NATIONAL COMMUNICABLE DISEASE CENTER

Morbidity and Mortality

Vol. 17, No. 38

WEEKLY REPORT

Week Ending September 21, 1968

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE PUBLIC HEALTH SERVICE

HEALTH SERVICES AND MENTAL HEALTH ADMINISTRATION

INTERNATIONAL NOTES

INFLUENZA

The outbreak of influenza in the Manila area (MMWR, Vol. 17, No. 36) appears to be subsiding (Table 1). One index of the magnitude of the epidemic is that absenteeism among Philippine residents who are employed by the United States Agency for International Development was three times greater at the end of August than it was at the end of July. Cases and deaths from pneumonia in Manila (Table 2) were substantially increased during weeks 33-35 of 1968 over the 5-year median (1963-67). The clinical syndrome has been typical of influenza: 4 to 5-day illness characterized by malaise, fever, cough, headache, and myalgia.

The International Influenza Center for the Americas confirmed 10 viruses, isolated from the epidemic in Manila, as similar to the A2/Hong Kong/68 strains; 10 paired sera had rises in titer to an A2/Hong Kong/68 strain

(Continued on page 346)

CONTENTS

International Notes
Influenza 345
Epidemiologic Notes and Reports
Outbreak of California Encephalitis – Southwestern Kentucky 346
Meningococcal and ECHO-9 Meningitis – Manatee County, Florida 347
Murine Typhus, Baltimore Maryland 348
Clostridium botulinum Type B due to Home-cooked Chicken – St. Joseph, Michigan 348
Food Poisoning – Morton, Mississippi 348
Measles – Terrebonne Parish, Louisiana 349
Arsine Gas Poisoning – New Jersey 350
Malaria 351
Current Trends
California Encephalitis – United States 346
Morbidity Reporting 356

TABLE I. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES
(Cumulative totals include revised and delayed reports through previous weeks)

DISEASE	38th WEEK ENDED		MEDIAN	CUMULATIVE, FIRST 38 WEEKS		
	September 21, 1968	September 23, 1967	1963 - 1967	1968	1967	MEDIAN 1963 - 1967
Aseptic meningitis	295	128	94	2,871	2,034	1,431
Brucellosis	5	4	6	158	188	192
Diphtheria	5	2	3	137	90	142
Encephalitis, primary:						
Arthropod-borne & unspecified	61	39	---	929	1,178	---
Encephalitis, post-infectious	8	14	---	381	651	---
Hepatitis, serum	116	59	677	3,154	1,577	28,355
Hepatitis, infectious	1,051	708		32,312	27,744	
Malaria	72	32	3	1,650	1,434	72
Measles (rubeola)	130	204	554	19,798	58,049	240,837
Meningococcal infections, total	29	24	30	2,060	1,703	2,078
Civilian	28	23	---	1,880	1,589	---
Military	1	1	---	180	114	---
Mumps	609	---	---	125,661	---	---
Poliomyelitis, total	1	—	2	41	26	71
Paralytic	1	—	2	41	22	67
Rubella (German measles)	215	146	---	44,116	40,022	---
Streptococcal sore throat & scarlet fever	5,727	5,350	4,705	310,971	334,172	299,858
Tetanus	5	8	6	116	163	186
Tularemia	2	3	6	144	134	190
Typhoid fever	13	8	9	276	307	303
Typhus, tick-borne (Rky. Mt. spotted fever)	9	14	5	246	276	211
Rabies in animals	55	90	85	2,599	3,302	3,302

TABLE II. NOTIFIABLE DISEASES OF LOW FREQUENCY

	Cum.		Cum.
Anthrax:	3	Rabies in man:	—
Botulism:	4	Rubella, Congenital Syndrome:	5
Leptospirosis:	30	Trichinosis:	47
Plague:	2	Typhus, murine: Md.-1	23
Psittacosis:	35		

INFLUENZA – *(Continued from front page)*

Table 1
Weekly Cases of Influenza-like Illness Reported
From Public Health Facilities in Greater Manila (Approx. 1.5 million pop.)

Year	Week Number													
	27	28	29	30	31	32	33	34	35	36	37	38	39	40
1965	65	46	42	54	50	61	46	32	47	43	44	22	52	35
1966	44	40	42	78	46	58	87	174	96	167	119	254	243	107
1967	46	29	69	130	57	85	152	250	255	251	214	230	140	144
1968	53	48	46	65	59	162	1,882	20,346	11,285	5,812				

Table 2
Weekly Reported Pneumonia Cases and Deaths in Manila
(Cases/Deaths)

Year	Week Number					
	31	32	33	34	35	36
Median 1963-67	86/46	100/48	111/38	119/45	124/48	159/56
1968	98/53	111/43	155/64	242/76	206/97	158/67

when tested by the hemagglutination-inhibition technique.

In previous years influenza in the Philippines had seasonal peaks in August and September. The last severe epidemic of influenza was recorded in 1957 with the first appearance of the A2 strains.

A widespread outbreak of influenza has also been reported from the Northern Territory of Australia. Three virus isolates from this outbreak were similar to A2/Hong Kong/68 strains. Although there has also been a single isolation of a virus similar to the A2/Hong Kong/68 strains in Melbourne, Australia, only sporadic cases of respiratory illness have occurred in that area. Sydney, Melbourne, and Perth had extensive A2 epidemics in June and July. These were caused by strains more closely related to earlier A2 viruses than to the A2/Hong Kong/68 strains.

In addition to the recently reported A2 outbreaks, the first type B outbreak recognized in Trinidad has been reported. On July 19, 1968, the first influenza B isolate was obtained. Since the beginning of August an additional 31 isolates have been recovered from children and a few adults.

(Reported by J.J. Dizon, M.D., M.P.H., Chief, Disease Intelligence, Disease Intelligence Center, Department of Health, Manila, Philippines; Dr. Espiritu-Campos, Department of Microbiology, University of the Philippines, Institute of Hygiene; Elmer Z. Dahl, Colonel, MC, USAF, Commander of the Fifth Epidemiological Flight, Manila, Philippines; M.F. Warburton, Ph.D., Controller, WHO Influenza Center, Melbourne, Australia; Andries H. Jonkers, Ph.D., Acting Director, Trinidad Regional Virus Laboratory, University of the West Indies; and Respiratory Virus Infections Unit, Laboratory Program, and Respiratory Viral Diseases Unit, Epidemiology Program, NCDC.)

EPIDEMIOLOGIC NOTES AND REPORTS
OUTBREAK OF CALIFORNIA ENCEPHALITIS – Southwestern Kentucky

During August and September 1968 a total of 10 persons in Trigg and Calloway Counties in southwestern Kentucky were hospitalized with a clinical diagnosis of encephalitis or aseptic meningitis. The patients, ranging in age from 14 to 40 years, presented with a clinical history of fever, chills, headache, and vomiting. All recovered uneventfully in 4-10 days. The patients with the exception of one pair of siblings were unrelated to each other. Other than the siblings, all but one patient denied any knowledge of similar illnesses in family, friends, or acquaintances. No common exposure could be determined.

Acute and convalescent sera from two patients demonstrated a fourfold or greater rise in titer to California encephalitis antigen. Other sera are now being processed.

A survey of physicians in a 20-county area in western Kentucky revealed 12 additional cases of similar illnesses in Trigg and Calloway Counties and two cases in adjacent Graves County. Intensive surveillance is continuing in this 20-county area which is near Saline County, Illinois, the site of the recent outbreak of St. Louis encephalitis (MMWR, Vol. 17, No. 37).

(Reported by C. Hernandez, M.D., M.P.H., Director, Division of Epidemiology, B. F. Brown, M.D., M.P.H., Director, Division of Laboratory Services, J. W. Skaggs, D.V.M., M.P.H., Acting Director, Office of Communicable Diseases, and Wallace Guerrant, Field Investigations Unit, Kentucky State Health Department; and EIS Officers.)

