CENTER FOR DISEASE CONTROL

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Epidemiologic Notes and Reports

Lead Poisoning in Children of Battery Plant Employees — North Carolina

In February 1977, a 25-year-old woman and her 1-year-old son were hospitalized and treated for lead poisoning. The woman had worked for 8 months at a battery factory in Raleigh, North Carolina. She had developed symptoms of fatigue, irritability, and confusion 3 weeks after starting work; these symptoms had persisted for 7 months. Her child had manifested similar symptoms. Subsequent studies of other plant employees' children revealed excessive blood lead levels and apparent household contamination by lead-containing dust carried home on soiled work clothes.

Blood lead levels in 39 (72%) of 54 children of plant employees were $\geq$ 30 μg/100 ml*; 19 (35%) had levels of $>$ 40 μg/100 ml; and 3 (6%) had levels of $>$ 60 μg/100 ml. Blood lead levels were highest in children under 3 years of age. Four children were hospitalized and received chelation therapy for lead poisoning.

Environmental investigations of the 7 homes of children with highest blood lead levels revealed no lead contamination in paint or water and no airborne lead exposure from factory emissions or busy roadways. Lead concentrations in house dust were, however, extremely high: 1,695 to 84,074 μg/g; the highest levels were found in dust samples from closets where work clothes and shoes were stored (mean = 31,840 μg/g). Lead levels in soil samples from the inside of automobiles that had been driven to work were also high (mean = 2,770 μg/g).

Six of the 7 workers interviewed had worn work clothes and shoes home from work regularly. Work clothing was not provided by the plant. None of the 7 workers showered before going home.

In 1976, an inspection of this plant by the North Carolina Division of Health Services had revealed excessive exposure to lead in air and dust within several work areas. A citation was issued, and recommendations were made for reducing these exposures.

After excessive lead exposure was identified inside and outside the plant in the current investigation, the plant management initiated a program designed to reduce worker and family lead exposure. Plant processes, including exhaust ventilation systems, were improved, and coveralls and improved shower facilities were provided. Under the direction of the Wake County Health Department, homes of affected children were thoroughly cleaned.

Reported by J Dolcourt, MD, North Carolina Memorial Hospital, Raleigh; M Duke, JA Glick, JH Wooten, MD, Wake County Health Dept; J Drye, PhD, MP Hines, DVM, State Epidemiologist, PD Rogers, MD, North Carolina Division of Health Services; Special Studies Br, Chronic Diseases Div, Bur of Epidemiology, CDC.

Editorial Note: This episode represents the third report to CDC of lead absorption in children of workers in the lead industry over the past 2 years (*2,3*). In all of these episodes, lead dust carried home on contaminated work clothing was the apparent source of exposure. Children under 5 years of age have been consistently the most severely affected, apparently as the result of ingestion of lead-containing dust in their normal hand-to-mouth activities. Parents have developed lead poisoning simultaneously with their children's exposure.

In the evaluation of these lead poisoning cases, environmental studies have been helpful in ruling out exposure to lead-based paint, contaminated water, and airborne lead and in quantitating the magnitude of exposure to lead in dust. Significant lead absorption has been seen only in young children exposed to lead in dust at levels of $>$ 1,000 μg/g.

Following the first 2 episodes, CDC notified all health departments of the potential for lead exposure in children of employees of plants using lead. Subsequent investigations are now under way in several states. The U.S. Department of Labor is currently revising its standards for occupational lead exposure to provide specific regulations prohibiting the wearing home of contaminated work clothing and requirements for provision of adequate shower and changing facilities at lead-using plants.

*A lead level >30μg/100ml in children indicates excessive lead absorption; a lead level >80μg/100ml or any erythrocyte protoporphyrin level >190μg/100ml of whole blood represents a dangerous level necessitating immediate medical evaluation for manifestations of lead poisoning (*1*).

References

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2. Baker EL, Folland DS, Taylor TA, et al: Lead poisoning in children of lead workers: Home contamination with industrial dust. N Engl J Med 295:260-261, 1977
3. MMWR 25:85, 1977

Histoplasmosis Outbreak — Tennessee

During the first weekend in May 1977, several families gathered at a friend's home in a suburb of Nashville, Tennessee, to cut and remove a large oak tree that had fallen during a thunderstorm the previous day. The tree was not noted to be a prominent bird roost. Forty-two people (ages 2½ to 52 years) either observed or helped clear debris with chain saws, hand saws, rakes, or their bare hands. Twelve to 25 days later, 18 persons (average age, 23) developed symptoms of fever, malaise, chest pain, cough, myalgia, weight loss, and dyspnea. Pulmonary infiltrates and/or enlarged hilar nodes were observed on chest X rays of 13 of the 14 patients examined. Three patients were hospitalized; all recovered.

