CENTER FOR DISEASE CONTROL

MMWR

MORBIDITY AND MORTALITY WEEKLY REPORT

August 12, 1977 / Vol. 26 / No. 32

Epidemiologic Notes and Reports

Poisoning Associated with Herbal Teas — Arizona, Washington

Four recent cases of poisoning associated with consumption of "herbal teas" mistakenly made with poisonous substances have been reported to CDC. Three cases were fatal.

Two of the cases were in Arizona infants who had been fed large quantities of a tea prepared from a locally marketed product called gordolobo yerba, which is usually made from leaves of plants of the *Gnaphalium* species. This tea is widely used as a gargle and cough medicine by the Hispanic population to which the children belonged. Analysis of the tea fed to the children revealed, however, that it had inadvertently been made from *Senecio longilobus,* an hepatotoxic herb containing pyrrolizidine alkaloids. These are the first domestic cases of pyrrolizidine-induced disease in humans reported in the United States (*1*).

The Washington cases — both fatal — were in an elderly couple who drank a home-prepared tea in which foxglove had been used instead of comfrey. Details of all 4 cases follow.

Arizona

Patient 1: A 6-month-old, well-nourished Hispanic girl was admitted in early July 1976 to the Tucson Medical Center with a 1-day history of emesis and irritability. She had been seen by her pediatrician 2 weeks before for symptoms of a mild respiratory infection; physical examination at that time was normal. Admission physical examination revealed an irritable infant with a distended abdomen and a prominent abdominal venous pattern; her liver span was 9 cm, and her spleen was easily palpable. An initial SGOT was 974 IU/l and bilirubin 0.5 mg%; her prothrombin time, originally 12.8 seconds, was 16.4 seconds 4 days later. Radiologic examination indicated a right pleural effusion and ascites. The ascitic fluid was clear, yellow, and contained 1.3 gm% protein and 5 lymphocytes/mm^3. A needle liver biopsy revealed normal hepatic architecture and intact hepatocytes. However, the sinusoids were markedly distended with mature erythrocytes. An echocardiogram and arteriograms of the inferior vena cava and hepatic vein were normal.

In an initial interview the girl's parents stated that the patient had been fed large quantities of tea, prepared from a locally marketed herb, known as gordolobo yerba. However, laboratory analysis revealed that the patient's tea was made from the herb *Senecio longilobus.* An extract from a specimen revealed large quantities of toxic pyrrolizidine alkaloids.

A liver biopsy obtained 2 months after the initial biopsy revealed extensive central, portal, and sinusoidal fibrosis. A third liver biopsy, obtained 8 months after admission, revealed cirrhosis. The patient still had ascites, requiring a low sodium diet and diuretics for control. Her SGOT was slightly elevated, but her other liver function tests, growth, and development were normal.

Patient 2: A 2-month-old Hispanic boy was admitted to a Phoenix hospital on March 15, 1977, with a 1-day history of lethargy, emesis, and hematemesis. On physical examination, the patient was icteric with hepatomegaly; he subsequently developed both splenomegaly and ascites. Initial SGOT was 10,640 IU/l, bilirubin 10.0 mg%, and prothrombin time 96 seconds; blood glucose, as measured with a Dextro-stix,* indicated profound hypoglycemia. Despite vigorous therapy, including 2 exchange transfusions, the patient died 6 days following admission. Postmortem examination of the liver revealed sinusoidal and central vein congestion with necrosis of hepatocytes most marked in central areas.

For 5 days prior to admission the patient had been fed an herbal tea as a cough medicine. Purchased at a local pharmacy, it also was made from *Senecio longilobus;* analysis of the herb revealed large quantities of toxic pyrrolizidine alkaloids.

Washington

An elderly Chehalis couple attended a health spa that recommended comfrey tea as an herbal remedy for their arthritis. The couple had experimented with various herbal teas, but the woman's knowledge of plants was limited.

On Saturday, May 7, 1977, she picked what she believed to be comfrey plants and made herbal tea, which she and her husband drank with their lunch. One hour later, they became incapacitated with nausea, vomiting, dizziness, and sweating. Later in the afternoon, the husband discovered some foxglove plants in the refrigerator. Realizing that this herb — the leaves of which are similar to comfrey — had

*Use of trade names is for identification only and does not constitute endorsement by the Public Health Service, U.S. Department of Health, Education, and Welfare.

mistakenly been substituted for comfrey in their tea, he immediately called an ambulance. When the ambulance arrived at 4:30 PM, his wife already was dead. The husband arrived at a local hospital at 5 PM suffering from abdominal cramps and vomiting. An electrocardiogram revealed a superaventricular rate of 60 with occasional premature atrial contractions and a ventricular rate of 30. A subsequent rhythm strip showed a fine atrial flutter with a ventricular rate of 30, followed by an episode of ventricular tachycardia.

The patient was treated with antiarrhythmic drugs, and a pacemaker was inserted into his coronary sinus. He received gastric lavage and was treated with charcoal. His serum potassium was 5.3 meq/l. He was transferred to a university hospital in Seattle, where physical examination, except for a short late systolic murmur, was normal. An electrocardiogram revealed a pacemaker-induced rate of 80. Serum electrolytes and complete blood count were normal. The patient's condition was stable for the first 17 hours after his admission. Then he arose to vomit and developed an episode of ventricular tachycardia which progressed to refractory ventricular fibrillation. Cardiopulmonary resuscitation was unsuccessful, and he died the evening of May 8. The digitoxin level in his serum was found to be >80 ng/ml. (Therapeutic levels usually range between 5-30 ng/ml.) Aside from mild hypertension treated with Dyazide,* the man's medical history revealed no previous heart problems. A past medical history for his wife was not available.

*Use of trade names is for identification only and does not constitute endorsement by the Public Health Service, U.S. Department of Health, Education, and Welfare.

Reported by AE Stillman, MD, Tucson Medical Center; RJ Huxtable, PhD, University of Arizona College of Medicine; DW Fox, MD, MC Hart, MD, PS Bergeson, MD, Good Samaritan Hospital, Phoenix; JM Counts, DrPH, State Epidemiologist, Arizona State Dept of Health Services; L Cooper, MD, Chehalis; G Grunenfelder, Lewis County Health Dept; J Blackmon, MD, M Fretwell, MD, University of Washington; J Raey, MD, Medical Examiner's Office, Seattle; J Allard, PhD, State Epidemiologist, B Bartleson, MPH, State of Washington Dept of Social and Health Services; Special Studies Br, Chronic Diseases Div, and Field Services Div, Bur of Epidemiology, CDC.

Editorial Note: The pyrrolizidine aklaloids are hepatotoxic and are found in a wide variety of plants (*2*). One of these is *Senecio longilobus* (sometimes referred to as thread leaf groundsel), native to the deserts of the southwestern United States and northern Mexico.

Veterinarians and farmers have long recognized that ingestion by livestock of plants containing pyrrolizidine aklaloids can cause acute and chronic damage to the liver and lungs of animals and may lead to death (*2*). The chronic effects of prolonged ingestion of small amounts by humans is unknown. Human hepatic veno-occlusive disease has occurred after ingestion of large amounts of contaminated grain products or "bush teas." Recent outbreaks of pyrrolizidine poisoning have been recorded in Afganistan and India (*3,4*), and such intoxication is considered endemic in Jamaica (*5*).

The Arizona State Department of Health Services is

Table I. Summary—Cases of Specified Notifiable Diseases: United States

[Cumulative totals include revised and delayed reports through previous weeks]

DISEASE	31st WEEK ENDING		MEDIAN	CUMULATIVE, FIRST 31 WEEKS		
	August 6, 1977	August 7, 1976	1972–1976	August 6, 1977	August 7, 1976	MEDIAN 1972–1976
Aseptic meningitis	160	87	115	1,829	1,336	1,471
Brucellosis	3	18	4	121	184	110
Chickenpox	523	417	---	156,596	145,059	---
Diphtheria	1	1	1	53	121	121
Encephalitis, Primary	21	45	42	411	555	514
Encephalitis, Post-Infectious	6	9	7	130	182	185
Hepatitis, Viral, Type B	277	278	199	9,639	8,841	5,615
Hepatitis, Viral, Type A	546	589	770	18,456	20,658	25,441
Hepatitis, Viral, Type unspecified	153	141		5,494	5,080	
Malaria	20	9	6	298	252	232
Measles (rubeola)	490	154	154	52,290	33,701	23,574
Meningococcal infections, total	20	20	20	1,170	1,046	970
Civilian	20	20	20	1,164	1,030	945
Military	-	-	-	6	16	23
Mumps	129	227	364	15,031	31,361	45,195
Pertussis	39	30	---	527	569	---
Rubella (German measles)	87	51	89	18,174	10,358	14,456
Tetanus	1	1	1	31	30	49
Tuberculosis	587	670	---	18,047	20,017	---
Tularemia	5	2	2	85	82	82
Typhoid fever	7	13	7	214	229	224
Typhus, tick-borne (Rky. Mt. spotted fever)	64	53	42	717	514	505
Venereal Diseases:						
Gonorrhea, Civilian	21,192	21,386	---	572,480	586,258	---
Gonorrhea, Military	490	607	---	15,933	17,051	---
Syphilis, primary and secondary, Civilian	382	440	---	12,234	14,457	---
Syphilis, primary and secondary, Military	6	3	---	182	210	---
Rabies in animals	45	74	71	1,709	1,695	1,752

Table II. Notifiable Diseases of Low Frequency: United States

	CUM.		CUM.
Anthrax:	-	Poliomyelitis, total:	7
Botulism:	72	Paralytic: Oregon +1	6
Congenital rubella syndrome:	10	Psittacosis:	42
Leprosy:	72	Rabies in man:	1
Leptospirosis:	26	Trichinosis: Conn. +1	53
Plague:	5	Typhus, murine: *Maryland 2, Texas 2	48

*Delayed reports: Typhus, murine: Fla. +2, Ark. −2

working with local health departments to disseminate information about this problem, particularly in Hispanic communities.