CURRENT TRENDS
CALIFORNIA ENCEPHALITIS – United States

In addition to the cases reported from Kentucky, there have been case reports of California encephalitis from five other states in the summer and fall of 1968. On the basis of serologic data, Arkansas, Iowa, and Wisconsin each

reported one confirmed case, while Minnesota reported two and Ohio four cases. On the basis of clinical data and serologic tests on a single serum specimen, one presumptive case was reported from Minnesota and five from Wisconsin.

(Reported by Bryant S. Swindoll, M.D., M.P.H., Director, Division of Chronic Disease Control, Arkansas State Board of Health; Arnold M. Reeve, M.D., M.P.H., Chief, Preventive Medical Service, Iowa State Department of Health; D. S. Fleming, M.D., M.P.H., Director, Division of Disease Prevention and Control, Minnesota Department of Health; Calvin B. Spencer, M.D., Acting Chief, Bureau of Preventive Medicine, Ohio Department of Health; and H. Grant Skinner, M.D., Chief, Section of Communicable Disease Control, Wisconsin Division of Health; and Wayne Thompson, D.V.M., Zoonoses Research Laboratory, University of Wisconsin.)

EPIDEMIOLOGIC NOTES AND REPORTS

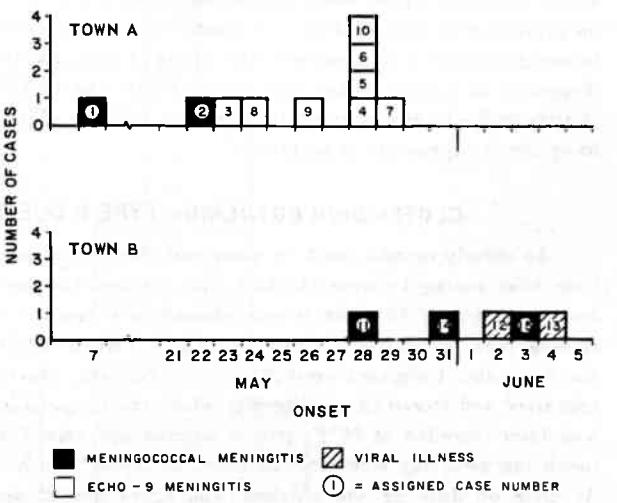
MENINGOCOCCAL AND ECHO-9 MENINGITIS – Manatee County, Florida

From May 7 to June 4, 1968, the Manatee County Health Department, Florida, serving a population of 80,000, was notified of 15 cases of meningitis, including one death. A detailed investigation confirmed five cases of meningococcal meningitis, eight cases of viral meningitis, and two viral illnesses occurring in six families.

The first case was diagnosed as fulminant meningococcemia by autopsy on May 7 (Figure 1 Town A). On May 22, 2 weeks later, a second case of meningococcal meningitis, documented by positive cerebral spinal fluid (CSF) culture, occurred in a child in the S. family who rode a church bus with the first case. Over the following 7 days, five siblings (cases 3, 4, 5, 6, 7) of the second case developed viral meningitis. Of these five siblings, three had ECHO-9 isolates in their stools. Two additional cases (8, 9 in the W. family) of ECHO-9 meningitis, documented by a fourfold rise in neutralizing antibody, occurred in next door playmates of the S. family on May 24 and May 26. Another case of ECHO-9 meningitis (case 10), documented by an ECHO-9 isolate in his stool and a fourfold antibody rise, occurred on May 28 in a 17-month-old male. This boy's grandmother drove the school bus and worked in the school cafeteria where the S. and W. children attended school.

A third case (11) of presumptive meningococcal meningitis, documented by positive CSF smear with negative culture, occurred on May 28 in a 6-year-old male who lived in another town several miles away (Figure 1 Town B). This patient had been on polycillin for 1 week prior to the spinal tap. No epidemiologic link could be established with the earlier cases of meningococcal or viral meningitis. Two of his brothers (cases 12, 13) had viral illnesses characterized by febrile headaches without stiff necks. Although no CSF or stool cultures were obtained, throat cultures were negative for bacterial pathogens. Serologic data are pending. On May 31, 3 days later, the next door playmate (case 14) of case 10 developed meningococcal meningitis following a 7-day illness characterized by fever, headache, vomiting, and a measles-like rash. Although she had been on antibiotics for 1 week, examination of the CSF revealed gram-negative diplococci on smear with a negative culture. On June 3, her father (case 15) developed meningococcal meningitis documented by positive CSF, blood, and throat cultures.

Figure 1
MENINGOCOCCAL MENINGITIS, ECHO-9 MENINGITIS, AND VIRAL ILLNESS
MANATEE COUNTY, FLORIDA
MAY 7 TO JUNE 5, 1968



In summary, two families had cases of meningococcal meningitis occurring at the same time as a viral illness and/or ECHO-9 meningitis. Three cases (2, 11, 14) had prodromal symptoms of headache and fever for 4-7 days prior to the onset of meningococcal meningitis. Case 14 had a measles-like rash 2 days prior to the onset of meningeal signs, and case 2 had a dual infection with *Neisseria meningitidis* and ECHO-9.

Therefore, simultaneous outbreaks of meningococcal and ECHO-9 meningitis have been confirmed. Although no conclusions as to a causal relationship between these two outbreaks can be made at the present time, further studies are underway to evaluate this possibility.

(Reported by Irving Hall, M.D., Pediatrician, Manatee County; George Dame, M.D., Director, Manatee County Health Department; Elsie Buff, M.S., Chief Virologist, Charles Hartwig, Ph.D., Director, Tampa Regional Laboratory, James O. Bond, M.D., D.P.H., Director, Encephalitis Research Center, Nathan J. Schneider, Ph.D., Director, Laboratories, and E. Charlton Prather, M.D., M.P.H., Director, Division of Epidemiology, Florida State Board of Health, and an EIS Officer.)

MURINE TYPHUS -- Baltimore, Maryland

Murine typhus was diagnosed in a 27-year-old chief mate of a German freighter which docked in Baltimore, Maryland, on August 21, 1968. While the ship was on route from Mazatlan, Mexico, on August 19, the man became ill with fever, severe headache, and backache. On August 21, the man reported to a hospital; a urinary infection was diagnosed and he was given sulfa drugs but was not hospitalized. His symptoms persisted, and he returned to the hospital on August 26; again he was not admitted but was told that he had influenza. The man went to a private physician on August 29; because a malaria smear was negative and a white blood cell count was 13,800, he was hospitalized. On admission the patient had albuminuria, and during the hospital course, he developed a bibasilar pneumonitis.

Serologic studies revealed an OX19 titer of 1:320 on August 20 and 1:1250 on September 3. Complement fixation titers to murine typhus were 1:32 on September 3 and 1:128 on September 9, a fourfold rise. A fluorescent antibody test to murine typhus on September 9 had a titer of 1:80, and the diagnosis of murine typhus was made. There was no rise in titer to Rocky Mountain spotted fever or Q Fever. Titers to epidemic typhus are in progress.

The patient was treated with tetracycline for 10 days and became afebrile after the third day of treatment. He was discharged on September 10 and returned to Germany.

The patient reported a large rat population on the docks in Mazatlan; however, he did not note any increased flea population. He made several visits to shore while the ship was docked. He also reported that two crew members had been hospitalized in Mazatlan with fever and gastroenteritis.

(Reported by John B. MacGibbon, M.D., Baltimore, Maryland; John H. Janney, M.D., Chief, Division of Communicable Diseases, and J.M. Joseph, Ph.D., Chief, Division of Virology, Bureau of Laboratories, Maryland State Health Department; and two EIS Officers.)

