CENTERS FOR DISEASE CONTROL

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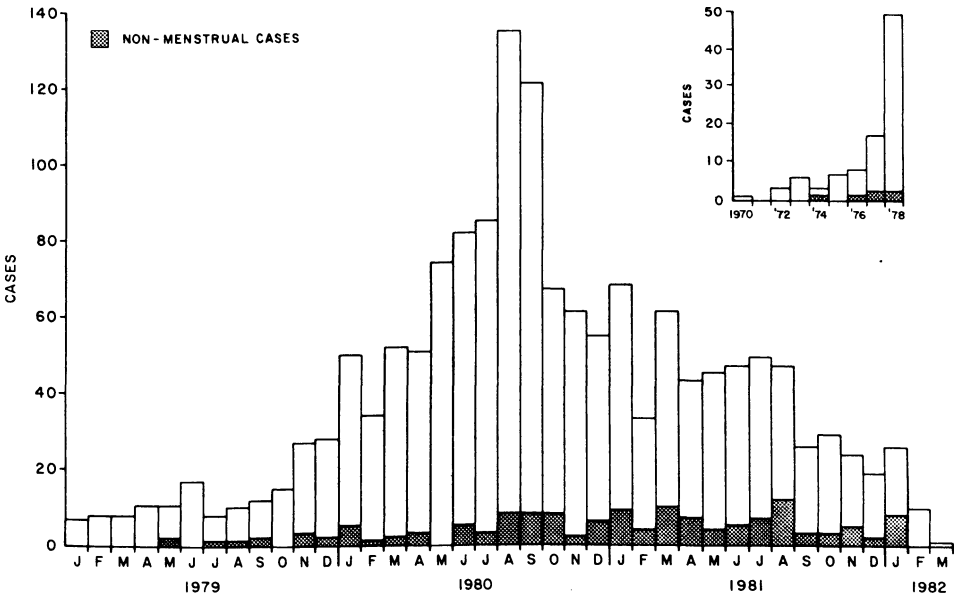
Epidemiologic Notes and Reports

Toxic-Shock Syndrome, United States, 1970-1982

As of April 9, 1982, 1,660 cases of toxic-shock syndrome (TSS) meeting the current CDC case definition* have been reported. To date, 492 cases with onset in 1981 have been reported compared with 867 cases with onset in 1980 (Figure 1). Eighty-eight cases have resulted in death (case-fatality ratio, 5.6% of those with known outcome), including 15 cases in 1981 (case-fatality ratio, 3.3%).

*The current CDC case definition is the original case definition (*1*) with 2 modifications suggested by the Conference of State and Territorial Epidemiologists: 1) orthostatic dizziness is now considered sufficient evidence of hypotension, and 2) the presence of *Staphylococcus aureus* in blood cultures does not exclude a case from consideration. The change in case definition results in the reclassification of fewer than 5% of cases.

FIGURE 1. Confirmed cases of toxic-shock syndrome, United States, January 1970-March 1982*



*Reports received through April 9, 1982.

Toxic-Shock Syndrome — Continued

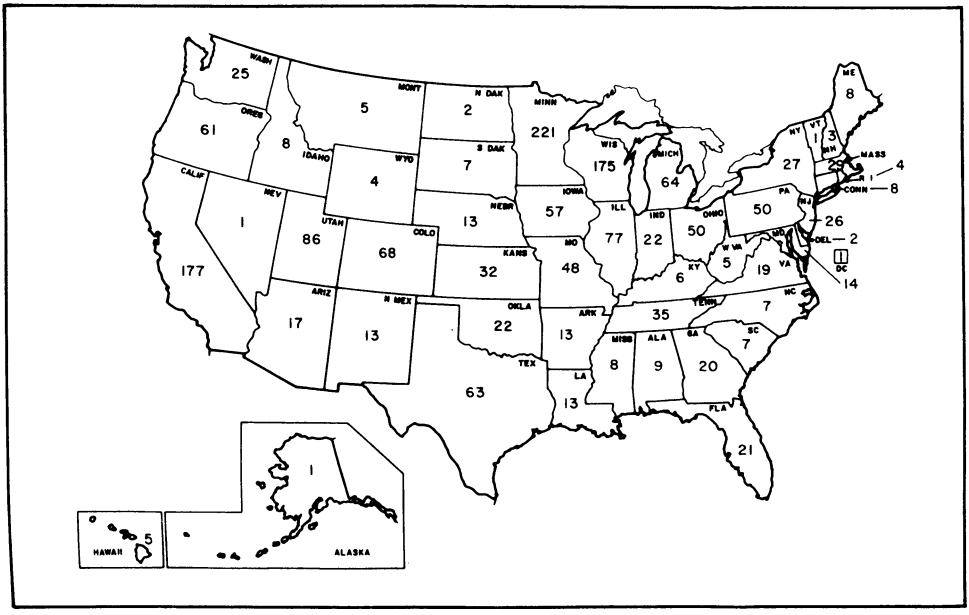
Demographic characteristics were analyzed for those cases for which relevant data were available. A total of 1,588 (96%) cases involved women, of whom at least 92% had onset during a menstrual period. Overall, 154 cases were known to have been unassociated with menstruation. The age range for all female patients was 1-64 years, with a mean of 22.9 years and a median of 21 years. The age range for 55 male patients was 1-75 years, with a mean of 24.5 years and a median of 20 years. Of the 1,355 cases in which the patient's race was known, 1,315 (97%) occurred in white non-Hispanics, including 98% of the menstrual cases and 90% of the nonmenstrual cases.

Nonmenstrual cases accounted for 15% of the reported cases with onset in 1981, compared with 6% of cases with onset before 1981. Nonmenstrual TSS has been seen following childbirth by vaginal delivery and cesarean section and in association with therapeutic abortions, infected surgical wounds, hydradenitis, lymphadenitis, deep abscesses, and infected cutaneous and subcutaneous lesions such as burns, abrasions, lacerations, furuncles, and insect bites.

TSS cases have been reported by all 50 states and the District of Columbia (Figure 2), but 35% of reported cases have come from 3 states, Minnesota, California, and Wisconsin. The 2 states with the highest reported incidence of TSS in 1980, Minnesota and Utah, noted different trends in reporting during the last quarter of 1980 and the first 2 quarters of 1981 (*2,3*). While the number of TSS cases per month reported in Utah declined in late 1980 and early 1981 relative to the number of cases reported in the late summer and early fall of 1980 (Figure 3), no such decrease in reporting was observed in Minnesota (Figure 4).