Although *Histoplasma capsulatum* could not be isolated from cultures inoculated with induced sputum from 14 patients, a majority of these patients had a titer rise in yeast phase or mycelial phase complement fixation (CF) antibodies in the month following illness. Two dogs present at the activities also became ill and showed a titer rise in *Histoplasma* CF tests.

Numerous soil and tree samples have been cultured; so far, all have been negative. The tree was burned, at the suggestion of the county health department, and topsoil 2 inches deep was laid over the area.

Reported by R Anderson, MD, CD Beauchamp, DVM, Franklin, Tennessee; DT Allen, MD, Williamson County Health Dept; WE Daniels, RH Hutcheson, Jr, MD, State Epidemiologist, MS Sudman, DrPH, RM Weeks, MPH, LR Westerman, Tennessee Dept of Public Health; Mycology Div, Bur of Laboratories, Special Pathogens Br, Bacterial Diseases Div, Bur of Epidemiology, CDC.

Editorial Note: This outbreak demonstrates the continued endemicity of histoplasmosis in an area which has been known since the mid-40s to have a high prevalence of this infection (*1*). The high attack rate (43%) in this outbreak could be partially explained by the young age of the patients or by the dosage of spores to which these patients were exposed, which was sufficiently high to overcome any residual immunity they might have had.

H. capsulatum is difficult to isolate from sputum cultures, and the diagnosis is often established only by serologic changes in CF antibodies or histoplasmosis immunodiffusion tests. Although spraying a 3% formalin solution on soil contaminated with *Histoplasma* spores has often been the preventive measure of choice in large outbreaks of histoplasmosis (*2,3*), in this instance covering the area with topsoil and burning the tree were probably adequate measures, since the soil area was small and only 1 tree, not notable as a bird site, was involved.

References

1. Tennessee Dept of Public Health: Histoplasmosis. Tennessee Public Health 11(1):14, 1962
2. Tosh FE, Doto IL, D'Alessio DJ, et al: The second of two epidemics of histoplasmosis resulting from work on the same starling roost. Am Rev Respir Dis 94:412, 1966
3. Brodsky AL, Gregg MB, Loewenstein MS, Kaufman L, Mallison GF: An outbreak of histoplasmosis associated with the 1970 Earth Day activities. Am J Med 54:342, 1973

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

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

DISEASE	38th WEEK ENDING		MEDIAN 1972–1976	CUMULATIVE, FIRST 38 WEEKS		
	September 24, 1977	September 25, 1976		September 24, 1977	September 25, 1976	MEDIAN 1972–1976
Aseptic meningitis	181	139	165	3,096	2,153	2,556
Brucellosis	4	10	5	170	241	144
Chickenpox	264	346	---	158,602	150,782	---
Diphtheria	3	-	1	69	126	127
Encephalitis, Primary	40	53	48	654	1,016	1,016
Encephalitis, Post-Infectious	5	3	3	157	208	221
Hepatitis, Viral, Type B	267	357	221	11,812	10,937	7,042
Hepatitis, Viral, Type A	590	693	858	22,400	24,774	30,668
Hepatitis, Viral, Type unspecified	190	164		6,698	6,064	
Malaria	13	14	13	394	340	306
Measles (rubeola)	124	81	88	53,376	34,491	24,296
Meningococcal infections, total	15	30	15	1,334	1,188	1,072
Civilian	15	30	15	1,325	1,171	1,047
Military	-	-	-	9	17	25
Mumps	128	164	315	15,839	32,862	47,293
Pertussis	41	21	---	1,018	708	---
Rubella (German measles)	53	53	86	18,609	10,737	14,902
Tetanus	1	1	4	48	44	66
Tuberculosis	629	738	---	22,254	24,362	---
Tularemia	5	1	1	120	106	106
Typhoid fever	19	13	13	283	305	290
Typhus, tick-borne (Rky. Mt. spotted fever)	33	20	19	999	757	691
Venereal Diseases:						
Gonorrhea, Civilian	24,135	22,255	---	720,854	733,775	---
Gonorrhea, Military	674	651	---	19,712	21,946	---
Syphilis, primary and secondary, Civilian	392	564	---	15,104	17,660	---
Syphilis, primary and secondary, Military	9	9	---	218	259	---
Rabies in animals	65	87	53	2,232	2,186	2,186

Table II. Notifiable Diseases of Low Frequency: United States

	CUM.		CUM.
Anthrax:	-	Poliomyelitis, total:* Minn. +1, Md. +1	11
Botulism:	80	Paralytic:	9
Congenital rubella syndrome: Ariz +1	12	Psittacosis: Calif. +1	50
Leprosy: Conn. +1	95	Rabies in man:	1
Leptospirosis: Ga. +1	31	Trichinosis: Wisc. +1	68
Plague: Ariz. +1	15	Typhus, murine:	57

