



Morbidity and Mortality

JUN 9 1967

CDC LIBRARY

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

PUBLIC HEALTH SERVICE

BUREAU OF DISEASE PREVENTION AND ENVIRONMENTAL CONTROL

EPIDEMIOLOGIC NOTES AND REPORTS
TYPHOID FEVER - California

An epidemic of 31 cases of typhoid fever that occurred at Stanford University between May 10 and May 31, 1967, involved 30 of the 72 members of one fraternity (including four championship swimmers) and one of the two fraternity-house cooks. All but three of the 31 patients - two fraternity men and the cook - were symptomatic; 20 were hospitalized. Typical symptoms were fever to 104°F, chills, weakness, backache, and headache. There were no complications or deaths. Stool or blood cultures or both from all but one of the patients were positive for *Salmonella typhi*, phage type B₁, and the exception had a four-fold rise in antibody titer.

CONTENTS

Epidemiologic Notes and Reports
 Typhoid Fever - California 177
Salmonella typhi-murium - Yakima County, Washington . 178
 Current Trends
 Viral Hepatitis, USA - 1967 179
 International Notes
 Smallpox - Kuwait 184

Potato salad prepared by the cook and served at a luau on May 6 was at first suspected of being the vehicle of infection, but investigation showed that of the 109 persons who attended the party only 25, all fraternity members, became ill, and none of the 50 women guests were affected. Furthermore, the attack rate was as high for members who did not attend the party as for those who did.
(Continued on page 178)

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

DISEASE	22nd WEEK ENDED		MEDIAN 1962 - 1966	CUMULATIVE, FIRST 22 WEEKS		
	JUNE 3, 1967	JUNE 4, 1966		1967	1966	MEDIAN 1962 - 1966
Aseptic meningitis	23	25	26	697	611	601
Brucellosis	6	3	3	97	93	145
Diphtheria	2	4	4	43	69	113
Encephalitis, primary:						
Arthropod-borne & unspecified	26	28	---	540	537	---
Encephalitis, post-infectious	24	23	---	378	379	---
Hepatitis, serum	24	18	---	822	546	---
Hepatitis, infectious	519	516	630	17,061	14,729	19,005
Malaria	38	4	2	836	119	37
Measles (rubeola)	1,670	5,919	13,196	50,139	162,223	292,640
Meningococcal infections, total	41	60	44	1,269	2,110	1,400
Civilian	37	55	---	1,173	1,866	---
Military	4	5	---	96	244	---
Poliomyelitis, total	1	---	3	10	9	32
Paralytic	1	---	1	9	8	26
Rubella (German measles)	1,991	1,628	---	31,039	34,091	---
Streptococcal sore throat & scarlet fever	7,900	6,504	5,729	252,005	239,423	222,294
Tetanus	6	4	4	65	53	85
Tularemia	1	3	6	59	59	87
Typhoid fever	1	2	10	132	121	149
Typhus, tick-borne (Rky. Mt. spotted fever)	8	11	6	43	32	28
Rabies in animals	76	60	72	1,970	1,905	1,902

NOTIFIABLE DISEASES OF LOW FREQUENCY

	Cum.		Cum.
Anthrax	2	Rabies in man	---
Botulism	---	Rubella, Congenital Syndrome	3
Leptospirosis: Tex.-1	16	Trichinosis: Ore.-2	34
Plague	---	Typhus, murine: Tex.-1	15
Psittacosis: Neb.-1, Tex.-1	19	Polio, Unsp.:	1

TYPHOID FEVER - California

(Continued from front page)

Thirty of the 31 patients ate their meals at the fraternity house. Of the 48 members who ate there regularly, 27 (56 percent) were ill. Of 18 persons who ate there occasionally, three were ill. Of six members who never ate there, none were ill. Ten of the 13 student food-handlers were among the ill.

Clearly, the disease emanated from the fraternity kitchen, but the source of the epidemic is not known. In the 6 weeks before the epidemic, at least seven fraternity members traveled in areas where typhoid fever is endemic, and two of them had gastroenteritis there. The cook, who was employed in September 1966, gave no history of

typhoid fever or foreign travel and had never been identified as a typhoid carrier.

The fraternity-house kitchen was closed, all members were given typhoid vaccine, and state and campus health officials are considering antibiotic prophylaxis for all well members.