Editorial Note:

Because the average incubation period for murine typhus is 12 days, the patient probably contracted typhus by contact with an infected flea while the ship was docked at Mazatlan. Although it is possible that he contracted the disease while traveling from Mazatlan to Baltimore, the investigators found a good level of sanitation aboard the ship.

CLOSTRIDIUM BOTULINUM TYPE B DUE TO HOME-COOKED CHICKEN – St. Joseph, Michigan

An elderly couple, each 78 years old, developed botulism after eating leftover chicken. The chicken had been frozen until July 16 when it was stewed in a broth containing rice. It was described as "tasty" when served the same day. Leftovers were placed in a covered, plastic container and stored in a cellar-way where the temperature was later recorded at 75°F. It was warmed and served at lunch the next day when it was noted to taste "moldy." At noon on July 18 the chicken was again heated and served; the wife ate more than the husband who complained that it tasted "slimmy." A doctor was seen by the couple about 7:30 a.m. on July 20 because of visual and bulbar symptoms and impending respiratory failure. The wife's symptoms were more severe than the husband's; they were both hospitalized and treated with *Clostridium botulinum* type AB antitoxin. She died about 24 hours later; he made an uneventful recovery.

Laboratory examination showed *C. botulinum* type B toxin in the serum from both the husband and wife and in the leftover chicken. The wife's serum contained 20 mouse LD_{50} doses/ml and the husband's, 10-20 mouse LD_{50} doses/ml. In addition, *Clostridium botulinum* type B was isolated from the chicken.

(Reported by C. E. Baggerly, D.O., Practicing Osteopath, Buchanan, Michigan; Robert P. Locey, M.D., Health Officer, Berrien County Health Department; Donald B. Coohon, D.V.M., Public Health Veterinarian, George Agate, M.D., M.S.P.H., Chief, Division of Epidemiology, and William W. Ferguson, Ph.D., Chief, Division of Microbiology, Michigan Department of Public Health; and the Anaerobic Bacteriology Laboratory, Bacterial Reference Unit, Bacteriology Section, Laboratory Program, NCDC.)

Editorial Note:

Botulism resulting from the ingestion of poultry is quite rare in the United States. Of 640 reported outbreaks which occurred from 1899-1967 only one, also type B, was attributed to poultry. This is in agreement with the low incidence of *Clostridium botulinum* spores in raw meats in the United States and Canada.[1] Nevertheless, *C. botulinum* spores might well contaminate raw poultry, and it is possible that the heat resistant spores could survive normal cooking. In this outbreak storage of the leftover chicken in broth at room temperature undoubtedly permitted spores to germinate. This made possible the production of toxin; reheating on 2 subsequent days was obviously inadequate to inactivate all the toxin present.

Reference:

[1]Ingram, M. and Roberts, T. A.: *Botulism 1966*, Chapman and Hall, Ltd., London, 1967, pp. 34-37. Based on the Proceedings of the Fifth International Symposium on Food Microbiology, Moscow, July 1966.

FOOD POISONING – Morton, Mississippi

An outbreak of food poisoning occurred on September 12, 1968, in Morton, Mississippi, among students who ate their noon meal in the cafeteria of a consolidated public school with grades 1-12. Of the school's total enrollment of 1,409 pupils, 88.1 percent (1,241) ate the suspect lunch, resulting in 406 cases of illness characterized by

nausea, vomiting, prostration, and less frequently diarrhea. The mean attack rate was 32.7 percent with children in the lower grades appearing to be at greater risk (Table 3). The epidemic curve demonstrates the short incubation period and common source nature of the illness (Figure 2).

Table 3
Attack Rate by Grade, Morton, Mississippi
September 12, 1968

Grades	Children in Each Grade	Number Ill	Attack Rate
1	130	59	45.4
2	119	54	45.4
3	120	47	39.2
4	111	43	38.7
5	97	44	45.4
6	91	34	37.4
7	107	38	35.5
8	111	36	32.4
9	101	15	14.9
10	85	14	16.5
11	90	14	14.5
12	79	8	10.2
Total	1,241	406	32.7

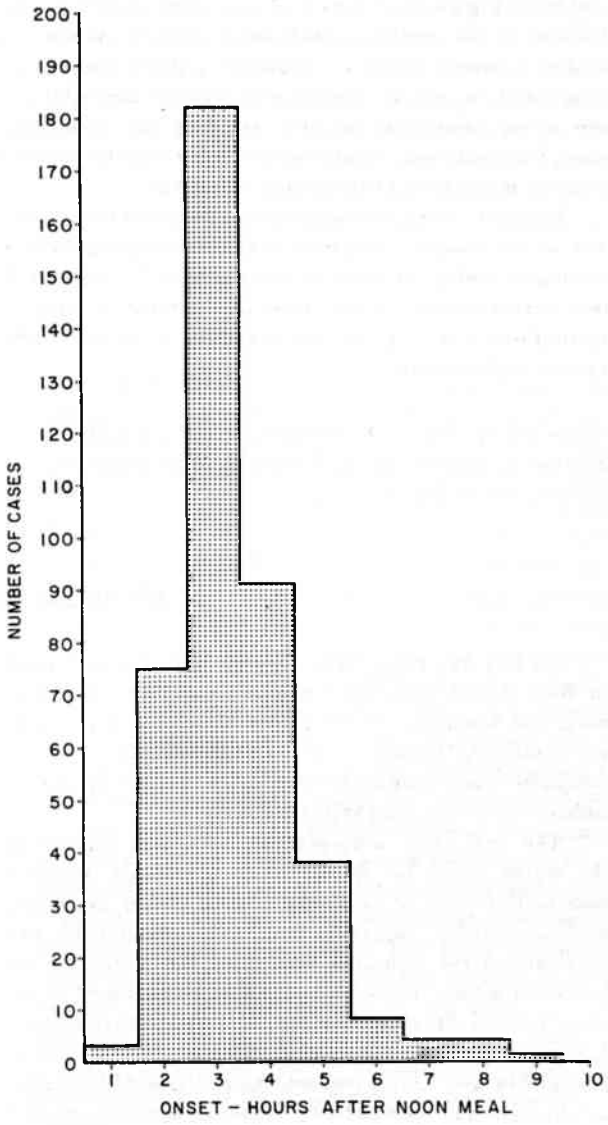
Of the items on the menu the greatest disparity in attack rates between those who ate and those who did not eat the specified food was for tuna fish salad, the incriminated vehicle (Table 4). Except for chopped eggs prepared by hand the previous day, all other ingredients of the salad were mixed just prior to serving. Cultures of the tuna fish salad served grew abundant *Staphylococcus aureus*. All other ingredients, including canned tuna and other foods on the menu, were culture negative.

Table 4
Food Histories of Students Eating School Lunch

Food Items	Number persons who ATE specified food				Number who did NOT eat specified food			
	Ill	Not Ill	Total	Attack Rate Percent	Ill	Not Ill	Total	Attack Rate Percent
Tuna Fish Salad	383	380	763	50.3	25	453	478	5.2
Butter Beans	231	298	529	43.8	179	533	712	25.1
Jello	248	338	586	42.5	148	507	655	22.6
Vanilla Wafer	266	359	625	42.6	167	449	616	26.7
Milk	333	512	845	39.5	59	337	396	14.9
Ice Cream	190	354	544	35.0	225	472	697	32.4

Although no apparent pustular skin lesions were detected on food handlers in the cafeteria, nose and/or throat cultures on nine of 11 food handlers grew *S. aureus*.

Figure 2
FOOD POISONING IN PUBLIC SCHOOL
MORTON, MISSISSIPPI – SEPTEMBER 12, 1968



Phage typing and enterotoxin producing ability of all staphylococcal isolates as well as enterotoxin assay of the incriminated tuna fish salad are in progress.

