



Morbidity and Mortality

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DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE PUBLIC HEALTH SERVICE

MALARIA - CURRENT TRENDS

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Through February 7, 1966, a total of 20 case reports of malaria with onset in January 1966, had been received by the Communicable Disease Center. All cases were imported. Seventeen of the cases occurred in military personnel, and 15 of these originated in South Viet Nam. The species diagnosis in 14 of the 15 cases from South Viet Nam was *Plasmodium falciparum*; *P. malariae* was the species in the 15th case. The remaining 2 cases were infected in Panama and Thailand, and the species was *P. vivax* in both instances. One of the 20 military patients infected in Viet Nam developed falciparum malaria after discharge from the service. Each of the three civilian

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patients contracted his disease in West Africa. This group included a ship's captain and a Peace Corps worker.

Additional case reports have brought the 1965 total to 130 cases (MMWR, Vol. 15, No. 4). Ninety percent of these additional cases had onset dates within the fourth quarter of 1965; these cases reflect the increasing
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CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES
 (Cumulative totals include revised and delayed reports through previous weeks)

DISEASE	5th WEEK ENDED		MEDIAN 1961 - 1965	CUMULATIVE, FIRST 5 WEEKS		
	FEBRUARY 5, 1966	FEBRUARY 6, 1965		1966	1965	MEDIAN 1961 - 1965
Aseptic meningitis	20	17	19	128	148	130
Brucellosis	2	-	4	16	19	23
Diphtheria	2	2	9	12	15	31
Encephalitis, primary:						
Arthropod-borne & unspecified	24	24	---	113	152	---
Encephalitis, post-infectious	14	16	---	64	67	---
Hepatitis, serum	26	918	1,225	102	4,021	5,321
Hepatitis, infectious	732			3,489		
Measles (rubeola)	5,857	7,994	9,346	25,921	34,392	39,366
Poliomyelitis, Total (including unspecified)	-	-	4	1	-	19
Paralytic	-	-	3	-	-	16
Nonparalytic	-	-	---	-	-	---
Meningococcal infections, Total	62	63	64	356	316	269
Civilian	58	54	---	326	302	---
Military	4	9	---	30	14	---
Rubella (German measles)	1,154	---	---	4,173	---	---
Streptococcal sore throat & Scarlet fever	10,338	11,789	9,728	46,745	51,454	43,600
Tetanus	2	5	---	8	16	---
Tularemia	1	2	---	17	33	---
Typhoid fever	6	6	6	25	33	34
Typhus, tick-borne (Rky. Mt. Spotted fever)	-	3	---	7	6	---
Rabies in Animals	62	90	73	340	475	301

NOTIFIABLE DISEASES OF LOW FREQUENCY

	Cum.		Cum.
Anthrax	-	Botulism	1
Leptospirosis	1	Trichinosis: N.J. - 2	16
Malaria: Va. - 1	26	Rabies in Man	-
Psittacosis: Wisc. - 1	6	Rubella, Congenital Syndrome	1
Typhus, murine	-		

MALARIA - CURRENT TRENDS

(Continued from front page)

numbers of returned servicemen with malaria acquired in South Viet Nam.

During 1965 there has been a total of seven cases of shipboard malaria reported; of these five were *P. falciparum* and two were *P. malariae* infections. Five ships

were involved and in all instances the infection was acquired in West Africa.

(Reported by the Parasitic Disease Unit of the Surveillance Section, CDC.)

MEASLES - CURRENT TRENDS

During the first 4 weeks of 1966 a total of 20,064 cases of measles was reported. The comparable total for 1965 is 26,398. Figure 1 shows the range of incidence of measles over the period 1954-1963. During this period the highest total for the first 4 weeks of the year was 48,624 and the lowest was 26,921 (Figure 1). Measles vaccine was first licensed for general use in March 1963 but it was not until 1964 that the quantity of vaccine distributed had reached a level indicative of substantial use.