(Reported by Philip K. Condit, M.D., State Epidemiologist, and Henry A. Renteln, M.D., Head, General Epidemiology Section, California State Department of Public Health; Mary Clark, M.D., Santa Clara County Health Department; Rodney Beard, M.D., Professor of Preventive Medicine, Stanford University; and an EIS Officer.)

SALMONELLA TYPHI-MURIUM - Yakima County, Washington

An outbreak of gastroenteritis due to *Salmonella typhi-murium* occurred over a 15-week period (January - April 1967) in Yakima County, Washington, and involved at least 40 persons. No deaths were reported. One case of meningitis occurred in a newborn whose mother was symptomatic at time of delivery.

Of the 40 patients, whose symptoms included fever, nausea, vomiting, cramps, and diarrhea, 33 were hospitalized and 39 submitted *S. typhi-murium*-positive specimens (37 fecal, 1 blood, and 1 throat swab). There were 32 primary and 6 secondary cases; two patients acquired *S. typhi-murium* while hospitalized for unrelated disorders. Slightly more than half the patients were less than 10 years old; 23 were males, 17 were females.

In interviews with the 15 initial patients (those with onset of symptoms in the first 4 weeks of the outbreak), investigators learned that eight - more than 50 percent - drank raw milk from a dairy that furnished only 1 percent of the involved area's milk supply.

The dairy was visited, and cultures were done on samples taken from the environment, farm workers, water, feeds, cows, calves, and milk; *S. typhi-murium* was found in milk from three cows, in feces from one calf, and in water from the stream that is the water supply for the cattle. When extensive sampling revealed that the entire 15-18-mile course of the stream was contaminated with *S. typhi-murium*, a further search was made and a gunny sack containing a dead calf was found in the water just above the highest positive sample station. *S. typhi-murium* was isolated from stool from the calf but not from the organs sampled, which could be accounted for by putrefaction and overgrowth of any salmonellae organisms that might have been present.

A contaminated mud-and-water sample was later taken

from the stream above where the calf was found. The two families who lived just above that point (at the stream's headwaters) had drunk raw milk purchased from the incriminated dairy. No organisms were found when stool samples were tested after the epidemic had ended, but the families reported having had diarrhea at about the time of the epidemic.

One hypothesis as to the source of salmonella contamination is that the calf died of an *S. typhi-murium* septicemia and was thrown in the stream. The water became contaminated and carried the infection to the dairy herd downstream. The families upstream drank contaminated milk from the dairy and subsequently shed *S. typhi-murium* in stool. Water from their septic tanks found its way into the stream, thus accounting for the presence of *S. typhi-murium* above the calf.

The dairy involved now sells nothing but pasteurized milk, and other producers of raw milk in Yakima County are following suit; however, raw milk is still sold in many counties of Washington State.

(Reported by Byron J. Francis, M.D., Head, Communicable Disease Control Section, Jack Allard, M.P.H., Associate Epidemiologist, Washington State Department of Health; and an EIS Officer.)

Editorial Note:

This is the fifth and largest outbreak of salmonellosis due to ingestion of raw milk to be reported to NCDC since the salmonella surveillance program began in 1963. Three of the five were due to *S. typhi-murium*, and four occurred in the West (California-1, Washington-2, and Idaho-1), where the practice of drinking raw milk is more common than in most other parts of the country.

CURRENT TRENDS
VIRAL HEPATITIS, USA - 1967

The reported incidence of viral hepatitis in the United States has declined slightly in the past two months (Figure 1), consistent with the normal seasonal pattern. For the first 22 weeks of 1967, 17,883 cases of viral hepatitis were reported in the United States. This represents a rate of 9.1 cases per 100,000 population for the 22-week period. For the comparable period of 1966, 15,275 cases were reported, for a rate of 7.8. Thus, the rate for 1967 was 17 percent higher than for 1966.

Figure 2 shows the areas in each of the nine geographic regions of the United States. Table 1 lists by

region the number of reported cases, rates, and percent change in rates for the first 22 weeks of 1966 and 1967. The rates were greater in 1967 than in 1966 in seven of the nine regions; increases ranged from 16 to 42 percent. The largest increases were observed in the New England and West South Central regions (40 and 42 percent, respectively). Two of the nine regions, East North Central and East South Central, showed decreases in rates (-4 and -18 percent respectively).