(Reported by D. L. Blakey, M.D., M.P.H., Director, Division of Preventable Disease Control, Richard H. Andrews, M.S., Director, Division of Public Health Laboratories, and S. L. Moore, M.D., M.P.H., Director and Personnel Officer, Division of County Health Work, Mississippi State Board of Health; and an EIS Officer.)

MEASLES – Terrebonne Parish, Louisiana

On September 2, 1968, a 7-year-old girl was admitted to a hospital in New Orleans, Louisiana, with clinical measles and associated mild encephalitis from which she subsequently recovered. Epidemiologic investigation in a relatively isolated area of Terrebonne Parish revealed a

(Continued on page 350)

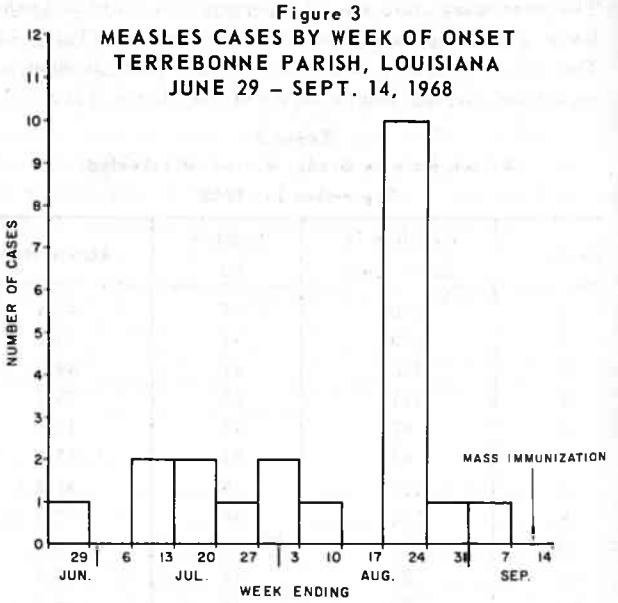
MEASLES – *(Continued from page 349)*

total of 21 related cases and traced cases to June when the first case occurred in a day care center for retarded children (Figure 3). Cases had continued at a low rate because of the pupils' limited social contact. At the end of July a normal child was exposed at Bible School to a retarded child, and she subsequently exposed four siblings, one friend, and five cousins including the presenting case. None had been immunized although a community-wide measles program was held in December 1967.

Emergency vaccine supplies were obtained from NCDC and an intensified community immunization program was conducted during the week of September 9. As a result of this investigation, surveillance for measles in special institutions will be added to the present school reporting system in Louisiana.

(Reported by Charles T. Caraway, D.V.M., M.P.H., Chief, Section of Epidemiology, Louisiana State Department of Health; and an EIS Officer.)

Figure 3
MEASLES CASES BY WEEK OF ONSET
TERREBONNE PARISH, LOUISIANA
JUNE 29 – SEPT. 14, 1968



ARSINE GAS POISONING – New Jersey

On May 29, 1968, three workers in a chemical plant in New Jersey developed nausea, vomiting, abdominal pain, and hematuria within 1 hour after cleaning a large vat containing several arsenic compounds. The workers' symptoms were compatible with those caused by the inhalation of arsine gas (AsH_3).

The first case, a 44-year-old male, was exposed to the arsine fumes for approximately 5 minutes. Within 1 hour he had onset of weakness, blurred vision, headache, nausea, vomiting, epigastric pain, and hematuria. He was hospitalized the following day. When the history of exposure to arsenic was obtained, he was transferred to another hospital. On admission, he was found to have icterus, dusky tan skin, and a tender abdomen. His admission hemoglobin was 7.8 gm percent. He was treated by mannitol diuresis and received two exchange transfusions of 5 and 10 units of blood, respectively. Neurologic studies, urine output, and EKG and bone marrow biopsies were normal. At the present time, the patient is ambulatory and is in satisfactory condition. Kidney and liver function tests have returned to normal; however, the patient continues to be anemic.

The second case, a 31-year-old male, was exposed to the arsine fumes for approximately 30 minutes; 15 minutes after exposure, he developed hematuria and then the onset of nausea, vomiting, myalgia, and headache. He received symptomatic medication that evening, but did not improve. Examination on May 30 revealed icteric sclera and a tender abdomen; arsenic poisoning was diagnosed and the patient was hospitalized. On admission the patient had dusky brown skin and a blood pressure of 158/80 with a pulse of 66. His initial laboratory tests included a hemoglobin of 11.7 gm percent which decreased to 8.0 gm percent over the next 2 weeks, a bilirubin of 13.6 mgm, and a plasma free hemoglobin of 2,180 mgm/100cc (normal is less than 5 mgm/100cc). Initial treatment included an exchange transfusion with 14 units of blood, six doses of 200 mg BAL every 4 hours, and peritoneal dialysis. His subsequent hospital course was complicated by high fever, pneumonia, persistant oliguria with azotemia, hyperkalemia, and mental aberration with hyperreflexia. Repeated transfusions, peritoneal dialysis, and ion exchange resins were employed, resulting in diuresis on June 20. Despite the return to normal of liver and kidney functions, the patient remains anemic.

The third case, a 44-year-old male, was believed to be exposed to a more concentrated volume of gas than the second case. He immediately became symptomatic with weakness, headache, nausea, frequent and severe vomiting, and right upper quadrant pain. He received symptomatic treatment that evening but continued to be ill and on May 20 was hospitalized. On admission he was disoriented and had a blood pressure of 100/60, pulse of 120/min, and respirations of 28/min. He had yellow sclera and his skin was greyish brown. He was diffusely tender throughout the abdomen, particularly in the right upper quadrant. His admission hemoglobin was 5.9 gm percent and his plasma free hemoglobin was 2,500 mgm/100 cc. The patient's course was similar to that of the second case with anuria, azotemia, hyperkalemia, and mental agitation. Treatment with BAL, blood transfusions, peritoneal dialysis, and ion exchange resin, resulted in diuresis by the third week of his hospital stay. After discharge from the hospital the patient complained of weakness in his legs. Liver function returned to normal, but his kidney function remains impaired.

(Reported by Norman Plummer, M.D., Coordinator, Pesticides Program, Division of Environmental Health, and Arthur DePalma, M.D., Pesticides Project, New Jersey State Department of Health; and the Pesticides Program, Food and Drug Administration, Atlanta, Georgia.)

Editorial Note:

The legs of the aluminum ladder which was used to enter the vat were actually in contact with the arsenic compounds in the vat. The following chemical reactions probably occurred.

$$NaAsO_2 + H_2O \rightarrow NaOH + HAsO_2$$
$$3NaOH + Al \rightarrow NaAlO_3 + 3H^\circ$$
$$6H^\circ + HAsO_3 \rightarrow 2H_2O + AsH_3$$

Although arsine gas (AsH_3) has a distinct garlic odor, the three patients could not remember smelling this odor. A possible explanation for this is that sodium arsenite ($NaAsO_2$), also present in the vat, has a strong odor and may have masked the arsine gas odor.

Hematuria, cephalgia, jaundice, and abdominal pain, commonly seen in arsine gas poisonings, are caused by the acute hemolytic crisis resulting from arsine inhalation. The persistance of nausea and vomiting in the patients was probably caused by the effects of arsine gas, the systemic effects of arsenic, and the azotemia which the patients developed.

MALARIA

Recently, two cases of malaria due to *Plasmodium falciparum* were reported to NCDC.

