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CURRENT TRENDS
SUMMARY OF THE REPORT OF THE *AD HOC* ADVISORY COMMITTEE* ON ISONIAZID AND LIVER DISEASE

An *Ad Hoc* Advisory Committee on Isoniazid and Liver Disease was appointed by the Director, Center for Disease Control, to study data on isoniazid-associated liver disease and to advise on the future use of this drug as preventive treatment against tuberculosis. The committee met at CDC on March 17-18, 1971. The following are major conclusions, observations, and recommendations of the committee.

GENERAL CONCLUSIONS REGARDING ISONIAZID AND LIVER DISEASE

Liver disease can occur in patients receiving isoniazid. The risks of developing liver disease are very small, varying from 0 to 10 cases per 1,000 patients on isoniazid per year, and seem to vary from place to place and time to time, depending on factors not yet known. The development of liver disease is not predictable in any individual patient. The morphologic pathology of isoniazid liver disease as presently understood does not permit its ready differentiation from viral hepatitis. Certain factors seem to increase the risk of liver disease among subjects receiving isoniazid, the predominant one being age; isoniazid-associated liver disease does not appear to occur in children. The data suggest that more liver disease is now being seen among recipients of isoniazid than was the case in early U.S. Public Health Service trials. The reasons for this are not known but may involve changes in the product (in either manufacturing and/or packaging), differences in the characteristics of the groups to whom isoniazid was administered, and/or differences in detection of patients with liver disease.

SOME AREAS IN WHICH GENERAL CONCLUSIONS COULD NOT BE DEVELOPED

The committee considered several important issues about which general conclusions were not possible due to absence of adequate data or divergent opinions regarding the interpretation of available data.

Reversibility of isoniazid-associated liver damage. On the basis of available data, the degree of reversibility of isoniazid-associated liver damage could not be determined. It was therefore impossible to assess the proportion of frank liver disease or deaths that could be prevented by early detection of incipient disease and discontinuation of isoniazid prophylaxis.

Differences in rates of liver disease in various studies of isoniazid and in recent prophylaxis programs. Some members felt that differences in incidence were in large part due to differences in surveillance techniques. Other members felt the differences were too large to be explained on this basis and were real rather than apparent.

Etiology and pathophysiology of isoniazid-associated liver disease. The committee accepted isoniazid-associated liver disease as being in a category of "non-predictable, drug-induced hepatitis resembling viral hepatitis." In general, this group of illnesses appears to occur with a frequency well correlated with age, cannot generally be reproduced in animals, does not seem to be dose dependent, nor are there identifiable predisposing factors. The committee noted that impurities might play a role in increasing the risks.

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*Dr. Donald L. Brummer, Chairman, Committee on Therapy (ATS), Associate Professor of Medicine, Medical College of Virginia; Dr. George W. Comstock, Director of Research, Washington County Health Department, Hagerstown, Maryland; Dr. Winthrop Davey, Professor of Medicine, University of Michigan; Dr. I. Nathan Dubin, Professor of Pathology, Medical College of Pennsylvania; Dr. Johannes Ipsen, Professor of Epidemiology and Medical Statistics, Department of Community Medicine, University of Pennsylvania; Dr. Gordon M. Meade, Medical Director, American Thoracic Society; Dr. J. Donald Millar, Chairman, Director, State and Community Services Division, Center for Disease Control; Dr. James W. Mosley, Associate Professor of Medicine, University of Southern California, School of Medicine; Dr. Philip E. Sartwell, Professor of Epidemiology, Johns Hopkins University, School of Hygiene and Public Health; Dr. Hans Popper, Department of Pathology, Mt. Sinai School of Medicine, Technical Consultant to the Committee.

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The committee concluded that the disease is probably an expression of delayed hypersensitivity, although many questions remain to be answered before the pathophysiology mechanisms are reasonably clear.

RECOMMENDATIONS REGARDING THE USE OF ISONIAZID IN THE THERAPY OF ACTIVE TUBERCULOSIS

The committee did not feel that any changes are warranted in the present use of isoniazid in the treatment of active tuberculosis.

GENERAL RECOMMENDATIONS REGARDING PREVENTIVE TREATMENT PROGRAM

The present program of isoniazid preventive treatment and the guidelines for selection of recipients should not be modified at this time. The screening and monitoring procedures suggested (see below) should be emphasized and implemented for all persons placed on preventive treatment, since the basic concerns are to prevent and detect hepatic toxicity and to emphasize the need to take the medication as prescribed. No mass tuberculin testing program for placing tuberculin positive reactors on preventive therapy should be undertaken unless there is provision for carrying out the recommended screening and monitoring procedures on all recipients of the drug.

SPECIAL RECOMMENDATIONS

The committee believes that inserts accompanying the commercial preparations of isoniazid should be carefully examined by staff of the Center for Disease Control for accuracy and completeness of content and proposes a revision to the Food and Drug Administration (FDA) to better clarify the potential hazards of the use of isoniazid, especially regarding liver disease.

Screening procedures prior to the administration of isoniazid should include investigation for the following:

1. History of prior reception of isoniazid to exclude those who have had an adequate course of the drug.

2. History of adverse reaction to isoniazid to exclude those with significant hypersentivity reactions including liver disease.

3. History of consuming other long-term medications such as diphenylhydantoin, meprobamate, hormones, etc. Positive respondents should be referred for individual consideration of issues regarding initiation of isoniazid preventive therapy including adjustment of the dose of other drugs, etc.

4. History of symptoms or signs consistent with current liver disease to permit deferring isoniazid preventive therapy until resolution of the acute process.

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

DISEASE	26th WEEK ENDED		MEDIAN	CUMULATIVE, FIRST 26 WEEKS		
	July 3, 1971	July 4, 1970	1966 - 1970	1971	1970	MEDIAN 1966 - 1970
Aseptic meningitis	98	82	50	1,310	936	883
Brucellosis	4	8	8	77	107	102
Diphtheria	2	2	2	84	186	79
Encephalitis, primary:						
Arthropod-borne & unspecified	38	27	27	590	541	539
Encephalitis, post-infectious	23	6	12	201	241	276
Hepatitis, serum	171	161	87	4,285	3,567	2,052
Hepatitis, infectious	1,051	926	822	30.762	27,876	21,880
Malaria	51	95	52	1,791	1,771	1,054
Measles (rubeola)	1,010	682	682	63,806	36,116	36,119
Meningococcal infections, total	23	31	40	1,502	1,541	1,660
Civilian	23	28	35	1,323	1,387	1,497
Military	–	3	3	179	154	163
Mumps	1,533	1,146	- - -	91,429	67,802	- - -
Poliomyelitis, total	–	1	1	7	7	11
Paralytic	–	1	1	5	7	9
Rubella (German measles)	471	534	895	34,664	46,267	39,958
Tetanus	2	–	5	51	52	69
Tularemia	9	3	3	59	47	77
Typhoid fever	11	3	7	140	119	143
Typhus, tick-borne (Rky. Mt. spotted fever)	15	10	10	130	121	91
Rabies in animals	66	38	72	2,234	1,620	1,902

TABLE II. NOTIFIABLE DISEASES OF LOW FREQUENCY

	Cum.		Cum.
Anthrax: . La.-1	1	Psittacosis: . . . Minn.-2, Wyo.-1	21
Botulism:	1	Rabies in Man:	1
Leprosy: Hawaii-4, N.J.-1, Tex.-1	71	Rubella congenital syndrome:	33
Leptospirosis:	18	Trichinosis:	34
Plague:	–	Typhus, murine:	3

Because isoniazid-associated liver disease is viewed as an unpredictable hypersensitivity response, the committee felt that a history of past (non-isoniazid-associated) chronic liver disease is not necessarily a contraindication to initiation of isoniazid preventive therapy.