(Reported by Hepatitis Unit, Epidemiology Program, NCDC.)

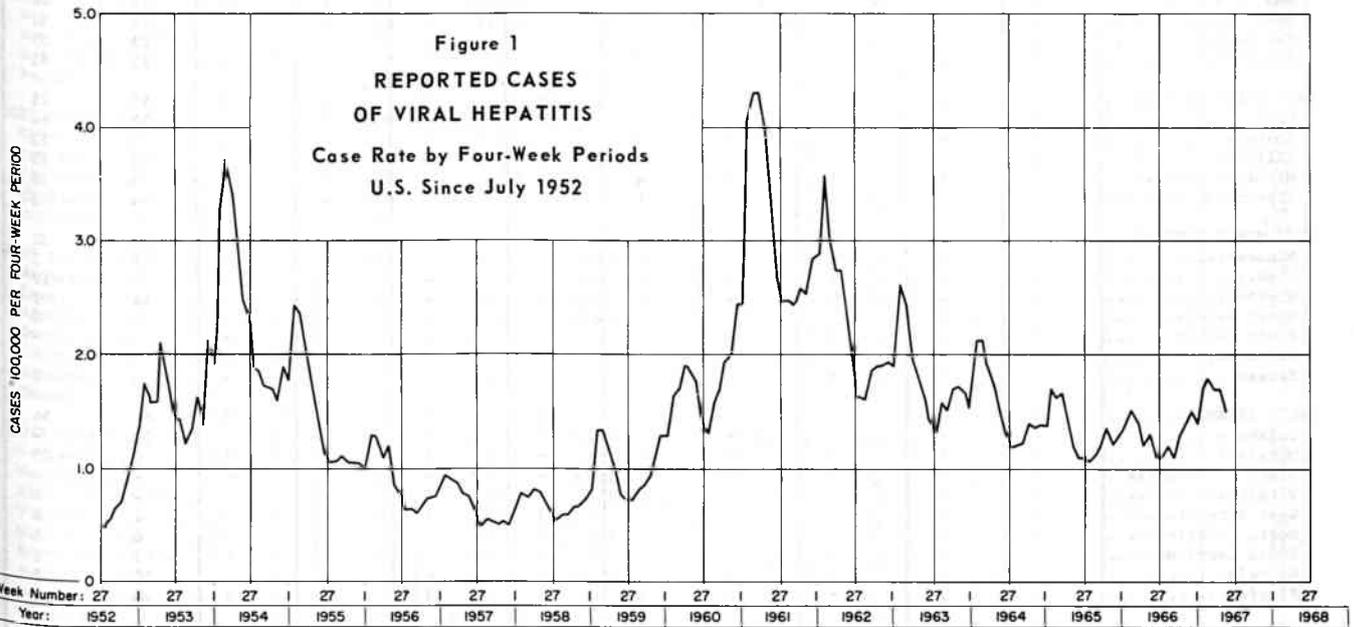


Figure 2



Table 1
Reported Cases and Rates of Viral Hepatitis by Region Through 22nd Week of 1966 and 1967

Region	1966		1967		Percent change in rates 1966 to 1967
	Cases	Rate*	Cases	Rate*	
Total United States	15,275	7.8	17,883	9.1	+17
New England	598	5.3	835	7.4	+40
Middle Atlantic	2,530	6.9	3,139	8.5	+23
East N. Central	2,978	7.7	2,832	7.4	-4
West N. Central	995	6.3	1,213	7.6	+21
South Atlantic	1,568	5.4	1,898	6.5	+20
East S. Central	1,456	11.3	1,240	9.6	-18
West S. Central	1,255	6.7	1,790	9.5	+42
Mountain	720	9.2	835	10.7	+16
Pacific	3,175	12.8	4,101	16.5	+29

*Reported cases per 100,000 population for 22nd week period (Based on July 1, 1966, population estimates)

Morbidity and Mortality Weekly Report

CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES FOR WEEKS ENDED JUNE 3, 1967 AND JUNE 4, 1966 (22nd WEEK) - CONTINUED