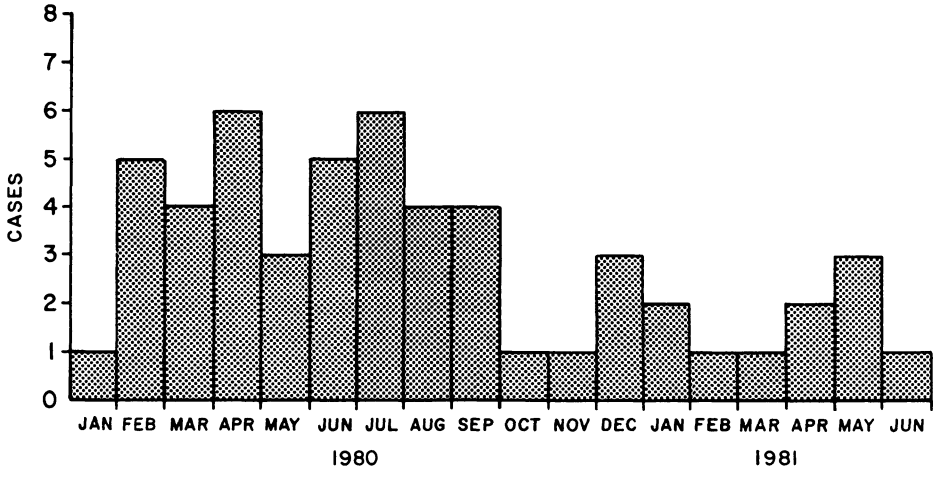
Reported by Conference of State and Territorial Epidemiologists; JC Forfang, MT Osterholm, PhD, MPH, AG Dean, MD, State Epidemiologist, Minnesota Dept of Heath; SJ Stolz, JM Vergeront, JP Davis, MD,

FIGURE 2. Confirmed cases of toxic-shock syndrome, United States, reported as of April 9, 1982



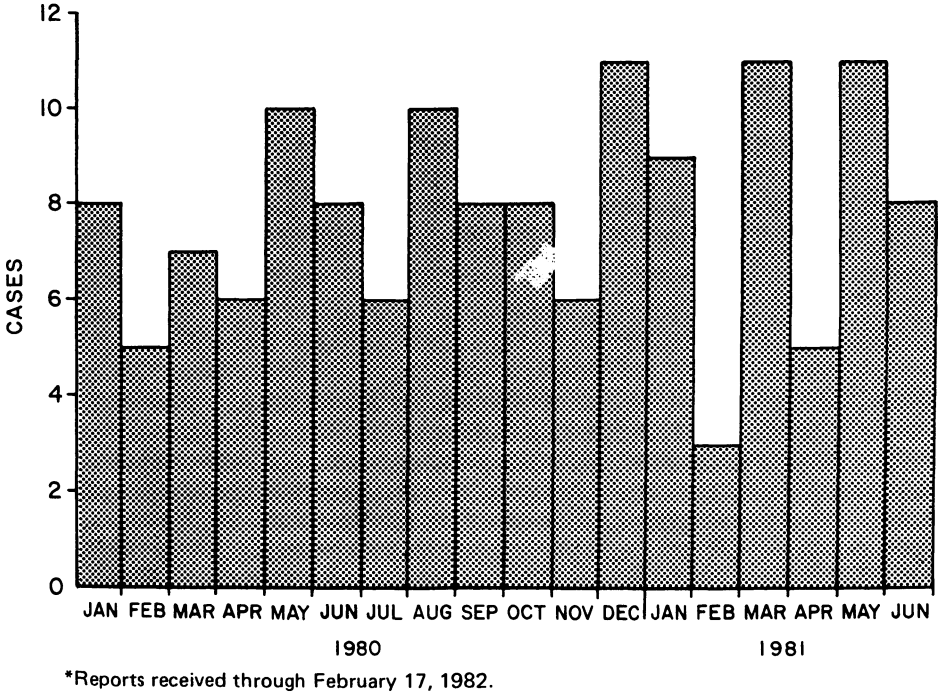
Toxic-Shock Syndrome — Continued

FIGURE 3. Confirmed cases of toxic-shock syndrome, Utah, January 1980-June 1981*



*Reports received through April 9, 1982.

FIGURE 4. Confirmed cases of toxic-shock syndrome, Minnesota, January 1980-June 1981*



*Reports received through February 17, 1982.

Toxic-Shock Syndrome — Continued

State Epidemiologist, Wisconsin Dept of Health and Social Svcs; CR Nichols, RE Johns Jr, MD, State Epidemiologist, Utah Dept of Health; Field Svcs Div, Epidemiology Program Office, Special Pathogens Br, Bacterial Diseases Div, Center for Infectious Diseases, CDC.

Editorial Note: As demonstrated in Figures 1 and 2, TSS continues to occur throughout the United States. CDC is currently receiving approximately 50 case reports a month that meet the revised CDC case definition. The number of cases reported for the most recent months appears low because of delay between the onset of a case and the reporting of that case to CDC.

The observed decrease in reporting of menstrual TSS cases since the summer and early fall of 1980 has been noted previously (*4*). During the same period, the number of nonmenstrual TSS cases reported to CDC has not declined. The extent to which the observed change is due to a decrease in the incidence of TSS, as opposed to a decrease in the reporting of TSS to state health departments and CDC, is not known, although both factors are probably important (*5*).

Factors that might have affected the incidence of menstrual TSS during the last quarter of 1980 and the first half of 1981 include changes in the number of tampon users, in the way in which women use tampons, in the availability and frequency of use of different brands of tampons, in the rate of vaginal carriage of strains of *Staphylococcus aureus* capable of causing TSS, or in other unrecognized factors in the natural history of the disease.

Factors potentially affecting reporting of TSS during this period include increased recognition of the disease, waning media attention and publicity, variable activity of state and local health department surveillance programs, changes in referral patterns, and changes in the treatment of TSS.

TSS continues to be recognized primarily in young white women in association with menstruation and tampon use. However, TSS is also being recognized in an increasingly wide array of clinical settings and in association with staphylococcal infections at a variety of sites. Nonmenstrual TSS accounted for 15% of the cases having onset in 1981. This increase in the proportion of cases that are unassociated with menstruation is due in large part to the decrease in the number of menstrual cases being reported.

At present, it is important that physicians and the general public be aware that TSS continues to occur in association with menstruation and tampon use as well as in other circumstances. All suspected cases of TSS should be reported promptly to the appropriate state health department.

Women can markedly reduce their risk of TSS by not using tampons, and women who choose to wear tampons can reduce their risk by wearing them intermittently during each menstrual period. Informing women about TSS and advising them to remove their tampons and seek medical attention if they develop symptoms of the disease appear to be reasonable public health measures.

References

1. Follow-up on toxic-shock syndrome. MMWR 1980;29:441-5.
2. Osterholm MT, Forfang JC. Toxic shock syndrome in Minnesota: Results of an active-passive surveillance system. J Infect Dis 1982;145:458-64.
3. Latham RH, Kehrberg MW, Jacobson JA, Smith CB. Toxic-shock syndrome in Utah: A review of a case-control study and surveillance. Ann Intern Med (in press).
4. Toxic-shock syndrome—United States, 1970-1980. MMWR 1981;30:25-8, 33.
5. Reingold AL, Hargrett NT, Shands KN, et al. Toxic-shock syndrome surveillance in the United States 1980-81. Ann Intern Med (in press).

Gynecomastia in Haitians — Puerto Rico, Florida, Texas, New York

Since the fall of 1981, gynecomastia has been occurring in Haitian men located in the Immigration and Naturalization Service's (INS) Service Processing Centers. Although no cause has been found, the condition appears to be spontaneously resolving.

