CENTERS FOR DISEASE CONTROL

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MORBIDITY AND MORTALITY WEEKLY REPORT

Epidemiologic Notes and Reports

Henoch-Schönlein Purpura — Connecticut

Between August 13 and December 15, 1987, a cluster of 20 cases of Henoch-Schönlein Purpura (HSP) involving children under 10 years of age was identified in Connecticut. In contrast, eight cases had been identified in the state during the first 7 months of the year. HSP is a vasculitis that involves the skin and other organ systems and primarily affects children.

The cluster was initially noted by a Hartford pediatric nephrologist who was consulted regarding eight children, four of whom became ill over a 2-week period. The Connecticut Department of Health Services then identified other cases by calling approximately 100 practicing pediatricians and members of all nine hospital pediatric departments in Hartford County. In addition, selected pediatric group practices and all teaching hospitals with pediatric or family practice training programs throughout the state were contacted.

Ten cases were identified in Hartford County, where case finding was the most intensive. Six of the ten patients lived in the city of Hartford and had onset of symptoms between October 15 and November 25 (attack rate for the city of Hartford, 2.9/10,000 children under 10 years of age). The other four lived in surrounding towns (0.5/10,000 children). Hispanic children accounted for five cases in Hartford County and had an attack rate more than five times that of either black or white children (Hispanic children, 4.0/10,000; black children, 0.8/10,000; white children, 0.5/10,000). The ten cases outside of Hartford County involved eight white and two Asian children. No confirmed cases were found in Bridgeport, a city with a demographic composition similar to Hartford's.

All 20 children had a rash characteristic of HSP. Sixteen children developed arthritis, 16 had abdominal pain, and at least five had microscopic hematuria. Ten children were hospitalized. None died or developed serious complications.

To increase case finding, a letter requesting reports of all cases seen since January 1, 1987, has been sent to all pediatricians and all family practitioners in the state. A statewide case-control study to identify risk factors for acquiring the illness is under way.

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Purpura — Continued

Editorial Note: HSP is identified by a characteristic rash most prominent on the buttocks and legs and is often associated with arthritis of the knee or ankle, abdominal cramping, or hematuria (*1*). As in this outbreak, the prognosis for the disease is generally good. However, a small percentage of children develop chronic glomerulonephritis (*1,2*). The number of children in the United States with renal failure resulting from HSP is unknown; however, it has been estimated that HSP is the cause of renal failure for 15% of the children on dialysis in Europe (*3*).

Because HSP is not generally a reportable disease, the incidence of the disease in the United States is unknown. Series of cases in the literature indicate seasonal changes in the incidence; the largest number of cases usually occur in the winter (*2,4*). An extensive search of the literature did not reveal any previous reports of clusters of HSP or of a predilection for Hispanic or urban children. The etiology of HSP is unknown; however, it is believed to be caused by an immunologic response to a variety of different stimuli (*5*). In individual cases, it has been linked to foods (*6*), medicines (*7*), toxins (*8*), insect bites (*9*), and various infectious agents (*10-13*). Approximately two-thirds of the children in three large clusters of HSP reported symptoms of an upper respiratory infection during the month before onset (*1,2,4*). However, no agent was implicated as a cause of the symptoms.

State health departments are requested to notify the Epidemiology Office, Division of Viral Diseases, Center for Infectious Diseases, CDC, of any clusters of HSP. Investigation of clusters may identify agents responsible for causing HSP and may ultimately help in formulating strategies for prevention.

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Acute Hemorrhagic Conjunctivitis Caused by Coxsackie A24 Variant — Puerto Rico

During the period June-October 1987, Puerto Rico experienced an islandwide epidemic of acute hemorrhagic conjunctivitis (AHC). The public health surveillance system for conjunctivitis identified 31,772 cases; a peak of 13,347 cases was reported in September. By December 1987, the number of reported cases was returning to the background level. Further review of the surveillance data revealed an earlier islandwide outbreak of 18,500 cases of AHC from December 1986 to February 1987 (Figure 1).

Laboratory evidence indicates that Coxsackie virus A24 variant (CA24v) was responsible for the most recent epidemic. In September, CA24v was isolated from 17 of 22 cultures of eye swabs from acutely ill patients. Also in September, 13 of 17 patients with conjunctivitis seroconverted to CA24v. In addition, laboratory studies suggest that CA24v had been responsible for the earlier outbreak. Three of seven serum samples obtained from convalescent patients with onset of AHC during the period December 1986-February 1987 yielded antibodies to CA24v. None of the ten controls had antibodies to CA24v.

During the epidemic, the Puerto Rico Department of Health began a campaign to control AHC transmission. They disseminated information emphasizing the importance of good handwashing practices and of not sharing towels or medications. The health department also recommended that symptomatic children be excluded from school.