MONITORING PROCEDURES

Monitoring procedures for patients receiving isoniazid preventive therapy should include interviewing of patients and an evaluation by clinical means at monthly intervals. This should include an appraisal of:

Symptoms consistent with those of hepatic damage – loss of appetite, fatigue, malaise.

Signs consistent with those of liver damage – brownish urine (described as "coffee," "tea," "mud," etc.), and icterus of conjunctivae ("yellow eyeballs") or skin.

Patients should be advised that if they develop such symptoms and signs during treatment, they should discontinue the drug immediately and report to the prescribing physician for evaluation.

The committee specifically recommended against routine monitoring by laboratory tests of liver dysfunction, noting "We do not believe that baseline or serial hepatic dysfunction studies (SGOT, SGPT, LDH, TSB, and alkaline phosphatase) are needed unless symptoms and/or signs noted above are positive."

No individual should receive more than 1 month's supply of the drug at a time. Each patient should be interviewed and his clinical status evaluated before a new supply is issued. The interview can be accomplished by a nurse or other trained individual who is alert for symptoms which require medical evaluation. In the case of households, a responsible adult, properly instructed on the initial visit, can report on the clinical status of other household members.

PRIORITIES

Priorities must be considered in placing patients on preventive therapy. The groups are listed here in order of declining priority from highest priority based on calculated comparative risks of developing tuberculosis in the absence of chemoprophylaxis.

1. Household and other **close** associations of active cases of tuberculosis: both tuberculin negative (especially the child) and tuberculin positive.

2. Recent converters of any age. (The committee defined a converter as an individual who has had a "substantial" change in his tuberculin reaction, from below 10 mm to above 10 mm, in the last 2 years. "Substantial" was arbitrarily defined as meaning a change of 6 mm or more. Thus, when using this definition, a rise in reaction from 8 mm 1 year to 12 mm the next year would mean the person is probably **not** a converter. On the other hand, a change from 8 mm to 15 mm would be interpreted as representing a conversion.

3. Tuberculin positive individuals with pulmonary lesions of unknown etiology, compatible with tuberculosis, but not sufficiently stable to be classified as inactive tuberculosis. Until active tuberculosis has been excluded, these individuals should be treated as having active disease.

4. Persons with inactive tuberculosis, "pulmonary fibrosis," or old fibrotic residuals presumably tuberculous in origin. These include former patients who have never had specific chemotherapy or who have not had adequate drug therapy, and individuals not known to have had tuberculosis but whose tuberculin test is positive.

5. Individuals with a positive tuberculin reaction who have such medical conditions as diabetes, reticuloendothelial disease, or silicosis; have had a gastrectomy; or are receiving immunosuppressive drugs.

6. Positive tuberculin reactors under the age of 20.

7. Other identified positive tuberculin reactors.

Note: One must consider the consequences of the person becoming infectious, e.g., high priority is given to the positive reactor living in a closed environment with numbers of susceptible individuals.

RECOMMENDATIONS FOR FURTHER WORK ON ISONIAZID-ASSOCIATED LIVER DISEASE

Information is needed in three distinct areas: (a) characterization of liver damage associated with isoniazid; (b) determination of the comparative frequency of damage in prophylactic and therapeutic use, the frequency by age, and the frequency by type and source of isoniazid; and (c) the frequency of inapparent liver damage as determined by chemical and immunological means. As general modes of attack, the committee suggested that the medical profession should be alerted to the existence of the problem, that special reporting of isoniazid-associated illness should be instituted, that available retrospective data should be developed as broadly as possible, that prospective studies should be carried out to determine the incidence of liver damage associated with isoniazid from at least two sources of manufacture, and that the manufacturing process of isoniazid should be reviewed. Specific recommendations were as follows:

1. That the general medical community, and particularly those concerned with tuberculosis chemotherapy and chemoprophylaxis programs, should be alerted to the possible occurrence of this complication. As part of this alert, CDC should propose to the FDA an appropriate revision of the package insert, and any advertising should prominently mention liver disease as a possible sequel to administration.

2. That surveillance for all cases of liver disease, of whatever character or etiology, in persons receiving isoniazid should be undertaken. Information concerning each patient should be submitted to CDC on a standardized form through the usual channels.

3. That in 10,000 to 20,000 persons receiving isoniazid preventive treatment, the incidence of symptomatic (overt) liver disease be **thoroughly** monitored, with outcome up to 3 weeks after premature discontinuation determined in all patients in whom it is detected. The populations so studied should be in widely scattered areas, representing a variety of tuberculin-positive adults as well as isoniazid of varied manufacture and packaging.

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4. That in selected cases the lesion be characterized with respect to antimitochondrial antibody, lymphocyte activation by liver and/or serum of the patient, and with respect to injury to mitochondria or endoplasmic reticulum, by electron microscopy.

5. That all cases of isoniazid-associated liver disease should be fully characterized. For each case it would be desirable to have data concerning presence or absence of hepatitis-associated (Australia) antigen, biopsy, and results of rechallenge with very small doses and very careful observation (with discontinuation if transaminase abnormality recurs.) One expert later suggested that the following should also be added: Studies of the serum for antimitochondrial antibodies; careful history as to the administration of other drugs because of the possibility of an interaction and potentiation; and presence of coincidental chronic or acute liver disease.

6. That cases of liver disease with icterus reported as viral hepatitis be investigated with respect to a history of isoniazid administration, and this information submitted to CDC as part of the hepatitis surveillance program.

7. That the frequency of asymptomatic (clinically inapparent) liver disease should be compared in one or more controlled populations, using a placebo group if at all possible. It should be recognized that an elevated transaminase level alone cannot necessarily be interpreted as evidence of hepatic damage.

8. That the effect of isoniazid administration upon reliability of SGPT and SGOT transaminase assays be determined by various techniques.

9. That the distribution of isoniazid from various manufacturers be monitored for possible correlation with variations in the incidence of isoniazid-associated liver disease.

10. That the manufacturing process be reviewed for possible temporal and distributional correlates with hepatotoxicity.

11. That various lots of representative manufacturing processes and packaging procedures be analyzed by appropriately sensitive techniques in two or more independent laboratories for possible ingredients or contaminants which may be associated with an increased incidence of liver disease.