In November 1981, several Haitian men at the INS Fort Allen Service Processing Center, Puerto Rico, presented at the Public Health Service Clinic complaining of breast enlargement. Because of this unusual occurrence of gynecomastia, CDC was asked on November 30 to assist in an epidemiologic investigation.

Of 540 male Haitians 18-50 years old examined, 77 (14.3%) had gynecomastia—defined as a palpable, firm, discoid, subareolar, unilateral or bilateral breast mass. Of these 77 persons, 11 had noted the problem in Haiti, and 5 in Miami. Of 187 non-Haitian, male employees of the Center examined, 6 (3.2%) had gynecomastia, and of these, 2 had the problem before the facility opened. The difference in prevalence between Haitians and Center employees was statistically significant ($p < 0.0005$).

After the disorder was recognized in Fort Allen, cases of gynecomastia were found in Haitians in other INS facilities, including the INS Service Processing Center, El Paso, Texas, and the Krome North Service Processing Center, Miami, Florida. Because all Haitians entering the United States and processed by INS are first processed at Krome, further investigation was continued there. On January 4, 1982, examination of the entire Haitian male population at Krome for gynecomastia was completed. Of 522 male Haitians, 52 (10.0%) had gynecomastia. Of these 52, 2 reported to have had the disorder before leaving Haiti. One of 10 non-Haitian aliens processed at Krome also reported the recent development of gynecomastia.

A case-control study was done at Fort Allen and Krome during December and January that consisted of a questionnaire and a physical examination that included examination of the skin, hair, and genitalia and palpation of the thyroid and liver. Preliminary analysis showed no statistically significant differences between cases and controls.

On March 22, 1982, 49 of the 53 patients examined in January were reexamined; 21 patients (43%) had no evidence of gynecomastia, and 15 had a decrease in breast size. Therefore, 36/49 (74%) of the originally detected cases have had either total or partial remission. Most of these 36 occurred among Haitians who arrived by late September 1981.

In March 1982, 18 new cases were detected in Haitian men at Krome who had had no evidence of gynecomastia when examined in January. On March 22, the prevalence at Krome was 46/528 (8.7%).

Surveillance continues for new cases at facilities where Haitians are being detained. Recently, active surveillance detected cases in Brooklyn, New York (4/28 persons screened, 14%) and in Otisville, New York (17/97 persons screened, 18%). No new cases have been reported at Fort Allen.

Analysis of serum specimens from participants in the case-control study for prolactin, luteinizing hormone, testosterone, estradiol, blood-urea-nitrogen, creatinine, serum glutamic oxaloacetic transaminase, serum glutamic pyruvic transaminase, bilirubin, creatine phosphokinase, lactate dehydrogenase, and calcium has not been completed. Screening of urine specimens for drugs that act on the central nervous system and have been associated with gynecomastia was negative (*1*). Milk and eggs obtained in December and January from Fort Allen and Krome were tested for diethylstilbesterol and were negative. In addition, other food items, water, and other environmental agents are being tested for the presence of estrogen or estrogen-like compounds.

Reported by PHS Chief Medical Officers, Fort Allen (Puerto Rico) and Krome North (Miami, Florida) Immi-

Gynecomastia — Continued

gration and Naturalization Service's Service Processing Centers; Center for Environmental Health, Epidemiology Program Office, Quarantine Div, Center for Prevention Svcs, CDC.

Editorial Note: Gynecomastia has been now detected at 5 facilities where Haitians are being detained. Although all male Haitains processed by INS were initially processed at Krome, several of the men with gynecomastia detected at other facilities had been at Krome for less than 2 weeks. Neither the incidence nor the prevalence of gynecomastia in Haiti is known. Although some Haitian entrants may have had gynecomastia before arriving in the United States, there is no question that gynecomastia has developed in Haitian men after arrival.

The epidemiologic findings at Krome show that the cases of gynecomastia there are spontaneously resolving and that the development and resolution of the process appears related to date of arrival. Two possible hypotheses to explain these cases of gynecomastia are 1) that the diet of Haitians improved greatly after they arrived in the United States causing refeeding gynecomastia (*1*) or 2) that the affected men were exposed to an estrogen or estrogen-like substance during processing at Krome.

References

1. Carlson, HE. Medical intelligence, current concepts, gynecomastia. N Engl J Med 1980;303:795-9.

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

DISEASE		16th WEEK ENDING			CUMULATIVE, FIRST 16 WEEKS		
		April 24 1982	April 25 1981	MEDIAN 1977-1981	April 24 1982	April 25 1981	MEDIAN 1977-1981
Aseptic meningitis		87	55	45	1,182	1,016	758
Brucellosis		2	8	3	33	33	45
Encephalitis:	Primary (arthropod-borne & unspec.)	21	8	12	221	216	186
	Post-infectious	4	–	5	19	26	50
Gonorrhea:	Civilian	15,322	18,437	17,712	276,565	296,589	287,750
	Military	419	483	483	7,986	8,914	8,365
Hepatitis:	Type A	387	465	542	6,807	7,713	8,561
	Type B	394	430	314	6,052	5,810	4,891
	Non A, Non B	56	N	N	602	N	N
	Unspecified	187	183	157	2,813	3,245	3,105
Legionellosis		20	N	N	106	N	N
Leprosy		2	10	4	55	67	50
Malaria		7	19	11	210	371	144
Measles (rubeola)		81	88	911	416	918	5,417
Meningococcal infections:	Total	89	78	57	1,119	1,534	1,071
	Civilian	89	78	57	1,115	1,530	1,061
	Military	–	–	–	4	4	9
Mumps		130	85	324	2,269	1,679	6,335
Pertussis		16	21	19	325	324	324
Rubella(German measles)		70	66	509	810	866	5,024
Syphilis (Primary & Secondary):	Civilian	642	564	442	10,141	9,339	7,390
	Military	9	6	5	125	114	94
Tuberculosis		565	572	572	7,577	7,726	8,147
Tularemia		2	6	4	29	33	28
Typhoid fever		6	5	4	115	147	117
Typhus fever, tick-borne (RMSF)		5	6	4	31	27	25
Rabies, animal		133	154	153	1,682	2,172	1,263

TABLE II. Notifiable diseases of low frequency, United States

	CUM. 1982		CUM. 1982
Anthrax	–	Poliomyelitis: Total	1
Botulism	20	Paralytic	1
Cholera	–	Psittacosis (Minn. 3)	26
Congenital rubella syndrome	3	Rabies, human	–
Diphtheria	–	Tetanus (Iowa 1, Ark. 1, Tex. 1)	16
Leptospirosis (Va. 2)	20	Trichinosis (Fla. 1)	35
Plague	2	Typhus fever, flea-borne (endemic, murine) (Ala. 1)	5

N: Not notifiable

TABLE III. Cases of specified notifiable diseases, United States, weeks ending April 24, 1982 and April 25, 1981 (16th week)