Episodes similar to the 2 reported here are probably occurring with increasing frequency because of the growing interest in and use of "natural" foods. Both outbreaks illustrate the importance of knowing exactly what one is drinking when experimenting with herbs or unfamiliar substances.

References

1. Lyford CL, Vergara GG, Moeller DD: Hepatic veno-occlusive disease originating in Ecuador. Gastroenterology 70:105-108, 1976

2. McLean EK: The toxic actions of pyrrolizidine (*Senecio*) alkaloids. Pharmacol Rev 22:429-483, 1970

3. Mohabbat O, Younos MS, Merzad AA, et al: An outbreak of hepatic veno-occlusive disease in northwestern Afghanistan. Lancet 2:269-271, 1976

4. Tandom BN, Tandom HD, Tandom RK, et al: An epidemic of veno-occlusive disease of the liver in central India. Lancet 2:271-272, 1976

5. Stuart KL, Bras G: Veno-occlusive disease of the liver. Q J Med 26:291-315, 1957

International Notes

Smallpox Surveillance — Worldwide

From January 1-July 19, 1977, a total of 2,642 smallpox cases have been reported from the Ogaden desert area of Kenya and Somalia. Of these, 2,637 were in Somalia and 5 in Kenya. No cases have been reported from Ethiopia since August 1976. The two outbreaks reported from there in May proved, on laboratory examination, to be chickenpox.

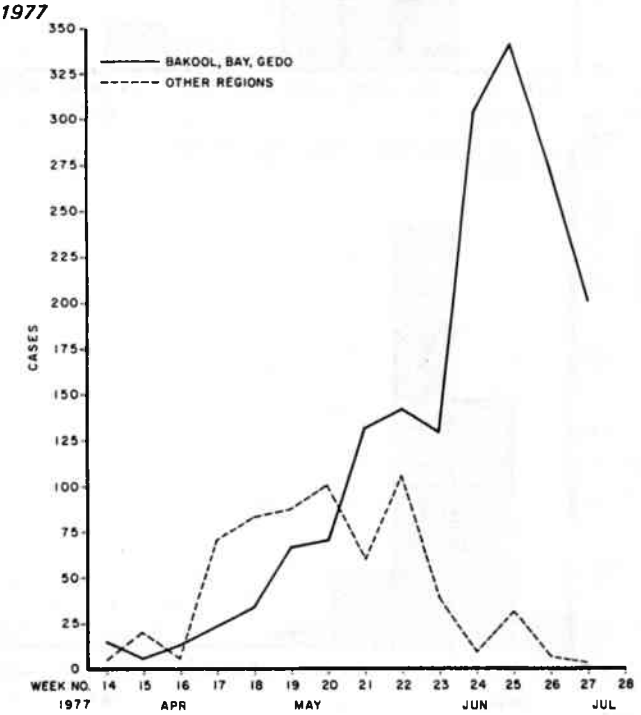
Somalia: A total of 2,637 smallpox cases have been reported this year from 788 localities situated in 10 regions of southern Somalia. A sharp increase in the number of reported cases occurred in May. On May 27, at the request of the Government of Somalia, the United Nations Disaster Relief Office in Geneva appealed for emergency assistance to cope with the smallpox situation. Five countries and one international agency promptly responded to the appeal, and within 3 weeks, supplies and equipment, including 16 vehicles, were airlifted to Mogadishu. This effort quickly raised the program to an effective operational level. The period of the emergency operation related to this appeal has now ended, since the basic priority needs have been met. Program activities are being sustained by further World Health Organization (WHO) assistance, which now includes local cost expenditures and a total of 24 WHO epidemiologists and operations officers. More than 1,700 national personnel and 50 vehicles are engaged in surveillance and containment measures throughout the country. The government has issued a directive urging the assistance and cooperation of political bodies, military, police, teachers, and general health staff. A reward system for detection of hidden foci has also been established.

Despite the continuing active search for cases, the number of newly detected cases by week showed a declining trend in June (Figure 1). Major outbreaks are now restricted to only 3 southern regions: Bay, Bakool, and Gedo. The incidence in the other regions, including the previously heavily infected regions of Hiran, Middle Juba, Lower Shabelli, and Middle Shabelli, appears to be rapidly approaching zero.

In the regions of Bay, Bakool, and Gedo, more than 400 national staff members with 8 WHO epidemiologists are currently engaged in vigorous search and containment measures. While a sharp decline in cases is anticipated in these regions, there are still, as of July 16, a total of 356 active cases in 173 localities. (Active cases are defined as cases in which smallpox rash occurred within the previous 3 weeks.) During May and June, 126 specimens were submitted for WHO laboratory confirmation; 77 of these were positive. The search operation conducted by National and WHO joint efforts in June revealed no evidence of smallpox in the West Galbeed, Togdeer, or Nugal Regions in northern Somalia.

Kenya: An active case search operation with 14 special surveillance teams is in progress in the districts of Garissa, Mandera, Marasabit, and Wajir — all of which share a common border with Ethiopia or Somalia. A WHO epidemiologist and an operations officer are participating in the work. From March through May these areas were searched twice; the third search operation is now in progress. The second search, conducted in May, was more comprehensive than the first, which was hampered by heavy rains and floods. During the second search, 335 localities, 141 water points, and 54 markets were visited. Of 171 smallpox rumors investigated, chickenpox was diagnosed in 37 and various other skin diseases in 134; no smallpox was found. From May to June, 17 specimens were tested by the WHO Reference Laboratory; all were negative. Assessment of activities revealed that 75-90% of the inhabitants interviewed had seen the search teams and knew where to report fever with rash cases. However, it was found that vaccination coverage

FIGURE 1. Smallpox cases reported by week, Somalia, April-June, 1977



was as low as 30% in the Takaba area of the Mandera District. This area shares a common border with Ethiopia, and recent frequent population movement across the border may have reduced the vaccination level. Intensified vaccination activities in the border areas are required.

Ethiopia: The movement of WHO/National teams to investigate suspect cases and rumors of smallpox has been increasingly restricted recently because of civil unrest and a fuel shortage in the Ogaden Desert. Despite such difficulties, the eradication program is continuing its efforts to sustain sensitive surveillance activities in the Ogaden area. The main operational bases are being established in the capitals of the priority districts: Gode, Kelafo, Warder, and Kebri Dehar in Hararghe Region and El Kere and Dolo in Bale Region. Currently, 205 national staff members (10 supervisory staff and 195 searcher/vaccinators) and one WHO epidemiologist are engaged in surveillance work in these districts. An additional 30 supervisors are being recruited locally to increase the effectiveness of surveillance. Of 73 rumors detected in May, 6 are being examined and 67 have been investigated with negative results. Twenty-five specimens in May and 39 in June were collected and tested by a WHO Reference Laboratory with negative results. In May, 14,402 vaccinations were given in the 6 priority districts. However, since many areas are currently inaccessible to WHO/National teams, it will take some time to verify that no smallpox foci are present in this part of Ethiopia.

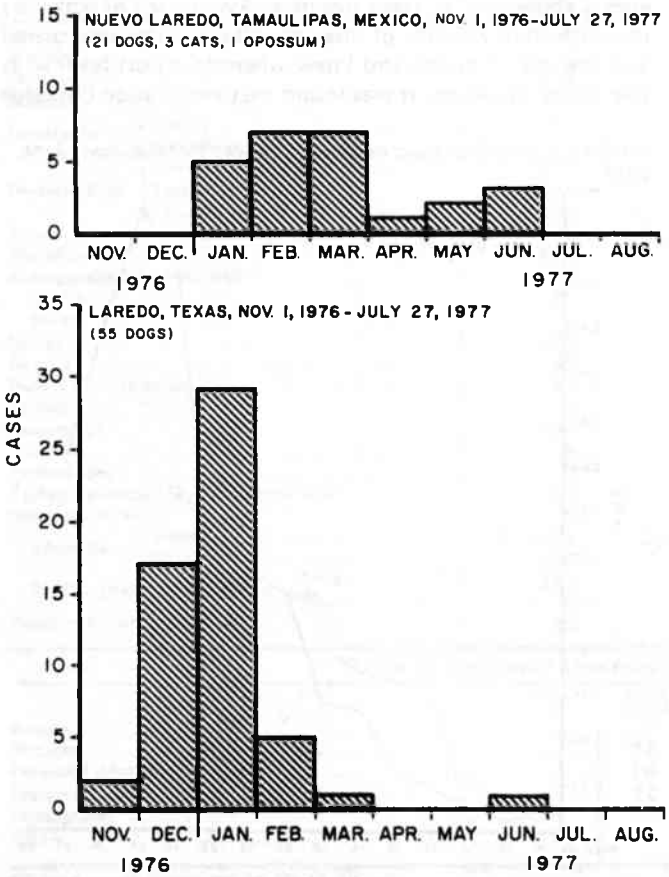
Reported by the World Health Organization in the Weekly Epidemiological Record 52:240-242, 1977.