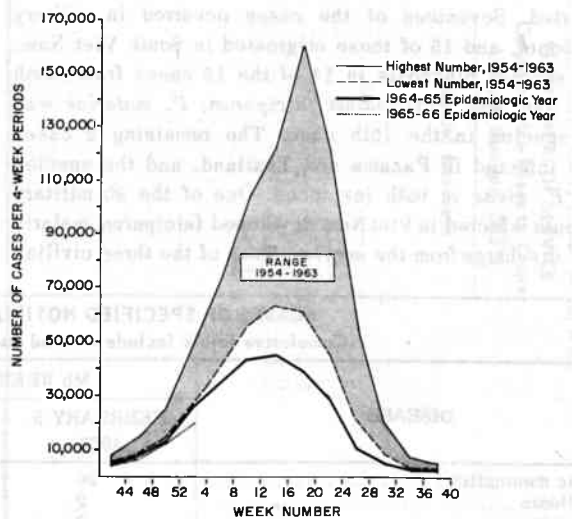
STATES REPORTING MORE THAN 500 CASES OF MEASLES

Weeks 1 - 4, 1961 - 1966

State	1961	1962	1963	1964	1965	1966
Wisconsin	4,153	605	6,824	373	886	4,491
New York (incl. NY City)	4,117	2,248	1,127	2,642	468	1,945
Illinois	1,256	2,110	513	1,489	147	1,766
Tennessee	779	2,144	649	1,219	936	1,522
Michigan	1,418	1,127	3,129	913	2,304	1,305
Texas	899	4,501	1,003	1,241	2,073	1,067
Pennsylvania	2,367	567	705	951	331	985
W. Virginia	429	880	1,802	833	2,818	983
Kentucky	1,634	496	455	1,703	84	830
California	1,818	1,630	844	1,417	808	667

(Reported by the Childhood Virus Disease Unit, CDC.)

MEASLES REPORTED BY FOUR-WEEK PERIODS-UNITED STATES
EPIDEMIOLOGIC YEARS 1964-65 AND 1965-66
COMPARED WITH 10-YEAR PERIOD, 1954-1963



INTERNATIONAL NOTES

MERCURY POISONING IN GUATEMALA

An outbreak of central nervous system illness involving 14 cases, with 8 deaths at the time of the first report, occurred in the western highlands of Guatemala in the region around Quetzaltenango in the summer of 1965. The cases had developed during the period July to September 1965 in Indian families of a predominantly farming population living in scattered groups in a remote mountainous area. The crops grown include wheat, corn and potatoes, while livestock consists of chickens, pigs and a few horses and cattle. Corn is the main and preferred staple. Water comes from unprotected wells or from shallow streams and there are virtually no sanitary

facilities. The illness was at first thought to be an arthropod-borne encephalitis and, early in September, assistance was sought from the Pan American Health Organization by the Guatemalan Ministry of Health. PAHO arranged for three investigators to visit the area affected.

During the investigation, interviews with local health officials, physicians, affected families and their neighbors and a review of hospital records brought to light an additional 31 cases with 12 deaths making a total of 45 cases of CNS illness causing 20 deaths for the whole outbreak. All had a strikingly similar clinical picture.

Table 1
INCIDENCE OF CNS ILLNESS AND DEATHS IN WESTERN GUATEMALA
July - October, 1965

Village Community	Population	Number Cases	Case per 1000 Inhabitants	Number Deaths	Deaths per 1000 Inhabitants	Death per case Ratio (%)
Siguilá	500	1	2.0	1	2.0	100
Panorama	400	15	37.5	4	10.0	26
Centro	269	8	29.7	7	26.0	87
La Unión	200	2	10.0	—	—	—
Palomora	—	4	2	—	—
San José	1,722	15	8.7	6	3.5	40
Total	3,091	45	14.5	20	6.5	44

The illness began with weakness in the legs which sometimes progressed to spastic paralysis with hyperflexion and a positive Babinski; in some instances the arms were also involved. The lesions were symmetrical without loss of sensory or sphincter function. Neither fever nor malaise was a prominent symptom unless a pulmonary complication developed. The involvement of the legs was almost invariably followed in 4 to 7 days by impairment of vision, usually progressing to total blindness. Once established, there was no regression in either the paralyzes or the visual impairment. In fatal cases there was a period of impaired consciousness merging into coma before death.