REPORTING AREA	ASEPTIC MENINGITIS	BRUCELLOSIS	ENCEPHALITIS		GONORRHEA (Civilian)		HEPATITIS (Viral), by type				LEGIONELLOSIS	LEPROSY
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
	1982	CUM. 1982	CUM. 1982	CUM. 1982	CUM. 1982	CUM. 1981	1982	1982	1982	1982	1982	CUM. 1982
UNITED STATES	87	33	221	19	276,565	296,589	387	394	56	187	20	55
NEW ENGLAND	1	-	10	3	6,668	7,257	16	22	3	19	2	1
Maine	-	-	-	-	316	376	2	-	-	1	1	-
N.H.	-	-	-	-	200	260	-	1	1	-	-	-
Vt.	-	-	-	-	144	121	2	-	1	-	-	-
Mass.	1	-	3	-	3,052	3,053	5	8	1	16	-	-
R.I.	-	-	-	-	470	339	6	-	-	-	-	-
Conn.	-	-	7	3	2,486	3,108	1	13	-	2	1	1
MID. ATLANTIC	10	-	30	2	34,084	34,384	57	97	9	16	12	3
Upstate N.Y.	-	-	14	-	5,644	5,386	9	25	1	3	-	-
N.Y. City	2	-	5	-	14,023	14,152	22	38	-	5	-	1
N.J.	5	-	4	-	6,271	6,835	15	23	8	5	-	1
Pa.	3	-	7	2	8,146	8,011	11	11	-	3	12	1
E.N. CENTRAL	8	-	49	6	36,688	47,300	45	27	2	27	1	-
Ohio	2	-	16	4	11,730	17,004	24	13	-	12	-	-
Ind.	-	-	12	2	4,156	3,655	3	1	2	9	-	-
Ill.	-	-	-	-	7,413	12,990	6	3	-	1	-	-
Mich.	4	-	19	-	9,610	9,662	11	8	-	5	1	-
Wis.	2	-	2	-	3,779	3,989	1	2	-	-	-	-
W.N. CENTRAL	3	2	11	1	13,085	13,902	14	20	4	3	1	-
Minn.	-	-	-	1	1,939	2,224	3	7	-	-	-	-
Iowa	1	1	6	-	1,463	1,460	1	3	-	-	1	-
Mo.	-	1	3	-	6,030	6,300	5	5	1	2	-	-
N. Dak.	-	-	-	-	185	184	-	-	-	-	-	-
S. Dak.	-	-	-	-	376	390	-	-	-	-	-	-
Nebr.	-	-	1	-	789	1,002	-	2	-	-	-	-
Kans.	2	-	1	-	2,303	2,342	5	3	3	1	-	-
S. ATLANTIC	26	12	29	3	69,796	73,069	29	83	12	21	2	4
Del.	-	-	-	-	1,144	1,103	-	10	-	-	-	-
Md.	-	-	9	-	9,452	7,908	2	15	4	2	-	2
D.C.	-	-	-	-	3,722	4,714	-	-	-	-	-	-
Va.	2	4	9	-	6,170	6,854	3	7	1	2	2	-
W. Va.	1	-	-	-	850	1,111	-	-	-	-	-	-
N.C.	3	-	3	-	11,684	11,568	3	6	-	2	-	-
S.C.	-	2	-	-	6,891	6,725	2	5	-	2	-	-
Ga.	-	1	-	-	9,483	14,355	6	21	1	3	-	-
Fla.	20	5	8	3	20,400	18,731	13	19	6	10	-	2
E.S. CENTRAL	7	3	13	1	23,556	24,073	16	22	1	5	-	-
Ky.	1	-	-	-	3,164	3,168	7	3	-	2	-	-
Tenn.	4	1	9	-	8,968	8,948	4	10	-	3	-	-
Ala.	2	1	3	1	7,057	7,457	2	9	1	-	-	-
Miss.	-	1	1	-	4,367	4,500	3	-	-	-	-	-
W.S. CENTRAL	10	8	21	-	39,508	40,480	92	33	1	60	-	5
Ark.	1	3	1	-	3,334	2,719	3	3	1	6	-	-
La.	1	1	4	-	7,026	6,321	7	3	-	4	-	-
Okla.	3	2	6	-	4,242	4,069	25	6	-	7	-	-
Tex.	5	2	10	-	24,906	27,371	57	21	-	43	-	5
MOUNTAIN	3	-	10	1	10,256	12,125	32	15	9	12	-	1
Mont.	-	-	-	-	444	438	3	-	-	-	-	-
Idaho	-	-	-	-	466	501	-	-	2	-	-	1
Wyo.	-	-	-	-	276	254	-	-	-	-	-	-
Colo.	1	-	2	1	2,759	3,143	9	4	2	2	-	-
N. Mex.	-	-	-	-	1,275	1,323	5	-	-	-	-	-
Ariz.	-	-	4	-	2,751	3,932	7	4	2	9	-	-
Utah	1	-	-	-	446	560	3	1	3	-	-	-
Nev.	1	-	4	-	1,839	1,974	5	6	-	1	-	-
PACIFIC	19	8	48	2	42,924	43,999	86	75	15	24	2	41
Wash.	4	-	5	-	3,623	3,987	7	6	-	-	2	3
Oreg.	1	-	1	-	2,376	3,160	2	5	-	-	-	-
Calif.	13	7	40	2	35,106	34,756	71	61	15	24	-	23
Alaska	1	1	2	-	1,073	1,200	-	-	-	-	-	1
Hawaii	-	-	-	-	746	896	6	3	-	-	-	14
Guam	U	-	-	-	19	41	U	U	U	U	U	-
P.R.	-	-	1	-	923	1,015	6	3	-	8	-	-
V.I.	U	-	-	-	51	34	U	U	U	U	U	-
Pac. Trust Terr.	U	-	-	-	36	134	U	U	U	U	U	1

N: Not notifiable U: Unavailable

TABLE III (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending April 24, 1982 and April 25, 1981 (16th week)