*Delayed reports: Polio, para.: Mass. −1

Table III

Cases of Specified Notifiable Diseases: United States

Weeks Ending September 24, 1977 and September 25, 1976 — 38th 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	181	4	264	3	69	40	53	5	267	590	190	13	394
NEW ENGLAND	10	1	24	–	–	1	3	–	8	12	11	–	21
Maine	2	–	1	–	–	–	–	–	–	–	–	–	–
New Hampshire*	1	–	3	–	–	–	–	–	1	–	–	–	3
Vermont	–	–	–	–	–	–	–	–	1	–	–	–	2
Massachusetts	3	1	14	–	–	1	3	–	–	3	11	–	3
Rhode Island	2	–	3	–	–	–	–	–	1	2	–	–	5
Connecticut	2	–	3	–	–	–	–	–	5	7	–	–	8
MIDDLE ATLANTIC	34	–	21	–	5	6	4	3	11	19	20	2	87
Upstate New York	7	–	17	–	–	1	–	–	–	7	4	–	21
New York City	6	–	4	–	5	1	–	–	3	–	4	2	41
New Jersey*	8	–	NN	–	–	–	–	–	8	12	12	–	9
Pennsylvania	13	–	–	–	–	4	4	3	NA	NA	NA	–	16
EAST NORTH CENTRAL	29	–	73	–	–	22	10	–	31	77	3	3	31
Ohio*	10	–	2	–	–	17	1	–	14	21	–	–	10
Indiana	–	–	11	–	–	2	5	–	–	8	–	–	2
Illinois	–	–	16	–	–	–	–	–	3	9	–	–	2
Michigan	13	–	12	–	–	2	3	–	11	27	3	3	14
Wisconsin	6	–	32	–	–	1	1	–	3	12	–	–	3
WEST NORTH CENTRAL	3	–	51	–	1	–	10	–	15	37	6	–	32
Minnesota	–	–	–	–	–	–	–	–	5	19	–	–	9
Iowa*	–	–	25	–	–	–	–	–	4	7	1	–	1
Missouri	2	–	3	–	1	–	9	–	4	7	5	–	16
North Dakota*	–	–	2	–	–	–	1	–	1	–	–	–	1
South Dakota	–	–	–	–	–	–	–	–	–	1	–	–	1
Nebraska	1	–	–	–	–	–	–	–	1	2	–	–	–
Kansas	–	–	21	–	–	–	–	–	–	1	–	–	4
SOUTH ATLANTIC	35	3	22	–	–	1	1	1	65	130	48	1	67
Delaware	–	–	–	–	–	–	–	–	–	–	–	–	–
Maryland	8	–	5	–	–	–	–	–	5	11	10	–	17
District of Columbia	–	–	–	–	–	–	–	–	–	–	–	–	4
Virginia*	–	1	–	–	–	–	–	–	12	11	8	–	16
West Virginia	5	–	6	–	–	–	–	–	2	7	1	–	1
North Carolina	10	–	NN	–	–	1	–	–	12	25	6	–	7
South Carolina	–	–	–	–	–	–	–	–	4	–	–	–	–
Georgia	–	2	–	–	–	–	1	–	8	40	–	–	8
Florida*	12	–	11	–	–	–	–	1	22	36	23	1	14
EAST SOUTH CENTRAL	16	–	21	–	–	7	15	–	22	52	5	–	10
Kentucky	5	–	20	–	–	1	–	–	7	17	2	–	4
Tennessee	1	–	NN	–	–	1	6	–	5	17	1	–	1
Alabama	6	–	1	–	–	–	4	–	6	9	2	–	4
Mississippi	4	–	–	–	–	5	5	–	4	9	–	–	1
WEST SOUTH CENTRAL	9	–	16	1	3	1	9	–	22	69	26	5	24
Arkansas	–	–	2	–	–	1	1	–	–	12	2	2	2
Louisiana*	–	–	NN	–	–	–	2	–	2	7	2	–	2
Oklahoma*	3	–	5	–	–	–	–	–	1	8	1	–	–
Texas*	6	–	9	1	3	–	6	–	19	42	21	3	20
MOUNTAIN	4	–	15	–	5	2	–	–	13	38	9	–	12
Montana	–	–	3	–	–	–	–	–	1	14	1	–	1
Idaho	–	–	–	–	–	–	–	–	–	1	–	–	–
Wyoming	–	–	–	–	–	–	–	–	–	–	–	–	2
Colorado	4	–	6	–	–	2	–	–	5	2	5	–	6
New Mexico	–	–	–	–	4	–	–	–	5	7	1	–	1
Arizona	–	–	NN	–	1	–	–	–	2	9	1	–	2
Utah	–	–	6	–	–	–	–	–	–	4	–	–	–
Nevada*	–	–	–	–	–	–	–	–	–	1	1	–	–
PACIFIC	41	–	21	2	55	–	1	1	80	156	62	2	110
Washington	5	–	15	2	52	–	–	–	9	35	22	–	5
Oregon	1	–	–	–	–	–	–	1	7	8	5	–	1
California*	35	–	–	–	1	–	–	–	63	103	34	2	98
Alaska	–	–	4	–	2	–	1	–	1	7	–	–	2
Hawaii	–	–	2	–	–	–	–	–	–	3	1	–	4
Guam*	NA	NA	NA	NA	–	NA	–	–	–	NA	NA	NA	–
Puerto Rico	–	–	6	–	–	–	–	–	1	6	15	–	2
Virgin Islands*	–	–	–	–	–	–	–	–	–	–	–	–	–