AREA	MALARIA		MEASLES (Rubeola)		MENINGOCOCCAL INFECTIONS, TOTAL			POLIOMYELITIS			RUBELLA
	1967	1967	Cumulative		1967	Cumulative		Total	Paralytic		1967
			1967	1966		1967	1966		1967	1967	
UNITED STATES...	38	1,670	50,139	162,223	41	1,269	2,110	1	1	9	1,991
NEW ENGLAND.....	-	32	683	1,900	-	56	96	-	-	-	295
Maine.....	-	9	205	181	-	3	8	-	-	-	29
New Hampshire.....	-	-	71	44	-	2	8	-	-	-	38
Vermont.....	-	3	41	216	-	-	3	-	-	-	36
Massachusetts.....	-	11	240	680	-	29	38	-	-	-	47
Rhode Island.....	-	5	57	68	-	3	11	-	-	-	39
Connecticut.....	-	4	69	711	-	19	28	-	-	-	106
MIDDLE ATLANTIC.....	10	101	1,792	16,712	7	195	236	-	-	2	66
New York City.....	-	14	317	7,929	1	32	34	-	-	1	40
New York, Up-State.	1	16	391	2,038	3	46	67	-	-	-	26
New Jersey.....	2	7	411	1,728	3	78	66	-	-	-	-
Pennsylvania.....	7	64	673	5,017	-	39	69	-	-	1	-
EAST NORTH CENTRAL...	-	224	4,278	59,175	7	153	326	-	-	-	318
Ohio.....	-	40	833	5,708	1	56	87	-	-	-	27
Indiana.....	-	19	523	4,655	-	21	59	-	-	-	11
Illinois.....	-	104	765	10,610	4	35	61	-	-	-	55
Michigan.....	-	13	790	10,531	2	32	86	-	-	-	62
Wisconsin.....	-	48	1,367	27,671	-	9	33	-	-	-	163
WEST NORTH CENTRAL...	-	139	2,387	7,660	1	57	116	-	-	-	76
Minnesota.....	-	5	110	1,572	-	12	27	-	-	-	6
Iowa.....	-	61	685	4,686	1	12	16	-	-	-	61
Missouri.....	-	1	212	415	-	12	48	-	-	-	2
North Dakota.....	-	30	756	910	-	-	6	-	-	-	5
South Dakota.....	-	-	46	6	-	6	4	-	-	-	-
Nebraska.....	-	17	516	71	-	9	8	-	-	-	2
Kansas.....	-	25	62	NN	-	6	7	-	-	-	-
SOUTH ATLANTIC.....	14	226	5,820	12,477	7	242	344	-	-	1	94
Delaware.....	-	-	36	211	-	5	4	-	-	-	1
Maryland.....	1	10	109	1,830	-	29	34	-	-	1	-
Dist. of Columbia..	-	3	19	363	-	8	7	-	-	-	-
Virginia.....	2	46	1,796	1,466	1	24	44	-	-	-	30
West Virginia.....	-	60	1,144	4,414	-	19	12	-	-	-	11
North Carolina.....	8	10	808	270	1	48	87	-	-	-	-
South Carolina.....	-	9	434	584	-	23	42	-	-	-	7
Georgia.....	3	-	24	223	5	39	46	-	-	-	-
Florida.....	-	88	1,450	3,116	-	47	68	-	-	-	45
EAST SOUTH CENTRAL...	-	41	4,551	17,418	3	111	187	-	-	1	67
Kentucky.....	-	14	1,136	4,353	-	30	73	-	-	-	15
Tennessee.....	-	23	1,578	10,755	1	47	61	-	-	-	51
Alabama.....	-	2	1,200	1,460	2	22	40	-	-	-	1
Mississippi.....	-	2	637	850	-	12	13	-	-	1	-
WEST SOUTH CENTRAL...	6	342	15,963	20,215	7	183	310	1	1	5	58
Arkansas.....	-	3	1,379	744	1	23	23	-	-	-	-
Louisiana.....	1	14	137	78	4	71	117	-	-	-	-
Oklahoma.....	5	4	3,298	426	1	12	17	-	-	1	-
Texas.....	-	321	11,149	18,967	1	77	153	1	1	4	58
MOUNTAIN.....	4	150	3,806	9,805	-	24	69	-	-	-	154
Montana.....	-	3	248	1,581	-	-	4	-	-	-	1
Idaho.....	-	6	343	1,128	-	1	5	-	-	-	2
Wyoming.....	-	1	54	110	-	1	3	-	-	-	-
Colorado.....	3	113	1,201	981	-	10	37	-	-	-	104
New Mexico.....	-	4	530	964	-	3	9	-	-	-	-
Arizona.....	-	11	863	4,647	-	4	8	-	-	-	44
Utah.....	1	12	303	358	-	3	-	-	-	-	3
Nevada.....	-	-	264	36	-	2	3	-	-	-	-
PACIFIC.....	4	415	10,859	16,861	9	248	426	-	-	-	863
Washington.....	1	162	5,142	3,043	1	23	34	-	-	-	195
Oregon.....	-	45	1,412	1,158	2	24	28	-	-	-	7
California.....	3	202	4,081	12,439	6	191	346	-	-	-	649
Alaska.....	-	3	120	123	-	8	15	-	-	-	-
Hawaii.....	-	3	104	98	-	2	3	-	-	-	12
Puerto Rico.....	-	31	1,766	2,022	-	8	7	-	-	-	-