REPORTING AREA	MALARIA		MEASLES (RUBEOLA)			MENINGOCOCCAL INFECTIONS (Total)		MUMPS		PERTUSSIS	RUBELLA		
	1982	CUM. 1982	1982	CUM. 1982	CUM. 1981	1982	CUM. 1982	1982	CUM. 1982	1982	1982	CUM. 1982	CUM. 1981
UNITED STATES	7	210	81	416	918	89	1,119	130	2,269	16	70	810	866
NEW ENGLAND	–	15	1	7	30	4	61	7	128	–	–	9	69
Maine	–	–	–	–	2	–	2	3	25	–	–	–	31
N.H.	–	1	–	1	5	–	10	1	12	–	–	8	25
Vt.	–	–	–	2	2	1	4	–	4	–	–	–	–
Mass.	–	10	1	2	15	–	16	2	68	–	–	1	8
R.I.	–	1	–	–	–	–	9	1	9	–	–	–	–
Conn.	–	3	–	2	6	3	20	–	10	–	–	–	5
MID. ATLANTIC	1	23	4	35	283	18	174	12	147	4	1	55	105
Upstate N.Y.	–	4	2	19	167	4	48	2	30	3	–	29	43
N.Y. City	1	8	2	14	27	2	28	4	24	1	1	16	21
N.J.	–	7	–	–	21	3	42	1	26	–	–	10	37
Pa.	–	4	–	2	68	9	56	5	67	–	–	–	4
E.N. CENTRAL	–	13	–	19	56	19	146	66	1,311	2	2	85	190
Ohio	–	3	–	–	15	3	50	61	954	2	–	–	–
Ind.	–	1	–	1	3	2	13	1	23	–	2	14	57
Ill.	–	1	–	9	14	11	46	1	69	–	–	22	55
Mich.	–	7	–	9	24	3	28	3	194	–	–	32	23
Wis.	–	1	–	–	–	–	9	–	71	–	–	17	55
W.N. CENTRAL	–	7	1	2	4	4	45	2	149	–	2	24	52
Minn.	–	–	–	–	1	–	9	–	75	–	–	3	6
Iowa	–	3	–	–	1	1	5	1	21	–	–	–	–
Mo.	–	1	1	2	–	1	16	–	13	–	2	15	2
N. Dak.	–	–	–	–	–	–	4	–	–	–	–	–	–
S. Dak.	–	–	–	–	–	–	1	1	1	–	–	1	–
Nebr.	–	2	–	–	1	1	4	–	–	–	–	–	1
Kans.	–	1	–	–	1	1	6	–	39	–	–	5	43
S. ATLANTIC	1	36	1	26	244	15	228	9	151	1	1	21	80
Del.	–	–	–	–	–	–	–	–	3	–	–	–	–
Md.	–	6	–	2	1	1	9	1	12	–	–	5	1
D.C.	–	3	–	1	1	–	1	–	–	–	–	–	–
Va.	–	16	–	14	3	4	23	1	22	–	1	10	3
W. Va.	–	–	–	1	7	–	7	4	69	–	–	1	15
N.C.	–	–	–	–	2	3	35	1	5	–	–	–	4
S.C.	–	2	–	–	–	1	27	–	9	–	–	1	6
Ga.	–	2	–	–	80	2	61	1	3	–	–	1	20
Fla.	1	7	1	8	150	4	65	1	28	1	–	3	31
E.S. CENTRAL	–	1	–	5	–	4	70	2	24	2	–	30	18
Ky.	–	1	–	1	–	2	8	–	8	–	–	15	11
Tenn.	–	–	–	4	–	2	29	1	9	–	–	–	7
Ala.	–	–	–	–	–	–	30	–	4	–	–	–	–
Miss.	–	–	–	–	–	–	3	1	3	2	–	15	–
W.S. CENTRAL	1	8	4	21	122	9	146	13	83	4	6	55	51
Ark.	–	1	–	–	–	–	8	1	4	–	–	–	–
La.	1	2	–	–	–	1	20	–	1	–	–	–	7
Okla.	–	–	–	–	5	1	10	–	–	–	–	2	–
Tex.	–	5	4	21	117	7	108	12	78	4	6	53	44
MOUNTAIN	–	5	–	–	16	2	68	–	37	–	2	25	45
Mont.	–	–	–	–	–	–	4	–	3	–	2	3	1
Idaho	–	–	–	–	–	–	4	–	2	–	–	–	2
Wyo.	–	–	–	–	–	–	4	–	2	–	–	4	1
Colo.	–	3	–	–	4	–	25	–	6	–	–	1	21
N. Mex.	–	1	–	–	1	1	10	–	–	–	–	2	2
Ariz.	–	1	–	–	2	1	14	–	13	–	–	5	10
Utah	–	–	–	–	–	–	4	–	9	–	–	8	3
Nev.	–	–	–	–	9	–	3	–	2	–	–	2	5
PACIFIC	4	102	70	301	163	14	181	19	239	3	56	506	256
Wash.	–	6	–	15	1	–	21	–	39	1	–	16	38
Oreg.	–	3	–	–	–	3	35	–	–	–	–	2	31
Calif.	4	91	70	284	162	10	116	19	193	2	56	480	187
Alaska	–	–	–	–	–	1	7	–	5	–	–	1	–
Hawaii	–	2	–	2	–	–	2	–	2	–	–	7	–
Guam	U	2	U	1	4	U	–	U	1	U	U	1	–
P.R.	–	2	7	51	132	–	3	8	23	5	–	3	3
V.I.	U	–	U	–	5	U	–	U	–	U	U	–	–
Pac. Trust Terr.	U	–	U	–	–	U	–	U	–	U	U	–	1

U: Unavailable

TABLE III (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending April 24, 1982 and April 25, 1981 (16th week)

REPORTING AREA	SYPHILIS (Civilian) (Primary & Secondary)		TUBERCULOSIS		TULAREMIA	TYPHOID FEVER		TYPHUS FEVER (Tick-borne) (RMSF)		RABIES, Animal
	CUM. 1982	CUM. 1981	1982	CUM. 1982	CUM. 1982	1982	CUM. 1982	1982	CUM. 1982	CUM. 1982
UNITED STATES	10,141	9,339	565	7,577	29	6	115	5	31	1,682
NEW ENGLAND	195	202	10	208	-	1	11	-	-	5
Maine	1	1	-	16	-	-	-	-	-	5
N.H.	-	9	-	9	-	-	-	-	-	-
Vt.	-	11	-	6	-	-	2	-	-	-
Mass.	138	121	6	141	-	1	8	-	-	-
R.I.	12	13	1	9	-	-	-	-	-	-
Conn.	44	47	3	27	-	-	1	-	-	-
MID. ATLANTIC	1,385	1,436	96	1,290	2	-	12	-	-	23
Upstate N.Y.	133	121	13	229	2	-	2	-	-	14
N.Y. City	864	909	27	493	-	-	8	-	-	-
N.J.	164	168	19	243	-	-	2	-	-	1
Pa.	224	238	37	325	-	-	-	-	-	8
E.N. CENTRAL	521	643	75	1,165	-	1	11	-	-	189
Ohio	105	86	16	213	-	-	6	-	-	26
Ind.	64	39	U	145	-	-	-	-	-	35
Ill.	219	378	28	446	-	-	1	-	-	86
Mich.	97	109	23	289	-	1	4	-	-	-
Wis.	36	31	8	72	-	-	-	-	-	42
W.N. CENTRAL	202	169	21	232	6	-	3	-	1	407
Minn.	33	62	5	43	-	-	-	-	-	74
Iowa	11	8	1	33	-	-	1	-	-	134
Mo.	124	83	12	104	5	-	1	-	1	50
N. Dak.	4	2	-	5	-	-	-	-	-	44
S. Dak.	-	2	-	6	-	-	-	-	-	18
Nebr.	7	3	1	8	-	-	-	-	-	38
Kans.	23	9	2	33	1	-	1	-	-	49
S. ATLANTIC	2,791	2,449	109	1,490	6	1	15	-	14	267
Del.	7	7	-	18	-	-	-	-	-	-
Md.	157	194	11	189	1	-	4	-	7	16
D.C.	178	223	3	55	-	-	-	-	-	-
Va.	199	235	20	160	1	-	2	-	-	129
W. Va.	8	7	3	38	-	-	2	-	-	13
N.C.	208	184	16	240	-	-	-	-	4	5
S.C.	136	170	6	150	3	-	2	-	3	18
Ga.	611	633	17	211	-	-	-	-	-	68
Fla.	1,287	796	33	429	1	1	5	-	-	18
E.S. CENTRAL	761	626	81	676	4	-	9	-	5	216
Ky.	38	23	26	186	-	-	-	-	-	40
Tenn.	204	249	30	235	4	-	2	-	1	147
Ala.	265	169	17	200	-	-	6	-	3	29
Miss.	254	185	8	55	-	-	1	-	1	-
W.S. CENTRAL	2,558	2,198	67	816	7	-	6	5	10	328
Ark.	74	42	7	82	5	-	1	1	2	48
La.	539	446	16	146	-	-	-	-	-	7
Okla.	54	62	6	119	2	-	2	2	3	77
Tex.	1,891	1,648	38	469	-	-	3	2	5	196
MOUNTAIN	269	225	16	217	3	-	5	-	-	36
Mont.	1	8	1	16	-	-	-	-	-	16
Idaho	16	2	-	10	1	-	-	-	-	-
Wyo.	9	2	-	2	1	-	-	-	-	2
Colo.	83	75	7	26	-	-	1	-	-	-
N. Mex.	54	52	-	39	-	-	-	-	-	3
Ariz.	59	44	7	90	-	-	3	-	-	15
Utah	10	5	-	11	1	-	1	-	-	-
Nev.	37	37	1	23	-	-	-	-	-	-
PACIFIC	1,459	1,391	90	1,483	1	3	43	-	1	211
Wash.	41	51	2	88	1	2	2	-	-	-
Oreg.	41	32	3	55	-	-	1	-	-	-
Calif.	1,337	1,275	74	1,231	-	1	39	-	1	153
Alaska	6	4	-	18	-	-	-	-	-	58
Hawaii	34	29	11	91	-	-	1	-	-	-
Guam	-	-	U	2	-	U	-	U	-	-
P.R.	188	230	1	94	-	-	1	-	-	17
V.I.	-	2	U	1	-	U	-	U	-	-
Pac. Trust Terr.	-	-	U	19	-	U	-	U	-	-