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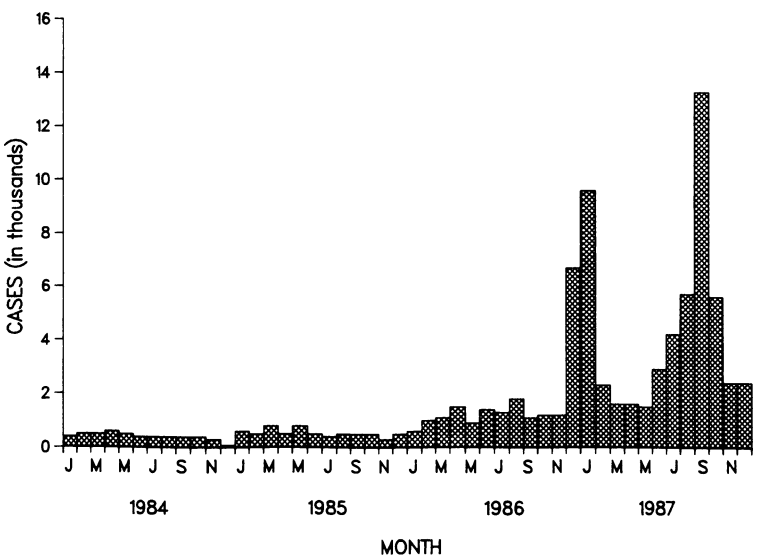
FIGURE 1. Reported cases of conjunctivitis, by month — Puerto Rico, 1984-1987



Conjunctivitis — Continued

Editorial Note: Epidemics of AHC usually occur in tropical climates, are explosive in nature, and primarily affect low-socioeconomic areas. They ordinarily spread rapidly to the majority of a community within a few months (*1*). Transmission is usually person to person or through contact with fomites (e.g., contaminated towels). AHC epidemics in the tropics have been caused by CA24v, enterovirus 70 (EV70), and adenovirus 11 (Ad11). AHC that is caused by CA24v has an incubation period of 1 to 2 days and causes mild to severe symptoms of excessive tearing, redness, foreign body sensation, and palpebral swelling. Both eyes are usually affected, and some patients have subconjunctival hemorrhage and palpebral folliculitis. Recovery is most often complete within 7 days (*1,2*). AHC caused by EV70 has clinical and epidemiologic characteristics similar to those of CA24v-induced AHC; however, the percentage of patients with subconjunctival hemorrhage is usually higher. EV70-induced

(Continued on page 129)

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

Disease	8th Week Ending			Cumulative, 8th Week Ending		
	Feb. 27, 1988	Feb. 28, 1987	Median 1983-1987	Feb. 27, 1988	Feb. 28, 1987	Median 1983-1987
Acquired Immunodeficiency Syndrome (AIDS)	483	773	92	4,151	2,794	874
Aseptic meningitis	50	88	80	545	683	673
Encephalitis: Primary (arthropod-borne & unspec)	6	12	16	91	116	123
Post-infectious	1	1	1	8	9	10
Gonorrhea: Civilian	11,931	17,445	16,561	103,616	131,460	127,190
Military	264	343	387	1,955	2,658	2,962
Hepatitis: Type A	490	512	504	3,575	3,567	3,426
Type B	380	520	484	2,554	3,463	3,463
Non A, Non B	66	52	71	294	418	447
Unspecified	41	68	94	322	521	652
Legionellosis	16	14	12	87	103	87
Leprosy	-	7	7	12	36	36
Malaria	15	10	15	89	98	98
Measles: Total*	61	57	57	275	243	243
Indigenous	57	32	32	262	178	178
Imported	4	25	6	13	65	33
Meningococcal infections	76	72	76	493	585	475
Mumps	81	635	80	559	2,552	514
Pertussis	65	40	41	233	279	254
Rubella (German measles)	4	3	5	19	32	56
Syphilis (Primary & Secondary): Civilian	898	675	593	5,506	5,091	4,474
Military	3	2	3	29	43	43
Toxic Shock syndrome	4	4	7	36	45	60
Tuberculosis	338	415	392	2,398	2,589	2,589
Tularemia	1	1	1	14	11	11
Typhoid Fever	5	1	7	46	29	39
Typhus fever, tick-borne (RMSF)	2	1	-	11	7	7
Rabies, animal	40	91	97	382	563	616

TABLE II. Notifiable diseases of low frequency, United States

	Cum. 1988		Cum. 1988
Anthrax	-	Leptospirosis	4
Botulism: Foodborne	4	Plague	-
Infant	4	Poliomyelitis, Paralytic	-
Other	2	Psittacosis (Mich. 1, Oreg. 1)	15
Brucellosis	5	Rabies, human	-
Cholera	-	Tetanus (Md. 1)	4
Congenital rubella syndrome	-	Trichinosis	3
Congenital syphilis, ages < 1 year	-		
Diphtheria	-		

*Four of the 61 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 February 27, 1988 and February 28, 1987 (8th Week)

