	24	2	1	-	14,760	14,958	1	7	1	1	-	-
W S CENTRAL	1,090	59	183	6	99,547	106,680	53	59	4	13	2	25
Ark	29	8	-	2	9,311	10,074	3	4	1	1	-	1
La	149	32	16	-	17,401	20,123	-	17	-	1	-	1
Okla	41	5	21	-	11,331	11,938	11	2	-	-	-	-
Tex	871	14	146	4	61,504	64,545	39	36	3	11	2	23
MOUNTAIN	323	2	39	1	25,061	27,110	72	51	2	10	1	13
Mont	5	-	1	1	650	771	2	1	-	-	-	-
Idaho	3	-	-	-	841	941	2	2	-	1	-	-
Wyo	4	-	2	-	510	606	-	-	-	-	-	-
Colo	154	-	5	-	6,426	7,845	12	6	-	4	-	3
N Mex	23	1	3	-	2,673	3,028	10	6	-	-	1	-
Ariz	79	1	18	-	8,057	8,284	40	26	1	1	-	7
Utah	19	-	8	-	1,077	1,301	3	4	-	2	-	1
Nev	36	-	2	-	4,827	4,334	3	6	1	2	-	2
PACIFIC	3,045	29	150	12	120,467	125,646	251	121	29	18	1	168
Wash	153	1	15	-	8,694	9,699	5	8	4	-	-	17
Oreg	61	-	-	-	5,232	6,158	41	20	-	-	-	-
Calif	2,766	25	127	12	103,002	105,150	191	93	23	17	1	115
Alaska	12	2	7	-	2,543	3,012	13	-	2	1	-	-
Hawaii	53	1	1	-	1,248	1,627	1	-	-	-	-	35
Guam	-	-	-	-	212	192	-	-	-	-	-	1
P R	115	-	5	1	2,329	2,976	1	7	1	4	-	7
V I	4	U	-	-	259	386	U	U	U	U	U	-
Pac Trust Terr	-	-	-	-	467	766	-	-	-	-	-	63
Amer Samoa	-	-	-	-	57	-	-	-	-	-	-	3