NN: Not notifiable
NA: Not available
*Delayed reports: Asep. meng.: Ohio +13, N. Dak. +1, Fla. –1, Okla. –1, Nev. +8. Bruc.: Okla. +1, Tex. –1. Chickenpox: Ohio +3, Calif. +4, Guam +5, V.I. +2. Enceph.: Ohio +12, Iowa –1. Hep. B: N.J. +1, Ohio +11, Fla. –4, La. –1, Nev. +1. Hep. A: N.H. +1, Ohio +24, Fla. –2, La. +1, Nev. +2, Guam +2. Hep. unsp.: N.J. –1, Va. –2, Nev. +8, Guam +1.

Table III-Continued
Cases of Specified Notifiable Diseases: United States
Weeks Ending September 24, 1977 and September 25, 1976 — 38th 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	124	53,376	34,491	15	1,334	1,188	128	15,839	41	53	18,609	48
NEW ENGLAND	–	2,471	387	–	53	55	5	653	1	4	1,196	1
Maine	–	173	8	–	3	1	–	54	–	–	69	–
New Hampshire*	–	510	9	–	3	5	–	91	–	–	240	–
Vermont	–	293	41	–	6	3	–	8	–	–	64	–
Massachusetts*	–	631	35	–	16	17	1	122	1	1	375	–
Rhode Island	–	64	15	–	1	6	1	58	–	–	134	–
Connecticut	–	803	279	–	24	23	3	320	–	3	314	1
MIDDLE ATLANTIC	8	8,342	7,004	–	194	170	8	1,293	1	7	6,008	4
Upstate New York	6	3,807	2,937	–	48	63	–	283	–	2	3,366	1
New York City	2	726	457	–	46	45	2	482	–	3	316	1
New Jersey	–	195	600	–	37	25	1	350	–	1	1,780	2
Pennsylvania	–	3,614	3,010	–	53	37	5	178	1	1	546	–
EAST NORTH CENTRAL	31	11,267	14,664	2	134	147	34	5,368	11	13	3,683	5
Ohio*	1	1,850	572	–	52	61	2	654	3	–	1,115	1
Indiana*	4	4,345	3,288	–	9	7	6	309	–	5	937	1
Illinois	15	1,717	1,581	–	22	17	11	934	2	4	321	1
Michigan	9	941	5,846	2	38	51	1	1,809	2	2	913	2
Wisconsin	2	2,414	3,377	–	13	11	14	1,662	4	2	397	–
WEST NORTH CENTRAL	8	9,848	1,218	1	72	81	28	3,590	2	3	509	7
Minnesota	–	2,620	423	–	25	14	–	6	1	–	17	2
Iowa	7	4,275	43	–	6	9	2	1,275	–	1	164	1
Missouri*	1	992	21	1	29	33	14	1,243	1	1	36	2
North Dakota	–	23	3	–	1	3	1	17	–	–	11	–
South Dakota	–	67	4	–	4	3	–	59	–	–	18	–
Nebraska*	–	209	55	–	2	6	–	68	–	–	3	–
Kansas	–	1,662	669	–	5	13	11	922	–	1	260	2
SOUTH ATLANTIC	4	4,579	2,175	1	290	228	10	757	2	3	1,650	11
Delaware	–	22	128	–	6	8	–	126	–	–	26	–
Maryland	–	371	715	1	19	18	1	66	–	–	5	–
District of Columbia	–	14	13	–	–	2	–	5	–	–	–	–
Virginia	1	2,714	764	–	25	37	–	97	–	–	576	1
West Virginia	2	243	191	–	9	7	5	165	–	1	135	–
North Carolina	1	64	17	–	62	43	–	54	–	2	446	–
South Carolina	–	153	4	–	29	36	1	11	–	–	228	–
Georgia	–	767	2	–	52	20	–	26	2	–	52	1
Florida	–	231	341	–	88	57	3	207	–	–	182	9
EAST SOUTH CENTRAL	51	2,010	836	2	140	110	9	881	6	3	1,925	3
Kentucky	1	1,189	749	–	26	19	4	91	–	1	81	1
Tennessee	50	705	70	1	37	46	4	535	6	2	1,726	1
Alabama	–	78	–	1	51	32	1	217	–	–	109	1
Mississippi	–	38	17	–	26	13	–	38	–	–	9	–
WEST SOUTH CENTRAL	2	2,090	701	7	268	182	16	1,430	2	3	807	9
Arkansas	–	39	1	1	15	11	3	67	–	–	3	2
Louisiana	–	74	202	1	125	33	–	39	–	–	27	1
Oklahoma*	1	58	290	–	10	21	5	485	–	–	31	–
Texas	1	1,919	208	5	118	117	8	839	2	3	746	6
MOUNTAIN	–	2,515	5,017	1	31	35	1	603	–	3	364	2
Montana	–	1,162	204	–	2	4	–	11	–	–	14	1
Idaho	–	161	2,020	–	4	5	–	122	–	–	13	–
Wyoming	–	19	4	–	1	–	–	4	–	–	6	1
Colorado	–	502	249	–	1	5	1	265	–	–	233	–
New Mexico*	–	256	15	1	9	4	–	107	–	–	12	–
Arizona	–	304	226	–	10	10	–	–	–	–	12	–
Utah	–	18	2,234	–	3	5	–	79	–	3	65	–
Nevada	–	93	65	–	1	2	–	15	–	–	9	–
PACIFIC	20	10,254	2,489	1	162	180	17	1,264	16	14	2,467	6
Washington*	1	536	341	1	20	31	5	276	3	3	443	–
Oregon	–	368	165	–	11	17	1	231	1	–	110	–
California	19	9,255	1,976	–	101	110	8	706	12	10	1,506	6
Alaska	–	60	4	–	28	19	2	27	–	–	1	–
Hawaii	–	35	3	–	2	3	1	24	–	1	407	–
Guam*	NA	6	14	–	1	–	NA	6	NA	NA	10	–
Puerto Rico	26	918	404	–	1	3	16	695	–	2	33	10
Virgin Islands*	–	14	13	–	–	–	–	186	–	–	2	–