Case No. 1: San Antonio, Texas

On June 27, 1968, while on duty in Vietnam, a 41-year-old American serviceman developed chills, fever, blurred vision, and generalized weakness. He returned to his home in the United States on June 28, having received emergency leave because of illness in his family. His chills and fever persisted, and on July 1, he sought medical attention at a nearby military hospital. On physical examination, his temperature was 103°F.; he was drowsy, moderately confused, and appeared somewhat toxic; his liver and spleen were enlarged and tender. Initial laboratory studies showed a hematocrit of 43 percent, a BUN of 32 mg percent, a CO_2 of 19 meq per liter, and a bilirubin of 3.8 mg percent. A urinalysis was normal. Peripheral blood smears showed that approximately 50 percent of the red cells were parasitized with *Plasmodium falciparum*.

The patient was treated with intravenous quinine sulfate and oral chloroquine phosphate. Because of progressive signs of cerebral involvement, he was also treated with dexamethasone, 6 mg intramuscularly every 6 hours. On July 2 his platelet count was 5,000; the prothrombin time, partial thromboplastin time, and fibrinogen level were normal, and there were no petechiae or signs of blood loss. Because the thrombocytopenia suggested disseminated intravascular coagulation, he was treated with intravenous heparin, 50 mg every 4 hours. He also developed hemoglobinemia and hemogloginuria, associated with a decline in hematocrit to 30 percent. Although he was treated by forcing fluids and with mannitol and diuretics, he became oliguric and azotemic. On July 3 his platelet count was still 5,000 and his hematocrit had decreased to 26 percent; he received four units of packed cells and 12 units of platelets. Also on July 3 he had a grand mal seizure, necessitating treatment with diphenylhydantoin. On July 4 he began to show signs of improvement; his temperature returned to normal, and his mental status improved slightly; his BUN stabilized at 150 mg percent, and his urine output increased to 100-150 cc per hour. Peripheral blood smears at this time showed a 10 to 15 percent parasitemia. By July 5 the platelet count had risen to 25,000 and the hematocrit was stable at 32 percent. On July 6, however, he again became febrile and a chest film showed bilateral pulmonary infiltrates. His sputum contained both gram negative positive organisms as well as leukocytes. Blood cultures were drawn, and he was started on cephalosphorin and sodium colistimethate. However, he developed progressive respiratory insufficiency, and despite a tracheostomy, he died on July 7, the seventh hospital day. The blood cultures drawn on July 6 subsequently grew *Staphylococcus aureus* and *Pseudomonas aeruginosa*.

On postmortem examination, the lungs showed an acute necrotizing confluent bronchopneumonia with pulmonary edema and congestion. The kidneys showed focal acute inflammation and necrosis with occasional colonies of gram positive cocci; hemoglobin casts were found in the distal tubules. The brain showed multiple small foci of acute inflammation, one of which contained gram positive organisms; in addition, focal perivascular hemorrhage with ischemic necrosis was noted. The heart showed focal acute myocarditis. There was marked hyperplasia of both myeloid and erythroid elements in the bone marrow. *P. falciparum* parasites were not detected in any tissues, but malaria pigment was found in virtually every organ. Postmortem cultures of the lungs grew *S. aureus* and *Ps. aeruginosa*.

(Reported by Charles L. Hedberg, Colonel, MC, Acting Chief, Department of Medicine, Brooke Army Medical Center, Ft. Sam Houston, Texas; and M.S. Dickerson, M.D., Director, Communicable Disease Division, Texas State Department of Health.)

Case No. 2: Minneapolis, Minnesota

On July 13, 1968, following an untreated illness of 8 days duration, a 25-year-old American woman in Minneapolis, Minnesota, died. On July 14, postmortem examination revealed a normally proportioned Caucasian female with slightly icteric skin. The liver and spleen were enlarged and slate grey in color, and the brain appeared slightly congested and edematous. On microscopic examination, the capillaries of all organs were found to contain red cells parasitized with *Plasmodium falciparum*. Hemoglobin casts

(Continued on page 356)

TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES

FOR WEEKS ENDED
SEPTEMBER 21, 1968 AND SEPTEMBER 23, 1967 (38th WEEK)

AREA	ASEPTIC MENINGITIS		BRUCELLOSIS	DIPHTHERIA	ENCEPHALITIS			HEPATITIS			MALARIA
					Primary including unsp. cases		Post-Infectious	Serum	Infectious		
	1968	1967	1968	1968	1968	1967	1968	1968	1968	1967	1968
UNITED STATES...	295	128	5	5	61	39	8	116	1,051	708	72
NEW ENGLAND.....	12	2	1	-	1	-	-	2	67	50	-
Maine*.....	-	-	-	-	-	-	-	-	-	2	-
New Hampshire.....	-	-	-	-	-	-	-	-	-	-	-
Vermont.....	-	-	-	-	-	-	-	-	13	-	-
Massachusetts.....	-	1	1	-	-	-	-	-	23	22	-
Rhode Island.....	3	1	-	-	-	-	-	-	11	6	-
Connecticut.....	9	-	-	-	1	-	-	2	20	20	-
MIDDLE ATLANTIC.....	67	9	-	-	6	9	-	49	168	112	9
New York City.....	24	3	-	-	-	2	-	37	67	43	-
New York, up-State.	6	-	-	-	4	-	-	6	36	17	-
New Jersey.*.....	26	3	-	-	1	-	-	5	47	24	5
Pennsylvania*.....	11	3	-	-	1	7	-	1	18	28	4
EAST NORTH CENTRAL...	59	7	-	-	27	15	3	-	140	80	-
Ohio.....	13	2	-	-	18	15	1	-	29	26	-
Indiana.....	-	-	-	-	-	-	-	-	9	5	-
Illinois.....	5	2	-	-	4	-	-	-	35	15	-
Michigan.....	40	3	-	-	5	-	2	-	67	33	-
Wisconsin.....	1	-	-	-	-	-	-	-	-	1	-
WEST NORTH CENTRAL...	13	5	2	-	5	1	2	2	58	45	1
Minnesota.....	9	5	-	-	1	1	2	2	16	11	-
Iowa.*.....	4	-	1	-	3	-	-	-	11	8	-
Missouri.....	-	-	1	-	-	-	-	-	21	23	1
North Dakota.....	-	-	-	-	1	-	-	-	1	-	-
South Dakota.....	-	-	-	-	-	-	-	-	1	-	-
Nebraska.....	-	-	-	-	-	-	-	-	4	-	-
Kansas.....	-	-	-	-	-	-	-	-	4	3	-
SOUTH ATLANTIC.....	18	42	-	-	2	2	-	1	97	81	17
Delaware.....	-	-	-	-	-	-	-	-	4	12	1
Maryland.....	1	32	-	-	1	-	-	-	12	17	1
Dist. of Columbia..	-	-	-	-	-	-	-	-	-	-	-
Virginia.....	6	1	-	-	-	-	-	-	11	7	-
West Virginia.....	5	1	-	-	1	-	-	-	8	9	-
North Carolina.....	4	7	-	-	-	2	-	1	19	7	7
South Carolina.....	2	-	-	-	-	-	-	-	3	5	-
Georgia.....	-	-	-	-	-	-	-	-	17	10	7
Florida.....	-	1	-	-	-	-	-	-	23	14	1
EAST SOUTH CENTRAL...	17	24	-	4	4	2	1	-	55	42	1
Kentucky.....	5	13	-	-	-	1	-	-	21	14	1
Tennessee.....	6	2	-	-	2	1	1	-	18	7	-
Alabama.....	3	-	-	4	-	-	-	-	7	8	-
Mississippi.....	3	9	-	-	2	-	-	-	9	13	-
WEST SOUTH CENTRAL...	8	5	1	1	1	-	-	6	77	75	-
Arkansas.....	-	-	-	-	-	-	-	-	7	7	-
Louisiana.....	4	2	-	1	-	-	-	3	16	15	-
Oklahoma.....	1	-	-	-	-	-	-	-	8	2	-
Texas.....	3	3	1	-	1	-	-	3	46	51	-
MOUNTAIN.....	4	1	-	-	1	-	-	-	59	30	7
Montana.....	2	-	-	-	-	-	-	-	8	4	-
Idaho.....	1	-	-	-	-	-	-	-	3	1	-
Wyoming.....	-	-	-	-	-	-	-	-	-	-	-
Colorado.....	1	-	-	-	1	-	-	-	33	8	5
New Mexico.....	-	-	-	-	-	-	-	-	4	4	1
Arizona.....	-	-	-	-	-	-	-	-	7	4	1
Utah.....	-	1	-	-	-	-	-	-	4	9	-
Nevada.....	-	-	-	-	-	-	-	-	-	-	-
PACIFIC.....	97	33	1	-	14	10	2	56	330	193	37
Washington.....	2	-	-	-	-	-	-	-	30	8	1
Oregon.*.....	14	-	-	-	1	-	-	-	16	6	1
California.....	79	32	1	-	13	10	2	56	280	177	4
Alaska.....	2	-	-	-	-	-	-	-	3	1	-
Hawaii.....	-	1	-	-	-	-	-	-	1	1	31
Puerto Rico*.....	-	-	-	-	-	-	-	-	21	49	-