N: Not notifiable U: Unavailable

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending December 13, 1986 and December 14, 1985 (50th 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	1,049	165	5,830	4	297	2,726	2,321	171	5,344	34	4,041	3,406	3	483	605
NEW ENGLAND	63	-	88	-	16	126	165	-	68	2	175	209	-	9	13
Maine	2	-	12	-	1	1	28	-	-	-	2	9	-	-	-
N H	4	-	43	-	-	-	6	-	14	-	82	112	-	1	3
Vt	2	-	-	-	-	-	19	-	4	-	3	4	-	1	-
Mass	32	-	24	-	13	118	49	-	14	-	56	51	-	4	6
R I	7	-	2	-	-	-	22	-	13	-	6	22	-	2	-
Conn	16	-	7	-	2	7	41	-	23	2	26	11	-	1	4
MID ATLANTIC	145	138	1,869	4	38	232	369	6	212	8	212	255	-	37	229
Upstate N Y	51	-	77	-	24	85	132	5	73	8	134	123	-	27	19
N Y City	31	138	861	2†	6	79	71	-	29	-	10	29	-	5	185
N J	37	-	905	2†§	6	28	30	1	52	-	20	11	-	5	11
Pa	26	-	26	-	2	40	136	-	58	-	48	92	-	-	14
E N CENTRAL	61	3	1,123	-	28	582	346	118	3,494	1	384	817	1	50	38
Ohio	19	-	-	-	10	60	141	1	136	-	167	120	-	1	-
Ind	2	-	27	-	11	57	39	47	90	-	36	201	-	-	1
Ill	16	2	705	-	4	346	74	24	2,560	1	37	76	1	39	20
Mich	20	1	107	-	-	60	74	45	430	-	36	49	-	8	16
Wis	4	-	284	-	3	59	17	1	278	-	105	371	-	2	1
W N CENTRAL	32	-	324	-	17	13	109	11	182	-	1,408	256	-	14	19
Minn	10	-	45	-	4	6	23	-	20	-	48	133	-	1	2
Iowa	1	-	133	-	1	-	11	11	73	-	19	33	-	1	1
Mo	12	-	26	-	6	4	39	-	25	-	24	33	-	1	7
N Dak	-	-	25	-	1	2	1	-	4	-	5	10	-	1	2
S Dak	2	-	-	-	-	-	5	-	1	-	14	6	-	-	-
Nebr	4	-	1	-	-	-	11	-	2	-	10	11	-	-	-
Kans	3	-	94	-	5	1	19	-	57	-	1,288	30	-	10	7
S ATLANTIC	125	15	790	-	57	342	421	3	250	10	773	557	-	12	55
Del	1	-	1	-	-	-	7	-	1	-	227	2	-	-	2
Md	14	-	26	-	9	115	47	1	30	1	165	321	-	1	6
D C	5	-	-	-	2	31	5	-	1	-	-	-	-	-	-
Va	34	-	36	-	24	28	74	-	45	5	55	21	-	-	2
W Va	4	-	2	-	-	33	4	-	49	-	26	4	-	-	9
N C	7	-	3	-	1	9	67	-	28	3	85	38	-	-	1
S C	6	-	274	-	-	3	45	1	16	-	18	2	-	-	3
Ga	13	-	79	-	14	8	59	-	28	-	133	98	-	-	3
Fla	41	15	369	-	7	115	113	1	52	1	64	71	-	11	29
E S CENTRAL	21	-	61	-	9	7	116	10	234	-	47	70	-	4	3
Ky	6	-	-	-	6	5	27	-	6	-	5	8	-	4	3
Tenn	1	-	55	-	1	1	37	10	223	-	16	28	-	-	-
Ala	10	-	1	-	1	-	38	-	4	-	25	27	-	-	-
Miss	4	-	5	-	1	1	14	-	1	-	1	7	-	-	-
W S CENTRAL	106	-	680	-	38	452	217	7	279	1	253	553	2	73	42
Ark	1	-	276	-	2	-	30	-	61	-	20	16	-	1	1
La	18	-	4	-	-	42	26	-	3	-	15	17	-	-	-
Okla	12	-	37	-	2	1	31	N	N	1	129	169	-	-	2
Tex	75	-	363	-	34	409	130	7	215	-	89	351	2	72	39
MOUNTAIN	39	-	303	-	29	541	107	6	258	3	281	239	-	24	6
Mont	1	-	-	-	8	137	10	-	6	-	20	10	-	2	-
Idaho	1	-	1	-	-	137	4	-	9	2	51	27	-	-	2
Wyo	-	-	-	-	-	5	2	-	-	-	4	1	-	1	-
Colo	12	-	2	-	8	15	20	-	17	-	66	94	-	1	-
N Mex	5	-	33	-	7	6	12	N	N	-	28	14	-	-	2
Ariz	13	-	252	-	6	241	22	5	200	-	65	40	-	2	1
Utah	4	-	13	-	-	-	10	-	15	1	43	53	-	15	-
Nev	3	-	2	-	-	-	27	1	11	-	4	-	-	3	1
PACIFIC	457	9	592	-	65	431	471	10	367	9	508	450	-	260	200
Wash	32	8	148	-	28	142	63	2	21	3	155	86	-	17	14
Oreg	19	-	7	-	4	5	36	N	N	-	16	50	-	4	2
Calif	405	1	410	-	31	260	346	8	314	4	302	267	-	233	135
Alaska	-	-	-	-	-	-	14	-	8	-	5	30	-	-	1
Hawaii	1	-	27	-	2	24	13	-	24	2	33	17	-	6	48
Guam	1	-	4	-	1	11	1	-	4	-	-	-	-	4	3
P R	4	8	44	-	-	67	4	-	34	-	19	16	-	62	27
V I	-	U	-	U	-	10	-	U	17	U	-	-	U	-	-
Pac Trust Terr	-	-	-	-	-	-	1	-	11	-	-	-	-	3	-
Amer Samoa	-	-	2	-	-	-	-	-	5	-	-	-	-	1	-