SURVEILLANCE SUMMARY
SHIGELLA – Fourth Quarter 1970 – United States

In the fourth quarter of 1970, 4,437 isolations of shigella from humans were reported in the United States.* This represents an increase of 43.2 percent over the 3,098 isolations reported in the third quarter of 1970 and an increase of 52.2 percent over the 2,915 isolations reported in the fourth quarter of 1969. A total of 69.1 percent of the isolations were from children under 10 years of age (Table 1); this is consistent with previous quarters. The highest attack rate

Table 1
Age and Sex Distribution of Persons Infected with Shigella
United States – Fourth Quarter 1970

Age (Years)	Male	Female	Unknown	Total	Percent	Cumulative Percent	Number of Reported Isolations/ Million Population*
< 1	62	56		118	5.5	5.5	33.8
1–4	413	452	1	866	40.1	45.6	59.9
5–9	254	254		508	23.5	69.1	24.4
10–19	164	138		302	14.0	83.1	7.8
20–29	74	126		200	9.3	92.4	6.9
30–39	19	50		69	3.2	95.6	3.1
40–49	25	20		45	2.1	97.7	1.9
50–59	9	15		24	1.1	98.8	1.1
60–69	8	7		15	.7	99.5	1.0
70–79	4	4		8	.4	99.9	0.9
80+	2	5		7	.3	100.2	1.9
Subtotal	1,034	1,127	1	2,162			
Child (unspec.)	6	5		11			
Adult (unspec.)	9	8	1	18			
Unknown	623	667	956	2,246			
Total	1,672	1,807	958	4,437			
Percent	48.1	51.9					

*Based on data from Current Population Reports, Series P-25, No. 428, August 19, 1969, and No. 441, March 19, 1970.

was in the 1-4 year age group. Of the 54 reporting centers participating in the Shigella Surveillance Program, 49 reported isolations of shigella. Twenty-one different serotypes were reported; the six most frequently reported are shown in Table 2.

Isolations of *Shigella sonnei* were reported more frequently than *S. flexneri* by all reporting centers except four: Montana, Nevada, Mississippi, and Arizona. Alaska, which reports predominantly *S. flexneri* isolations, reported 12 isolations of *S. sonnei*. The seasonal distribution of shigellosis is depicted in Figure 1. The marked increase in reported isolations for December is due to late reporting of isolations from an epidemic in Hawaii. Figure 2 shows the number of reported isolations per million population by state for the

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Table 2
The Six Most Commonly Reported Shigella Serotypes
United States – October-December 1970

Rank	Serotype	Reported	Calculated Number**	Calculated Percent**	Rank Last Quarter
1	*S. sonnei*	3,643	3,659	82.5	1
2	*S. flexneri* 2a	133	257	5.8	2
3	*S. flexneri* 3a	83	151	3.4	3
4	*S. flexneri* 6	77	98	2.2	4
5	*S. flexneri* 4a	57	85	1.9	5
6	*S. flexneri* 2b	28	54	1.2	6
Subtotal		4,021	4,304	97.0	
Total (all serotypes)		4,437	4,438		

Figure 1
REPORTED ISOLATIONS OF SHIGELLA IN THE UNITED STATES

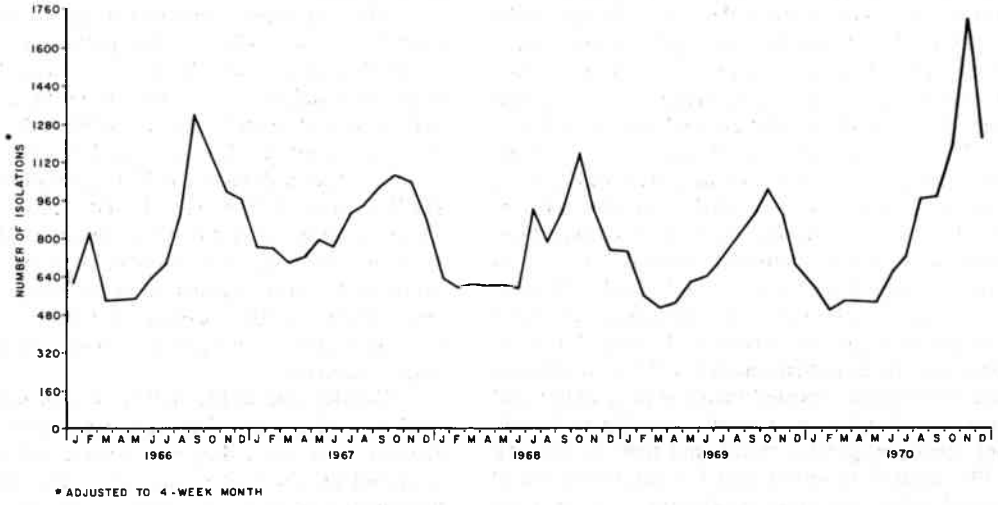
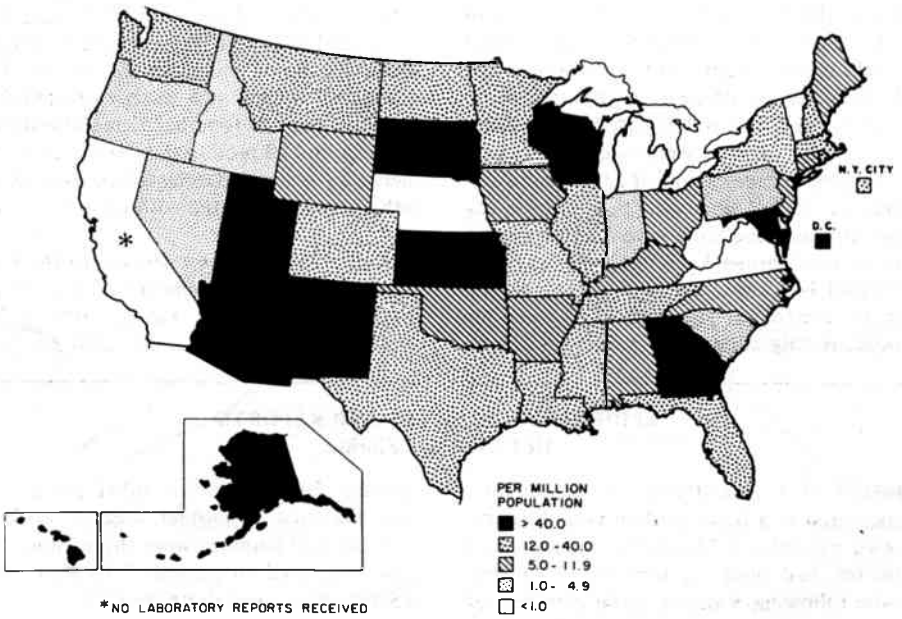


Figure 2
ATTACK RATES OF SHIGELLOSIS, BY STATE – OCTOBER-DECEMBER 1970



SHIGELLA – *(Continued from page 235)*

fourth quarter, 1970, utilizing population estimates for July 1, 1969. Approximately 21.8 isolations per million population were reported in the fourth quarter of 1970.

*No laboratory reports were received from California or the Virgin Islands.

**Isolations in each of the unspecified categories are distributed in their subgroups in the same proportions as the completely specified isolations of that group. The resulting distribution in the tables is called the "calculated number," and from this is derived a "calculated percent" for each serotype.

(Reported by the Shigella Surveillance Activity, Enteric Diseases Section, Bacterial Diseases Branch, Epidemiology Program, CDC.)