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending April 24, 1982 (16th week)

REPORTING AREA	ALL CAUSES, BY AGE (YEARS)						P&I** TOTAL
	ALL AGES	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	684	483	125	37	17	22	53
Boston, Mass.	183	124	33	10	7	9	23
Bridgeport, Conn.	43	30	10	1	1	1	2
Cambridge, Mass.	29	22	6	1	–	–	6
Fall River, Mass.	24	18	6	–	–	–	–
Hartford, Conn.	71	44	17	6	3	1	–
Lowell, Mass.	29	24	4	1	–	–	2
Lynn, Mass.	28	26	2	–	–	–	–
New Bedford, Mass.	30	22	7	1	–	–	1
New Haven, Conn.	59	40	6	5	3	5	3
Providence, R.I.	39	33	5	–	–	1	4
Somerville, Mass.	11	10	–	1	–	–	1
Springfield, Mass.	49	30	10	2	3	4	8
Waterbury, Conn.	29	22	5	2	–	–	1
Worcester, Mass.	60	38	14	7	–	1	2
MID. ATLANTIC	2,480	1,677	498	141	85	79	109
Albany, N.Y.	59	50	5	1	1	2	1
Allentown, Pa.	15	15	–	–	–	–	–
Buffalo, N.Y.	150	102	36	5	4	3	8
Camden, N.J.	30	14	12	3	–	1	–
Elizabeth, N.J.	23	18	3	2	–	–	–
Erie, Pa.†	37	26	8	1	–	2	2
Jersey City, N.J.	60	31	14	3	8	4	–
N.Y. City, N.Y.	1,424	957	286	97	50	34	56
Newark, N.J.	74	43	15	6	4	6	4
Paterson, N.J.	29	20	7	1	1	–	3
Philadelphia, Pa.†	125	80	22	5	3	15	8
Pittsburgh, Pa.†	70	48	17	1	3	1	3
Reading, Pa.	32	26	4	1	–	1	5
Rochester, N.Y.	129	92	21	5	4	7	8
Schenectady, N.Y.	28	20	6	2	–	–	2
Scranton, Pa.†	36	26	8	1	1	–	1
Syracuse, N.Y.	70	47	15	4	2	2	3
Trenton, N.J.	40	25	9	3	2	1	3
Utica, N.Y.	25	19	6	–	–	–	1
Yonkers, N.Y.	24	18	4	–	2	–	1
E.N. CENTRAL	2,367	1,493	550	150	66	107	96
Akron, Ohio	76	47	20	3	2	4	–
Canton, Ohio	45	31	11	1	2	–	1
Chicago, Ill.	565	321	133	46	22	43	16
Cincinnati, Ohio	121	78	29	8	3	3	12
Cleveland, Ohio	204	114	57	17	6	10	7
Columbus, Ohio	173	114	34	13	4	8	9
Dayton, Ohio	104	67	27	5	2	3	3
Detroit, Mich.	286	173	71	25	9	8	11
Evansville, Ind.	44	28	10	2	3	1	–
Fort Wayne, Ind.	56	35	14	1	–	4	2
Gary, Ind.	10	7	2	1	–	–	–
Grand Rapids, Mich.	68	47	14	2	1	4	4
Indianapolis, Ind.	151	93	41	7	5	5	6
Madison, Wis.	36	20	10	3	1	2	7
Milwaukee, Wis.	142	109	29	1	2	1	1
Peoria, Ill.	50	34	13	1	–	2	8
Rockford, Ill.	37	22	9	5	–	1	3
South Bend, Ind.	51	32	10	3	1	5	4
Toledo, Ohio §	89	80	1	2	2	3	1
Youngstown, Ohio	61	41	15	4	1	–	1
W.N. CENTRAL	770	514	163	43	30	20	24
Des Moines, Iowa	63	43	14	2	3	1	1
Duluth, Minn.	33	26	6	1	–	–	1
Kansas City, Kans.	38	30	3	3	1	1	2
Kansas City, Mo.	127	75	32	10	9	1	5
Lincoln, Nebr.	9	4	2	1	–	2	–
Minneapolis, Minn.	101	71	18	5	4	3	1
Omaha, Nebr.	89	58	22	4	3	2	1
St. Louis, Mo.	163	108	36	10	5	4	10
St. Paul, Minn.	77	52	18	3	1	3	3
Wichita, Kans.	70	47	12	4	4	3	–
S. ATLANTIC	1,102	679	283	64	38	37	41
Atlanta, Ga.	139	79	40	10	8	2	5
Baltimore, Md.	133	78	36	8	3	8	3
Charlotte, N.C.	87	52	23	8	1	2	4
Jacksonville, Fla.	108	69	27	6	6	–	6
Miami, Fla.	124	67	36	10	7	4	–
Norfolk, Va.	50	31	10	4	1	4	3
Richmond, Va.	72	50	19	2	–	1	6
Savannah, Ga.	37	24	8	1	2	2	4
St. Petersburg, Fla.	104	82	17	2	–	3	4
Tampa, Fla.	67	41	13	2	4	7	3
Washington, D.C.	102	54	33	9	3	3	3
Wilmington, Del.	79	52	21	2	3	1	–
E.S. CENTRAL	745	468	187	34	34	22	39
Birmingham, Ala.	113	66	31	1	9	6	2
Chattanooga, Tenn.	62	44	15	2	1	–	6
Knoxville, Tenn.	60	45	10	2	2	1	2
Louisville, Ky.	109	62	28	10	4	5	9
Memphis, Tenn.	151	97	42	6	6	–	11
Mobile, Ala.	58	32	21	2	1	2	1
Montgomery, Ala.	49	33	10	2	3	1	3
Nashville, Tenn.	143	89	30	9	8	7	5
W.S. CENTRAL	1,289	779	316	93	47	54	33
Austin, Tex.	50	35	7	3	2	3	2
Baton Rouge, La.	59	39	11	7	–	2	3
Corpus Christi, Tex.	54	34	12	1	2	5	1
Dallas, Tex.	204	118	56	18	4	8	4
El Paso, Tex.	57	38	9	3	3	4	1
Fort Worth, Tex.	80	52	20	1	3	4	1
Houston, Tex.	319	161	94	36	16	12	6
Little Rock, Ark.	70	48	14	4	–	4	4
New Orleans, La.	137	80	39	8	6	4	–
San Antonio, Tex.	134	90	28	6	6	4	5
Shreveport, La.	37	23	9	–	2	3	1
Tulsa, Okla.	88	61	17	6	3	1	5
MOUNTAIN	644	391	152	49	29	23	32
Albuquerque, N. Mex.	86	53	16	13	2	2	3
Colo. Springs, Colo.	48	35	9	1	2	1	9
Denver, Colo.	121	74	29	11	5	2	2
Las Vegas, Nev.	90	48	31	6	4	1	4
Ogden, Utah	14	8	5	–	–	1	1
Phoenix, Ariz.	136	80	29	11	8	8	5
Pueblo, Colo.	12	10	1	–	1	–	1
Salt Lake City, Utah	48	26	9	4	3	6	–
Tucson, Ariz.	89	57	23	3	4	2	7
PACIFIC	1,822	1,174	402	117	62	66	92
Berkeley, Calif.	17	11	5	1	–	–	2
Fresno, Calif.	74	45	14	5	6	4	2
Glendale, Calif.	24	19	5	–	–	–	1
Honolulu, Hawaii	63	34	20	4	1	4	3
Long Beach, Calif.	102	69	20	6	2	5	3
Los Angeles, Calif.	499	327	103	37	16	15	18
Oakland, Calif.	101	62	24	9	2	4	3
Pasadena, Calif.	35	26	5	2	1	1	–
Portland, Oreg.	132	85	30	5	6	6	9
Sacramento, Calif.	73	49	12	5	3	4	6
San Diego, Calif.	152	90	40	13	4	5	14
San Francisco, Calif.	148	99	26	13	5	5	6
San Jose, Calif.	169	101	53	7	6	2	11
Seattle, Wash.	143	90	30	7	8	8	4
Spokane, Wash.	51	35	10	1	2	3	6
Tacoma, Wash.	39	32	5	2	–	–	4
TOTAL	11,903††	7,658	2,676	728	408	430	519