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

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

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending December 13, 1986 and December 14, 1985 (50th 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	25,914	25,676	4	21,047	20,594	160	306	744 +6	5,134
NEW ENGLAND	473	565	-	647	680	1	16	13	8
Maine	19	17	-	34	45	-	-	-	-
N H	13	40	-	23	22	-	-	2	1
Vt	9	7	-	16	8	-	-	-	2
Mass	258	280	-	359	401	1	13	4	-
R I	19	17	-	46	52	-	-	3	3
Conn	155	204	-	169	152	-	3	4	2
MID ATLANTIC	3,604	3,472	-	4,101	3,622	1	24	40	642
Upstate N Y	174	254	-	603	627	-	4	20	82
N Y City	2,052	2,101	-	2,152	1,782	-	11	5	-
N J	618	662	-	688	479	1	8	2	17
Pa	760	455	-	658	734	-	1	13	543
E N CENTRAL	820	939	-	2,473	2,515	1	23	46	139
Ohio	125	143	-	435	434	-	9	40	16
Ind	108	-80	-	269	325	-	2	-	17
Ill	370	414	-	1,073	1,106	-	3	2	41
Mich	177	240	-	589	512	1	6	4	25
Wis	40	62	-	107	138	-	3	-	40
W N CENTRAL	203	222	3	623	594	45	9	51 +3	803
Minn	33	45	3	146	120	-	2	1	132
Iowa	8	18	-	48	57	1	-	1	183
Mo	106	122	-	307	289	34	6	27 3	68
N Dak	5	2	-	10	10	-	-	1	151
S Dak	9	6	-	28	31	3	-	6	178
Nebr	11	7	-	16	18	1	-	5	37
Kans	31	22	-	68	69	6	1	10	54
S ATLANTIC	7,820	7,371	-	4,264	4,291	13	46	333 +2	1,301
Del	58	36	-	46	46	-	1	1	1
Md	448	478	-	299	389	2	16	29	566
D C	291	322	-	158	149	1	4	-	36
Va	323	291	-	356	426	3	10	51	196
W Va	20	26	-	123	105	-	3	10	58
N C	515	657	-	641	596	3	4	129 1	10
S C	684	782	-	537	502	-	-	71	65
Ga	1,449	1,343	-	718	725	4	-	40 1	197
Fla	4,032	3,436	-	1,386	1,353	-	8	2	172
E S CENTRAL	1,705	2,005	1	1,864	1,784	16	4	111	360
Ky	66	65	1	424	444	7	-	22	105
Tenn	599	642	-	545	536	7	1	46	138
Ala	498	633	-	575	519	1	1	25	114
Miss	542	665	-	320	285	1	2	18	3
W S CENTRAL	5,054	5,894	-	2,716	2,627	68	34	139 +1	700
Ark	253	314	-	374	316	49	-	16	158
La	896	1,033	-	392	383	1	3	1	22
Okla	142	189	-	248	245	13	2	103	59
Tex	3,763	4,358	-	1,702	1,683	5	29	19 1	461
MOUNTAIN	599	734	-	518	554	12	16	10	645
Mont	7	6	-	31	46	1	1	4	212
Idaho	15	7	-	23	25	-	-	2	9
Wyo	4	14	-	-	7	1	-	1	271
Colo	133	207	-	55	89	3	1	3	29
N Mex	68	120	-	98	83	2	1	-	6
Ariz	247	308	-	240	245	-	9	-	100
Utah	18	12	-	31	21	4	3	-	7
Nev	107	60	-	40	38	1	1	-	11
PACIFIC	5,636	4,474	-	3,841	3,927	3	134	1	536
Wash	168	107	-	207	211	1	3	-	5
Oreg	115	105	-	122	131	-	-	-	1
Calif	5,308	4,191	-	3,281	3,307	1	124	1	522
Alaska	11	4	-	56	95	1	1	-	8
Hawaii	34	67	-	175	183	-	6	-	-
Guam	1	2	-	35	38	-	1	-	-
P R	838	844	-	329	340	-	5	-	47
V I	1	3	U	1	1	-	-	-	-
Pac Trust Terr	262	128	-	94	75	-	49	-	-
Amer Samoa	1	-	-	5	-	-	-	-	-

U Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending December 13, 1986 (50th Week)