NA: Not available

*Delayed reports: Measles: Mass. –1, Ind. –19, Mo. –78, Neb. +5, Guam +2. Men. inf.: Ohio +2, Mo. –1. Mumps. Ohio +1, Okla. +1, N.M. –2, V.I. +3. Pertussis: Mass. +1, Ohio +4, N.M. +27, Wash. –1, Rubella: N.H. +1, Ohio +1, N.M. –1.

Table III-Continued
Cases of Specified Notifiable Diseases: United States
Weeks Ending September 24, 1977 and September 25, 1976 – 38th Week

REPORTING AREA	TUBERCULOSIS		TULAREMIA	TYPHOID FEVER		TYPHUS-FEVER TICK-BORNE (RMSF)		VENEREAL DISEASES (Civilian Cases Only)						RABIES IN ANIMALS
								GONORRHEA			SYPHILIS (Pri. & Sec.)			
									CUMULATIVE			CUMULATIVE		
	1977	CUM. 1977	CUM. 1977	1977	CUM. 1977	1977	CUM. 1977	1977	1977	1976	1977	1977	1976	CUM. 1977
UNITED STATES	629	22,254	120	19	283	33	999	24,135	720,854	733,775	392	15,104	17,660	2,232
NEW ENGLAND	22	823	1	1	16	–	9	694	19,341	20,420	15	602	584	39
Maine	3	65	–	–	–	–	–	40	1,427	1,716	1	19	17	28
New Hampshire	–	21	–	–	1	–	–	28	770	595	–	3	8	1
Vermont	–	27	–	–	–	–	–	6	485	507	–	6	9	–
Massachusetts*	15	472	1	1	11	–	4	284	8,194	9,721	9	424	409	7
Rhode Island	1	66	–	–	2	–	3	42	1,547	1,378	–	8	17	–
Connecticut	3	172	–	–	2	–	2	294	6,918	6,503	5	142	124	3
MIDDLE ATLANTIC	120	3,534	1	3	59	2	60	2,504	74,230	85,265	46	2,071	2,970	71
Upstate New York*	14	588	1	1	8	2	30	365	12,632	13,872	2	195	174	41
New York City	23	1,119	–	2	24	–	–	845	29,012	37,991	31	1,305	1,887	–
New Jersey	32	912	–	–	17	–	10	678	13,219	13,069	2	266	417	25
Pennsylvania	51	915	–	–	10	–	20	616	19,367	20,333	11	305	492	5
EAST NORTH CENTRAL	89	3,488	3	2	25	–	28	3,478	113,585	114,408	26	1,580	1,509	97
Ohio	16	595	1	1	9	–	11	1,362	30,235	27,977	11	377	359	–
Indiana	7	400	–	–	1	–	2	221	10,252	11,262	3	128	82	8
Illinois	30	1,384	–	–	5	–	14	791	36,773	39,998	9	809	804	29
Michigan*	32	963	–	1	10	–	1	858	26,142	24,870	3	184	186	5
Wisconsin	4	146	2	–	–	–	–	246	10,183	10,301	–	82	78	55
WEST NORTH CENTRAL	12	744	22	1	17	3	30	1,083	38,081	38,748	10	332	331	568
Minnesota	5	164	–	–	4	–	–	140	6,789	6,693	5	100	75	205
Iowa	1	68	–	–	–	–	1	152	4,431	4,950	–	31	35	94
Missouri*	1	315	20	1	8	1	15	434	15,880	15,635	2	129	131	39
North Dakota	–	20	–	–	1	–	–	26	730	589	–	–	–	83
South Dakota	1	37	2	–	–	–	2	49	1,104	1,105	3	9	4	108
Nebraska	2	30	–	–	1	–	1	144	3,311	3,298	–	25	26	2