Current Trends

Follow-up on Canine Rabies Outbreak on the U.S.-Mexican Border

An outbreak of canine rabies in Laredo, Texas, that began in November 1976 (*1*) now appears to be under control, after a stringent vaccination and stray-animal pick-up program. From the week of November 22, when the first case was reported, through the week of July 25, 1977, a total of 55 rabid dogs were identified in Laredo. Rabies has not been diagnosed in any other animals in the city. Fifty-nine persons received antirabies treatment (although some did not complete the series) as a result of exposure during the outbreak. No human cases were reported.

FIGURE 2. U.S.-Mexican border rabies epizootic, 1976-1977



Rapid implementation of a massive control program appears to have brought the outbreak to an end. After December 4, when the control program was started, over 1,700 stray dogs were captured and over 14,000 animals (approximately 13,000 dogs and 1,000 cats) were vaccinated against rabies. The special, low-cost vaccination clinics that were conducted throughout the outbreak have been discontinued.

In Nuevo Laredo, Mexico, which has reported 25 cases of animal rabies since the outbreak was first recognized on January 24, 1977, a similar control program resulted in the vaccination of 15,135 dogs and destruction of 1,146 strays by June 25.

Reported by AB Rich, DVM, Bur of Veterinary Public Health, CR Webb Jr, MD, State Epidemiologist, Texas State Dept of Health Resources; B Velimirovic, MD, El Paso Field Office, Pan American Health Organization; Viral Zoonoses Section, Viral Diseases Div, Bur of Epidemiology, CDC.

Editorial Note: No rabies had been reported from Laredo for the 29 years prior to November 1976, and the source of infection for the index case in this outbreak has not been identified. Nuevo Laredo reported 1 case of canine rabies annually for the years 1971-1974, but no cases were reported in 1975 and 1976.

The relatively small number of owned dogs that had been vaccinated and the presence of an increasing number of stray dogs provided the susceptible population to support an epizootic; the potential existed for this outbreak to continue. However, intervention by health officials, who carried out the massive control program rapidly, ended the outbreak. Through the cooperation of health officials at city, county, and state levels, the news media, practicing veterinarians, the Animal Protection Society, and the general public, the entire community was mobilized in a short period of time and was able to eliminate successfully the susceptible population before any human rabies cases resulted.

Given the long incubation period for rabies, however, additional sporadic cases of dog rabies might be expected to occur in the next several months.

Reference

1. MMWR 26:8, 1977

Table III

Cases of Specified Notifiable Diseases: United States

Weeks Ending August 6, 1977 and August 7, 1976 — 31st Week

AREA REPORTING	ASEPTIC MENINGITIS	BRUCELLOSIS	CHICKENPOX	DIPHTHERIA		ENCEPHALITIS			HEPATITIS, VIRAL			MALARIA	
						Primary: Arthropod-borne and Unspecified		Post Infectious	Type B	Type A	Type Unspecified		
	1977	1977	1977	1977	CUM. 1977	1977	1976	1977	1977	1977	1977	1977	CUM. 1977
UNITED STATES	160	3	523	1	53	21	45	6	277	546	153	20	298
NEW ENGLAND	9	–	55	–	–	1	–	–	3	15	14	2	15
Maine	–	–	1	–	–	–	–	–	–	–	–	–	–
New Hampshire*	–	–	5	–	–	–	–	–	–	3	–	–	2
Vermont*	–	–	1	–	–	–	–	–	–	1	–	–	1
Massachusetts	8	–	22	–	–	1	–	–	–	5	12	–	2
Rhode Island	–	–	20	–	–	–	–	–	–	5	–	–	4
Connecticut	1	–	6	–	–	–	–	–	3	1	2	2	6
MIDDLE ATLANTIC	25	1	148	–	5	3	6	1	60	78	37	10	73
Upstate New York	4	1	98	–	–	1	1	1	6	26	5	4	19
New York City	2	–	50	–	5	–	–	–	7	6	9	3	31
New Jersey*	11	–	NN	–	–	–	2	–	29	21	18	–	9
Pennsylvania	8	–	–	–	–	2	3	–	18	25	5	3	14
EAST NORTH CENTRAL	9	–	176	–	–	3	4	–	34	55	16	–	24
Ohio	1	–	8	–	–	1	2	–	5	8	–	–	7
Indiana	3	–	3	–	–	–	–	–	1	2	6	–	2
Illinois	2	–	11	–	–	–	–	–	7	14	3	–	2
Michigan	3	–	101	–	–	2	1	–	16	25	7	–	10
Wisconsin	–	–	53	–	–	–	1	–	5	6	–	–	3
WEST NORTH CENTRAL	4	–	10	–	1	3	–	–	9	26	10	4	29
Minnesota	–	–	–	–	–	–	–	–	3	13	–	–	9
Iowa	–	–	4	–	–	1	–	–	–	–	1	–	–
Missouri	1	–	6	–	1	2	–	–	3	9	5	4	15
North Dakota*	–	–	–	–	–	–	–	–	–	–	–	–	1
South Dakota	1	–	–	–	–	–	–	–	–	2	–	–	1
Nebraska	–	–	–	–	–	–	–	–	1	–	–	–	–
Kansas	2	–	–	–	–	–	–	–	2	2	4	–	3
SOUTH ATLANTIC	23	1	28	–	–	3	1	2	48	70	12	–	42
Delaware	–	–	1	–	–	–	–	–	–	1	–	–	–
Maryland	7	–	–	–	–	1	–	–	16	12	2	–	8
District of Columbia	1	–	–	–	–	–	–	–	4	6	1	–	3
Virginia*	6	1	3	–	–	1	–	–	6	11	5	–	4
West Virginia	2	–	11	–	–	–	–	–	1	2	–	–	1
North Carolina	3	–	NN	–	–	1	1	–	7	6	1	–	4
South Carolina	1	–	1	–	–	–	–	–	1	4	2	–	–
Georgia	–	–	–	–	–	–	–	–	6	15	–	–	8
Florida	3	–	12	–	–	–	–	2	7	13	1	–	14
EAST SOUTH CENTRAL	17	1	4	–	–	–	26	–	25	23	3	2	9
Kentucky	7	–	3	–	–	–	–	–	2	5	–	–	4
Tennessee	1	–	NN	–	–	–	–	–	11	5	2	–	1
Alabama	9	–	1	–	–	–	4	–	9	7	1	2	4
Mississippi	–	1	–	–	–	–	22	–	3	6	–	–	–
WEST SOUTH CENTRAL	19	–	23	–	2	3	2	1	18	67	8	1	14
Arkansas	–	–	1	–	–	–	–	–	4	20	–	–	–
Louisiana	–	–	NN	–	–	–	2	–	3	5	1	–	1
Oklahoma	1	–	2	–	–	–	–	–	4	1	1	–	–
Texas	18	–	20	–	2	3	–	1	7	41	6	1	13
MOUNTAIN	7	–	29	1	4	–	–	2	10	44	9	–	9
Montana	–	–	2	–	–	–	–	–	1	4	–	–	–
Idaho*	–	–	–	–	–	–	–	–	–	3	–	–	–
Wyoming	–	–	16	–	–	–	–	–	1	1	–	–	1
Colorado	7	–	11	–	–	–	–	–	4	6	3	–	6
New Mexico	–	–	–	1	3	–	–	2	2	18	3	–	1
Arizona	–	–	NN	–	1	–	–	–	2	12	1	–	1
Utah	–	–	–	–	–	–	–	–	–	–	2	–	–
Nevada*	–	–	–	–	–	–	–	–	–	–	–	–	–
PACIFIC	47	–	50	–	41	5	6	–	70	168	44	1	83
Washington	–	–	35	–	38	–	4	–	3	8	–	–	4
Oregon	11	–	–	–	–	–	–	–	4	19	6	–	1
California*	36	–	–	–	1	5	–	–	61	110	38	1	72
Alaska	–	–	1	–	2	–	2	–	–	19	–	–	2
Hawaii	–	–	14	–	–	–	–	–	2	12	–	–	4
Guam*	NA	NA	NA	NA	–	NA	–	–	NA	NA	NA	NA	–
Puerto Rico	–	–	1	–	–	–	–	–	–	–	2	1	2
Virgin Islands	–	–	–	–	–	–	–	–	–	–	–	–	–