Reporting Area	All Causes, By Age (Years)						P&I** Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	709	486	150	53	7	13	45
Boston, Mass	197	116	53	19	2	7	18
Bridgeport, Conn	45	36	6	2	1	-	2
Cambridge, Mass	27	21	5	1	-	-	4
Fall River, Mass	20	17	2	1	-	-	-
Hartford, Conn	57	32	12	9	2	2	3
Lowell, Mass	32	24	7	1	-	-	3
Lynn, Mass	16	12	3	1	-	-	2
New Bedford, Mass	26	23	3	-	-	-	-
New Haven, Conn	66	40	17	7	-	2	2
Providence, R I	60	39	16	3	1	1	-
Somerville, Mass	12	9	1	2	-	-	2
Springfield, Mass	41	31	8	2	-	-	3
Waterbury, Conn	28	20	6	2	-	-	3
Worcester, Mass	82	66	11	3	1	1	3
MID ATLANTIC	2,978	1,901	631	295	59	91	153
Albany, N Y	54	39	10	2	1	2	-
Allentown, Pa	18	14	4	-	-	-	-
Buffalo, N Y	138	95	28	6	2	6	13
Camden, N J	42	27	9	2	3	1	1
Elizabeth, N J	19	11	7	1	-	-	1
Erie, Pa †	40	31	6	2	-	1	2
Jersey City, N J	63	24	16	15	3	5	2
N Y City, N Y	1,619	1,012	326	188	30	63	82
Newark, N J	53	22	16	10	4	1	3
Paterson, N J	24	15	5	4	-	-	2
Philadelphia, Pa	400	253	96	35	10	6	18
Pittsburgh, Pa †	63	42	18	2	-	1	2
Reading, Pa	27	21	4	2	-	-	3
Rochester, N Y	119	83	24	7	4	1	3
Schenectady, N Y	31	23	6	1	1	-	4
Scranton, Pa †	35	28	6	1	-	-	1
Syracuse, N Y	113	80	23	7	-	3	9
Trenton, N J	42	26	9	6	-	1	2
Utica, N Y	29	21	7	1	-	-	1
Yonkers, N Y	49	34	11	3	1	-	4
E N CENTRAL	2,402	1,573	504	172	60	93	107
Akron, Ohio	69	45	13	6	3	2	-
Canton, Ohio	51	37	10	2	1	1	8
Chicago, Ill §	564	362	125	45	10	22	16
Cincinnati, Ohio	138	87	35	8	4	4	12
Cleveland, Ohio	176	107	44	15	5	5	4
Columbus, Ohio	131	75	31	13	7	5	-
Dayton, Ohio	114	73	25	8	4	4	3
Detroit, Mich	267	156	68	24	6	13	7
Evansville, Ind	53	48	4	-	-	1	2
Fort Wayne, Ind	72	49	9	9	2	3	5
Gary, Ind	14	6	4	2	1	1	-
Grand Rapids, Mich	60	46	10	2	1	1	7
Indianapolis, Ind	175	113	32	13	5	12	5
Madison, Wis	38	17	13	3	1	4	2
Milwaukee, Wis	149	111	19	5	7	7	8
Peoria, Ill	44	31	10	1	-	2	8
Rockford, Ill	40	28	9	2	-	1	5
South Bend, Ind	44	32	9	3	-	-	3
Toledo, Ohio	140	102	24	9	1	4	9
Youngstown, Ohio	63	48	10	2	2	1	3
W N CENTRAL	885	614	184	50	18	19	51
Des Moines, Iowa	83	60	17	2	3	1	6
Duluth, Minn	24	19	4	1	-	-	-
Kansas City, Kans	35	11	18	4	1	1	-
Kansas City, Mo	140	96	30	8	3	3	10
Lincoln, Nebr	51	42	4	4	1	-	5
Minneapolis, Minn	163	124	26	7	2	4	12
Omaha, Nebr	103	65	28	4	2	4	5
St Louis, Mo	133	87	29	12	1	4	10
St Paul, Minn	68	54	7	3	3	1	2
Wichita, Kans	85	56	21	5	2	1	1

Reporting Area	All Causes, By Age (Years)						P&I** Total
	All Ages	≥65	45-64	25-44	1-24	<1	
S ATLANTIC	1,533	955	341	130	49	57	68
Atlanta, Ga	191	103	50	21	12	5	3
Baltimore, Md	396	272	73	29	12	10	24
Charlotte, N C	106	64	29	6	2	5	3
Jacksonville, Fla	113	73	25	10	3	2	10
Miami, Fla	132	61	40	17	4	10	1
Norfolk, Va	82	55	20	1	-	6	2
Richmond, Va	73	51	16	3	-	3	7
Savannah, Ga	38	25	8	3	1	1	1
St Petersburg, Fla	96	79	11	3	3	-	10
Tampa, Fla	85	49	16	9	4	6	2
Washington, D C §	179	93	45	25	7	9	4
Wilmington, Del	42	30	8	3	1	-	1
E S CENTRAL	837	559	177	50	28	23	37
Birmingham, Ala	127	88	18	11	4	6	3
Chattanooga, Tenn	70	46	17	6	1	-	7
Knoxville, Tenn	73	53	15	3	1	1	7
Louisville, Ky	127	86	29	6	4	2	5
Memphis, Tenn	190	124	43	14	7	2	7
Mobile, Ala	95	70	13	3	6	3	3
Montgomery, Ala	40	27	10	-	3	-	2
Nashville, Tenn	115	65	32	7	2	9	3
W S CENTRAL	1,576	981	343	135	54	63	67
Austin, Tex	73	46	13	7	4	3	3
Baton Rouge, La	47	25	10	3	2	7	4
Corpus Christi, Tex	56	37	8	7	1	3	1
Dallas, Tex	230	140	56	17	9	8	6
El Paso, Tex	85	56	15	5	4	5	7
Fort Worth, Tex	148	92	27	11	7	11	14
Houston, Tex	417	239	106	48	11	13	9
Little Rock, Ark	71	43	17	4	3	4	6
New Orleans, La	95	59	21	11	2	2	1
San Antonio, Tex	181	120	34	16	5	6	4
Shreveport, La	41	32	5	3	1	-	4
Tulsa, Okla	132	92	31	3	5	1	8
MOUNTAIN	710	451	146	59	25	28	44
Albuquerque, N Mex	90	54	24	10	1	1	6
Colo Springs, Colo	51	29	11	4	4	2	7
Denver, Colo	114	73	22	12	3	4	4
Las Vegas, Nev	86	55	21	7	2	1	9
Ogden, Utah	16	12	1	1	-	2	2
Phoenix, Ariz	138	85	29	8	6	10	2
Pueblo, Colo	22	18	3	-	1	-	6
Salt Lake City, Utah	70	42	11	9	2	6	-
Tucson, Ariz	123	83	24	8	6	2	8
PACIFIC	2,040	1,339	408	176	61	56	127
Berkeley, Calif	23	17	1	2	2	1	3
Fresno, Calif	66	45	15	2	1	3	5
Glendale, Calif	25	20	4	-	-	1	1
Honolulu, Hawaii	66	45	13	5	2	1	12
Long Beach, Calif	88	57	21	5	2	3	12
Los Angeles, Calif	556	356	121	50	18	11	18
Oakland, Calif §	69	49	12	4	2	2	2
Pasadena, Calif	16	13	-	1	-	2	1
Portland, Oreg	147	105	24	11	3	4	8
Sacramento, Calif	151	92	34	13	8	4	20
San Diego, Calif	190	123	37	15	6	9	15
San Francisco, Calif	182	111	35	30	4	2	8
San Jose, Calif	188	121	42	14	4	7	12
Seattle, Wash	166	101	35	17	8	5	5
Spokane, Wash	50	40	8	2	-	-	3
Tacoma, Wash	57	44	6	5	1	1	2
TOTAL	13,670††	8,859	2,884	1,120	361	443	699