Reporting Area	AIDS	Aseptic Meningitis	Encephalitis		Gonorrhea (Civilian)		Hepatitis (Viral), by type				Legionellosis	Leprosy
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
	Cum. 1988	Cum. 1988	Cum. 1988	Cum. 1988	Cum. 1988	Cum. 1987	Cum. 1988	Cum. 1988	Cum. 1988	Cum. 1988	Cum. 1988	Cum. 1988
UNITED STATES	4,151	545	91	8	103,616	131,460	3,575	2,554	294	322	87	12
NEW ENGLAND	195	29	4	-	3,095	4,645	119	184	45	24	2	3
Maine	8	2	1	-	74	162	8	11	1	1	1	-
N.H.	4	5	-	-	58	69	6	6	2	-	-	-
Vt.	3	1	2	-	25	29	2	5	1	-	-	-
Mass.	106	13	1	-	1,004	1,736	75	137	38	22	1	3
R.I.	7	7	-	-	266	377	20	15	2	-	-	-
Conn.	67	1	-	-	1,668	2,272	8	10	1	1	-	-
MID. ATLANTIC	1,360	60	9	-	13,160	20,742	196	236	18	22	15	1
Upstate N.Y.	245	37	8	-	1,821	2,692	124	72	9	2	14	-
N.Y. City	648	5	1	-	4,900	11,755	21	79	-	14	-	1
N.J.	326	18	-	-	2,139	1,939	51	85	9	6	-	-
Pa.	141	-	-	-	4,300	4,356	-	-	-	-	1	-
E.N. CENTRAL	322	85	14	-	16,801	17,527	398	271	14	18	25	-
Ohio	66	42	7	-	3,651	3,664	285	96	5	1	10	-
Ind.	16	8	2	-	1,364	1,087	9	20	-	6	1	-
Ill.	135	-	-	-	5,073	5,416	11	10	-	1	-	-
Mich.	89	32	3	-	5,682	5,753	85	135	8	10	12	-
Wis.	16	3	2	-	1,031	1,607	8	10	1	-	2	-
W.N. CENTRAL	102	23	6	2	4,113	5,354	242	117	12	1	8	-
Minn.	28	8	1	-	598	911	6	16	1	1	-	-
Iowa	6	4	4	-	332	554	10	16	4	-	3	-
Mo.	40	4	-	-	2,314	2,645	105	62	4	-	1	-
N. Dak.	-	-	-	-	23	70	1	-	-	-	-	-
S. Dak.	3	4	-	1	82	118	-	1	-	-	2	-
Nebr.	9	-	1	1	256	301	18	11	1	-	2	-
Kans.	16	3	-	-	508	755	102	11	2	-	-	-
S. ATLANTIC	580	123	11	3	28,530	34,424	168	514	29	61	17	-
Del.	10	4	1	-	432	489	1	16	1	1	2	-
Md.	58	11	1	-	2,665	3,448	28	69	2	1	2	-
D.C.	65	3	-	-	1,699	2,093	2	2	2	-	-	-
Va.	58	11	5	1	2,219	2,768	10	31	5	41	1	-
W. Va.	3	4	1	-	257	218	1	8	1	3	-	-
N.C.	50	25	2	-	4,659	5,109	30	110	8	5	8	-
S.C.	28	2	-	-	2,338	3,331	4	112	2	1	2	-
Ga.	118	12	1	-	5,373	5,756	20	55	1	1	1	-
Fla.	190	51	-	2	8,888	11,212	72	111	7	8	1	-
E.S. CENTRAL	126	34	9	1	8,290	9,513	78	154	21	4	6	1
Ky.	4	17	3	-	736	962	68	20	8	2	3	-
Tenn.	72	3	3	-	2,502	3,320	7	68	9	-	1	-
Ala.	34	11	3	1	3,010	3,204	-	62	4	2	2	1
Miss.	16	3	-	-	2,042	2,027	3	4	-	-	-	-
W.S. CENTRAL	300	29	1	-	12,760	15,077	308	140	12	47	1	-
Ark.	16	1	1	-	1,025	1,482	23	8	-	1	-	-
La.	59	2	-	-	3,206	3,126	5	31	2	3	-	-
Okla.	12	4	-	-	1,038	1,594	129	28	3	7	1	-
Tex.	213	22	-	-	7,491	8,875	151	73	7	36	-	-
MOUNTAIN	191	24	8	1	2,264	3,387	536	249	29	45	8	-
Mont.	4	-	-	-	60	76	14	10	1	2	-	-
Idaho	1	-	-	-	51	128	23	14	1	-	-	-
Wyo.	1	-	-	-	29	55	1	2	2	-	1	-
Colo.	63	10	2	-	635	697	24	39	3	19	4	-
N. Mex.	10	-	-	-	232	373	100	28	1	-	-	-
Ariz.	72	6	2	-	700	1,183	286	109	12	16	1	-
Utah	14	6	3	1	104	146	62	16	7	7	2	-
Nev.	26	2	1	-	453	729	26	31	2	1	-	-
PACIFIC	975	138	29	1	14,603	20,791	1,530	689	114	100	5	7
Wash.	58	-	-	-	1,070	1,415	216	54	11	9	2	-
Oreg.	44	-	-	-	529	723	348	117	15	4	-	-
Calif.	845	116	28	1	12,654	18,088	904	502	85	84	1	7
Alaska	6	4	-	-	198	375	62	10	2	3	-	-
Hawaii	22	18	1	-	152	190	-	6	1	-	2	-
Guam	-	-	-	-	20	40	1	1	-	2	-	-
P.R.	99	4	1	-	268	394	2	35	3	7	-	-
V.I.	1	-	-	-	56	34	-	1	-	-	-	-
Amer. Samoa	-	-	-	-	-	73	-	-	-	-	-	-
C.N.M.I.	-	-	-	-	7	17	-	1	-	-	-	-

N: Not notifiable U: Unavailable C.N.M.I.: Commonwealth of the Northern Mariana Islands

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending February 27, 1988 and February 28, 1987 (8th Week)