NN: Not notifiable
NA: Not available
*Delayed reports: Asep. meng.: N.J. +1; Chickenpox: Nev. +1, Calif. +4, Guam +6; Hep. B: Idaho –1, Nev. +4, Guam +1; Hep. A: N. Hamp. +1, Vt. +1, N. Dak. +3, Nev. +4, Guam +5; Hep. unsp.: Va. –8, Nev. +7, Guam +2; Malaria: Va. +7

Table III-Continued
Cases of Specified Notifiable Diseases: United States
Weeks Ending August 6, 1977 and August 7, 1976 — 31st Week

REPORTING AREA	MEASLES (Rubeola)			MENINGOCOCCAL INFECTIONS TOTAL			MUMPS		PERTUSSIS	RUBELLA		TETANUS
	1977	CUMULATIVE		1977	CUMULATIVE		1977	CUM. 1977	1977	1977	CUM. 1977	CUM. 1977
		1977	1976		1977	1976						
UNITED STATES	490	52,290	33,701	20	1,170	1,046	129	15,031	39	87	18,174	31
NEW ENGLAND	–	2,456	371	1	50	49	1	621	–	–	1,174	1
Maine	–	164	6	–	3	1	–	46	–	–	69	–
New Hampshire	–	510	9	–	3	4	–	90	–	–	240	–
Vermont	–	289	34	–	4	3	–	7	–	–	64	–
Massachusetts*	–	635	35	–	16	16	1	114	–	–	371	–
Rhode Island	–	61	14	–	1	4	–	50	–	–	134	–
Connecticut	–	797	273	1	23	21	–	314	–	–	296	1
MIDDLE ATLANTIC	35	8,262	6,884	3	166	143	12	1,225	7	9	5,978	3
Upstate New York	24	3,773	2,882	3	41	58	3	275	7	7	3,355	1
New York City	8	689	437	–	41	38	6	451	–	1	304	–
New Jersey*	–	193	589	–	33	19	1	340	–	–	1,775	2
Pennsylvania*	3	3,607	2,976	–	51	28	2	159	–	1	544	–
EAST NORTH CENTRAL	331	10,998	14,362	2	114	130	30	5,155	4	25	3,593	2
Ohio*	288	1,822	562	1	41	52	3	642	–	4	1,103	–
Indiana	4	4,284	3,240	–	8	6	1	286	–	7	900	1
Illinois	30	1,574	1,509	1	20	16	13	877	–	2	303	–
Michigan	1	914	5,734	–	33	47	2	1,785	4	8	904	1
Wisconsin*	8	2,404	3,317	–	12	9	11	1,565	–	4	383	–
WEST NORTH CENTRAL	19	9,570	1,170	1	65	67	25	3,455	1	–	489	4
Minnesota	–	2,617	389	–	21	14	–	6	–	–	16	1
Iowa	–	4,284	41	1	6	8	1	1,247	–	–	158	–
Missouri	2	945	17	–	26	23	24	1,151	1	–	34	2
North Dakota	–	22	3	–	1	3	–	16	–	–	11	–
South Dakota	–	66	4	–	4	2	–	59	–	–	17	–
Nebraska	17	209	55	–	1	4	–	67	–	–	2	–
Kansas*	–	1,427	661	–	6	13	–	909	–	–	251	1
SOUTH ATLANTIC	19	4,420	2,125	3	251	205	15	679	3	6	1,578	8
Delaware	–	22	128	–	3	6	6	119	–	–	24	–
Maryland	–	371	715	1	18	16	4	55	–	–	5	–
District of Columbia	–	4	12	–	–	2	–	5	–	–	–	–
Virginia*	15	2,628	730	–	15	32	1	85	1	1	573	1
West Virginia	1	214	183	–	9	6	1	147	–	3	101	–
North Carolina	1	62	15	–	59	37	2	49	2	2	440	–
South Carolina	1	148	4	2	28	35	–	10	–	–	209	–
Georgia	1	763	1	–	41	19	1	20	–	–	49	1
Florida	–	208	337	–	78	52	–	189	–	–	177	6
EAST SOUTH CENTRAL	18	1,934	800	–	130	97	6	802	3	4	1,906	2
Kentucky	13	1,173	735	–	26	17	1	81	1	1	76	1
Tennessee	4	646	49	–	33	41	3	493	2	3	1,712	1
Alabama	–	77	–	–	47	28	2	198	–	–	109	–
Mississippi	1	38	16	–	24	11	–	30	–	–	9	–
WEST SOUTH CENTRAL	10	2,047	661	6	210	164	20	1,336	4	2	757	4
Arkansas	–	39	–	1	12	10	9	51	1	–	3	1
Louisiana	–	74	187	–	79	28	1	35	–	–	27	1
Oklahoma	–	54	286	–	10	18	1	459	–	–	29	–
Texas*	10	1,880	188	5	109	108	9	791	3	2	698	2
MOUNTAIN	8	2,466	5,002	1	41	30	5	583	6	1	341	2
Montana	–	1,154	202	–	2	4	–	9	–	–	14	1
Idaho*	–	128	2,020	–	4	3	–	120	–	–	11	–
Wyoming	2	17	3	–	1	–	2	3	–	1	4	1
Colorado	–	497	245	–	1	5	1	253	–	–	232	–
New Mexico	1	268	15	1	18	3	1	107	4	–	11	–
Arizona	1	297	226	–	11	9	–	–	–	–	11	–
Utah	4	12	2,228	–	3	4	–	76	2	–	49	–
Nevada	–	93	63	–	1	2	1	15	–	–	9	–
PACIFIC	50	10,137	2,326	3	143	161	15	1,175	11	40	2,358	5
Washington	4	529	330	–	18	27	1	257	6	2	436	–
Oregon	5	357	151	–	11	14	3	213	–	1	104	–
California	41	9,159	1,842	2	86	102	10	660	5	10	1,440	5
Alaska	–	58	–	1	26	15	–	25	–	–	1	–
Hawaii	–	34	3	–	2	3	1	20	–	27	377	–
Guam*	NA	4	12	–	–	–	NA	3	NA	NA	7	–
Puerto Rico	3	791	315	–	1	3	5	587	–	–	29	8
Virgin Islands	–	14	10	–	–	–	–	186	–	–	2	–

NA: Not available
*Delayed reports: Measles: Mass. –1, N.J. +1, Ohio –1, Wisc. –13, Kans. +128, Va. +1; Men. inf.: Pa. –2, Kans. –1; Mumps: Idaho +1, Guam +1; Rubella: N.J. +1, Tex. +6

Table III-Continued
Cases of Specified Notifiable Diseases: United States
Weeks Ending August 6, 1977 and August 7, 1976 – 31st Week