* 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 — Continued

An analysis of CRS surveillance data in the United States indicates that nearly one-half of mothers delivering infants with CRS had a previous live birth (*11,12*). In this outbreak, five of eight rubella-susceptible mothers had had at least one previous pregnancy in the United States and had remained susceptible during a subsequent pregnancy that was complicated by rubella. Such women might have been immunized in the postpartum period following their earlier deliveries, and failure to do so represents missed opportunities for preventing five CRS births. These data suggest that postpartum vaccination could have a substantial impact on the occurrence of CRS.

While a survey of obstetric services in NYC indicates that serologic testing of pregnant women is universal, only 37% of obstetric departments have a protocol to insure postpartum vaccination of susceptible women (NYC Department of Health, unpublished data). In addition, although the New York State Health Code requires rubella screening and immunization of all hospital employees, the occurrence of cases in five separate medical facilities suggests the need for more stringent screening and/or immunization programs for employees in these hospitals.

The NYC Department of Health, in cooperation with CDC, has begun a Rubella Elimination Program, which will have as its first priorities the development and/or implementation of protocols requiring: 1) rubella screening of pregnant women and postpartum immunization in all NYC hospitals; and 2) rubella screening and immunization of hospital employees to achieve compliance with state law. The expense of implementing such rubella immunization programs loses significance when compared with the cost of ongoing outbreak control and the greater than $200,000 lifetime cost of a case of CRS (*13*).

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Dengue Hemorrhagic Fever — Puerto Rico

Dengue activity in Puerto Rico has increased substantially since August of 1986 (Figure 2). Of the 5,564 cases of suspected dengue reported in the first 10 months of the year, 4,640 (83%) occurred from August through October. Seven hundred and forty cases have been

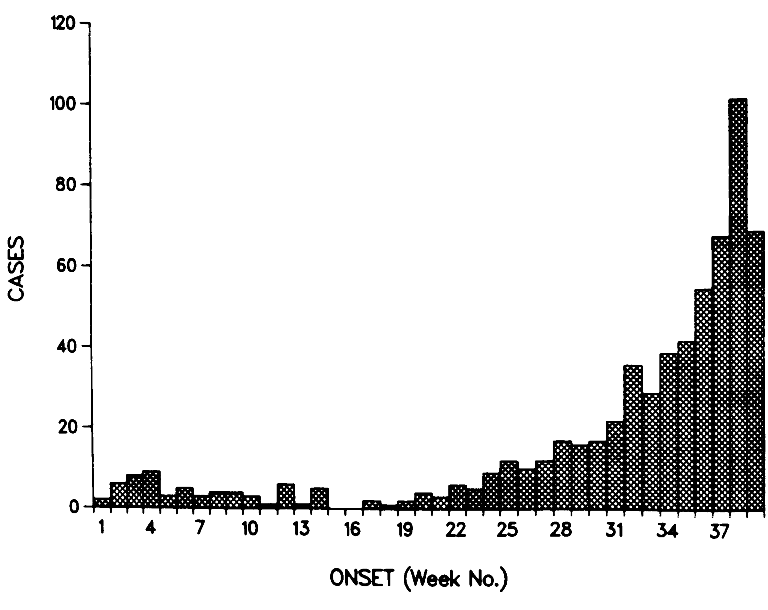
Dengue — Continued

virologically or serologically confirmed in 1986 (Table 3), compared with six cases in 1983, 11 cases in 1984, and 133 cases in 1985. The male to female ratio of confirmed cases for 1986 was 1:1, with all ages affected. Cases have been confirmed in 64 of the 78 Puerto Rican municipalities (82%).