*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 4 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.

Characteristics of Measles Cases — United States, 1981

CDC has received detailed written information concerning investigations of 1,759 (58.0%) of the 3,032 measles cases provisionally reported in the United States in 1981. This information, submitted voluntarily by 35 states and 2 local health departments, has been reviewed to determine age, immunity status, and school and day-care-center attendance of the patients. These data have been useful in classifying measles cases by preventability, and measles patients by age and accessibility to school- and day-care-center based control measures.*

Of 1,759 persons with measles, 1,061 (60.3%) were school age, 5-19 years old (Table 1); an additional 547 measles cases (31.1%) involved preschool children. The other 151 patients (8.6%) were not in school-age or preschool groups.

Of the 1,759 measles cases, 780 (44.3%) were classified as not preventable because the patients were either too young or too old for routine vaccination, or because they had adequate evidence of immunity to measles. Of the 979 potentially preventable cases, 661 (37.6% of the total 1,759) were readily accessible to control measures, since the affected children attended schools or day-care centers. The other 318 persons (18.1%) were not readily accessible—not of school age or not known to attend a day-care center.

Of the 1,061 measles cases involving school-age children (Table 2), 638 (60.1%) were identified as potentially preventable. The remaining 423 children, although accessible, did not have preventable cases because they had adequate evidence of immunity to measles. A considerably higher percentage of preventable cases occurred in older schoolchildren.

*__Potentially preventable case__—measles illness occurring in a person at least 15 months of age and born after 1956 who lacked adequate evidence of immunity to measles.
__Adequate evidence of immunity__—history of live measles vaccine on or after the first birthday (date of vaccination must be specified) or history of physician-diagnosed measles illness.
__Accessibility to control measures__—enrollment in a recognized day-care center or age 5-19 years (old enough to attend school).

TABLE 1. Measles cases by age group, United States, 1981

Age Group	No. Cases	Percentage of Total
Preschool		
0-14 months	219	12.5
15 months-4 years	328	18.6
Subtotal	547	31.1
School-Age		
5-9 years	375	21.3
10-14 years	382	21.7
15-19 years	304	17.3
Subtotal	1,061	60.3
Adults		
20-24 years	90	5.1
25+ years	61	3.5
Subtotal	151	8.6
TOTAL	1,759	100.0

Measles — Continued

Of the 547 measles cases among preschool-age children (Table 3), 285 (52.1%) were classified as not preventable: 219 (40.0%) children were less than 15 months old, and 66 (12.1%) had adequate evidence of immunity to measles. Of the 262 children with potentially preventable measles cases, 239 (43.7% of the total 547) were not listed as attending day-care centers and thus were not readily accessible to control measures. Therefore, only 23 (4.2%) measles cases occurring among the preschool-age children were both potentially preventable and in children readily accessible to control measures.

Reported by participating state and local immunization programs; Immunization Div, Center for Prevention Svcs, CDC.

Editorial Note: This analysis represents the first time that information has been analyzed on a national basis to determine the potential preventability of reported measles cases and the accessibility of patients to school-based control measures. Limitations of the data must be taken into consideration in the analysis. Case reports were derived from a nonrandom sample of the total reported measles cases in 1981. Completeness of reporting varied among the reporting areas. If no immunity status or prior history of physician-diagnosed measles illness was provided, it was assumed that the person did not have adequate evidence of immunity to measles. If no day-care center was named, it was assumed that a preschool-age child did not attend a day-care center. Furthermore, incidence rates by vaccination status and day-care-center attendance cannot be determined because the denominator populations are not known. Nevertheless, the data are helpful in evaluating areas in which further emphasis in the measles elimination program should be placed.

TABLE 2. Measles cases in school-age children, classified by age group and immunity status, United States, 1981

Age Group (Years)	Potentially Preventable	Not Preventable	Total
5-9	176 (46.9%)	199 (53.1%)	375 (100.0%)
10-14	219 (57.3%)	163 (42.7%)	382 (100.0%)
15-19	243 (79.9%)	61 (20.1%)	304 (100.0%)
TOTAL	638 (60.1%)	423 (39.9%)	1,061 (100.0%)

TABLE 3. Measles cases in preschool-age children, classified by age group, day-care-center attendance, and immunity status, United States, 1981

Age Group	Potentially Preventable	Not Preventable	Total
<15 months	NA*	219 (40.0%)	219 (40.0%)
15 months-4 years (attending day-care center)	23 (4.2%)	19 (3.5%)	42 (7.7%)
15 months-4 years (not attending day-care center	239 (43.7%)	47 (8.6%)	286 (52.3%)
TOTAL	262 (47.9%)	285 (52.1%)	547 (100.0%)

*Not applicable.