REPORTING AREA	TUBERCULOSIS		TULAREMIA	TYPHOID FEVER		TYPHUS-FEVER TICK-BORNE (RMSF)		VENEREAL DISEASES (Civilian Cases Only)						RABIES IN ANIMALS
								GONORRHEA			SYPHILIS (Pri. & Sec.)			
	1977	CUM. 1977	CUM. 1977	1977	CUM. 1977	1977	CUM. 1977	1977	CUMULATIVE 1977	CUMULATIVE 1976	1977	CUMULATIVE 1977	CUMULATIVE 1976	CUM. 1977
UNITED STATES	587	18,047	85	7	214	64	717	21,192	572,480	586,258	382	12,234	14,457	1,709
NEW ENGLAND	33	674	1	–	12	–	6	614	14,964	15,970	16	508	443	27
Maine	3	49	–	–	–	–	–	53	1,074	1,362	–	14	13	23
New Hampshire*	1	18	–	–	–	–	–	19	587	437	–	3	7	1
Vermont	–	24	–	–	–	–	–	19	396	403	–	6	5	–
Massachusetts	18	378	1	–	9	–	1	232	6,441	7,727	14	364	300	2
Rhode Island	7	53	–	–	2	–	3	35	1,230	1,031	–	7	16	–
Connecticut	4	152	–	–	1	–	2	256	5,236	5,010	2	114	102	1
MIDDLE ATLANTIC	99	2,846	1	3	47	15	50	2,401	58,020	67,819	51	1,699	2,432	49
Upstate New York	27	455	1	1	7	6	25	478	9,729	10,826	8	166	147	24
New York City	46	931	–	2	19	–	–	799	22,798	30,413	31	1,067	1,536	–
New Jersey	26	736	–	–	16	2	8	680	10,248	10,433	5	219	336	21
Pennsylvania*	NA	724	–	–	5	7	17	444	15,245	16,147	7	247	413	4
EAST NORTH CENTRAL	115	2,858	3	1	20	4	12	3,802	89,557	91,659	31	1,288	1,247	66
Ohio*	26	468	1	–	7	1	6	902	23,623	22,248	14	303	302	–
Indiana	8	332	–	–	1	–	2	451	8,252	9,174	5	98	72	5
Illinois	47	1,129	–	1	3	3	3	1,370	29,067	32,461	–	674	643	19
Michigan*	34	802	–	–	9	–	1	825	20,488	19,635	8	152	163	4
Wisconsin	–	127	2	–	–	–	–	254	8,127	8,141	4	61	67	38
WEST NORTH CENTRAL	13	606	10	–	13	2	22	1,147	30,291	30,053	10	282	256	431
Minnesota	7	134	–	–	4	–	–	279	5,510	5,415	2	86	58	159
Iowa	2	61	–	–	–	–	–	147	3,526	3,784	–	33	24	67
Missouri*	–	248	9	–	4	1	13	458	12,690	11,846	8	100	105	32
North Dakota	–	14	–	–	1	–	–	24	565	447	–	–	–	67
South Dakota	–	32	1	–	–	1	1	39	846	854	–	2	4	75
Nebraska	3	24	–	–	1	–	–	91	2,628	2,586	–	24	18	1
Kansas*	1	93	–	–	3	–	8	109	4,526	5,121	–	37	47	30
SOUTH ATLANTIC	111	4,070	9	–	37	24	400	4,741	142,061	143,473	115	3,467	4,395	179
Delaware	1	35	–	–	–	–	1	69	1,997	1,916	–	18	42	2
Maryland	17	571	2	–	2	4	50	601	17,957	19,000	3	220	369	–
District of Columbia	5	189	–	–	1	–	–	321	9,365	9,936	8	364	351	–
Virginia	18	476	–	–	9	9	116	685	14,580	15,344	7	335	397	3
West Virginia*	13	157	–	–	3	–	3	68	1,948	1,811	–	1	19	2
North Carolina	16	675	2	–	3	7	150	689	21,137	20,472	8	483	808	6
South Carolina	6	359	2	–	–	4	41	583	13,137	13,829	11	155	228	5
Georgia	17	483	3	–	9	–	39	592	27,347	26,581	31	707	639	118
Florida	18	1,125	–	–	10	–	–	1,133	34,593	34,584	47	1,184	1,542	43
EAST SOUTH CENTRAL	28	1,589	5	1	4	10	112	1,841	50,693	51,900	20	432	577	49
Kentucky	–	390	1	–	–	1	23	231	6,914	6,604	2	52	84	16
Tennessee	5	499	4	–	1	5	74	789	20,240	20,517	6	136	200	26
Alabama	14	426	–	–	1	4	13	491	13,898	14,761	12	85	119	7
Mississippi*	9	274	–	1	2	–	2	330	9,641	10,018	–	159	174	–
WEST SOUTH CENTRAL	67	2,141	49	–	12	7	103	2,183	72,106	76,422	80	1,781	1,698	540
Arkansas	6	249	31	–	5	4	24	240	5,615	7,255	5	43	53	81
Louisiana	8	403	1	–	–	–	1	394	10,830	11,230	34	415	361	12
Oklahoma	2	191	8	–	1	3	59	172	6,734	7,172	4	50	67	175
Texas	51	1,298	9	–	6	–	19	1,377	48,927	50,765	37	1,273	1,217	272
MOUNTAIN	28	499	6	–	16	1	10	932	23,254	23,541	8	250	389	97
Montana	1	26	1	–	–	–	3	72	1,183	1,190	–	4	5	33
Idaho	2	25	–	–	–	–	4	30	1,078	1,246	–	5	14	–
Wyoming	1	8	1	–	–	–	2	38	582	445	–	4	3	1
Colorado	3	71	3	–	8	1	1	194	5,978	5,823	1	75	87	30
New Mexico	6	84	–	–	–	–	–	125	3,420	4,475	–	47	95	–
Arizona	12	226	1	–	4	–	–	259	6,644	7,014	5	99	142	29
Utah	3	28	–	–	4	–	–	45	1,283	1,175	–	6	17	4
Nevada	–	31	–	–	–	–	–	169	3,086	2,173	2	10	26	–
PACIFIC	93	2,764	1	2	53	1	2	3,531	91,534	85,421	51	2,527	3,020	271
Washington	NA	147	–	–	1	–	–	403	6,910	7,156	NA	106	90	2
Oregon	3	123	–	–	3	–	–	222	6,255	6,638	1	74	61	4
California	78	2,094	1	2	48	1	2	2,683	73,438	67,548	50	2,304	2,801	253
Alaska*	–	35	–	–	–	–	–	142	2,985	2,434	–	19	11	12
Hawaii	12	365	–	–	1	–	–	81	1,946	1,645	–	24	57	–
Guam*	NA	36	–	NA	1	NA	–	NA	116	208	NA	1	1	–
Puerto Rico	12	212	–	–	4	–	–	79	1,910	1,677	7	328	352	40
Virgin Islands*	–	1	–	–	–	–	–	1	116	157	1	6	45	–

NA: Not available
*Delayed reports: TB: N. Hamp. –1, Ohio –1, Mich. –2, Kans. –1, Guam +1; RMSF: Pa. –1; GC: N. Hamp. +2 mil., Miss. –5 civ., Guam +8 civ.; V.I. +2 civ.; Syphilis: Miss. +1 civ., Alaska –1 civ., +1 mil.; An. rabies: Mo. +2, W. Va. +3

Table IV
Deaths in 121 United States Cities*
Week Ending August 6, 1977 – 31st Week

REPORTING AREA	ALL CAUSES					Pneumonia and Influenza
	ALL AGES	65 Years and Over	45-64 Years	25-44 Years	Under 1 Year	ALL AGES
NEW ENGLAND	604	388	142	28	22	38
Boston, Mass.	197	108	53	14	13	17
Bridgeport, Conn.	45	35	5	–	4	2
Cambridge, Mass.	25	14	8	–	1	5
Fall River, Mass.	20	14	5	1	–	1
Hartford, Conn.	52	31	12	5	3	3
Lowell, Mass.	18	13	5	–	–	–
Lynn, Mass.	18	13	3	2	–	1
New Bedford, Mass.	23	20	2	–	1	1
New Haven, Conn.	34	23	10	1	–	1
Providence, R.I.	68	43	18	3	1	3
Somerville, Mass.	3	3	–	–	–	1
Springfield, Mass.	39	24	10	2	–	1
Waterbury, Conn.	26	21	3	–	1	2
Worcester, Mass.	36	26	8	–	1	–
MIDDLE ATLANTIC	2,680	1,659	676	178	73	116
Albany, N. Y.	49	24	16	4	2	1
Allentown, Pa.	17	11	4	–	1	2
Buffalo, N. Y.	95	53	29	4	6	7
Camden, N. J.	27	15	8	2	1	–
Elizabeth, N. J.	29	21	4	3	–	2
Erie, Pa.†	32	21	8	1	1	2
Jersey City, N. J.	46	27	13	4	2	–
Newark, N. J.	63	30	22	4	4	4
New York City, N. Y.	1,391	883	331	102	29	53
Paterson, N. J.	37	22	4	5	2	1
Philadelphia, Pa.†	380	222	107	26	12	14
Pittsburgh, Pa.†	169	97	50	9	6	9
Reading, Pa.	36	30	5	–	–	1
Rochester, N. Y.	131	82	30	9	5	10
Schenectady, N. Y.	16	12	3	–	–	2
Scranton, Pa.†	37	25	9	1	–	2
Syracuse, N. Y.	44	23	17	2	–	–
Trenton, N. J.	31	22	7	1	1	1
Utica, N. Y.	23	19	4	–	–	2
Yonkers, N. Y.	27	20	5	1	1	3
EAST NORTH CENTRAL	2,242	1,299	584	157	94	63
Akron, Ohio	76	44	24	2	5	–
Canton, Ohio	26	14	8	1	–	–
Chicago, Ill.	505	272	146	39	21	16
Cincinnati, Ohio	203	116	52	13	10	4
Cleveland, Ohio	156	87	44	11	6	3
Columbus, Ohio	142	91	34	2	9	8
Dayton, Ohio	107	55	31	11	8	4
Detroit, Mich.	267	153	62	28	11	6
Evansville, Ind.	44	30	8	2	2	3
Fort Wayne, Ind.	50	26	13	5	2	2
Gary, Ind.	19	9	5	1	2	1
Grand Rapids, Mich.	57	37	10	4	4	3
Indianapolis, Ind.	135	78	43	7	1	1
Madison, Wis.	31	18	7	1	–	3
Milwaukee, Wis.	132	92	25	8	3	1
Peoria, Ill.	49	28	13	3	3	1
Rockford, Ill.	42	29	7	3	1	2
South Bend, Ind.	47	34	8	2	2	2
Toledo, Ohio	97	50	26	12	3	2
Youngstown, Ohio	57	36	18	2	1	1
WEST NORTH CENTRAL	750	466	173	44	34	29
Des Moines, Iowa	60	43	11	3	3	2
Duluth, Minn.	24	16	7	1	–	2
Kansas City, Kans.	33	28	2	1	–	2
Kansas City, Mo.	128	79	34	8	4	6
Lincoln, Nebr.	28	22	4	2	–	–
Minneapolis, Minn.	82	51	8	6	10	3
Omaha, Nebr.	90	53	26	7	4	1
St. Louis, Mo.	175	94	51	9	9	3
St. Paul, Minn.	63	42	15	2	–	1
Wichita, Kans.	67	38	15	5	4	9