Two hundred and eleven dengue viruses have been isolated in 1986, 152 (72%) during August, September, and October. Three dengue serotypes (DEN-1, DEN-2, and DEN-4) have been co-circulating in Puerto Rico since late 1985. In 1986, DEN-1 and DEN-4 have been the predominant serotypes island-wide (45% and 44% respectively), followed by DEN-2 (11%). Since August, however, most transmission has occurred in the San Juan metropolitan area (63% of confirmed cases), and DEN-4 has been the predominant serotype with 75 (49%) isolates, followed by DEN-1 with 58 isolates (38%) and DEN-2 with 19 isolates (13%).

Although the majority of cases have presented as classical dengue fever, 26% of patients with 356 laboratory-confirmed disease have reported at least one hemorrhagic manifestation. The most common of these have been petechiae, purpura/ecchymosis, bleeding of gums, hematuria, and thrombocytopenia. Moreover, hospitalization has increased, with 100 patients (14% of total) with confirmed dengue infection hospitalized. This is a hospitalization rate of 135/1,000 patients with confirmed dengue infection in 1986, compared with 75/1,000 in 1985 and 19/1,000 in 1982 during the last outbreak of DEN-4. As the hospitalization data suggest, there has been an increase in severe hemorrhagic disease associated with the outbreak. The rate of confirmed dengue hemorrhagic fever/dengue shock syndrome (DHF/DSS) per 1,000 persons with confirmed dengue infection was 14 in 1986, compared with 8/1,000 in 1985. Although the rates are still low, they represent a significant increase over previous years when epidemics were larger and there were no cases of DHF/DSS. Also, Puerto Rico has experienced its first virologically confirmed fatal case of DHF/DSS. To date in 1986, 12 cases of severe hemorrhagic disease have been confirmed virologically and/or serologically as dengue. Ten of these cases meet WHO clinical criteria for DHF/DSS; two patients did not have hemoconcentration but had severe upper gastrointestinal hemorrhage and thrombocytopenia.

FIGURE 2. Confimed cases of dengue, by week of onset, Puerto Rico, 1986



Dengue — Continued

The ten cases that meet WHO clinical criteria for DHF/DSS included six children (five infants less than 1 year of age) and four adults. The ratio of males to females was 1:1. There were four patients with dengue shock syndrome (three infants and one adult); two confirmed cases were fatal (one in a 30-year-old female and the other in a 6-month-old male). DEN-4 was isolated from the former, and DEN-2, from the latter. The most common hemorrhagic manifestations observed in patients with confirmed DHF/DSS were petechiae (five patients), hematemesis (five patients), and hematuria (three patients). In addition to the five patients above who had hematemesis, two other patients (one adult and one child) had severe upper gastrointestinal bleeding and thrombocytopenia in the absence of hemoconcentration.

Measures taken to control the outbreak include increased public education on eliminating mosquito larval habitats, initiating education programs in the public school system on environmental sanitation, and widespread application of insecticide with truck-mounted equipment. An emergency hospitalization plan has been developed, but has not yet been fully implemented.

Reported by Puerto Rico Dept of Health; Dengue Br, Div of Vector-Borne Viral Diseases, Center for Infectious Diseases, CDC.

Editorial Note: The recent severe illnesses in Puerto Rico are clinically compatible with DHF/DSS in southeast Asia (*1*). Eleven confirmed cases since September 1985, have met WHO criteria for DHF/DSS with hemoconcentration and evidence of plasma leakage. Two other patients had severe upper gastrointestinal bleeding similar to that observed in Indonesia (*2*). Seven of the confirmed cases were in children—five of these were infants. In previous Puerto Rican epidemics, most severe disease was in adults (*3*).

Puerto Rico experienced its first reported dengue outbreak in 1915 (*4*). Subsequent outbreaks occurred in 1945, 1963, 1969, 1976, 1977, 1978, 1981, and 1982 (Dengue Branch, Division of Vector-Borne Viral Diseases, Center for Infectious Diseases, CDC, unpublished data). Laboratory-based surveillance for DHF/DSS began in 1975. From that time through 1985, 47,196 suspected cases of dengue were reported to the San Juan Laboratories. During the same time period, 19% of cases for which there were adequate laboratory specimens (8,816) were confirmed as dengue; and 230 (3%) of persons with confirmed cases were hospitalized. During 1986, 14% of the 5,564 persons with confirmed dengue infection have been hospitalized, and there have been 10 cases of confirmed DHF/DSS. Thus, both the reporting of severe dengue disease and the number of persons hospitalized with severe dengue disease have increased during 1986.