Measles — Continued

A majority of cases occurred in the school-age population, a group that is easily accessible to control measures. The higher proportion of preventable cases in older children suggests that health authorities should continue to concentrate efforts on ensuring that junior and senior high school students have adequate evidence of immunity to measles.

Preliminary data indicate that although the actual number of cases in the preschool population decreased from 1980 to 1981, the proportion of cases occurring among preschoolers increased because of greater reductions in the number of cases among school-age children. This might have been expected since a major focus of the measles elimination effort is on school-law enforcement.

It is also expected that most preschool children who have measles are not attending organized day-care centers since many states have and enforce measles-vaccination regulations for day-care centers. Additional strategies implemented to improve immunization levels in preschool children include: postpartum maternal education programs, tracking systems for infants deemed to be at high risk of lacking vaccinations, recall systems for children who miss appointments for vaccinations, and intensive case containment activities. Additional efforts may be necessary to locate and vaccinate preschool children in those few areas of the country where substantial numbers of preschool cases are reported.

Introduced Autochthonous *Vivax* Malaria — California, 1980-1981

Two cases of locally introduced *Plasmodium vivax* malaria have recently been reported from the Central Valley of California. The case histories are described below.

Case 1. On August 20, 1980, a 55-year-old truck driver left his home in San Bernardino County to haul grapes from vineyards to wineries in the Central Valley of California. He remained well until October 2, 1980, when he had onset of malaise, nausea, myalgias, and drowsiness; 5 days later he also experienced chills, high fever, and profuse sweats. He attributed his symptoms to "the flu" but noted they recurred almost each evening between 5 p.m. and 7 p.m. When the symptoms occurred, he would lie down in the truck and cover himself with blankets; by morning he usually felt well enough to continue driving. On October 20 he felt so ill that he returned home. The next day a laboratory technologist at Loma Linda University Medical Center identified *P. vivax* on a routine peripheral blood smear, and malaria was diagnosed. The patient responded promptly to antimalarial treatment with chloroquine and primaquine.

Investigation of possible sources of infection revealed no patient history of blood transfusions, IV drug or shared-needle usage, military service or travel in areas endemic for malaria. By the time he became ill, he had traveled several thousand miles in 11 counties of the Central Valley, plus Napa and Sonoma counties. His usual routine was to arrive at a vineyard at night, sleep in his unscreened truck until dawn, load grapes, and then deliver them to a winery. He recalled receiving mosquito bites but paid little attention to them.

Of the 14 areas visited by the patient and surveyed by the state's Vector Biology and Control Section, only the light trap near Artois in Glenn County showed substantial *Anopheles* activity during his periods of possible exposure. Evaluation of a ranch near Artois, which he had visited 6 times in the period September 9-19, indicated that *Anopheles* would have been abundant at that time; however, no malaria-like illness occurred among ranch workers. Rice fields, a prime habitat of *A. freeborni*, were within 1 mile of the vineyard. Many farm workers

Vivax Malaria — Continued

who lived or worked near the ranch had recently arrived from malaria-endemic areas of India and Mexico, but an investigation in areas where the patient traveled failed to reveal any other unreported or suspected cases of locally transmitted malaria.

Case 2. On September 5, 1981, a 46-year-old long-term resident of Yuba County became ill with fever, chills, headache, sore throat, nausea, and abdominal pain. On September 8, after pharyngitis was diagnosed at a local emergency room, he was treated with IM penicillin. On September 14, he returned to the same emergency room because of persistent symptoms, and ampicillin was prescribed. On September 17, he went to the Yuba General Clinic complaining of nausea and fever and shaking chills that recurred daily at about 3:00 p.m and lasted 30-45 minutes. On examination, he was found to be jaundiced with a tender liver and abdomen. Malaria was suspected and quickly confirmed at the Sutter-Yuma County Public Health Laboratory by demonstration of *P. vivax* on peripheral blood smears. Treatment of the patient with chloroquine and primaquine resulted in prompt recovery.

The patient had no history of blood transfusion, drug abuse, or travel outside the United States. The only recent travel outside the area had been an automobile trip to Pampa, Texas, between August 26 and September 1, 1981.

The patient lives 3 miles south of Marysville in a semi-rural setting next to the Feather River and within 1/4 mile of rice fields and orchards. He had not been employed regularly since December 1980. In the spring and summer of 1981 he did extensive fishing and camping throughout Sutter and Yuba counties, and often received many mosquito bites.

Malaria smears and serum specimens from the patient's wife, 2 children, and 3 members of an adjacent household were all negative for *P. vivax*. Intensive surveillance in the Sutter-Yuba area failed to reveal any other cases of malaria that could have been acquired locally through the mosquito-borne route. The Sutter-Yuba Mosquito Abatement District reported that *A. freeborni* (an efficient *P. vivax* vector) was abundant in Sutter and Yuba counties, including the patient's neighborhood, throughout the summer. Mosquito-control efforts in the area had included hand spraying with insecticide around the patient's house and insecticide cold-fogging on 3 occasions for a 1/2-mile radius from the house.

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Editorial Note: Considering the average 14-day incubation period for *vivax* malaria, and the travel history of the 2 patients, the infections reported here were most likely acquired in the northern part of California's Sacramento (Central) Valley. Historically, mosquito-transmitted malaria in California has been confined to the Central Valley where ecologic habitats provided by irrigated farmlands—including fruit orchards and rice fields—are ideal for the breeding of *A. freeborni*, a highly susceptible vector of *vivax* malaria. In addition, non-refugee agricultural workers from malarious countries provide a reservoir of *vivax* parasites in such areas as Sutter and Yuba counties.

Mosquito transmission in non-endemic areas (introduced malaria) requires only the presence of susceptible mosquitoes together with gametocytemic individuals. However, the chances for introduced malaria transmission are exceedingly low in this country because an exact sequence of interacting events involving mosquito, reservoir, and host must occur, and

Vivax Malaria — Continued

because there is a low probability that infected mosquitoes will survive beyond the maturation time required for the parasites (12-14 days for *vivax* malaria).

Thus, despite periodic large influxes of imported malaria cases, only 13 isolated episodes of introduced malaria have occurred in the United States in the past 30 years. In 1970, when the number of imported cases reached the highest level in recent years (4,247) due to American military personnel returning from Southeast Asia, 1 instance of introduced malaria was identified. This case was reported from Texas where a Mexican migrant was identified as the probable source of *vivax* gametocytes.

Like the previous 11 episodes, the 2 cases reported here were isolated events. Introduced malaria does not pose a substantial public health threat provided current malaria surveillance procedures and malaria awareness among medical personnel are maintained.

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The editor welcomes accounts on interesting cases, outbreaks, environmental hazards, or other public health problems of current interest to health officials. Send reports to: Attn: Editor, Morbidity and Mortality Weekly Report, Centers for Disease Control, Atlanta, Georgia 30333.

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