REPORTING AREA	ALL CAUSES					Pneumonia and Influenza
	ALL AGES	65 Years and Over	45–64 Years	25–44 Years	Under 1 Year	ALL AGES
SOUTH ATLANTIC	1,141	639	332	64	63	49
Atlanta, Ga.	143	70	44	8	13	4
Baltimore, Md.	190	103	58	11	6	4
Charlotte, N. C.	70	41	27	2	–	4
Jacksonville, Fla.	80	43	22	8	6	4
Miami, Fla.	102	52	36	7	6	3
Norfolk, Va.	61	35	16	4	2	3
Richmond, Va.	70	37	22	6	1	7
Savannah, Ga.	30	20	7	2	–	4
St. Petersburg, Fla.	82	63	15	1	2	3
Tampa, Fla.	74	46	17	2	8	5
Washington, D. C.	174	92	49	11	17	5
Wilmington, Del.	65	37	19	2	2	3
EAST SOUTH CENTRAL	704	396	186	56	32	31
Birmingham, Ala.	116	63	31	13	4	1
Chattanooga, Tenn.	57	32	21	2	–	1
Knoxville, Tenn.	34	26	5	3	–	–
Louisville, Ky.	108	62	30	8	4	10
Memphis, Tenn.	167	97	37	14	10	7
Mobile, Ala.	77	38	22	5	5	2
Montgomery, Ala.	31	19	4	4	–	2
Nashville, Tenn.	114	59	36	7	9	8
WEST SOUTH CENTRAL	1,118	619	306	89	61	26
Austin, Tex.	28	16	5	5	1	–
Baton Rouge, La.	45	29	10	2	3	3
Corpus Christi, Tex.	36	19	9	5	–	–
Dallas, Tex.	176	99	55	8	8	2
El Paso, Tex.	42	31	2	4	4	6
Fort Worth, Tex.	79	41	21	5	6	–
Houston, Tex.	237	113	85	20	10	1
Little Rock, Ark.	62	38	11	4	5	7
New Orleans, La.	130	72	33	13	8	–
San Antonio, Tex.	125	70	30	14	7	1
Shreveport, La.	65	35	20	4	6	2
Tulsa, Okla.	93	56	25	5	3	4
MOUNTAIN	459	252	112	41	28	12
Albuquerque, N. Mex.	42	21	11	3	5	2
Colorado Springs, Colo.	43	26	6	3	4	2
Denver, Colo.	89	51	20	7	6	3
Las Vegas, Nev.	29	12	12	3	–	–
Ogden, Utah	21	11	7	1	–	–
Phoenix, Ariz.	105	56	30	10	7	2
Pueblo, Colo.	12	7	3	–	–	2
Salt Lake City, Utah	48	26	9	4	6	1
Tucson, Ariz.	70	42	14	10	–	–
PACIFIC	1,543	951	376	106	42	35
Berkeley, Calif.	21	10	3	5	–	–
Fresno, Calif.	56	24	20	6	2	2
Glendale, Calif.	24	18	4	1	–	–
Honolulu, Hawaii	60	34	13	10	1	–
Long Beach, Calif.	113	68	30	9	3	1
Los Angeles, Calif.	456	278	116	39	8	15
Oakland, Calif.	65	41	16	3	1	1
Pasadena, Calif.	20	15	5	–	–	–
Portland, Oreg.	110	70	26	1	6	2
Sacramento, Calif.	76	43	21	3	5	1
San Diego, Calif.	115	76	30	4	1	3
San Francisco, Calif.	131	82	28	11	5	1
San Jose, Calif.	58	41	13	1	1	3
Seattle, Wash.	167	110	31	10	5	4
Spokane, Wash.	37	24	7	3	3	1
Tacoma, Wash.	34	17	13	–	1	1
TOTAL	11,241	6,669	2,887	763	449	399
Expected Number	11,241	6,736	2,904	757	386	359

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

†Estimate based on average percent of divisional total

The Morbidity and Mortality Weekly Report, circulation 67,500, is published by the Center for Disease Control, Atlanta, Georgia. 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.

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

Send mailing list additions, deletions, and address changes to: Center for Disease Control, Attn.: Distribution Services, GSO, 1-SB-36, Atlanta, Georgia 30333. When requesting changes be sure to give your former address, including zip code and mailing list code number, or send an old address label.

Current Trends

Summary of Arboviral Activity — United States, 1977

St. Louis Encephalitis (SLE): The SLE season began in the United States in June with 2 laboratory-confirmed human cases of encephalitis in Dallas, Texas. Control activities were intensified in the Dallas area, and no further cases have been discovered there. Only 2 other laboratory-documented cases have been reported. Both involved Memphis, Tennessee, residents with serologic presumptive SLE infection. The first patient, an 83-year-old woman, had onset of illness on July 8. The second, a 91-year-old man, had onset of acute encephalitis on July 15. Both patients were hospitalized but recovered sufficiently to be discharged. The patients resided in a part of the inner city near the Mississippi River where extensive SLE activity in humans was noted in 1974 and 1975. The Memphis-Shelby County Health Department has maintained careful surveillance for SLE activity in mosquitoes and birds, in addition to human surveillance, since 1974. In 1977, a brief period of increased infection among birds was noted 3-5 weeks before the patients' onset of illness, but continued intensive surveillance has revealed little evidence of further activity in birds. A daily survey of suspect cases at municipal hospitals and subsequent laboratory screening of their sera has revealed no further human cases.

Elsewhere in the United States during 1977, surveillance of bird populations for antibodies to SLE indicates sporadic activity at most test locations in the Ohio-Mississippi Valley. Illinois, Indiana, Kentucky, Mississippi, Ohio, and Tennessee had evidence of epidemiologically significant virus transmission (as defined by a prevalence of HI antibody of 4% or above) in either May or June. In July, Indiana, Kentucky, Mississippi, and Texas reported similar results. Surveillance of birds from Louisiana and Alabama have shown no evidence of recent transmission.

Western Equine Encephalomyelitis (WEE): Widespread WEE activity has been laboratory-documented in horses from 14 states by the Veterinary Services Laboratories, U.S. Department of Agriculture (Figure 3). Suspect human cases of encephalitis are under investigation in several western states, but none has been confirmed to date.

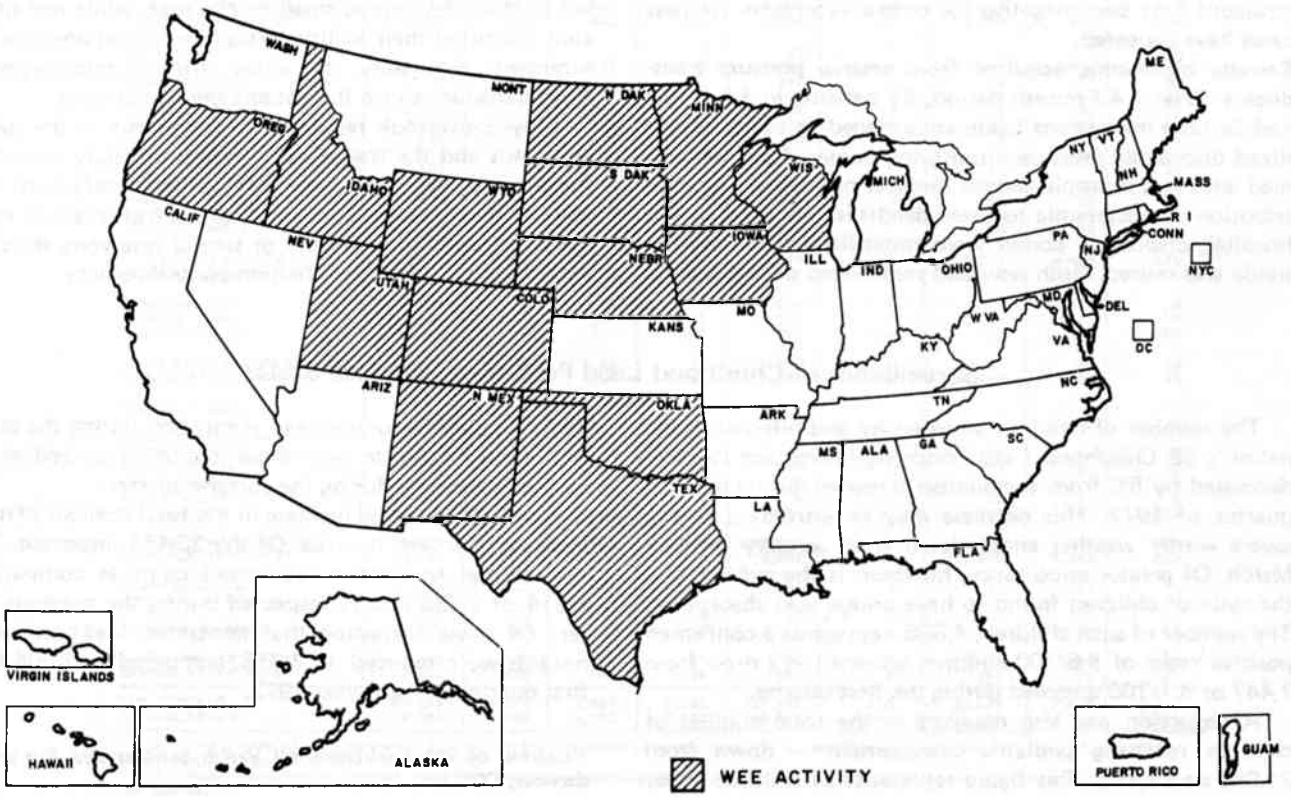
Dengue fever: Suspect cases of dengue type 1 have been reported from 12 states — California, Connecticut, Florida, Georgia, Indiana, Louisiana, Maine, Maryland, Mississippi, New York, Ohio, and Virginia — and the District of Columbia. These cases were all in persons who had recently returned from Jamaica, where an outbreak of dengue type 1 has been occurring (*1*). The illness in the U. S. cases has been comparatively mild; only 1 of the cases has been hospitalized. No secondary cases have been found in the United States. Travel advisories remain in effect cautioning tourists in Jamaica to avoid mosquitoes and to report dengue-like illness to their physicians upon returning to the United States.