Reporting Area	Malaria	Measles (Rubeola)					Menin-gococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported*		Total									
	Cum. 1988	1988	Cum. 1988	1988	Cum. 1988	Cum. 1987	Cum. 1988	1988	Cum. 1988	1988	Cum. 1988	Cum. 1987	1988	Cum. 1988	Cum. 1987
UNITED STATES	89	57	262	4	13	243	493	81	559	65	233	279	4	19	32
NEW ENGLAND	11	-	1	-	-	6	47	1	3	21	41	5	-	-	-
Maine	1	-	-	-	-	-	-	-	-	10	10	-	-	-	-
N.H.	-	-	-	-	-	-	5	-	2	1	16	1	-	-	-
Vt.	-	-	-	-	-	6	2	-	-	-	-	1	-	-	-
Mass.	7	-	1	-	-	-	23	1	1	9	10	2	-	-	-
R.I.	2	-	-	-	-	-	9	-	-	-	-	-	-	-	-
Conn.	1	-	-	-	-	-	8	-	-	1	5	1	-	-	-
MID. ATLANTIC	11	6	55	-	-	52	37	6	34	2	10	31	-	-	-
Upstate N.Y.	7	-	-	-	-	9	23	2	12	1	5	22	-	-	-
N.Y. City	2	-	4	-	-	27	4	-	-	-	-	-	-	-	-
N.J.	2	-	-	-	-	1	10	2	10	1	1	1	-	-	-
Pa.	-	6	51	-	-	15	-	2	12	-	4	8	-	-	-
E.N. CENTRAL	2	1	9	-	-	34	55	18	153	2	16	47	1	1	6
Ohio	-	-	-	-	-	4	23	-	19	-	2	19	-	-	-
Ind.	-	-	-	-	-	-	3	-	14	1	5	-	-	-	-
Ill.	-	-	-	-	-	8	2	2	8	-	-	1	-	-	5
Mich.	2	1	9	-	-	22	20	16	77	1	7	9	1	1	1
Wis.	-	-	-	-	-	-	7	-	35	-	2	18	-	-	-
W.N. CENTRAL	2	-	-	-	-	-	19	2	45	-	15	21	-	-	-
Minn.	1	-	-	-	-	-	3	-	-	-	-	2	-	-	-
Iowa	-	-	-	-	-	-	-	1	19	-	5	2	-	-	-
Mo.	1	-	-	-	-	-	9	-	10	-	2	9	-	-	-
N. Dak.	-	-	-	-	-	-	-	-	-	-	5	1	-	-	-
S. Dak.	-	-	-	-	-	-	-	-	-	-	2	1	-	-	-
Nebr.	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-
Kans.	-	-	-	-	-	-	6	1	15	-	1	6	-	-	-
S. ATLANTIC	13	22	23	1	4	-	89	8	40	4	28	66	-	-	2
Del.	-	-	-	-	-	-	-	-	-	1	2	-	-	-	-
Md.	2	-	-	-	2	-	9	-	2	1	6	-	-	-	-
D.C.	3	-	-	-	-	-	3	2	13	-	-	-	-	-	-
Va.	3	-	-	-	-	-	10	-	4	-	2	20	-	-	-
W. Va.	-	-	-	-	-	-	-	1	2	-	-	19	-	-	-
N.C.	1	-	-	-	1	-	16	3	7	2	15	22	-	-	-
S.C.	3	-	-	-	-	-	9	-	3	-	-	-	-	-	-
Ga.	-	-	-	-	-	-	10	-	2	-	3	4	-	-	-
Fla.	1	22	23	1†	1	-	32	2	7	-	-	1	-	-	2
E.S. CENTRAL	2	-	-	-	-	-	46	12	82	3	7	5	-	-	2
Ky.	-	-	-	-	-	-	6	-	10	-	-	1	-	-	2
Tenn.	-	-	-	-	-	-	27	12	70	3	6	-	-	-	-
Ala.	2	-	-	-	-	-	12	-	1	-	-	2	-	-	-
Miss.	-	-	-	-	-	-	1	N	N	-	1	2	-	-	-
W.S. CENTRAL	11	7	7	-	-	3	21	16	60	1	1	14	1	1	-
Ark.	-	-	-	-	-	-	3	-	1	-	-	1	1	1	-
La.	1	-	-	-	-	-	2	11	24	1	1	2	-	-	-
Okla.	4	7	7	-	-	1	-	-	9	-	-	11	-	-	-
Tex.	6	-	-	-	-	2	16	5	26	-	-	-	-	-	-
MOUNTAIN	3	20	122	-	-	36	19	6	35	20	58	26	-	1	1
Mont.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Idaho	-	-	-	-	-	-	1	-	-	18	50	15	-	-	-
Wyo.	-	-	-	-	-	-	-	-	1	-	1	2	-	-	-
Colo.	2	20	122	-	-	-	7	4	8	1	3	7	-	-	-
N. Mex.	-	-	-	-	-	35	6	N	N	-	-	1	-	-	-
Ariz.	-	-	-	-	-	1	3	2	22	-	1	-	-	-	-
Utah	-	-	-	-	-	-	2	-	1	-	2	1	-	-	1
Nev.	1	-	-	-	-	-	-	-	3	1	1	-	-	1	-
PACIFIC	34	1	45	3	9	112	160	12	107	12	57	64	2	16	21
Wash.	2	-	-	-	-	-	11	1	2	3	9	9	-	-	-
Oreg.	3	-	-	-	-	21	11	N	N	-	2	9	-	-	1
Calif.	28	1	45	3†	8	90	131	11	102	1	28	37	2	14	18
Alaska	1	-	-	-	-	-	1	-	3	-	1	2	-	-	-
Hawaii	-	-	-	-	1	1	6	-	-	8	17	7	-	2	2
Guam	-	-	-	-	-	1	-	1	1	-	-	-	-	1	-
P.R.	1	20	20	-	-	-	3	-	2	-	-	5	-	-	1
V.I.	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-
Amer. Samoa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C.N.M.I.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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

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

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending February 27, 1988 and February 28, 1987 (8th Week)