A copy of the report from which these data were derived is available on request from

Center for Disease Control
Attn: Bacterial Diseases Branch, Epidemiology Program
Atlanta, Georgia 30333

INTERNATIONAL NOTES

STAPHYLOCOCCAL FOOD POISONING – United Kingdom

Since October 1970, six episodes due to or suspected to be due to staphylococcal food poisoning have been reported. In one outbreak, 29 people became ill, and sausage from which *Staphylococcus aureus* was isolated was thought to be the vehicle of infection. In another, two patients in a maternity hospital became ill with vomiting after eating chicken and salmon sandwiches brought in by visitors. *S. aureus* was isolated from the stool of one patient and from samples of the chicken. In the third outbreak, 50 persons experienced nausea and vomiting 4-5 hours after eating ham rolls from a factory canteen. *S. aureus* was isolated from the stools of three patients, from nose swabs of six out of 12 foodhandlers, and from specimens of ham. A fourth outbreak involved 30 out of 40 persons who ate a meal at a hotel and vomited 2 hours later. *S. aureus*, which produced enterotoxin A, was isolated from tongue and jam tart served at the meal, but there were no specimens from patients available for examination.

The largest outbreak reported involved the children and staff of three schools who ate a meal consisting of freshly prepared hot meat pie, potato, carrot, and trifle (a dessert). A total of 394 meals were served, and 134 people became ill with abdominal pain, vomiting, prostration, and in some cases, diarrhea. Most cases were mild, but 16 children did require hospitalization.

Suspicion was directed to the trifle as the vehicle of infection, since those who had not eaten it had remained well. *S. aureus*, which produced enterotoxin A, was isolated from the stools of eight children admitted to the hospital and from a rectal swab from one out of eight other patients who were examined. *S. aureus* was also isolated from nasal swabs from three members of the canteen staff, and one of these strains had a phage typing pattern similar to the strains isolated from the stool specimens. No staphylococcus was isolated from the food, although the trifle gave a heavy growth of coliform bacilli. It was learned later, however, that the trifle had been prepared in many separate bowls by several cooks, each adding one ingredient. The cook who carried the suspected staphylococcus only added the final cream decoration. It seemed possible, therefore, that only some bowls were contaminated, which would account for the epidemiologic findings.

The last report concerns a fatal case associated with eating cockles (shellfish). The patient, a man aged 65, ate about 2 dozen cockles bought from a stall shortly after his arrival at a holiday resort. He had nothing else for lunch except a glass of beer. Five hours later he became ill with diarrhea and vomiting. He was treated symptomatically but died suddenly the next morning. None of his four companions ate shellfish, and they remained well. Autopsy revealed acute gastro-jejunitis but nothing else abnormal. Large numbers of gram-positive cocci were seen in films of the stomach contents, and culture yielded a heavy mixed bacterial growth (more than 9×10^8 organisms per ml.) including large numbers of *S. aureus* and low-temperature organisms, including marine bacteria.

Cockles sold at the stall were kept until required in the cold store of a nearby fish wholesaler, who received them from the east coast where they were cooked and salted. After being collected by the stall owner, they were allowed to thaw at ambient temperature overnight in buckets of water. At the time of the episode, the weather was hot and would have encouraged the multiplication of any organisms in the cockles on the premises. Samples of cockles from the stall yielded large numbers of organisms belonging to species similar to those isolated from the patient; *S. aureus* was also isolated from the noses and hands of two of the people employed there. All strains of *S. aureus* isolated from the patient, the cockles, and the food handlers showed a similar phage typing pattern, and all produced enterotoxin A. Although large numbers of grossly contaminated cockles must have been sold, no other illness associated with them was reported.

(From notes based on reports to the Public Health Laboratory Service from Public Health and Hospital Laboratories in the United Kingdom and Republic of Ireland, published in the British Medical Journal, *April 10, 1971.)*

EPIDEMIOLOGIC NOTES AND REPORTS

HEPATITIS – Florida

In March and April 1971, an outbreak of viral hepatitis involving 11 cases occurred at a trailer park in Dade County, Florida. The first two patients, a 24-year-old woman and her 7-year-old daughter, had onset of hepatitis symptoms early in March. In the following 3 weeks, seven members of another family and one other person became ill. The last case occurred in another neighbor early in April. Anorexia, malaise, and jaundice were the predominant symptoms. Five cases occurred in persons 5-14 years of age, four in those 25-34, and two in those over 35.

The trailer park community consists of approximately 150-200 persons living in 47 mobile homes and 12 apartment units surrounding a small lake at the edge of the Everglades. The eleven cases occurred among 20 persons living in four of the five trailers at the west end of the lake. On April 14 and 15, immune serum globulin was offered to all park residents. A total of 141 cc was given to 119 persons. No cases have occurred since that time.

Epidemiologic investigation failed to reveal any common vehicle for transmission of hepatitis, but clearly demonstrated close contact between the families experiencing illness, poor sanitary conditions, inadequate water supply, and significant coliform contamination of the lake in which these families fish and swim. Steps have been taken to continue surveillance and insure the provision of adequate sewage disposal and safe potable drinking water.

(Reported by Miriam Bosch, M.D., Head, Disease Control Section, Office of Consumer Protection, Mrs. Elizabeth Vaughns, R.N., Public Health Nurse, Mr. George Duke, Sanitarian, Joel L. Nitzkin, M.D., Chief, Office of Consumer Protection, Milton S. Saslaw, M.D., Director, Dade County Department of Public Health; and E. Charlton Prather, M.D., Chief, Bureau of Preventable Diseases, Florida State Division of Health.)

SURVEILLANCE SUMMARY
MEASLES – United States, 1970-71

In the 4-week period since the last measles surveillance summary (MMWR, Vol. 20, No. 21), 10,230 cases of measles have been reported in the United States (Figure 3). While high, this figure represents a considerable decrease in the incidence of measles since the last 4-week period, and follows the expected seasonal decline of the disease.

(Reported by the Field Services Branch, Epidemiology Program, and the Immunization Branch, State and Community Services Division, CDC.)

Figure 3
REPORTED CASES OF MEASLES BY 4-WEEK PERIOD, USA, EPIDEMIOLOGIC YEAR 1970-71 COMPARED WITH 1966-67, 1967-68, 1968-69, AND 1969-70