*Delayed reports: Aseptic meningitis: Ore. 1
Encephalitis, primary: Pa. delete 1
Hepatitis infectious: Me. 3, P.R. 4
Malaria: N.J. 2, Iowa 1

TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES

FOR WEEKS ENDED

SEPTEMBER 21, 1968 AND SEPTEMBER 23, 1967 (38th WEEK) - CONTINUED

AREA	MEASLES (Rubeola)			MENINGOCOCCAL INFECTIONS, TOTAL			MUMPS	POLIOMYELITIS			RUBELLA
		Cumulative			Cumulative			Total	Paralytic		
	1968	1968	1967	1968	1968	1967	1968	1968	1968	Cum. 1968	1968
UNITED STATES...	130	19,798	58,049	29	2,060	1,703	609	1	1	41	215
NEW ENGLAND.....	5	1,162	848	-	121	68	76	-	-	1	32
Maine.....	-	37	239	-	6	3	-	-	-	-	3
New Hampshire.....	-	141	74	-	7	2	2	-	-	-	-
Vermont.....	-	2	34	-	1	1	12	-	-	-	1
Massachusetts.....	1	366	349	-	63	32	36	-	-	1	12
Rhode Island.....	-	5	62	-	9	4	10	-	-	-	5
Connecticut.....	4	611	90	-	35	26	16	-	-	-	11
MIDDLE ATLANTIC.....	23	4,114	2,276	8	371	280	14	-	-	-	25
New York City.....	20	2,130	464	2	75	49	-	-	-	-	16
New York, Up-State.	-	1,218	587	3	67	68	NN	-	-	-	8
New Jersey.....	3	639	490	-	128	93	14	-	-	-	1
Pennsylvania.....	-	127	735	3	101	70	NN	-	-	-	-
EAST NORTH CENTRAL...	31	3,811	5,501	6	251	231	186	-	-	1	71
Ohio.....	2	296	1,150	3	67	80	7	-	-	-	5
Indiana.....	4	676	597	-	35	23	18	-	-	-	11
Illinois.....	5	1,369	979	2	56	55	11	-	-	1	7
Michigan.....	6	272	937	1	73	56	30	-	-	-	28
Wisconsin.....	14	1,198	1,838	-	20	17	120	-	-	-	20
WEST NORTH CENTRAL...	1	385	2,868	3	111	73	54	-	-	2	15
Minnesota.....	-	16	134	-	26	18	1	-	-	-	-
Iowa.....	1	99	749	1	7	14	48	-	-	-	12
Missouri.....	-	81	333	2	37	15	1	-	-	2	3
North Dakota.....	-	134	870	-	3	1	-	-	-	-	-
South Dakota.....	-	4	54	-	5	6	NN	-	-	-	-
Nebraska.....	-	41	635	-	6	13	4	-	-	-	-
Kansas.....	-	10	93	-	27	6	-	-	-	-	
SOUTH ATLANTIC.....	8	1,515	6,898	2	412	329	35	1	1	3	13
Delaware.....	-	16	46	-	8	6	-	-	-	-	2
Maryland.....	4	100	161	-	34	43	7	-	-	-	2
Dist. of Columbia*.	-	6	22	-	14	10	-	-	-	1	-
Virginia.....	1	302	2,191	1	36	40	2	-	-	-	-
West Virginia.....	1	289	1,390	-	11	26	13	1	1	1	2
North Carolina.....	-	282	853	1	77	70	NN	-	-	1	-
South Carolina.....	-	12	511	-	56	29	-	-	-	-	-
Georgia.....	-	4	36	-	85	49	-	-	-	-	-
Florida.....	2	504	1,688	-	91	56	13	-	-	-	7
EAST SOUTH CENTRAL...	4	496	5,213	2	187	129	40	-	-	2	7
Kentucky.....	-	100	1,337	1	85	35	7	-	-	1	-
Tennessee.....	-	62	1,880	-	54	55	31	-	-	-	5
Alabama.....	-	94	1,329	-	26	26	1	-	-	1	2
Mississippi.....	4	240	667	1	22	13	1	-	-	-	-
WEST SOUTH CENTRAL...	27	4,806	17,439	3	308	222	45	-	-	21	16
Arkansas.....	-	2	1,404	-	20	31	1	-	-	-	-
Louisiana.....	-	2	155	1	89	88	-	-	-	-	-
Oklahoma.....	6	123	3,351	-	50	16	1	-	-	2	-
Texas.....	21	4,679	12,529	2	149	87	43	-	-	19	16
MOUNTAIN.....	14	994	4,672	1	32	32	51	-	-	-	9
Montana.....	1	59	287	1	5	1	9	-	-	-	2
Idaho.....	-	21	385	-	11	3	4	-	-	-	1
Wyoming.....	-	51	181	-	-	1	-	-	-	-	-
Colorado*.....	-	501	1,569	-	10	13	11	-	-	-	2
New Mexico.....	10	112	586	-	-	3	4	-	-	-	3
Arizona*.....	3	224	1,019	-	2	4	17	-	-	-	1
Utah.....	-	21	376	-	1	4	6	-	-	-	-
Nevada.....	-	5	269	-	3	3	-	-	-	-	-
PACIFIC.....	17	2,515	12,334	4	267	339	108	-	-	11	27
Washington.....	13	533	5,439	1	39	29	-	-	-	1	8
Oregon*.....	2	525	1,609	-	21	27	10	-	-	-	9
California.....	2	1,420	4,975	3	193	269	89	-	-	10	5
Alaska.....	-	2	140	-	2	10	5	-	-	-	5
Hawaii.....	-	35	171	-	12	4	4	-	-	-	-
Puerto Rico.....	5	412	2,126	1	20	12	23	-	-	-	3

*Delayed reports: Measles: Colo. delete 1, Ariz. delete 1, Ore. delete 3
Poliomyelitis, paralytic: D.C. 1
Rubella: Ore. 3

TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES
FOR WEEKS ENDED
SEPTEMBER 21, 1968 AND SEPTEMBER 23, 1967 (38th WEEK) - CONTINUED