Kansas*	2	110	–	–	3	2	11	138	5,836	6,478	–	38	60	37
SOUTH ATLANTIC	136	4,940	10	1	49	19	545	5,896	178,707	180,245	123	4,215	5,310	257
Delaware	–	49	–	–	–	–	3	71	2,464	2,496	–	18	53	2
Maryland*	17	696	2	–	3	2	70	776	22,235	23,784	6	268	437	–
District of Columbia	10	248	–	–	1	–	–	522	11,749	12,374	15	433	416	–
Virginia	20	568	1	–	10	4	148	521	18,647	19,238	8	410	481	5
West Virginia	5	187	–	–	4	–	5	46	2,369	2,268	–	3	19	9
North Carolina*	28	821	2	–	3	9	208	837	26,528	25,607	18	587	962	10
South Carolina	15	447	2	1	2	2	50	492	16,752	17,177	9	185	285	19
Georgia	19	619	3	–	13	2	60	1,313	34,888	33,890	36	927	799	154
Florida	22	1,305	–	–	13	–	1	1,318	43,075	43,411	31	1,384	1,858	58
EAST SOUTH CENTRAL	69	2,051	7	2	6	3	157	2,117	63,688	64,688	37	563	692	61
Kentucky	38	537	2	1	1	2	40	457	8,704	8,423	9	74	97	21
Tennessee	8	608	5	1	2	–	95	736	25,388	25,742	15	174	234	31
Alabama	19	551	–	–	1	1	19	634	17,503	18,267	6	119	144	9
Mississippi	4	355	–	–	2	–	3	290	12,093	12,256	7	196	217	–
WEST SOUTH CENTRAL	70	2,597	62	4	23	6	153	3,890	90,971	93,747	61	2,216	2,093	617
Arkansas	4	289	42	–	5	3	48	120	7,071	8,749	1	53	70	94
Louisiana*	18	493	1	1	1	2	6	1,282	13,501	13,529	–	504	421	17
Oklahoma*	6	231	10	–	1	1	72	303	8,677	8,980	1	59	76	197
Texas*	42	1,584	9	3	16	–	27	2,185	61,722	62,489	59	1,600	1,526	309
MOUNTAIN	16	632	9	4	25	–	13	922	29,172	29,845	6	358	458	166
Montana	3	38	1	–	–	–	6	62	1,528	1,517	–	4	7	45
Idaho	–	29	–	–	–	–	4	39	1,361	1,616	–	14	19	–
Wyoming*	3	14	1	–	–	–	2	13	700	576	–	4	3	1
Colorado	–	85	3	–	8	–	1	180	7,633	7,499	2	98	102	54
New Mexico*	1	114	–	–	–	–	–	187	4,272	5,543	–	102	115	17
Arizona	6	279	2	3	11	–	–	227	8,134	8,807	1	115	165	40
Utah	1	32	2	1	5	–	–	88	1,726	1,512	2	8	18	9
Nevada	2	41	–	–	1	–	–	126	3,818	2,775	1	13	29	–
PACIFIC	95	3,445	5	1	63	–	4	3,551	113,079	106,409	68	3,167	3,713	356
Washington	NA	227	–	–	2	–	–	219	8,500	8,984	NA	158	101	2
Oregon	4	139	–	–	3	–	1	346	7,824	8,134	8	102	80	6
California	65	2,583	5	1	57	–	3	2,841	90,841	84,278	60	2,860	3,443	311
Alaska	–	55	–	–	–	–	–	77	3,528	3,022	–	19	19	37
Hawaii	26	441	–	–	1	–	–	68	2,386	1,991	–	28	70	–
Guam*	NA	45	–	NA	1	NA	–	NA	144	244	NA	1	2	–
Puerto Rico	5	270	–	–	6	–	–	77	2,375	2,044	17	412	437	44
Virgin Islands	–	1	–	–	–	–	–	7	159	191	–	7	48	–