Reporting Area	Syphilis (Civilian) (Primary & Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1988	Cum. 1987	Cum. 1988	Cum. 1988	Cum. 1987	Cum. 1988	Cum. 1988	Cum. 1988	Cum. 1988
UNITED STATES	5,506	5,091	36	2,398	2,589	14	46	11	382
NEW ENGLAND	148	71	4	39	56	-	6	-	2
Maine	2	-	1	2	7	-	-	-	-
N.H.	2	1	2	-	3	-	-	-	2
Vt.	-	-	-	-	1	-	-	-	-
Mass.	54	44	1	23	16	-	4	-	-
R.I.	6	-	-	5	4	-	-	-	-
Conn.	84	26	-	9	25	-	2	-	-
MID. ATLANTIC	1,032	675	5	467	467	-	5	-	43
Upstate N.Y.	62	29	3	94	91	-	1	-	-
N.Y. City	714	429	-	176	211	-	1	-	-
N.J.	121	90	1	93	90	-	3	-	-
Pa.	135	127	1	104	75	-	-	-	43
E.N. CENTRAL	178	164	4	332	329	1	-	-	9
Ohio	18	11	3	65	62	-	-	-	-
Ind.	16	6	-	19	19	-	-	-	-
Ill.	80	112	-	140	130	-	-	-	2
Mich.	61	22	1	89	109	1	-	-	2
Wis.	3	13	-	19	9	-	-	-	5
W.N. CENTRAL	28	25	6	62	76	6	1	-	57
Minn.	2	4	-	12	13	-	1	-	28
Iowa	2	4	1	6	6	-	-	-	13
Mo.	14	13	3	26	48	5	-	-	1
N. Dak.	1	-	-	1	1	-	-	-	4
S. Dak.	1	1	-	10	2	-	-	-	6
Nebr.	4	2	1	-	3	1	-	-	1
Kans.	4	1	1	7	3	-	-	-	4
S. ATLANTIC	1,916	1,744	5	528	538	1	9	9	128
Del.	27	16	-	3	6	1	-	-	-
Md.	105	84	1	36	45	-	-	-	41
D.C.	93	55	-	26	16	-	-	-	-
Va.	63	40	-	63	58	-	5	-	35
W. Va.	1	1	-	13	21	-	-	-	7
N.C.	124	115	3	40	60	-	1	9	-
S.C.	100	112	-	57	63	-	-	-	9
Ga.	297	263	-	73	52	-	2	-	29
Fla.	1,106	1,058	1	217	217	-	1	-	7
E.S. CENTRAL	356	362	5	187	271	3	-	1	18
Ky.	11	3	2	56	53	3	-	-	11
Tenn.	148	161	2	48	76	-	-	1	-
Ala.	111	84	1	69	89	-	-	-	7
Miss.	86	114	-	14	53	-	-	-	-
W.S. CENTRAL	605	732	1	243	243	1	1	-	52
Ark.	22	33	-	17	16	-	-	-	11
La.	107	116	-	50	63	-	1	-	-
Okla.	31	25	1	27	25	1	-	-	4
Tex.	445	558	-	149	139	-	-	-	37
MOUNTAIN	111	112	3	36	68	2	2	1	34
Mont.	2	4	-	-	2	-	1	-	25
Idaho	-	1	1	-	8	-	-	1	-
Wyo.	-	-	-	-	-	-	-	-	3
Colo.	15	18	1	5	13	2	1	-	-
N. Mex.	13	11	-	13	14	-	-	-	3
Ariz.	19	58	-	12	27	-	-	-	3
Utah	6	-	1	-	1	-	-	-	-
Nev.	56	20	-	6	3	-	-	-	-
PACIFIC	1,132	1,206	3	504	541	-	22	-	39
Wash.	14	23	-	23	19	-	2	-	-
Oreg.	44	24	-	17	15	-	3	-	-
Calif.	1,068	1,158	3	433	463	-	15	-	37
Alaska	-	-	-	7	9	-	-	-	2
Hawaii	6	1	-	24	35	-	2	-	-
Guam	-	1	-	-	2	-	-	-	-
P.R.	101	164	-	29	33	-	-	-	8
V.I.	1	2	-	-	1	-	-	-	-
Amer. Samoa	-	46	-	-	16	-	-	-	-
C.N.M.I.	-	-	-	-	-	-	-	-	-

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending February 27, 1988 (8th Week)