Morbidity and Mortality Weekly Report

CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES
FOR WEEKS ENDED

JUNE 3, 1967 AND JUNE 4, 1966 (22nd WEEK) - CONTINUED

AREA	STREPTOCOCCAL SORE THROAT & SCARLET FEVER	TETANUS		TULAREMIA		TYPHOID		TYPHUS FEVER TICK-BORNE (Rky. Mt. Spotted)		RABIES IN ANIMALS	
	1967	1967	Cum. 1967	1967	Cum. 1967	1967	Cum. 1967	1967	Cum. 1967	1967	Cum. 1967
UNITED STATES...	7,900	6	65	1	59	1	132	8	43	76	1,970
NEW ENGLAND.....	1,593	-	-	-	-	-	1	-	-	3	46
Maine.....	82	-	-	-	-	-	-	-	-	1	12
New Hampshire.....	26	-	-	-	-	-	-	-	-	2	27
Vermont.....	186	-	-	-	-	-	-	-	-	-	7
Massachusetts.....	175	-	-	-	-	-	1	-	-	-	-
Rhode Island.....	58	-	-	-	-	-	-	-	-	-	-
Connecticut.....	1,064	-	-	-	-	-	-	-	-	-	-
MIDDLE ATLANTIC.....	345	2	7	-	-	-	15	1	1	-	35
New York City.....	14	-	3	-	-	-	9	-	-	-	-
New York, Up-State.....	301	-	1	-	-	-	4	-	-	-	26
New Jersey.....	NN	1	1	-	-	-	1	-	-	-	-
Pennsylvania.....	30	1	2	-	-	-	1	1	1	-	9
EAST NORTH CENTRAL...	670	-	5	-	8	-	10	-	5	15	187
Ohio.....	171	-	-	-	-	-	4	-	4	6	79
Indiana.....	86	-	-	-	1	-	-	-	1	2	30
Illinois.....	116	-	4	-	7	-	1	-	-	5	39
Michigan.....	167	-	1	-	-	-	4	-	-	2	14
Wisconsin.....	130	-	-	-	-	-	1	-	-	-	25
WEST NORTH CENTRAL...	320	1	3	-	11	-	3	-	-	23	440
Minnesota.....	5	1	2	-	-	-	-	-	-	3	81
Iowa.....	162	-	-	-	1	-	2	-	-	4	50
Missouri.....	1	-	1	-	3	-	-	-	-	4	91
North Dakota.....	74	-	-	-	-	-	-	-	-	5	72
South Dakota.....	19	-	-	-	1	-	-	-	-	2	62
Nebraska.....	44	-	-	-	-	-	1	-	-	2	32
Kansas.....	15	-	-	-	6	-	-	-	-	3	52
SOUTH ATLANTIC.....	941	2	15	-	7	-	17	1	14	10	261
Delaware.....	9	-	-	-	-	-	-	-	-	-	-
Maryland.....	210	-	-	-	-	-	2	-	-	-	-
Dist. of Columbia..	-	-	-	-	-	-	1	-	-	-	-
Virginia.....	254	-	4	-	-	-	2	-	3	6	137
West Virginia.....	217	-	-	-	1	-	1	-	-	-	43
North Carolina.....	10	1	5	-	-	-	2	-	9	-	3
South Carolina.....	6	1	1	-	2	-	3	1	1	-	-
Georgia.....	12	-	1	-	3	-	2	-	1	2	50
Florida.....	223	-	4	-	1	-	4	-	-	2	28
EAST SOUTH CENTRAL...	924	1	16	-	7	1	23	4	9	3	430
Kentucky.....	92	-	-	-	1	-	11	-	3	-	83
Tennessee.....	745	-	8	-	4	-	5	2	4	3	314
Alabama.....	79	1	6	-	-	1	5	2	2	-	31
Mississippi.....	8	-	2	-	2	-	2	-	-	-	2
WEST SOUTH CENTRAL...	546	-	11	1	16	-	17	-	5	16	399
Arkansas.....	-	-	3	1	4	-	3	-	1	2	58
Louisiana.....	-	-	1	-	2	-	11	-	-	2	33
Oklahoma.....	71	-	-	-	7	-	-	-	3	6	119
Texas.....	475	-	7	-	3	-	3	-	1	6	189
MOUNTAIN.....	1,291	-	-	-	7	-	15	2	6	4	62
Montana.....	33	-	-	-	1	-	1	-	-	-	-
Idaho.....	100	-	-	-	-	-	-	-	-	-	-
Wyoming.....	7	-	-	-	2	-	-	-	-	-	4
Colorado.....	838	-	-	-	1	-	11	2	6	-	8
New Mexico.....	148	-	-	-	-	-	-	-	-	3	18
Arizona.....	37	-	-	-	-	-	3	-	-	1	32
Utah.....	127	-	-	-	3	-	-	-	-	-	-
Nevada.....	1	-	-	-	-	-	-	-	-	-	-
PACIFIC.....	1,270	-	8	-	3	-	31	-	3	2	110
Washington.....	505	-	-	-	2	-	-	-	-	-	-
Oregon.....	65	-	-	-	-	-	-	-	-	-	1
California.....	666	-	6	-	1	-	28	-	3	2	109
Alaska.....	24	-	-	-	-	-	-	-	-	-	-
Hawaii.....	10	-	2	-	-	-	3	-	-	-	-
Puerto Rico.....	6	1	5	-	-	-	4	-	-	1	19