All patients were of poor nutritional status. The sexes were equally affected and the age distribution ranged from 2 to 55 years with over half the cases being under 10 years of age. The duration of illness varied and most cases had difficulty in walking and impaired vision for 1 to 4 weeks before coming to the hospital; patients who died had remained in the hospital for periods ranging from 1 week to 1 year before death.

The weeks of onset of 43 of the 45 cases occurring in 1965, or of their admission to the hospital, ranged from July 11 to September 19, 1965. There had been four cases in 1964 and one in 1963, all of which occurred during the same season of the year as the 1965 cases. Thirty-eight of the 45 cases occurred in three villages in the wheat-growing area; there was a high incidence within the given families, frequently affecting children under 10 but never those who were breast feeding (Table 1). Both the clinical and epidemiological evidence suggested a toxic rather than an infectious origin.

Inquiry revealed that the families concerned participated in a wheat co-operative whereby they received each year, in May, a certain quantity of wheat seed which was treated with the fungicide methyl mercury dicyandiamide ("Panogen 15"). The farmers were expected to return, to the co-operative organization at the end of the harvest, an amount of wheat equal to the quantity

of treated seed given to them the previous spring. They had been warned not to eat the treated seed.

Several farmers' families had not heeded this warning and had ground the panogen-treated wheat to make tortillas. The distribution of illness among the members of the families who admitted eating the treated wheat was uneven. In one instance the first sign of illness in a family using the wheat appeared one week after it was eaten; in another it was 3 weeks later that the first symptoms appeared. Certain other families who had eaten the treated wheat suffered no symptoms at all, presumably due to dilution of the meal from the treated wheat with corn meal, or with wheat flour made from untreated wheat.

Specimens of kidney, liver, spleen and brain obtained from fatal cases of the illness in Guatemala have been examined in the CDC Toxicology Laboratory and have yielded amounts of alkyl mercury (9 to 20 ppm of Hg) consistent with fatal mercury poisoning. Table 2 compares the Guatemala findings with those of episodes of fatal mercury poisoning in other countries. Examination of a specimen of the treated seed contained 17 ppm expressed in metallic mercury.

Table 2
CNS ILLNESS IN GUATEMALA
Comparative Results of Tissue Content
Estimations of Alkyl Mercury in Fatal Poisoning

Specimen	Guatemala 1965 in ppm	Other Countries Range in ppm
Kidney	18	3 to 51
Liver	20	15 to 39
Spleen	9	4.5*
Brain	15	3 to 48

*One estimation only.

(Reported by the Department of Public Health, Guatemala Ministry of Health; The Pan American Health Organization, Zone III; and an EIS Officer.)

Reference: Bidstrup, P.L. (1964) Toxicity of Mercury and Its Compounds, pp 74-87. Elsevier Publishing Company, New York.

CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES

FOR WEEKS ENDED

FEBRUARY 5, 1966 AND FEBRUARY 6, 1965 (5th WEEK)