Reporting Area	All Causes, By Age (Years)						P&I**
	All Ages	≥65	45-64	25-44	1-24	<1	Total
NEW ENGLAND	802	582	127	50	24	19	70
Boston, Mass.	210	138	38	16	8	10	27
Bridgeport, Conn.	63	49	10	3	1	-	5
Cambridge, Mass.	29	25	4	-	-	-	2
Fall River, Mass.	43	38	5	-	-	-	1
Hartford, Conn.	80	54	14	6	4	2	3
Lowell, Mass.	20	16	3	-	1	-	1
Lynn, Mass.	21	18	1	1	1	-	1
New Bedford, Mass.	26	22	2	2	-	-	1
New Haven, Conn.	58	40	5	6	5	2	4
Providence, R.I.	90	63	18	8	1	-	12
Somerville, Mass.	10	7	2	-	1	-	-
Springfield, Mass.	62	49	9	1	-	3	7
Waterbury, Conn.	33	21	6	4	1	1	2
Worcester, Mass.	57	42	10	3	1	1	4
MID. ATLANTIC	3,127	2,111	571	297	76	71	181
Albany, N.Y.	61	43	11	1	3	3	1
Allentown, Pa.	20	18	2	-	-	-	-
Buffalo, N.Y.	172	111	37	15	6	3	18
Camden, N.J.	36	25	6	1	1	3	-
Elizabeth, N.J.	24	19	5	-	-	-	1
Erie, Pa.†	43	36	6	1	-	-	4
Jersey City, N.J.	96	49	19	14	6	7	3
N.Y. City, N.Y.	1,610	1,059	306	187	34	24	67
Newark, N.J.	68	30	12	15	3	8	3
Paterson, N.J.	45	26	4	10	3	2	8
Philadelphia, Pa.	518	364	91	33	15	15	36
Pittsburgh, Pa.†	73	50	18	3	1	1	3
Reading, Pa.	38	32	5	-	1	-	2
Rochester, N.Y.	102	76	18	5	1	2	13
Schenectady, N.Y.	26	22	3	1	-	-	2
Scranton, Pa.†	27	27	-	-	-	-	1
Syracuse, N.Y.	73	51	16	3	-	3	10
Trenton, N.J.	39	26	8	4	1	-	4
Utica, N.Y.	24	23	-	1	-	-	2
Yonkers, N.Y.	32	24	4	3	1	-	3
E.N. CENTRAL	2,483	1,667	540	135	50	91	140
Akron, Ohio	54	41	9	1	-	3	2
Canton, Ohio	41	26	15	-	-	-	5
Chicago, Ill.§	564	362	125	45	10	22	16
Cincinnati, Ohio	159	108	34	8	2	7	20
Cleveland, Ohio	161	88	51	8	3	11	4
Columbus, Ohio	119	82	22	6	3	6	3
Dayton, Ohio	127	97	24	4	1	1	2
Detroit, Mich.	319	189	76	30	7	17	15
Evansville, Ind.	73	59	10	4	-	-	6
Fort Wayne, Ind.	60	37	16	3	4	-	6
Gary, Ind.	14	8	3	-	2	1	1
Grand Rapids, Mich.	56	40	13	1	1	1	5
Indianapolis, Ind.	186	130	40	3	4	9	6
Madison, Wis.	43	35	2	3	3	-	5
Milwaukee, Wis.	164	111	34	6	5	8	9
Peoria, Ill.	52	40	10	1	-	1	12
Rockford, Ill.	54	37	13	2	1	1	6
South Bend, Ind.	46	30	8	6	1	1	3
Toledo, Ohio	120	90	22	4	2	2	11
Youngstown, Ohio	71	57	13	-	1	-	3
W.N. CENTRAL	863	608	158	47	18	32	46
Des Moines, Iowa	75	60	10	2	1	2	4
Duluth, Minn.	22	18	2	-	-	2	2
Kansas City, Kans.	47	36	7	3	-	1	1
Kansas City, Mo.	134	102	22	4	4	2	11
Lincoln, Nebr.	60	40	12	3	3	2	7
Minneapolis, Minn.	120	82	19	11	3	5	4
Omaha, Nebr.	98	57	30	3	3	5	6
St. Louis, Mo.§	156	103	31	12	3	7	5
St. Paul, Minn.	69	46	13	5	1	4	1
Wichita, Kans.	82	64	12	4	-	2	5

Reporting Area	All Causes, By Age (Years)						P&I**
	All Ages	≥65	45-64	25-44	1-24	<1	Total
S. ATLANTIC	1,540	950	357	161	39	33	79
Atlanta, Ga.	203	126	48	22	5	2	9
Baltimore, Md.	329	216	69	29	8	7	23
Charlotte, N.C.	95	52	32	5	1	5	5
Jacksonville, Fla.	118	77	24	10	7	-	10
Miami, Fla.	124	65	35	19	2	3	-
Norfolk, Va.	76	44	21	6	1	4	3
Richmond, Va.	89	56	24	6	1	2	7
Savannah, Ga.	34	23	3	6	1	1	3
St. Petersburg, Fla.	131	102	19	5	3	2	9
Tampa, Fla.	63	40	11	7	1	4	3
Washington, D.C.	224	112	59	44	6	3	6
Wilmington, Del.	54	37	12	2	3	-	1
E.S. CENTRAL	859	565	195	47	17	35	55
Birmingham, Ala.	138	80	39	9	4	6	2
Chattanooga, Tenn.	51	40	8	2	-	1	7
Knoxville, Tenn.	83	59	19	1	1	3	10
Louisville, Ky.	132	88	30	9	-	5	5
Memphis, Tenn.	145	78	42	8	5	12	11
Mobile, Ala.	99	69	20	4	4	2	3
Montgomery, Ala.	59	47	4	6	1	1	2
Nashville, Tenn.	152	104	33	8	2	5	15
W.S. CENTRAL	1,522	1,012	296	128	53	32	106
Austin, Tex.	75	58	10	2	2	3	9
Baton Rouge, La.	37	26	9	-	1	1	3
Corpus Christi, Tex.	62	46	4	6	6	-	6
Dallas, Tex.	211	135	44	20	6	6	9
El Paso, Tex.	69	40	14	11	4	-	7
Fort Worth, Tex	113	80	20	7	2	4	10
Houston, Tex.§	308	176	74	34	13	11	7
Little Rock, Ark.	72	47	19	5	1	-	6
New Orleans, La.	160	110	30	10	8	2	-
San Antonio, Tex.	271	194	41	25	7	3	37
Shreveport, La.	33	24	7	2	-	-	-
Tulsa, Okla.	111	76	24	6	3	2	12
MOUNTAIN	732	497	128	60	18	29	60
Albuquerque, N. Mex.	100	65	17	12	2	4	3
Colo. Springs, Colo.	45	35	8	1	-	1	7
Denver, Colo.	108	63	16	14	5	10	7
Las Vegas, Nev.	114	73	25	12	3	1	13
Ogden, Utah	28	22	4	1	-	1	4
Phoenix, Ariz.	131	96	17	8	2	8	11
Pueblo, Colo.	27	13	8	3	3	-	4
Salt Lake City, Utah	49	36	9	2	2	-	-
Tucson, Ariz.	130	94	24	7	1	4	11
PACIFIC	2,293	1,592	391	189	58	52	165
Berkeley, Calif.	12	9	2	1	-	-	1
Fresno, Calif.	53	34	12	4	1	2	4
Glendale, Calif.	40	33	7	-	-	-	4
Honolulu, Hawaii	70	54	9	3	1	3	11
Long Beach, Calif.	142	108	18	7	5	4	22
Los Angeles Calif.	586	417	86	50	17	9	21
Oakland, Calif.	78	49	15	7	4	3	5
Pasadena, Calif.	35	29	3	1	1	1	3
Portland, Oreg.	167	124	27	10	3	3	11
Sacramento, Calif.	187	125	37	16	2	7	16
San Diego, Calif.	219	140	41	20	12	3	15
San Francisco, Calif.	212	125	38	40	2	7	6
San Jose, Calif.	245	169	57	16	2	1	23
Seattle, Wash.	136	93	22	12	4	5	2
Spokane, Wash.	61	49	6	1	2	3	17
Tacoma, Wash.	50	34	11	1	2	1	4
TOTAL	14,221††	9,584	2,763	1,114	353	394	902