INTERNATIONAL NOTES
SMALLPOX - Kuwait

In 1967, through the week ending May 13, Kuwait has reported 41 smallpox cases with 18 deaths. A relatively high case fatality ratio of 43.9 percent has been observed. This epidemic, representing the first reported smallpox in Kuwait since 1959, is occurring in the nomad population of the districts of Shaddaddia, Makuwa, and Awazin. The differential diagnosis was extremely difficult because of a simultaneous epidemic of chickenpox occurring in the area before and during the smallpox outbreak. The index patient, a nomad, was known to have had contact with nomads from an adjacent country.

The following control measures were initiated: Patients with confirmed smallpox were isolated in one part of the fever hospital and the suspect cases in another part. The patients were vaccinated on admission, and on discharge they were quarantined for 16 days in a building some distance from the hospital. A house-to-house vaccination campaign was conducted by 300 vaccinators, and by May 6 approximately 95 percent of the population had been vaccinated.

The age distribution of the cases and deaths are shown in Table 2. The overall case fatality ratio was 43.9, but for children under age 5 the case fatality ratio was 60.9 percent.

Table 2
Reported Smallpox Cases and Deaths, Kuwait, 1967

Age	Cases	Deaths	Case Fatality Ratio (%)
6 mos.	9	5	60.9
6-11 mos.	3	2	
1-4 yrs.	11	7	
5-9 yrs.	4	1	22.2
10-14 yrs.	1	0	
15+ yrs.	13	3	
Total	41	18	43.9

(SOURCE: WHO Weekly Epidemiological Records Nos. 18-20, 1967.)

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.

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:

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

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.

U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
NATIONAL
COMMUNICABLE DISEASE CENTER
ATLANTA, GEORGIA 30333
OFFICIAL BUSINESS
BUREAU OF DISEASE PREVENTION AND ENVIRONMENTAL CONTROL

Library
81
7 61
CDC

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF H. E. W.