Some of the present increase in the number of reported dengue cases may relate to improved awareness. When The first fatal case of DHF/DSS in Puerto Rico occurred in August, it was followed by numerous press releases, and clean-up campaigns were initiated. In general, the awareness of dengue in both lay and medical communities has increased. The monthly proportion of patients hospitalized with confirmed cases, however, remained stable, even

TABLE 3. Laboratory confirmed cases of dengue by age, sex, virus type, and serologic response — Puerto Rico, October 31, 1986

Age	Sex*		Virus type			Serologic response		
	Male	Female	DEN-1	DEN-2	DEN-4	Primary	Secondary	Unknown
0-4	23	26	4	1	2	14		35
5-9	29	37	8	5		5	33	28
10-14	59	40	15	4	8	16	36	47
15-19	50	45	13	3	18	18	27	50
20+	198	200	53	10	64	41	152	205
Unknown	9	13	3			4	11	7
Total	**368**	**361**	**96**	**23**	**92**	**98**	**259**	**372**

*Does not include five cases with no information on age and sex.

Dengue — Continued

after the fatality was announced. Moreover, the confirmation rate for dengue began to increase in June (weeks 24 through 25 of the outbreak), 2 months before the response to the press campaign.

Because the 1978 and 1981 dengue outbreaks in Puerto Rico were caused by DEN-1 and the 1982 outbreak was caused by DEN-4, it was considered unlikely that the present outbreak would be very large. DEN-2 is also being transmitted in Puerto Rico, and recent virus isolation data suggest that transmission of this serotype may be increasing. Since the last major epidemic of DEN-2 was in 1976-1977, a large number of individuals in Puerto Rico (mainly children) are susceptible to this virus. Furthermore, studies by CDC on school children in Puerto Rico have shown that by the first grade, 30% to 50% of school children have serologic evidence of a past dengue infection.

Evidence from Thailand and Cuba suggests that secondary DEN-2 infection following DEN-1 infection at a 3- to 5-year interval may be a risk factor for epidemic DHF/DSS. If this is true, Puerto Rico is at increased risk for an epidemic of DHF/DSS. Moreover, with the cocirculation of multiple serotypes, the epidemiologic situation in Puerto Rico is now very similar to that in many southeast Asian countries where DHF/DSS is endemic.

Currently, a major effort is being made to control the vector mosquito, *Aedes aegypti*. The integrated approach being used includes community-based source reduction, insecticide application, and health education.

Risk of dengue infection for travelers to endemic areas appears to be small. However, travelers to and residents of endemic areas should take precaution to avoid mosquito bites and to remain in well-screened areas when possible. Outdoors, exposures to mosquitoes can be reduced by wearing clothing that adequately covers the arms and legs and by applying mosquito repellent.

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Update: Influenza Activity — United States, Worldwide

United States

On November 6, a 62-year-old resident of Tucson, Arizona, had onset of a febrile respiratory illness with exacerbation of his underlying chronic obstructive pulmonary disease. He was hospitalized on November 7, and a nasopharyngeal swab was collected on the day of admission. Type A influenza virus was confirmed by rapid indirect fluorescent antibody staining, and treatment with amantadine began on the same day. The patient recovered from his acute respiratory illness and was discharged to another hospital for treatment of an unrelated problem. He had not traveled before his illness, and influenza had not been previously identified in Arizona this season. Subsequent testing identified the virus isolate as type A(H3N2). This is the first report of this subtype from the United States this season.

Influenza — Continued

Eighteen states and the District of Columbia have now reported isolates of type A(H1N1) influenza virus (Figure 3). Most isolates have been obtained from children and young adults. Two states, California and Texas, have reported isolates of type B influenza from sporadically occurring cases.

Worldwide

USSR. Reports from the USSR indicate that during the last week of October acute respiratory disease morbidity reached epidemic levels in 43% of USSR cities (26 of 60) that have surveillance for influenza-like illness. Influenza A(H1N1) and A(H3N2) viruses have been isolated in some cities in the USSR, and there is also preliminary serological evidence of influenza B virus in the country.