AREA	STREPTOCOCCAL SORE THROAT & SCARLET FEVER	TETANUS		TULAREMIA		TYPHOID		TYPHUS FEVER TICK-BORNE (Rky. Mt. Spotted)		RABIES IN ANIMALS	
	1968	1968	Cum. 1968	1968	Cum. 1968	1968	Cum. 1968	1968	Cum. 1968	1968	Cum. 1968
UNITED STATES...	5,727	5	116	2	144	13	276	9	246	55	2,599
NEW ENGLAND.....	640	-	2	-	46	1	8	-	1	-	70
Maine*.....	2	-	-	-	-	-	-	-	-	-	53
New Hampshire.....	26	-	-	-	-	-	1	-	-	-	2
Vermont.....	11	-	-	-	46	-	-	-	-	-	11
Massachusetts.....	97	-	1	-	-	1	4	-	1	-	3
Rhode Island.....	39	-	-	-	-	-	-	-	-	-	-
Connecticut.....	465	-	1	-	-	-	3	-	-	-	1
MIDDLE ATLANTIC.....	119	2	15	-	7	-	21	-	18	1	40
New York City.....	4	2	8	-	-	-	10	-	-	-	-
New York, Up-State.	101	-	4	-	7	-	4	-	4	1	33
New Jersey.....	NN	-	-	-	-	-	4	-	6	-	-
Pennsylvania.....	14	-	3	-	-	-	3	-	8	-	7
EAST NORTH CENTRAL...	415	-	10	-	8	1	36	-	8	7	249
Ohio.....	53	-	-	-	1	1	14	-	6	-	86
Indiana.....	92	-	2	-	1	-	3	-	-	3	80
Illinois.....	57	-	5	-	5	-	18	-	2	1	35
Michigan.....	100	-	2	-	1	-	-	-	-	1	13
Wisconsin.....	113	-	1	-	-	-	1	-	-	2	35
WEST NORTH CENTRAL...	240	1	9	-	13	1	31	-	9	9	633
Minnesota.....	28	-	2	-	-	-	-	-	-	5	195
Iowa.....	94	-	3	-	-	-	1	-	1	2	105
Missouri.....	7	-	2	-	7	1	24	-	3	2	92
North Dakota.....	46	-	-	-	-	-	-	-	-	-	102
South Dakota.....	14	-	-	-	3	-	1	-	4	-	79
Nebraska.....	45	1	2	-	-	-	3	-	1	-	25
Kansas.....	6	-	-	-	3	-	2	-	-	-	35
SOUTH ATLANTIC.....	620	-	25	1	10	-	54	7	134	6	296
Delaware.....	2	-	-	-	-	-	-	-	-	-	-
Maryland.....	118	-	3	-	-	-	9	1	15	-	5
Dist. of Columbia..	28	-	2	-	-	-	1	-	-	-	1
Virginia.....	204	-	4	-	2	-	9	-	42	1	108
West Virginia.....	137	-	2	-	-	-	-	2	2	-	34
North Carolina.....	11	-	2	-	2	-	2	3	37	-	11
South Carolina.....	31	-	3	-	-	-	3	1	9	-	-
Georgia.....	4	-	-	1	4	-	14	-	26	4	53
Florida.....	85	-	9	-	2	-	16	-	3	1	84
EAST SOUTH CENTRAL...	1,055	1	15	-	8	2	31	1	46	12	561
Kentucky.....	132	-	1	-	1	-	6	-	10	7	285
Tennessee.....	778	1	6	-	5	-	16	1	31	5	253
Alabama.....	57	-	5	-	-	2	2	-	3	-	22
Mississippi.....	88	-	3	-	2	-	7	-	2	-	1
WEST SOUTH CENTRAL...	572	1	22	1	43	4	36	1	24	5	424
Arkansas.....	15	-	4	-	14	2	7	-	5	-	54
Louisiana.....	3	1	9	-	6	1	6	-	-	2	40
Oklahoma.....	45	-	-	-	8	-	12	1	12	-	117
Texas.....	509	-	9	1	15	1	11	-	7	3	213
MOUNTAIN.....	1,161	-	-	-	7	1	15	-	5	3	74
Montana.....	19	-	-	-	-	-	-	-	-	-	-
Idaho.....	89	-	-	-	-	-	-	-	1	-	-
Wyoming.....	33	-	-	-	1	-	1	-	-	-	3
Colorado.....	749	-	-	-	3	-	2	-	4	-	3
New Mexico.....	135	-	-	-	-	1	8	-	-	1	31
Arizona.....	90	-	-	-	-	-	3	-	-	2	36
Utah.....	46	-	-	-	3	-	-	-	-	-	-
Nevada.....	-	-	-	-	-	-	1	-	-	-	1
PACIFIC.....	905	-	18	-	2	3	44	-	1	12	252
Washington.....	250	-	1	-	-	-	2	-	-	-	2
Oregon.....	42	-	1	-	1	-	5	-	-	-	6
California.....	386	-	16	-	1	3	37	-	1	12	244
Alaska.....	81	-	-	-	-	-	-	-	-	-	-
Hawaii.....	146	-	-	-	-	-	-	-	-	-	-
Puerto Rico.....	10	-	8	-	-	1	3	-	-	-	17

*Delayed reports: SST: Me. 6

Week No. 38

TABLE IV. DEATHS IN 122 UNITED STATES CITIES FOR WEEK ENDED SEPTEMBER 21, 1968

(By place of occurrence and week of filing certificate. Excludes fetal deaths)

Area	All Causes		Pneumonia and Influenza	Under 1 year
	All Ages	65 years and over	All Ages	All Causes
NEW ENGLAND:	695	407	29	38
Boston, Mass.	197	113	8	12
Bridgeport, Conn.	39	21	7	2
Cambridge, Mass.	24	11	-	2
Fall River, Mass.	20	15	-	-
Hartford, Conn.	65	28	3	7
Lowell, Mass.	28	16	-	2
Lynn, Mass.	19	11	-	1
New Bedford, Mass.	22	16	1	1
New Haven, Conn.	62	37	1	-
Providence, R. I.	66	41	4	4
Somerville, Mass.	12	9	-	-
Springfield, Mass.	48	30	2	3
Waterbury, Conn.	25	12	-	2
Worcester, Mass.	68	47	3	2
MIDDLE ATLANTIC:	3,109	1,792	116	139
Albany, N. Y.	48	27	1	2
Allentown, Pa.	51	36	-	1
Buffalo, N. Y.	150	88	2	9
Camden, N. J.	43	25	5	3
Elizabeth, N. J.	39	26	4	3
Erie, Pa.	37	21	4	2
Jersey City, N. J.	50	37	2	-
Newark, N. J.	70	32	3	4
New York City, N. Y.	1,552	913	54	62
Paterson, N. J.	37	22	4	1
Philadelphia, Pa.	406	205	8	20
Pittsburgh, Pa.	175	86	5	14
Reading, Pa.	59	39	3	2
Rochester, N. Y.	134	75	8	5
Schenectady, N. Y.	31	19	3	-
Scranton, Pa.	43	26	2	-
Syracuse, N. Y.	84	53	3	4
Trenton, N. J.	53	29	2	7
Utica, N. Y.	26	19	2	-
Yonkers, N. Y.	21	14	1	-
EAST NORTH CENTRAL:	2,555	1,398	71	139
Akron, Ohio	73	37	-	9
Canton, Ohio	37	25	-	1
Chicago, Ill.	749	374	22	46
Cincinnati, Ohio	173	94	5	6
Cleveland, Ohio	196	95	2	8
Columbus, Ohio	119	62	6	8
Dayton, Ohio	73	46	3	5
Detroit, Mich.	319	169	7	14
Evansville, Ind.	43	26	1	1
Flint, Mich.	55	31	4	3
Fort Wayne, Ind.	63	45	5	1
Gary, Ind.	20	11	-	-
Grand Rapids, Mich.	56	36	2	5
Indianapolis, Ind.	160	78	3	13
Madison, Wis.	30	19	2	1
Milwaukee, Wis.	119	81	1	6
Peoria, Ill.	33	22	-	2
Rockford, Ill.	32	23	4	-
South Bend, Ind.	45	27	3	3
Toledo, Ohio	110	67	1	6
Youngstown, Ohio	50	30	-	1
WEST NORTH CENTRAL:	868	527	29	42
Des Moines, Iowa	77	57	-	4
Duluth, Minn.	27	20	6	-
Kansas City, Kans.	60	38	4	5
Kansas City, Mo.	125	77	2	4
Lincoln, Nebr.	26	19	1	-
Minneapolis, Minn.	123	68	-	12
Omaha, Nebr.	76	45	-	5
St. Louis, Mo.	226	127	7	6
St. Paul, Minn.	68	46	1	4
Wichita, Kans.	60	30	8	2