*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 available 4 weeks.

Conjunctivitis — Continued

AHC has been associated, on rare occasions, with neurological complications (*3*). Such complications were not reported during this outbreak, nor have they been reported in conjunction with CA24v-induced AHC in the past. The clinical characteristics of AHC caused by Ad11 are nearly identical to those caused by EV70 and CA24v, but the incubation period and the illness are slightly longer (*1*).

The etiologic agent of an outbreak of AHC can be identified by serologic studies of all three viruses and by isolation studies of Ad11 and CA24v. In recent years, EV70 has been difficult to isolate, even when cases have been serologically confirmed (*1*).

CA24v has caused large outbreaks of AHC in areas with tropical climates, such as Southeast Asia and the Indian Subcontinent (*1*). In 1986, CA24v was isolated in Taiwan, American Samoa (CDC, unpublished data), and India (*4*). CA24v was first isolated in the Western Hemisphere during the period October-November 1986, in Trinidad, Jamaica, and St. Croix (*5*). Subsequently, CA24v has been isolated from patients with AHC in Panama (*6*) and Mexico (CDC, unpublished data).

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Dengue and Dengue Hemorrhagic Fever in the Americas, 1986

Dengue activity in the American region was higher in 1986 than in other recent years. A total of 88,750 cases was reported (Table 1), whereas 68,998 cases had been reported in 1985, and 43,435, in 1984 (*1,2*). Because of underreporting in many countries, however, the 1986 figure is probably underestimated. In Brazil and Puerto Rico, for example, seroepidemiologic studies indicated that the actual number of dengue infections was many times higher than that reported.

As in previous years, three virus serotypes (DEN-1, DEN-2, and DEN-4) circulated in the region. DEN-2 had the most widespread distribution but was responsible only for small outbreaks in Suriname, French Guiana, and the U.S. Virgin Islands. DEN-1 and DEN-4 were again responsible for the major epidemics in which the virus serotypes were known. Four countries (Mexico, the Dominican Republic, Puerto Rico, and Venezuela) had three virus serotypes circulating simultaneously in 1986.

The large epidemic in Brazil in 1986 was caused by DEN-1. Transmission began in the Rio de Janeiro area in February and was confirmed in Fortaleza and Maceió on the northeastern coast by late summer. Seroepidemiologic studies carried out in two cities in the Rio de Janeiro area indicated that 216,480 dengue infections occurred between March and the end of May. Brazilian health authorities estimated the total number of dengue infections in 1986 at between 300,000 and 500,000.

Dengue — Continued

Mexico continued to have high levels of dengue transmission in 1986, with outbreaks occurring in Veracruz in the east; Nuevo León in the north; Oaxaca in the south; Colima, Jalisco, and Nayarit on the west coast; and Puebla and Morelos in the central part of the country. Three dengue serotypes (DEN-1, DEN-2, and DEN-4) continued to circulate in Mexico, although the outbreaks were all associated with DEN-1 and DEN-4. Some outbreaks occurred at high altitudes (1,500 meters), in Oaxaca and Puebla.

Puerto Rico had a larger number of cases of dengue hemorrhagic fever (DHF) during the 1986 epidemic than at any other time in the past. Multiple virus serotypes (DEN-1, DEN-2, and DEN-4) circulated, but DEN-4 was the predominant virus. Peak transmission occurred during the period September-October, and most of the cases occurred in the San Juan metropolitan area. Officials received reports of 10,659 cases of dengue, but seroepidemiologic studies indicated that between 377,000 and 555,000 dengue infections occurred in 1986. These findings indicate considerable underreporting by the medical community.

Complete details of the dengue outbreaks in Colombia are not available. However, a mixed outbreak of DEN-1 and DEN-2 occurred in the port city of Tumaco in late 1985 and early 1986. Also, a DEN-1 epidemic in Cali began in late 1986 and continued into 1987.