Other Reports. In September, an outbreak in a boys' boarding school in England affected about one-third of the students. The outbreak ended within 10 days; influenza A(H1N1) virus was isolated from one student. In November, isolates of A(H1N1) were reported in association with sporadically occurring cases in the German Democratic Republic, the Federal Republic of Germany, and the Democratic Peoples Republic of Korea. Serologic testing implicated influenza A(H1N1) in sporadically occurring cases in France and Norway during November and in outbreaks of influenza-like illness in Jamaica during October.

Influenza type A(H3N2) has been reported in association with sporadically occurring cases in the Democratic Peoples Republic of Korea.

Between late September and early November, influenza B virus was isolated from three children during an outbreak in Panama and from two patients with sporadically occurring cases in Senegal. Serologic testing has also implicated influenza B in sporadically occurring cases in France.

In Turkey, widespread outbreaks of clinically diagnosed influenza among children have forced some schools to close.

Reported by State and Territorial Epidemiologists; State Laboratory Directors; E Petersen, MD, L Minnich, G Ray, MD, University Medical Center, Tucson, Arizona; G Meiklejohn, MD, University of Colorado Medical Center; J Critchon, MD, Helena, Montana; National Influenza Centers, Microbiology and Immunology Support Svcs, World Health Organization, Geneva; AN Slepushkin, V Zdhanov, Ivanovsky Institute of Virology, Academy of Medical Sciences of the USSR, Moscow; WHO Collaborating Center for Influenza, Influenza Br, Div of Viral Diseases, Center for Infectious Diseases, CDC.

FIGURE 3. States reporting isolates of influenza virus type A(H1N1) — United States, October 1, 1986-December 13, 1986

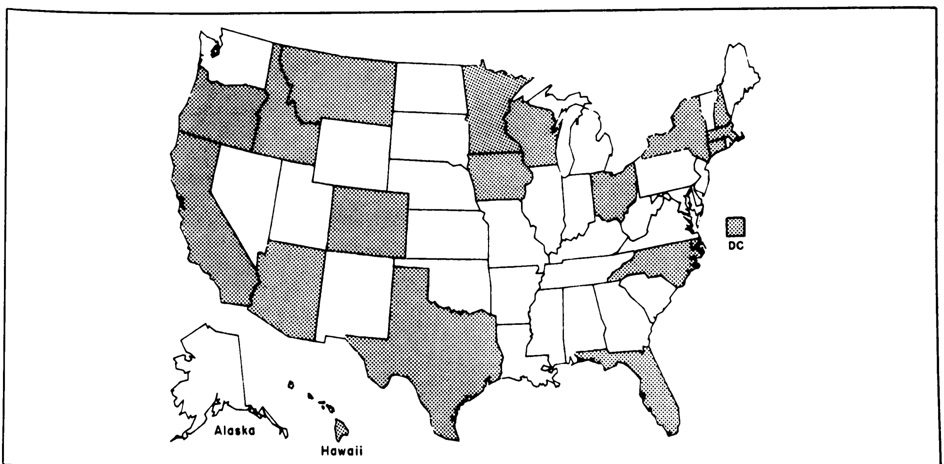
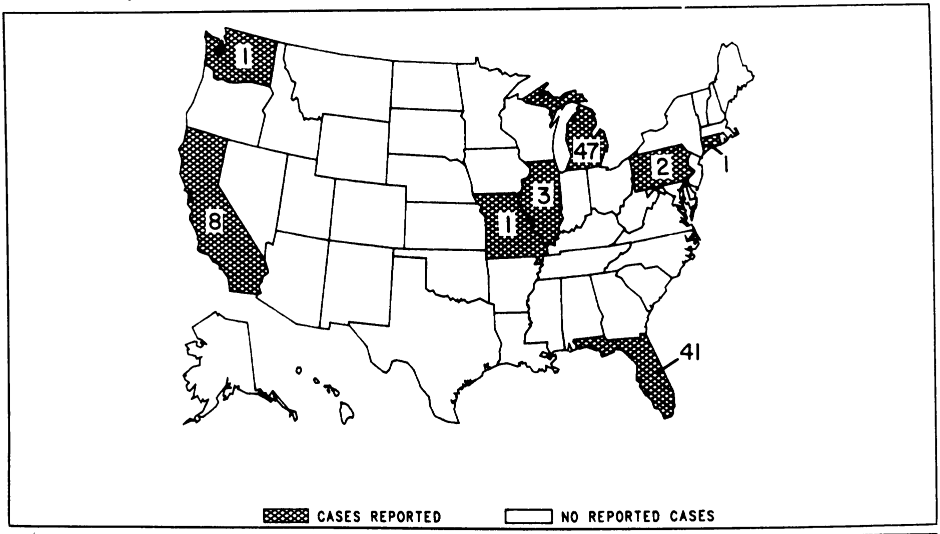


FIGURE I. Reported measles cases — United States, weeks 46-49, 1986



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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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