Reported by Z Boyle, RN, I Duncan, RN, J Levy, MD, Memphis-Shelby County Health Dept; RH Hutcheson, Jr, MD, State Epidemiologist, Tennessee Dept of Public Health; J Pearson, DVM, Veterinary Services Laboratories, USDA, Ames, Iowa; respective State Epidemiologists; Vector-borne Diseases Div and San Juan Laboratories, Bur of Laboratories, Vector Biology and Control Div, Bur of Tropical Diseases, and Viral Diseases Div, Bur of Epidemiology, CDC.

Reference

1. MMWR 26:255, 1977

FIGURE 3. Western equine encephalomyelitis in horses, United States, 1977



Sterilization and Disinfection of Hospital Supplies

Many medical supplies used in hospitals are damaged by steam or ethylene oxide sterilization. Some items can be gas sterilized, but the time required for such processing may be excessive or equipment may be damaged if devices are sterilized between each use. As a result, some supplies must either be discarded after a single use or an effective disinfecting procedure used. The following reports illustrate that the process of sterilization and disinfection must be carefully monitored and reviewed by hospital infection control committees.

Salmonella gastroenteritis acquired from gastroduodenoscopy: In a 4-month period, 7 patients in 1 hospital had *Salmonella typhimurium* gastroenteritis and 4 had an acute diarrheal illness consistent with salmonellosis 1 to 5 days after fiberoptic esophagogastroduodenoscopy. Epidemiologic investigation found that upper gastrointestinal endoscopy was significantly associated with salmonellosis.

S. typhimurium organisms with the same antibiogram and phage lysis patterns as those isolated from infected patients were isolated from the gastroscope cytology brush, the colonoscope forceps channel aperture, the lumen of the rubber tube connecting the suction bottle to the endoscope, and the suction collection bottle. The suction apparatus with its attached tubing was used in colonoscopic and upper gastrointestinal endoscopic procedures. Before recognition of this outbreak, the gastroscope had been routinely cleaned after use on each patient by internal and external washing with a hexachlorophene solution. After recognition of the problem, the gastroscope was sterilized by ethylene oxide, and thereafter routinely soaked internally and externally in polyvinyl-pyrolidone-iodine after each use; in addition, both the endoscope and suction tubing were sterilized weekly with ethylene oxide. Follow-up cultures of the instrument have been negative for enteric organisms. No new cases have appeared.

Serratia bacteremia acquired from arterial pressure transducers: Over a 4½-month period, 25 patients in 1 hospital had *Serratia marcescens* bacteremia traced to use of resterilized disposable pressure monitoring domes. Four patients died who had multiple serious medical problems. The contribution of bacteremia to these deaths is unknown. In this hospital, disposable domes were resterilized with ethylene oxide and reused. Both new and resterilized domes were in use during the 4½-month period. Of 25 used domes examined after resterilization, all were sterile, but 8 had cracks in the plastic membrane intended to isolate the pressure transducer from the patient circuit. No new domes had such defects. Cultures of some of the permanent transducers to which disposable domes had been attached grew *S. marcescens* with the same antiobiogram and serotype patterns as those causing disease. Once the hospital stopped re-using disposable domes, no further cases were recognized.

Reported by the Bur of Epidemiology, CDC

Editorial Note: The gastroendoscope or the suction apparatus may have served as the *S. typhimurium* reservoir in the first outbreak reported, and the gastroendoscope probably introduced small numbers of salmonellae beyond the gastric acid barrier that normally protects against infection by small numbers of salmonellae. Hexachlorophene, widely used as an antiseptic, is less effective against gram-negative microorganisms than against gram-positive strains such as *Staphylococcus aureus,* and it is not generally used as a disinfectant. Before any attempts to disinfect or sterilize equipment, good physical cleaning is of prime importance. In this outbreak, this would include not only the endoscope but also the tubing and bottles of the suction apparatus. Gas sterilization is an effective way to make an endoscope safe for reuse. Liquid disinfection may be an alternative.

The second outbreak illustrates that some medical devices are apparently altered by sterilization processes which these devices were not designed to withstand. In that outbreak, the pressure monitoring domes were meant to be used once and discarded. To resterilize the disposable domes, the hospital used a regimen routinely employed to sterilize reusable medical devices. The ethylene oxide presumably altered the plastic pressure monitoring domes and led to their developing small cracks that, while not noticeably impairing their ability to transmit blood pressure measurements accurately, did allow entry of microorganisms from transducers into the patient vascular circuits.

Easy-to-overlook reservoirs of organisms — the suction apparatus and the transducer — were ultimately responsible for these clusters of illness. Efforts to identify such reservoirs in outbreak situations and to control levels of microbial contamination in these or similar reservoirs should be part of routine hospital infection control activity.

Surveillance of Childhood Lead Poisoning — United States

The number of children screened by and referred to the nation's 58 Childhood Lead Poisoning Prevention Projects decreased by 5% from the number screened during the first quarter of 1977. This decrease may be attributed to the severe winter weather encountered from January through March. Of greater importance, however, is the reduction in the ratio of children found to have undue lead absorption. The number of such children, 4,888, represents a confirmed positive ratio of 5.6/100 children screened — a drop from 7,447 or 8.1/100 screened during the first quarter.

A reduction was also reported in the total number of children receiving pediatric management — down from 24,053 to 21,493. This figure represents all children under pediatric care for undue lead absorption during the quarter and is not limited to only those identified as needing pediatric management during the current quarter.

There was a 3-fold increase in the total number of houses inspected for lead hazards. Of the 23,453 inspected, 7,448 were found to contain lead-based paint as compared to 4,614 of 7,235 houses inspected during the previous quarter. Of those inspected that contained lead-based paint, hazards were reduced in 3,855, compared to 4,004 in the first quarter of fiscal year 1977.

Reported by the Environmental Health Services Div, Bur of State Services, CDC.

TABLE 1. Results of screening in childhood lead poisoning control projects — United States, second quarter fiscal year 1977 (January 1, 1977 — March 31, 1977)