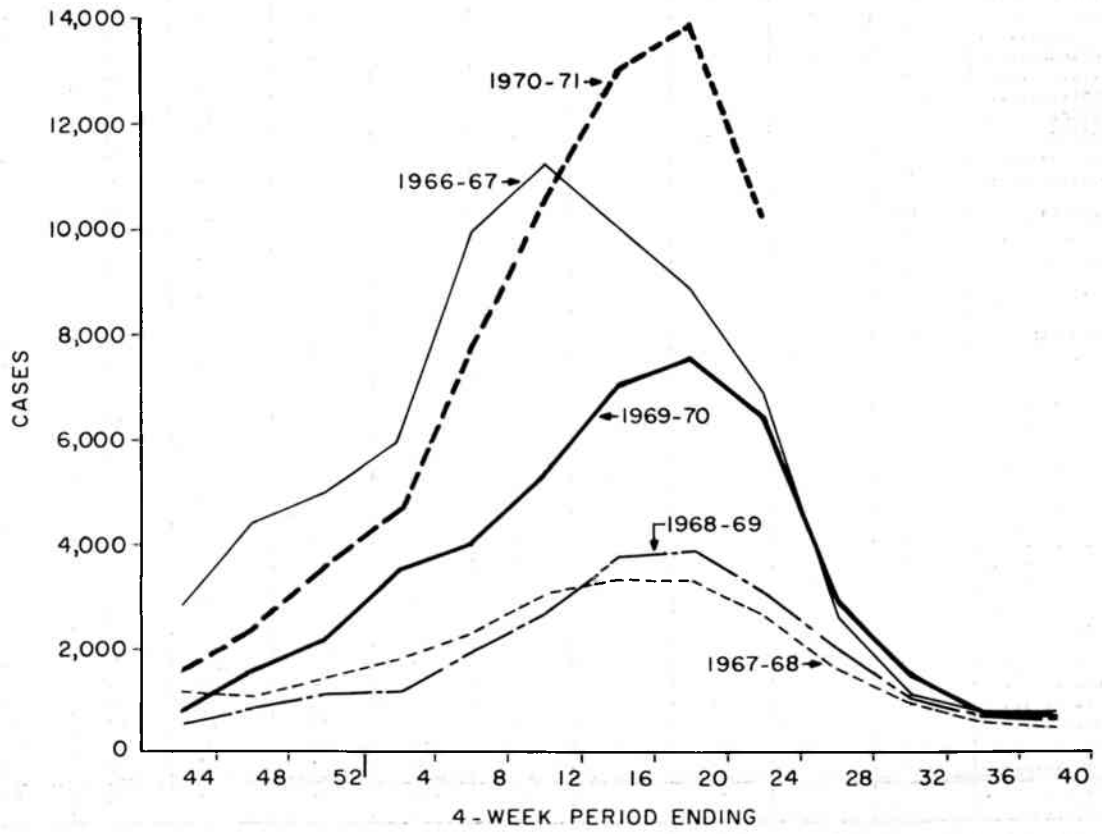


TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES

FOR WEEKS ENDED

JULY 3, 1971 AND JULY 4, 1970 (26th WEEK)

AREA	ASEPTIC MENINGITIS	BRUCELLOSIS	DIPHTHERIA	ENCEPHALITIS			HEPATITIS			MALARIA	
				Primary including unsp. cases		Post Infectious	Serum	Infectious			
	1971	1971	1971	1971	1970	1971	1971	1971	1970	1971	Cum. 1971
UNITED STATES.....	98	4	2	38	27	23	171	1,051	926	51	1,791
NEW ENGLAND.....	1	–	–	–	3	–	1	69	97	1	51
Maine.....	1	–	–	–	–	–	–	7	7	–	3
New Hampshire.....	–	–	–	–	–	–	–	6	7	–	1
Vermont.....	–	–	–	–	–	–	–	6	14	–	1
Massachusetts.....	–	–	–	–	1	–	–	27	40	–	36
Rhode Island.....	–	–	–	–	2	–	–	11	12	–	3
Connecticut.....	–	–	–	–	–	–	1	12	17	1	7
MIDDLE ATLANTIC.....	2	–	–	5	2	1	82	214	134	7	181
New York City.....	–	–	–	–	–	–	31	46	32	4	20
New York, Up-State...	–	–	–	2	1	–	7	26	32	1	50
New Jersey.....	2	–	–	–	–	–	22	75	44	–	72
Pennsylvania.....	–	–	–	3	1	1	22	67	26	2	39
EAST NORTH CENTRAL.....	7	1	–	2	10	6	24	142	165	2	103
Ohio.....	3	–	–	–	7	3	6	22	46	–	16
Indiana..*.....	2	–	–	–	–	1	–	13	15	–	8
Illinois.....	–	–	–	–	–	2	5	35	13	–	37
Michigan.....	2	–	–	1	3	–	12	68	85	2	35
Wisconsin.....	–	1	–	1	–	–	1	4	6	–	7
WEST NORTH CENTRAL.....	2	–	–	1	2	5	4	28	37	8	162
Minnesota.....	1	–	–	–	–	5	1	5	4	5	22
Iowa.*.....	–	–	–	–	–	–	–	3	4	–	22
Missouri.....	–	–	–	–	–	–	1	12	18	–	23
North Dakota.....	1	–	–	–	–	–	–	1	–	–	–
South Dakota.....	–	–	–	–	–	–	–	–	–	–	–
Nebraska.....	–	–	–	–	–	–	–	3	–	–	7
Kansas.....	–	–	–	1	2	–	2	4	11	3	88
SOUTH ATLANTIC.....	39	–	–	24	2	5	11	170	109	9	275
Delaware.....	–	–	–	–	–	–	–	3	–	–	1
Maryland.....	1	–	–	–	–	–	1	12	18	–	41
Dist. of Columbia....	–	–	–	–	–	–	–	1	3	–	2
Virginia.....	2	–	–	1	–	–	3	70	20	3	37
West Virginia.....	–	–	–	–	–	–	–	9	1	–	7
North Carolina.....	1	–	–	–	1	–	4	12	14	1	98
South Carolina.....	2	–	–	–	–	–	–	5	–	–	10
Georgia.....	–	–	–	–	–	–	–	14	20	5	53
Florida.....	33	–	–	23	1	5	3	44	33	–	26
EAST SOUTH CENTRAL.....	10	–	–	–	1	–	–	45	36	1	119
Kentucky.....	1	–	–	–	–	–	–	7	10	–	98
Tennessee.....	6	–	–	–	1	–	–	26	16	–	–
Alabama.*.....	2	–	–	–	–	–	–	6	9	–	15
Mississippi.....	1	–	–	–	–	–	–	6	1	1	6
WEST SOUTH CENTRAL.....	25	2	2	–	2	–	14	105	67	5	410
Arkansas.....	–	–	–	–	–	–	–	–	4	2	16
Louisiana.....	20	–	–	–	2	–	8	19	8	1	34
Oklahoma.....	–	–	–	–	–	–	–	10	7	2	62
Texas.....	5	2	2	–	–	–	6	76	48	–	298
MOUNTAIN.....	–	1	–	1	–	–	–	67	57	–	98
Montana.....	–	–	–	–	–	–	–	5	1	–	1
Idaho.....	–	–	–	1	–	–	–	4	2	–	4
Wyoming.....	–	–	–	–	–	–	–	–	1	–	1
Colorado.....	–	–	–	–	–	–	–	25	40	–	73
New Mexico.....	–	1	–	–	–	–	–	9	1	–	6
Arizona.....	–	–	–	–	–	–	–	9	10	–	8
Utah.....	–	–	–	–	–	–	–	15	2	–	3
Nevada.....	–	–	–	–	–	–	–	–	–	–	2
PACIFIC.....	12	–	–	5	5	6	35	211	224	18	392
Washington.....	–	–	–	–	–	1	–	21	7	–	1
Oregon.....	–	–	–	–	–	–	3	18	17	–	15
California.....	11	–	–	5	5	5	31	165	191	16	338
Alaska.....	---	---	---	---	–	---	---	---	1	---	3
Hawaii.....	1	–	–	–	–	–	1	7	8	2	35
Puerto Rico.*.....	---	---	---	---	–	---	---	---	22	---	16
Virgin Islands.....	–	–	–	–	–	–	–	–	2	–	–