Surveillance data for other countries in the region are incomplete. No information was made available from Guatemala and Belize. Low-level transmission was reported

TABLE 1. Cases of dengue in the Americas, by country, 1986

Country	Number of Cases Reported	Virus Serotype
Belize	1	*
Brazil	47,370	DEN-1
Colombia	6,048	DEN-1, DEN-2
Dominica	6	*
Dominican Republic	6	DEN-1, DEN-2, DEN-4
El Salvador	916	*
French Guiana	229	DEN-2
Guadeloupe	120	*
Haiti	0	DEN-1
Honduras	569	*
Jamaica	3	*
Mexico	21,975	DEN-1, DEN-2, DEN-4
Nicaragua	484	*
Puerto Rico	10,659	DEN-1, DEN-2, DEN-4
Saint Lucia	164	*
Suriname	54	DEN-2
Trinidad	145	DEN-2
Venezuela	0	DEN-1, DEN-2, DEN-4
Virgin Islands	1	DEN-2
Total	**88,750**	

*No information on virus serotypes for these countries.

Dengue — Continued

in El Salvador, Honduras, and Nicaragua. Likewise, Jamaica, Haiti, the Dominican Republic, the Lesser Antilles Islands, and Venezuela reported little or no transmission. This lack of information is misleading, however, because dengue transmission was documented in many of the countries that did not report cases. Moreover, circulation of multiple virus serotypes was confirmed in the Dominican Republic and Venezuela, and cases of severe hemorrhagic disease were confirmed in the Dominican Republic and St. Lucia.

Clinically, most of the illness reported in the Americas in 1986 was still of the classical type. However, DHF was more widespread in 1986, and the trend of yearly increases in sporadically occurring cases of severe hemorrhagic disease has continued. Thus, in 1986 fatal DHF was confirmed in Brazil (4 cases) and Puerto Rico (3 cases). In addition, Puerto Rico had 26 other cases that met the World Health Organization criteria for DHF. Nicaragua, Mexico, the Dominican Republic, and St. Lucia all had sporadically occurring cases of confirmed or suspected DHF.

Reported by: Pan American Health Organization, Washington, DC. Caribbean Epidemiology Center, Port of Spain, Trinidad. Pasteur Institute, Cayenne, French Guiana. Instituto de Salubridad y Enfermedades Tropicales, Mexico City, Mexico. Instituto Nacional de Salud, Bogotá, Colombia. Instituto Nacional de Higiene "Rafael Rangel," Caracas, Venezuela. "Boletin Epidemiologico," Honduras. Puerto Rico Dept of Health, San Juan. Dengue Br, Div of Vector-Borne Viral Diseases, Center for Infectious Diseases, CDC.

Editorial Note: The epidemiology of dengue in the American region is changing. The incidence of dengue in most countries of the region has continued to increase in recent years because of the simultaneous circulation of multiple virus serotypes. This increased incidence has led to the emergence of DHF in many countries of the region.

Current surveillance and epidemiologic data suggest that the disease pattern associated with dengue infection in the Americas is evolving in a manner similar to the pattern that developed in southeast Asia in the 1960s, when DHF was first recognized. Although DHF originally began occurring sporadically, it is now a leading cause of hospitalization and death among children in many countries of southeast Asia (*3*). To avoid DHF epidemics of the magnitude of the 1981 Cuban epidemic, prevention and control programs need to be implemented in the Americas.

A second factor involved in the changing epidemiology of DHF in the Americas is the recent introduction of *Aedes albopictus* into the western hemisphere (*4*). This species has now spread to 17 states in the continental United States and to three states in Brazil. Infestations in other American countries have not yet been documented, although individual specimens of *Ae. albopictus* were identified in imported truck tires in Barbados. The presence of this mosquito species makes the epidemiology of dengue and DHF in the American region similar to that in southeast Asia. While the ultimate significance of the presence of *Ae. albopictus* is not known, it is likely to increase the efficiency of virus maintenance in infested areas. Such an occurrence may result in the increased incidence of dengue infection and, therefore, increase the probability of more severe disease.

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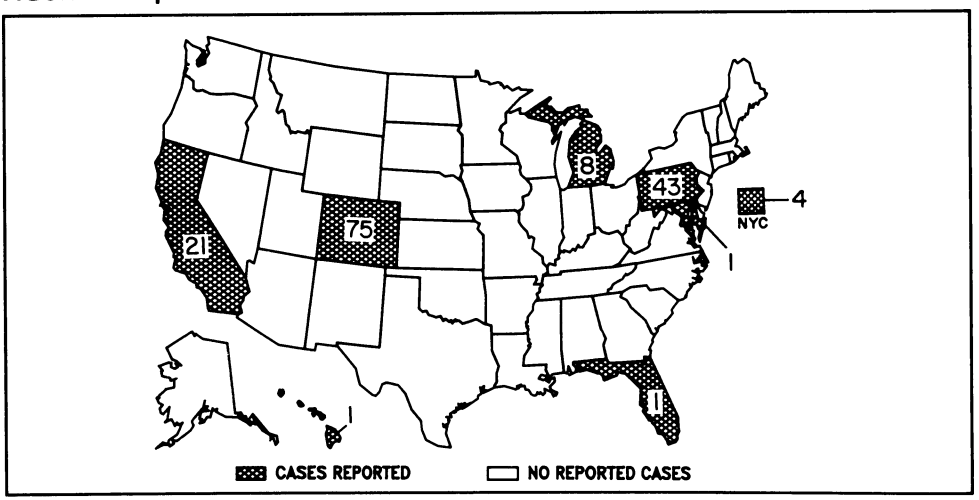
FIGURE I. Reported measles cases – United States, Weeks 4-7, 1988



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

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