Projects	Screened	NUMBER OF CHILDREN					NUMBER OF DWELLINGS		
		With Confrimed Undue Lead Absorption[1]							
		Requiring Pediatric Management			Receiving Pediatric Management[2]		Inspected	Found with Lead	Reduced
		Total	Class II	Classes III & IV	Total	Chelation Therapy			
Augusta, Me.	872	18	16	2	225	0	39	32	30
Boston, Mass.	5,207	147	89	58	1,534	21	194	194	189
Fall River, Mass.	573	48	40	8	48	3	45	24	18
Lawrence, Mass.	720	68	37	31	34	1	48	41	14
Lowell, Mass.	427	8	4	4	66	1	6	3	3
Lynn, Mass.	482	35	28	7	234	7	62	58	52
New Haven, Conn.	662	45	38	7	86	2	192	90	81
Portland, Me.	248	12	8	4	40	0	7	7	2
Rhode Island State	1,200	0	0	0	132	21	0	0	0
Stamford, Conn.	922	11	8	3	330	1	51	42	35
Waterbury, Conn.	863	28	20	8	302	0	267	235	178
Worcester, Mass.	896	78	53	25	392	34	94	89	94
REGION I TOTAL	**13,072**	**498**	**341**	**157**	**3,423**	**91**	**1,005**	**815**	**696**
CUMULATIVE FY 77	**25,428**	**1,405**	**985**	**420**	**7,541**	**195**	**1,923**	**1,546**	**1,676**
Camden, N.J.	257	44	29	15	436	7	82	49	21
Erie Co. N.Y.	488	40	32	8	419	11	13	2	15
Hoboken, N.J.	236	24	18	6	40	5	41	4	2
Monroe Co. N.Y.	974	169	138	31	193	2	65	56	49
Newark, N.J.	1,168	126	84	42	346	31	186	138	81
New York City	15,222	611	450	161	1,881	16	168	81	83
Onondaga Co. N.Y.	811	38	24	14	190	18	59	42	17
Paterson, N.J.	440	86	51	35	244	23	46	33	67
Plainfield, N.J.	446	96	50	46	108	1	24	8	9
Rensselaer, N.Y.	134	6	5	1	77	0	7	3	13
Westchester, N.Y.	1,091	33	22	11	375	0	41	17	24
REGION II TOTAL	**21,267**	**1,273**	**903**	**370**	**4,309**	**114**	**732**	**433**	**381**
CUMULATIVE FY 77	**44,053**	**3,391**	**2,356**	**1,035**	**8,459**	**300**	**1,736**	**972**	**837**
Baltimore, Md.	3,670	93	45	48	423	33	100	85	91
Chester, Pa.	1,051	16	9	7	699	1	54	40	21
Delaware State	762	39	31	8	55	3	49	29	10
Norfolk, Va.	1,279	71	59	12	274	5	44	23	58
Philadelphia, Pa.	2,583	418	262	156	582	31	813	305	326
Richmond, Va.	1,355	23	19	4	842	19	70	52	49
Washington, D.C.	3,437	286	174	112	268	10	332	103	61
Wilkes-Barre, Pa.	385	13	9	4	144	4	12	11	15
REGION III TOTAL	**14,522**	**959**	**608**	**351**	**3,287**	**106**	**1,474**	**648**	**631**
CUMULATIVE FY 77	**28,746**	**1,993**	**1,303**	**690**	**7,438**	**257**	**3,171**	**1,508**	**1,332**
Augusta, Ga.	538	39	28	11	175	0	0	0	0
Louisville, Ky.	959	58	35	23	593	7	108	79	80
Memphis, Tenn.	763	30	20	10	178	1	46	32	44
Mobile, Ala.	498	10	6	4	386	4	74	37	27
South Carolina State	993	30	20	10	725	8	262	260	91
Wilmington, N.C.	441	47	33	14	33	13	73	70	4
REGION IV TOTAL	**4,192**	**214**	**142**	**72**	**2,090**	**33**	**563**	**478**	**246**
CUMULATIVE FY 77	**7,525**	**498**	**342**	**156**	**4,056**	**72**	**1,030**	**866**	**540**
Akron, Ohio	12	1	1	0	19	0	4	4	4
Chicago, Ill.	14,132	612	428	184	2,393	111	17,689	3,641	1,253
Cincinnati, Ohio	1,179	68	51	17	263	4	64	53	61
Cleveland, Ohio	3,265	95	77	18	504	2	179	111	75
Columbus, Ohio	1,163	17	10	7	128	13	71	25	10
Detroit, Mich.	2,950	260	188	72	576	3	502	451	91
Kenosha, Wisc.	145	1	0	1	14	0	0	0	4
Milwaukee, Wisc.	719	26	23	3	260	6	92	75	52
Peoria, Ill.	162	6	6	0	14	2	13	11	19
Racine, Wisc.	199	7	3	4	115	0	44	12	25
Rockford, Ill.	271	25	18	7	384	0	100	65	6
St. Paul, Minn.	120	13	6	7	40	0	6	2	9
Wayne Co. Mich.	99	45	30	15	141	1	49	48	13
REGION V TOTAL	**24,416**	**1,176**	**841**	**335**	**4,851**	**142**	**18,813**	**4,498**	**1,622**
CUMULATIVE FY 77	**49,475**	**2,665**	**1,836**	**829**	**10,461**	**406**	**20,729**	**5,702**	**2,719**
Arkansas State	691	29	18	11	234	0	42	13	4
Houston, Texas	2,460	53	37	16	142	1	95	13	6
New Orleans, La.	NR	NR	NR	NR	NR	NR	NR	NR	NR
REGION VI TOTAL	**3,151**	**82**	**55**	**27**	**376**	**1**	**137**	**26**	**10**
CUMULATIVE FY 77	**9,664**	**370**	**226**	**144**	**1,189**	**35**	**443**	**133**	**71**
Davenport-Scott Co. Iowa	0	0	0	0	0	0	0	0	0
Kansas City-Wyandotte Co. Kansas	1,173	14	14	0	47	0	28	24	2
Kansas City, Mo.	1,277	18	13	5	125	0	27	27	5
Omaha, Neb.	65	0	0	0	0	0	0	0	0
Springfield, Mo.	436	4	4	0	5	0	22	12	2
St. Louis, Mo.	2,539	580	361	219	2,784	33	583	441	208
REGION VII TOTAL	**5,490**	**616**	**392**	**224**	**2,961**	**33**	**660**	**504**	**217**
CUMULATIVE FY 77	**11,641**	**1,696**	**1,028**	**668**	**5,948**	**123**	**1,488**	**1,242**	**563**
Alameda Co. Calif.	421	28	19	9	45	2	27	14	3
Contra Costa Co. Calif.	423	14	8	6	52	1	4	1	1
Los Angeles, Calif.	275	28	12	16	99	2	38	31	48
REGION IX TOTAL	**1,119**	**70**	**39**	**31**	**196**	**5**	**69**	**46**	**52**
CUMULATIVE FY 77	**2,122**	**236**	**147**	**89**	**454**	**8**	**168**	**93**	**121**
U.S. TOTALS	**87,229**	**4,888**	**3,321**	**1,567**	**21,493**	**525**	**23,453**	**7,448**	**3,855**
CUMULATIVE FY 77	**178,654**	**12,254**	**8,223**	**4,031**	**45,546**	**1,396**	**30,688**	**12,062**	**7,859**

[1] Class II and Classes III & IV defined in CDC Statement, Increased Lead Absorption and Lead Poisoning in Young Children, March 1975.
NR — Not reported.
[2] This number represents all children under care for undue lead absorption during the quarter and is not limited to only those identified during the quarter.

Epidemiologic Notes and Reports

Presumed Staphylococcal Food Poisoning Associated With Whipped Butter

Whipped butter produced by a single manufacturing plant in Kentucky has been implicated in a multi-state outbreak of food poisoning which began the last week of July. The illness was characterized by nausea, vomiting, abdominal cramps, diarrhea, and prostration within 4-6 hours of ingestion – symptoms compatible with staphylococcal food poisoning.

Over 100 cases, including several that required hospitalization, were reported to state officials in Illinois, Indiana, Kentucky, Ohio, and Missouri. Most of these cases were associated with restaurants that had received shipments of 16-pound containers of butter produced by the Sugar Creek Division of Beatrice Foods Company on June 28 and June 30. The company also produces consumer-size packages, distributed under a number of different brand names in at least 18 states; in Indiana, Ohio, and West Virginia, 4 small outbreaks have been associated with packages of this size. The other 15 states to which the consumer-size packages were distributed are: Arkansas, Florida, Georgia, Illinois, Kentucky, Louisiana, Michigan, Mississippi, Missouri, New Mexico, North Carolina, Oklahoma, Tennessee, Texas, and Virginia. The following labels are involved: Sugar Creek, Prairie Farm, A&P, Armour, Chappel, Mayflower, Blue Valley, Meadowgold, Lucerne, Coleman, and Kountry Fresh.

On August 4 the manufacturer closed the plant, and the following day voluntarily recalled all whipped butter produced by the plant from June 21 through August 4. On August 9 the manufacturer voluntarily recalled all remaining whipped butter produced before June 21. The recalled butter bears lot numbers coded with the first 3 numbers of 216 or below (on the 16-pound containers) or the "pull date" of September 12, 1977, or before (on the consumer-size packages). *Staphylococcus aureus* organisms in counts up to 10^7/gm have been isolated from lots of whipped butter produced between June 28 and August 3. A sample of the butter produced on June 21 showed no growth of the organisms. Enterotoxin studies are pending.

The plant remains closed, and investigations are continuing to determine the source of contamination.

Reported by BJ Francis, MD, State Epidemiologist, C Langkop, MSPH, Illinois State Dept of Public Health; H Mitchell, MD, St. Louis County Dept of Community Health and Medical Care; HD Donnell Jr, MD, State Epidemiologist, Missouri State Dept of Health and Welfare; C Hernandez, MD, State Epidemiologist, Kentucky State Dept for Human Resources; RD Telle, MD, State Epidemiologist, Indiana State Board of Health; TJ Halpin, MD, State Epidemiologist, Ohio State Dept of Health; other respective State Epidemiologists; Food and Drug Administration; Field Services Div, Enteric Diseases Br, Bacterial Diseases Div, Bur of Epidemiology, CDC.

Editorial Note: The magnitude of this outbreak is difficult to ascertain because some of the contaminated whipped butter was distributed in consumer-size packages. Illness in persons who ate whipped butter from such packages would appear as isolated incidents that would not be as likely to be reported as restaurant-associated outbreaks.

Staphylococcal contamination of butter is rare because the high lipid concentration in butter is not conducive to growth of the organism. Previous staphylococcal outbreaks attributed to butter have usually involved products to which higher protein foods, such as milk, had been added (*1*).

Reference

1. MMWR 19:271, 1970

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE / CENTER FOR DISEASE CONTROL
ATLANTA, GEORGIA 30333

Director, Center for Disease Control, William H. Foege, M.D.
Director, Bureau of Epidemiology, Philip S. Brachman, M.D.
Editor, Michael B. Gregg, M.D.
Managing Editor, Anne D. Mather, M.A.
Chief, MMWR Statistical Activity, Dennis J. Bregman, M.S.

OFFICIAL BUSINESS **FIRST CLASS**

Redistribution using indicia is illegal.

U.S. MAIL
POSTAGE AND FEES PAID
U.S. DEPARTMENT OF HEW
HEW 399

HEW Publication No. (CDC) 77-8017