Area	All Causes		Pneumonia and Influenza	Under 1 year
	All Ages	65 years and over	All Ages	All Causes
SOUTH ATLANTIC:	1,161	565	44	76
Atlanta, Ga.	130	51	2	11
Baltimore, Md.	252	130	5	8
Charlotte, N. C.	51	21	1	4
Jacksonville, Fla.	62	24	1	3
Miami, Fla.	119	60	2	7
Norfolk, Va.	59	32	3	3
Richmond, Va.	68	33	5	2
Savannah, Ga.	52	28	5	1
St. Petersburg, Fla.	71	57	4	1
Tampa, Fla.	66	36	9	-
Washington, D. C.	197	75	5	34
Wilmington, Del.	34	18	2	2
EAST SOUTH CENTRAL:	665	364	26	31
Birmingham, Ala.	101	55	2	8
Chattanooga, Tenn.	56	32	4	3
Knoxville, Tenn.	46	32	2	-
Louisville, Ky.	136	75	8	2
Memphis, Tenn.	144	71	-	12
Mobile, Ala.	45	20	-	2
Montgomery, Ala.	47	27	5	2
Nashville, Tenn.	90	52	5	2
WEST SOUTH CENTRAL:	1,141	619	25	75
Austin, Tex.	33	21	1	-
Baton Rouge, La.	29	19	-	-
Corpus Christi, Tex.	23	17	-	-
Dallas, Tex.	158	87	-	9
El Paso, Tex.	40	19	2	5
Fort Worth, Tex.	74	42	1	4
Houston, Tex.	192	105	1	12
Little Rock, Ark.	87	47	8	10
New Orleans, La.	157	83	1	8
Oklahoma City, Okla.	83	46	-	2
San Antonio, Tex.	134	64	3	11
Shreveport, La.	58	31	5	6
Tulsa, Okla.	73	38	3	8
MOUNTAIN:	427	253	19	28
Albuquerque, N. Mex.	48	20	2	4
Colorado Springs, Colo.	33	20	4	5
Denver, Colo.	107	76	4	5
Ogden, Utah	18	9	3	1
Phoenix, Ariz.	77	40	2	5
Pueblo, Colo.	25	19	2	-
Salt Lake City, Utah	58	37	1	4
Tucson, Ariz.	61	32	1	4
PACIFIC:	1,629	1,025	34	78
Berkeley, Calif.	17	14	-	-
Fresno, Calif.	39	27	1	1
Glendale, Calif.	28	20	-	1
Honolulu, Hawaii	42	17	1	7
Long Beach, Calif.	80	53	1	5
Los Angeles, Calif.	601	398	14	29
Oakland, Calif.	85	46	-	5
Pasadena, Calif.	40	25	1	-
Portland, Oreg.	108	73	4	1
Sacramento, Calif.	59	29	-	3
San Diego, Calif.	83	51	-	1
San Francisco, Calif.	186	108	4	12
San Jose, Calif.*	41	28	2	2
Seattle, Wash.	137	85	2	6
Spokane, Wash.	44	30	2	2
Tacoma, Wash.	39	21	2	3
Total	12,250	6,950	393	646

*Estimate - based on average percent of divisional total.

Cumulative Totals
including reported corrections for previous weeks

All Causes, All Ages	484,836
All Causes, Age 65 and over	279,520
Pneumonia and Influenza, All Ages	19,635
All Causes, Under 1 Year of Age	22,877

MALARIA – *(Continued from page 351)*

were found in the renal tubules, and vacuolar degeneration was noted in the proximal tubular cells. The bone marrow showed marked erythroid hyperplasia. The heart and lungs were normal.

The woman had no history of previous malaria attacks and had not received blood transfusions. She and her husband had lived in Sierra Leone from September 1967 until June 15, 1968, and then had returned to the United States, arriving in San Francisco on July 5. During their return journey they had visited several countries in southeast Asia, including Thailand. While abroad, the woman had not used malaria chemoprophylaxis. On July 5 she complained of dizzy spells and by July 10 appeared febrile and intermittently delirious. Because of her religious beliefs, she had not sought medical attention.

(Reported by Calvin Bandt, M.D., Hennepin County Medical Examiner's Office, Minneapolis, Minnesota; Fred G. Gunlaugson, M.D., Director, Bureau of Disease Prevention and Control, Minneapolis City Health Department; and D.S. Fleming, M.D., Director, Division of Disease Prevention and Control, Minnesota State Health Department.)

Editorial Note:

The time between the onset of the woman's illness and her departure from Sierra Leone was 20 days. Since the usual incubation period for mosquito-transmitted falciparum malaria is 12 days, she almost certainly acquired her infection during her return journey, probably in southeast Asia.

CURRENT TRENDS
MORBIDITY REPORTING

The "Manual of Procedures for National Morbidity Reporting and Surveillance of Communicable Diseases" has recently been revised and is available on request from:

National Communicable Disease Center
Atlanta, Georgia 30333

Attn: Acting Chief, Statistics Section
Epidemiology Program

The manual describes procedures by which data are collected for the "Morbidity and Mortality Weekly Report" and the "Annual Supplement" to the MMWR, includes instructions for submitting surveillance forms on individual cases of diseases under national surveillance, and exhibits current surveillance forms used by various programs of the NCDC.

THE MORBIDITY AND MORTALITY WEEKLY REPORT, WITH A CIRCULATION OF 17,000, IS PUBLISHED AT THE NATIONAL COMMUNICABLE DISEASE CENTER, ATLANTA, GEORGIA.

DIRECTOR, NATIONAL COMMUNICABLE DISEASE CENTER — DAVID J. SENCER, M.D.
CHIEF, EPIDEMIOLOGY PROGRAM — A.D. LANGMUIR, M.D.
ACTING CHIEF, STATISTICS SECTION — IDA L. SHERMAN, M.S.
EDITOR — MICHAEL B. GREGG, M.D.

IN ADDITION TO THE ESTABLISHED PROCEDURES FOR REPORTING MORBIDITY AND MORTALITY, THE NATIONAL COMMUNICABLE DISEASE CENTER WELCOMES ACCOUNTS OF INTERESTING OUTBREAKS OR CASE INVESTIGATIONS WHICH ARE OF CURRENT INTEREST TO HEALTH OFFICIALS AND WHICH ARE DIRECTLY RELATED TO THE CONTROL OF COMMUNICABLE DISEASES. SUCH COMMUNICATIONS SHOULD BE ADDRESSED TO:

NATIONAL COMMUNICABLE DISEASE CENTER
ATLANTA, GEORGIA 30333
ATTN: THE EDITOR
MORBIDITY AND MORTALITY WEEKLY REPORT

NOTE: THE DATA IN THIS REPORT ARE PROVISIONAL AND ARE BASED ON WEEKLY TELEGRAMS TO THE NCDC BY THE INDIVIDUAL STATE HEALTH DEPARTMENTS. THE REPORTING WEEK CONCLUDES ON SATURDAY; COMPILED DATA ON A NATIONAL BASIS ARE RELEASED ON THE SUCCEEDING FRIDAY.