NA: Not available

*Delayed reports: TB: Mass. –1, Ups. N.Y. +26, Mich. –2, Mo. –1, Kans. –1, Md. –4, N.C. –11, Okla. +2, N.M. +14, RMSF: N.C. –1, Okla. –1. GC: Ups. N.Y. –35 civ., Mich. +43 mil., Wyo. +40 mil., Guam +3 civ. Syphilis: La. –1, Tex. –1, An. rabies: La. +2, Okla. +3

Table IV
Deaths in 121 United States Cities*
Week Ending September 24, 1977 – 38th 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	653	418	169	32	14	24
Boston, Mass.	186	113	50	9	7	9
Bridgeport, Conn.	58	38	16	2	1	3
Cambridge, Mass.	29	21	7	1	–	5
Fall River, Mass.	26	17	8	1	–	–
Hartford, Conn.	62	34	22	3	–	2
Lowell, Mass.	31	20	8	1	–	2
Lynn, Mass.	17	10	5	–	1	–
New Bedford, Mass.	25	20	3	1	–	–
New Haven, Conn.	37	19	10	5	1	–
Providence, R.I.	64	41	17	3	1	1
Somerville, Mass.	8	6	2	–	–	–
Springfield, Mass.	45	34	7	2	1	1
Waterbury, Conn.	23	16	7	–	–	1
Worcester, Mass.	42	29	7	4	2	–
MIDDLE ATLANTIC	2,774	1,738	670	157	112	129
Albany, N. Y.	39	29	5	1	2	–
Allentown, Pa.	20	17	3	–	–	2
Buffalo, N. Y.	125	74	31	8	8	5
Camden, N. J.	33	23	7	2	1	1
Elizabeth, N. J.	23	18	4	–	–	–
Erie, Pa.	25	15	5	2	2	1
Jersey City, N. J.	46	28	14	–	2	2
Newark, N. J.	47	24	15	2	4	–
New York City, N. Y.	1,370	854	324	89	50	50
Paterson, N. J.	33	19	8	1	2	1
Philadelphia, Pa.	512	317	123	33	22	33
Pittsburgh, Pa.	140	76	50	6	5	11
Reading, Pa.	35	29	5	1	–	4
Rochester, N. Y.	96	57	23	4	8	6
Schenectady, N. Y.	23	18	3	1	–	–
Scranton, Pa.	37	27	9	1	–	1
Syracuse, N. Y.	83	48	21	6	6	4
Trenton, N. J.	46	34	11	–	–	4
Utica, N. Y.	18	14	3	–	–	2
Yonkers, N. Y.	23	17	6	–	–	2
EAST NORTH CENTRAL	2,195	1,291	558	142	113	58
Akron, Ohio	68	43	15	2	3	–
Canton, Ohio	29	17	8	–	2	2
Chicago, Ill.	533	313	129	36	31	19
Cincinnati, Ohio	116	65	40	5	3	5
Cleveland, Ohio	170	92	51	12	8	3
Columbus, Ohio	134	62	42	13	8	4
Dayton, Ohio	100	53	26	12	4	2
Detroit, Mich.	275	159	70	25	14	7
Evansville, Ind.	41	29	10	1	1	3
Fort Wayne, Ind.	53	37	9	2	4	2
Gary, Ind.	23	6	10	4	2	–
Grand Rapids, Mich.	40	28	6	3	2	2
Indianapolis, Ind.	169	92	45	11	10	1
Madison, Wis.	33	20	4	2	2	2
Milwaukee, Wis.	122	82	29	3	7	1
Peoria, Ill.	45	30	8	2	2	2
Rockford, Ill.	25	15	7	2	1	1
South Bend, Ind.	41	26	10	1	3	–
Toledo, Ohio	115	81	23	4	3	2
Youngstown, Ohio	63	41	16	2	3	–
WEST NORTH CENTRAL	715	442	171	40	28	23
Des Moines, Iowa	64	43	13	5	1	1
Duluth, Minn.	27	15	6	1	2	2
Kansas City, Kans.	26	15	9	2	–	–
Kansas City, Mo.	119	73	31	9	2	4
Lincoln, Nebr.	29	21	7	–	1	3
Minneapolis, Minn.	77	47	16	4	6	1
Omaha, Nebr.	73	41	13	10	3	–
St. Louis, Mo.	157	102	39	3	6	4
St. Paul, Minn.	69	40	18	4	2	2
Wichita, Kans.	74	45	19	2	5	6