*Delayed reports: Encephalitis, primary: Ind. delete 1
Encephalitis, post-infectious: Ala. 2
Hepatitis, infectious: P.R. 13
Malaria: Iowa 2

TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES

FOR WEEKS ENDED

JULY 3, 1971 AND JULY 4, 1970 (26th WEEK) - CONTINUED

AREA	MEASLES (Rubeola)			MENINGOCOCCAL INFECTIONS, TOTAL			MUMPS		POLIOMYELITIS		
		Cumulative			Cumulative			Cum.	Total	Paralytic	
	1971	1971	1970	1971	1971	1970	1971	1971	1971	1971	Cum. 1971
UNITED STATES	1,010	63,806	36,116	23	1,502	1,541	1,533	91,429	–	–	5
NEW ENGLAND	64	3,239	745	2	68	70	71	5,617	–	–	–
Maine*	4	1,403	179	–	8	3	–	1,114	–	–	–
New Hampshire	1	190	48	–	10	6	–	626	–	–	–
Vermont	1	102	5	–	–	6	4	286	–	–	–
Massachusetts*	10	245	353	1	27	30	40	1,370	–	–	–
Rhode Island	–	220	89	1	3	5	18	1,114	–	–	–
Connecticut	48	1,079	71	–	20	20	9	1,107	–	–	–
MIDDLE ATLANTIC	166	6,957	4,323	3	194	270	145	5,771	–	–	–
New York City	106	3,522	763	1	40	67	87	1,396	–	–	–
New York, Up-State	10	513	210	1	51	52	NN	NN	–	–	–
New Jersey	27	1,119	1,618	–	46	104	42	1,613	–	–	–
Pennsylvania	23	1,803	1,732	1	57	47	16	2,762	–	–	–
EAST NORTH CENTRAL	303	14,065	8,875	4	167	181	590	37,729	–	–	–
Ohio	52	3,776	3,536	2	49	73	70	7,341	–	–	–
Indiana	55	2,575	240	–	13	18	64	4,941	–	–	–
Illinois	53	2,735	2,937	–	48	38	24	3,947	–	–	–
Michigan*	74	1,977	1,388	2	47	45	133	9,182	–	–	–
Wisconsin	69	3,002	774	–	10	7	299	12,318	–	–	–
WEST NORTH CENTRAL	47	6,133	3,653	–	119	77	38	5,674	–	–	–
Minnesota	–	51	36	–	19	12	9	1,077	–	–	–
Iowa	2	2,198	1,008	–	8	11	12	2,819	–	–	–
Missouri.*	18	2,245	1,223	–	43	46	8	846	–	–	–
North Dakota	9	220	311	–	5	3	5	294	–	–	–
South Dakota	–	198	85	–	5	–	4	213	–	–	–
Nebraska	2	62	923	–	14	3	–	74	–	–	–
Kansas	16	1,159	67	–	25	2	–	351	–	–	–
SOUTH ATLANTIC	115	6,701	6,735	7	253	324	139	6,470	–	–	1
Delaware	1	34	253	–	2	3	5	139	–	–	–
Maryland	1	471	1,333	–	36	33	8	541	–	–	–
Dist. of Columbia	–	12	341	–	8	1	1	77	–	–	–
Virginia	32	1,175	1,879	–	20	31	39	847	–	–	–
West Virginia	14	465	275	–	7	6	31	1,692	–	–	–
North Carolina	13	1,879	777	6	44	65	NN	NN	–	–	–
South Carolina	15	869	513	–	19	41	19	799	–	–	–
Georgia	–	183	12	–	21	30	–	3	–	–	1
Florida	39	1,613	1,352	1	96	114	36	2,372	–	–	–
EAST SOUTH CENTRAL	71	7,935	1,062	1	132	120	148	7,129	–	–	–
Kentucky	13	3,783	555	–	37	41	17	2,243	–	– 1	–
Tennessee	23	960	337	1	50	50	118	3,952	–	–	–
Alabama.*	8	1,789	83	–	26	21	12	834	–	–	–
Mississippi	27	1,403	87	–	19	8	1	100	–	–	–
WEST SOUTH CENTRAL	133	11,987	7,083	–	132	212	171	7,268	–	–	2
Arkansas	4	766	29	–	5	17	18	70	–	–	–
Louisiana	27	1,639	87	–	44	55	1	132	–	–	–
Oklahoma	4	742	408	–	6	17	1	175	–	–	–
Texas	98	8,840	6,559	–	77	123	151	6,891	–	–	2
MOUNTAIN	23	2,985	1,375	2	46	28	37	3,646	–	–	–
Montana	1	903	31	2	5	1	–	354	–	–	–
Idaho	4	248	31	–	6	5	–	112	–	–	–
Wyoming	–	84	10	–	2	1	–	274	–	–	–
Colorado	4	792	154	–	7	7	16	1,195	–	–	–
New Mexico	4	284	161	–	3	–	10	585	–	–	–
Arizona	6	358	935	–	8	12	11	985	–	–	–
Utah	4	309	32	–	12	2	–	141	–	–	–
Nevada	–	7	21	–	3	–	–	–	–	–	–
PACIFIC	88	3,804	2,265	4	391	259	194	12,125	–	–	2
Washington	22	889	456	1	20	36	16	5,153	–	–	1
Oregon	7	349	194	–	29	19	32	1,148	–	–	1
California	44	2,256	1,327	3	336	203	93	5,018	–	–	–
Alaska	---	51	132	---	–	–	---	73	---	---	–
Hawaii	15	259	156	–	6	1	53	733	–	–	–
Puerto Rico	---	328	836	---	2	3	---	748	---	---	–
Virgin Islands	–	9	6	–	–	1	7	37	–	–	–

*Delayed reports: Measles: Me. 13, Mass. delete 51, Mo. 64, Ala. 2
Mumps: Me. 12, Mich. 401

TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES

FOR WEEKS ENDED

JULY 3, 1971 AND JULY 4, 1970 (26th WEEK) - CONTINUED

AREA	RUBELLA		TETANUS		TULAREMIA		TYPHOID FEVER		TYPHUS FEVER TICK-BORNE (Rky. Mt. Spotted)		RABIES IN ANIMALS	
	1971	Cum. 1971	1971	Cum. 1971	1971	Cum. 1971	1971	Cum. 1971	1971	Cum. 1971	1971	Cum. 1971
UNITED STATES.....	471	34,664	2	51	9	59	11	140	15	130	66	2,234
NEW ENGLAND.....	40	1,599	–	3	–	–	1	7	–	–	1	160
Maine.....	3	246	–	–	–	–	–	–	–	–	1	152
New Hampshire.....	1	43	–	–	–	–	–	–	–	–	–	1
Vermont.....	3	91	–	–	–	–	–	–	–	–	–	7
Massachusetts.....	15	777	–	1	–	–	–	6	–	–	–	–
Rhode Island.....	2	89	–	–	–	–	–	–	–	–	–	–
Connecticut.....	16	353	–	2	–	–	1	1	–	–	–	–
MIDDLE ATLANTIC.....	22	2,338	–	5	–	–	–	20	3	11	2	94
New York City.....	9	435	–	5	–	–	–	7	–	1	–	–
New York, Up-State..	2	371	–	–	–	–	–	10	2	7	2	88
New Jersey.....	6	565	–	–	–	–	–	2	1	2	–	–
Pennsylvania.....	5	967	–	–	–	–	–	1	–	1	–	6
EAST NORTH CENTRAL....	140	7,573	–	5	1	3	3	16	1	11	10	221
Ohio.....	32	881	–	1	–	1	–	8	1	10	6	64
Indiana.....	39	1,874	–	1	–	–	1	2	–	–	3	50
Illinois.....	4	1,165	–	3	–	–	2	4	–	1	–	40
Michigan.*.....	42	2,441	–	–	–	–	–	2	–	–	1	32
Wisconsin.....	23	1,212	–	–	1	2	–	–	–	–	–	35
WEST NORTH CENTRAL....	8	2,536	–	3	1	7	–	1	–	2	28	546
Minnesota.....	–	269	–	1	–	–	–	–	–	–	7	110
Iowa.....	2	652	–	–	–	–	–	–	–	–	2	136
Missouri.....	6	1,115	–	2	1	7	–	1	–	–	5	92
North Dakota.....	–	88	–	–	–	–	–	–	–	–	10	108
South Dakota.....	–	93	–	–	–	–	–	–	–	–	1	34
Nebraska.....	–	76	–	–	–	–	–	–	–	–	–	–
Kansas.....	–	243	–	–	–	–	–	–	–	2	3	66
SOUTH ATLANTIC.....	27	2,740	2	14	1	16	3	27	7	68	5	240
Delaware.....	1	44	–	–	–	–	–	1	1	2	–	–
Maryland.....	1	111	–	1	–	3	–	3	–	14	–	–
Dist. of Columbia...	1	7	–	–	–	–	1	1	–	–	–	–
Virginia.....	10	177	–	1	1	7	1	3	1	10	–	60
West Virginia.....	7	483	–	–	–	–	–	3	2	3	–	89
North Carolina.....	2	43	–	–	–	4	–	3	3	30	2	3
South Carolina.....	–	421	–	–	–	–	–	–	–	7	–	–
Georgia.....	–	–	–	2	–	–	–	2	–	2	3	60
Florida.....	5	1,454	2	10	–	2	1	11	–	–	–	28
EAST SOUTH CENTRAL....	50	3,007	–	8	2	9	1	11	2	15	7	232
Kentucky.....	–	1,060	–	–	–	2	1	4	–	4	3	127
Tennessee.....	45	1,687	–	5	2	4	–	5	1	7	2	69
Alabama.....	5	191	–	2	–	2	–	2	1	2	2	36
Mississippi.....	–	69	–	1	–	1	–	–	–	2	–	–
WEST SOUTH CENTRAL....	51	4,272	–	6	4	21	2	17	1	16	11	500
Arkansas.*.....	3	323	–	1	2	5	–	3	–	–	3	57
Louisiana.....	–	278	–	–	–	3	–	6	–	–	–	19
Oklahoma.....	2	59	–	–	–	6	–	2	1	11	–	229
Texas.....	46	3,612	–	5	2	7	2	6	–	5	8	195
MOUNTAIN.....	16	1,783	–	2	–	3	–	6	1	7	–	36
Montana.....	1	109	–	–	–	1	–	–	1	3	–	–
Idaho.....	–	38	–	1	–	–	–	–	–	–	–	–
Wyoming.....	–	858	–	–	–	–	–	–	–	–	–	7
Colorado.....	8	247	–	–	–	–	–	–	–	2	–	11
New Mexico.....	4	199	–	–	–	–	–	4	–	–	–	6
Arizona.....	3	270	–	1	–	–	–	2	–	–	–	11
Utah.....	–	48	–	–	–	2	–	–	–	1	–	–
Nevada.....	–	14	–	–	–	–	–	–	–	1	–	1
PACIFIC.....	117	8,816	–	5	–	–	1	35	–	–	2	205
Washington.....	1	1,315	–	1	–	–	–	–	–	–	–	–
Oregon.....	15	664	–	–	–	–	–	–	–	–	–	–
California.....	98	6,671	–	4	–	–	1	34	–	–	2	171
Alaska.....	---	43	---	–	---	–	---	1	---	–	---	34
Hawaii.....	3	123	–	–	–	–	–	–	–	–	–	–
Puerto Rico.....	---	12	---	5	---	–	---	2	---	–	---	36
Virgin Islands.....	–	–	–	–	–	–	–	–	–	–	–	–

*Delayed reports: Rubella: Mich. delete 81
Typhoid fever: Ark. 1

Week No. 26

TABLE IV. DEATHS IN 122 UNITED STATES CITIES FOR WEEK ENDED JULY 3, 1971

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

Area	All Causes		Pneumonia and Influenza All Ages	Under 1 year All Causes
	All Ages	65 years and over		
NEW ENGLAND:	628	369	32	38
Boston, Mass.	183	100	10	14
Bridgeport, Conn.	38	21	4	2
Cambridge, Mass.	23	16	1	–
Fall River, Mass.	23	14	1	–
Hartford, Conn.	67	32	1	4
Lowell, Mass.	26	12	2	–
Lynn, Mass.	22	15	–	2
New Bedford, Mass.	19	14	1	–
New Haven, Conn.	44	25	–	5
Providence, R. I.	65	45	9	4
Somerville, Mass.	9	6	–	–
Springfield, Mass.	47	27	3	3
Waterbury, Conn.	16	11	–	–
Worcester, Mass.	46	31	–	4
MIDDLE ATLANTIC:	3,144	1,845	121	105
Albany, N. Y.	54	31	–	–
Allentown, Pa.	44	27	4	2
Buffalo, N. Y.	135	85	6	4
Camden, N. J.	50	28	3	1
Elizabeth, N. J.	27	12	–	–
Erie, Pa.	55	35	3	2
Jersey City, N. J.	67	44	2	2
Newark, N. J.	74	32	2	7
New York City, N. Y. †	1,582	934	44	43
Paterson, N. J.	36	24	2	–
Philadelphia, Pa.	395	211	8	22
Pittsburgh, Pa.	202	106	16	10
Reading, Pa.	50	31	2	1
Rochester, N. Y.	112	74	15	2
Schenectady, N. Y.	28	19	2	2
Scranton, Pa.	46	33	1	3
Syracuse, N. Y.	71	44	1	1
Trenton, N. J.	55	29	5	2
Utica, N. Y.	22	16	2	–
Yonkers, N. Y.	39	30	3	1
EAST NORTH CENTRAL:	2,801	1,570	93	159
Akron, Ohio	81	59	1	1
Canton, Ohio	55	40	6	1
Chicago, Ill.	751	385	20	61
Cincinnati, Ohio	132	77	6	10
Cleveland, Ohio	198	100	6	14
Columbus, Ohio	186	101	6	13
Dayton, Ohio	118	64	3	3
Detroit, Mich.	421	257	10	11
Evansville, Ind.	45	22	1	3
Flint, Mich.	54	34	3	4
Fort Wayne, Ind.	58	32	2	2
Gary, Ind.	41	17	3	7
Grand Rapids, Mich.	63	34	5	1
Indianapolis, Ind.	144	73	–	9
Madison, Wis.	36	17	2	1
Milwaukee, Wis.	125	74	6	3
Peoria, Ill.	37	20	1	5
Rockford, Ill.	33	23	4	1
South Bend, Ind.	49	32	3	1
Toledo, Ohio	102	62	4	5
Youngstown, Ohio	72	47	1	3
WEST NORTH CENTRAL:	867	502	22	60
Des Moines, Iowa	66	33	2	6
Duluth, Minn.	35	22	–	1
Kansas City, Kans.	39	19	2	5
Kansas City, Mo.	134	84	1	7
Lincoln, Nebr.	33	22	1	–
Minneapolis, Minn.	100	57	2	7
Omaha, Nebr.	71	42	–	5
St. Louis, Mo.	244	146	9	17
St. Paul, Minn.	82	39	1	8
Wichita, Kans.	63	38	4	4
Las Vegas, Nev.*	19	9	–	6