AREA	ASEPTIC MENINGITIS		BRUCELLOSIS	ENCEPHALITIS			DIPHTHERIA		HEPATITIS		
				Primary including unsp. cases		Post- Infectious			Serum	Infectious	Both Types
	1966	1965		1966	1966	1965	1966	1966	1965	1966	1965
UNITED STATES...	20	17	2	24	24	14	2	2	26	732	918
NEW ENGLAND.....	-	-	-	-	2	-	-	-	1	20	64
Maine.....	-	-	-	-	-	-	-	-	-	4	15
New Hampshire.....	-	-	-	-	-	-	-	-	-	-	5
Vermont.....	-	-	-	-	-	-	-	-	-	1	9
Massachusetts.....	-	-	-	-	1	-	-	-	1	13	15
Rhode Island.....	-	-	-	-	-	-	-	-	-	1	11
Connecticut.....	-	-	-	-	1	-	-	-	-	1	9
MIDDLE ATLANTIC.....	1	3	1	7	2	3	-	-	16	89	164
New York City.....	-	2	1	5	1	-	-	-	10	15	23
New York, Up-State..	-	1	-	1	-	-	-	-	3	29	86
New Jersey.....	-	-	-	1	-	-	-	-	2	15	15
Pennsylvania.....	1	-	-	-	1	3	-	-	1	30	40
EAST NORTH CENTRAL...	3	1	-	5	9	2	-	-	-	145	186
Ohio.....	-	-	-	3	2	-	-	-	-	45	58
Indiana.....	2	-	-	-	1	-	-	-	-	15	14
Illinois.....	-	-	-	-	-	1	-	-	-	30	55
Michigan.....	-	1	-	1	5	1	-	-	-	50	47
Wisconsin.....	1	-	-	1	1	-	-	-	-	5	12
WEST NORTH CENTRAL...	-	1	-	-	2	1	-	-	2	50	60
Minnesota.....	-	-	-	-	-	1	-	-	2	13	6
Iowa.....	-	-	-	-	-	-	-	-	-	21	29
Missouri.....	-	-	-	-	-	-	-	-	-	5	8
North Dakota.....	-	1	-	-	1	-	-	-	-	2	-
South Dakota.....	-	-	-	-	-	-	-	-	-	-	1
Nebraska.....	-	-	-	-	-	-	-	-	-	-	1
Kansas.....	-	-	-	-	1	-	-	-	-	9	15
SOUTH ATLANTIC.....	3	3	-	4	3	1	2	-	2	71	81
Delaware.....	-	-	-	-	-	-	-	-	-	2	2
Maryland.....	-	-	-	-	1	-	-	-	-	7	33
Dist. of Columbia..	-	1	-	-	-	-	-	-	-	-	1
Virginia.....	-	1	-	3	-	-	-	-	-	29	11
West Virginia.....	-	-	-	-	-	-	-	-	-	4	17
North Carolina.....	1	-	-	1	1	-	1	-	1	9	9
South Carolina.....	-	-	-	-	-	-	-	-	-	2	2
Georgia.....	-	-	-	-	-	-	-	-	-	-	-
Florida.....	2	1	-	-	1	1	1	-	1	18	6
EAST SOUTH CENTRAL...	1	-	-	1	1	1	-	1	-	80	80
Kentucky.....	1	-	-	-	-	-	-	-	-	44	33
Tennessee.....	-	-	-	1	1	1	-	-	-	19	22
Alabama.....	-	-	-	-	-	-	-	1	-	7	16
Mississippi.....	-	-	-	-	-	-	-	-	-	10	9
WEST SOUTH CENTRAL...	3	2	-	1	-	2	-	1	2	58	84
Arkansas.....	-	-	-	1	-	-	-	-	-	9	15
Louisiana.....	1	1	-	-	-	1	-	1	2	9	12
Oklahoma.....	1	-	-	-	-	-	-	-	-	1	2
Texas.....	1	1	-	-	-	1	-	-	-	39	55
MOUNTAIN.....	-	-	-	-	1	-	-	-	-	51	39
Montana.....	-	-	-	-	-	-	-	-	-	1	9
Idaho.....	-	-	-	-	-	-	-	-	-	5	1
Wyoming.....	-	-	-	-	-	-	-	-	-	-	2
Colorado.....	-	-	-	-	1	-	-	-	-	7	11
New Mexico.....	-	-	-	-	-	-	-	-	-	23	4
Arizona.....	-	-	-	-	-	-	-	-	-	12	6
Utah.....	-	-	-	-	-	-	-	-	-	1	5
Nevada.....	-	-	-	-	-	-	-	-	-	2	1
PACIFIC.....	9	7	1	6	4	4	-	-	3	168	160
Washington.....	-	-	-	-	1	-	-	-	-	13	11
Oregon.....	-	-	-	-	1	-	-	-	-	24	10
California.....	8	6	-	6	2	4	-	-	3	130	122
Alaska.....	-	-	-	-	-	-	-	-	-	1	17
Hawaii.....	1	1	1	-	-	-	-	-	-	-	-
Puerto Rico.....	-	-	-	-	-	-	-	1	-	20	24