Area	All Causes		Pneumonia and Influenza All Ages	Under 1 year All Causes
	All Ages	65 years and over		
SOUTH ATLANTIC:	1,206	592	34	90
Atlanta, Ga.	125	57	4	3
Baltimore, Md.	235	121	1	8
Charlotte, N. C.	62	39	–	7
Jacksonville, Fla.	93	42	5	4
Miami, Fla.	95	43	3	5
Norfolk, Va.	51	19	4	1
Richmond, Va.	84	35	4	12
Savannah, Ga.	25	12	1	–
St. Petersburg, Fla.	85	68	3	2
Tampa, Fla.	69	35	4	6
Washington, D. C.	217	88	2	41
Wilmington, Del.	65	33	3	1
EAST SOUTH CENTRAL:	705	406	27	24
Birmingham, Ala.	109	56	1	6
Chattanooga, Tenn.	51	33	5	1
Knoxville, Tenn.	47	34	2	–
Louisville, Ky.	145	84	14	6
Memphis, Tenn.	124	64	1	3
Mobile, Ala.	72	34	–	5
Montgomery, Ala.	41	26	3	–
Nashville, Tenn.	116	75	1	3
WEST SOUTH CENTRAL:	1,232	589	22	86
Austin, Tex.	32	14	2	3
Baton Rouge, La.	42	23	1	1
Corpus Christi, Tex.	30	9	1	6
Dallas, Tex.	157	70	1	7
El Paso, Tex.	56	28	3	5
Fort Worth, Tex.	82	34	2	9
Houston, Tex.	284	128	3	30
Little Rock, Ark.	73	33	–	5
New Orleans, La.	129	68	2	3
Oklahoma City, Okla.	85	43	2	4
San Antonio, Tex.	137	71	1	6
Shreveport, La.	68	34	2	1
Tulsa, Okla.	57	34	2	6
MOUNTAIN:	546	298	18	32
Albuquerque, N. Mex.	56	26	2	3
Colorado Springs, Colo.	36	17	2	2
Denver, Colo.	151	93	6	6
Ogden, Utah	35	19	4	1
Phoenix, Ariz.	127	59	–	15
Pueblo, Colo.	23	15	4	–
Salt Lake City, Utah	62	35	–	4
Tucson, Ariz.	56	34	–	1
PACIFIC:	1,598	969	36	70
Berkeley, Calif.	20	12	–	–
Fresno, Calif.	50	33	2	2
Glendale, Calif.	35	23	–	–
Honolulu, Hawaii	42	18	–	6
Long Beach, Calif.	91	51	–	2
Los Angeles, Calif.	509	327	13	22
Oakland, Calif.	76	43	2	7
Pasadena, Calif.	39	25	1	1
Portland, Oreg.	130	82	2	9
Sacramento, Calif.	64	39	1	2
San Diego, Calif.	93	48	–	3
San Francisco, Calif.	183	109	3	5
San Jose, Calif.	38	23	1	–
Seattle, Wash.	115	63	5	7
Spokane, Wash.	64	41	3	–
Tacoma, Wash.	49	32	3	4
Total	12,727	7,140	405	664
Expected Number	12,459	7,080	402	530
Cumulative Total (includes reported corrections for previous weeks)	343,945	198,757	13,418	15,399

*Mortality data are being collected from Las Vegas, Nev., for possible inclusion in this table, however, for statistical reasons, these data will be listed only and not included in the total, expected number, or cumulative total, until 5 years of data are collected.

†Delayed Report for week ended June 26, 1971

EPIDEMIOLOGIC NOTES AND REPORTS
BOTULISM ASSOCIATED WITH COMMERCIALLY CANNED VICHYSSOISE
New York

At 8:00 a.m. on June 30, 1971, an elderly male resident of Westchester County, New York, experienced diplopia. He was hospitalized that afternoon and at 11:30 p.m. suffered a respiratory arrest and died. The following morning, his 63-year-old wife was also admitted with dysphonia, dysarthria, and dysphagia. Botulism was diagnosed, and the patient was treated with botulinum antitoxin. Her condition has remained stable, although she did require a tracheostomy.

The woman recalled that she and her husband had eaten part of a can of uncooked vichyssoise at their evening meal on June 29. The soup had tasted spoiled, so they had eaten only a small amount and had thrown the rest away. Laboratory studies performed by the New York State Department of Health revealed botulinum toxin type A in the serum of both patients and in the remaining contents of a can of Bon Vivant Vichyssoise (lot number V-141-USA-71) found at the patients' home. Botulinum toxin type A has also been demonstrated by the Food and Drug Administration (FDA) in four other cans of this same lot; all four cans were swollen.

The product is canned by the Bon Vivant Company of Newark, New Jersey, and is distributed nationally under 22 brand names including the canner's own name. This company also cans 89 other products; examination of several of these products revealed a high incidence of swollen cans. The company has voluntarily recalled all products and is cooperating with the FDA and the U.S. Department of Agriculture to expedite stock withdrawal.

Two other cases of confirmed type A botulism that occurred within several days after the vichyssoise-associated cases were also reported from New York City. The patients had become ill after eating contaminated home-canned antipasto. An investigation is underway to determine whether these cases were caused by Bon Vivant products.

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Editorial Note

It is recommended that persons who may have eaten vichyssoise lot number V-141 within 48 hours be purged and placed under surveillance. Persons who may have eaten other suspect foods should be placed under surveillance only if the food tasted spoiled or the can was swollen, in which case purging is also recommended. Botulinum antitoxin should not be administered in the absence of symptoms compatible with botulism.

These two cases in Westchester County represent the third outbreak of botulism caused by a commercially canned product in the United States since 1950. The other two occurred in 1963 and were attributed to contaminated tuna fish (type E) and liver paste (type A). In the former outbreak, there were three cases with two deaths, and in the latter, two cases with no deaths.

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The data in this report are provisional, based on weekly telegraphs to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the succeeding Friday.

In addition to the established procedures for reporting morbidity and mortality, the editor welcomes accounts of interesting outbreaks or case investigations of current interest to health officials.

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