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	983	544	281	75	50	35
Atlanta, Ga.	118	62	35	10	2	3
Baltimore, Md.	103	63	23	9	2	2
Charlotte, N. C.	49	27	14	2	4	–
Jacksonville, Fla.	75	36	29	6	3	2
Miami, Fla.	100	60	30	7	1	6
Norfolk, Va.	52	24	16	5	6	4
Richmond, Va.	91	41	27	5	17	4
Savannah, Ga.	43	20	13	5	3	2
St. Petersburg, Fla.	84	74	8	–	2	4
Tampa, Fla.	77	41	22	9	2	1
Washington, D. C.	141	69	48	14	5	5
Wilmington, Del.	50	27	16	3	3	2
EAST SOUTH CENTRAL	687	401	171	54	33	23
Birmingham, Ala.	111	55	34	15	5	1
Chattanooga, Tenn.	60	38	18	1	–	4
Knoxville, Tenn.	55	38	13	3	–	–
Louisville, Ky.	96	60	20	4	10	4
Memphis, Tenn.	161	93	45	11	4	5
Mobile, Ala.	54	39	2	3	6	1
Montgomery, Ala.	50	21	10	12	4	2
Nashville, Tenn.	100	57	29	5	4	6
WEST SOUTH CENTRAL	1,142	638	292	92	55	26
Austin, Tex.	54	30	15	3	2	2
Baton Rouge, La.	63	36	17	4	1	3
Corpus Christi, Tex.	47	24	15	4	3	–
Dallas, Tex.	150	72	49	16	5	1
El Paso, Tex.	68	39	17	4	4	1
Fort Worth, Tex.	72	49	13	5	3	4
Houston, Tex.	213	105	53	23	16	3
Little Rock, Ark.	57	40	12	2	–	1
New Orleans, La.	174	94	45	17	9	–
San Antonio, Tex.	140	76	39	7	8	4
Shreveport, La.	31	23	3	4	1	–
Tulsa, Okla.	73	50	14	3	3	7
MOUNTAIN	486	286	113	38	18	9
Albuquerque, N. Mex.	58	19	19	14	1	3
Colorado Springs, Colo.	24	13	6	1	–	2
Denver, Colo.	110	73	20	6	5	2
Las Vegas, Nev.	34	24	9	–	–	–
Ogden, Utah	11	7	–	2	2	–
Phoenix, Ariz.	124	81	27	6	4	1
Pueblo, Colo.	22	11	5	5	–	–
Salt Lake City, Utah	42	24	13	1	3	1
Tucson, Ariz.	61	34	14	3	3	–
PACIFIC	1,675	1,010	410	123	52	43
Berkeley, Calif.	16	10	3	3	–	–
Fresno, Calif.	64	35	14	6	4	1
Glendale, Calif.	23	14	7	2	–	1
Honolulu, Hawaii	71	34	22	6	4	–
Long Beach, Calif.	141	86	39	8	3	6
Los Angeles, Calif.	469	267	124	39	11	13
Oakland, Calif.	65	42	10	6	3	2
Pasadena, Calif.	26	13	8	3	1	–
Portland, Oreg.	135	87	28	9	4	3
Sacramento, Calif.	58	36	15	2	3	1
San Diego, Calif.	137	80	36	7	4	2
San Francisco, Calif.	167	109	36	14	2	3
San Jose, Calif.	63	45	14	2	–	2
Seattle, Wash.	146	90	35	8	10	3
Spokane, Wash.	57	36	15	2	2	3
Tacoma, Wash.	37	26	4	6	1	3
TOTAL	11,310	6,768	2,835	753	475	370
Expected Number	11,103	6,693	2,866	739	380	371

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

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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.

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Malaria Acquired Through Platelet Transfusion — Wisconsin

A case of malaria probably transmitted by a platelet transfusion occurred in July in Wisconsin.

The patient was a 57-year-old woman diagnosed as having acute myelomonocytic leukemia in October 1976. During induction therapy, the patient received several antibiotics for culture-negative febrile episodes and multiple transfusions (93 units of platelets, 8 units of packed red cells, and 13 white cell concentrates). She was discharged December 21, 1976, and received outpatient consolidation and maintenance therapy.

She was re-admitted in relapse June 23, 1977, and re-induced. She had febrile episodes on July 7, July 13, July 24, and August 2. She received an additional 70 units of platelets and 8 units of packed red cells. On August 5, *Plasmodium falciparum* organisms were seen on a peripheral blood smear. Bacterial cultures were negative.

Meanwhile, another patient in Wisconsin, who had returned from Togo in June 1977 and donated blood on July 5, developed symptoms of *P. falciparum* malaria on July 7. After making the diagnosis, his physician learned that the patient had donated blood. The unit of blood was traced, and the packed red blood cells were retrieved. The plasma, however, had been made into a cryoprecipitate and sent to a commercial laboratory. The platelets, when traced, already had been transfused into the leukemic patient.

Reported by MD Garfield, MD, J Polk, MD, RF Schilling, University Hospital, University of Wisconsin, Madison; HG Skinner, MD, State Epidemiologist, Wisconsin Division of Health, Madison; Parasitic Diseases Div, Bur of Epidemiology, CDC.

Editorial Note: Platelet products usually contain some red blood cells which can harbor viable *Plasmodia* organisms. Since plasma products are red-cell-free, they should pose no risk of malaria transmission.

The importance of obtaining a travel history from all blood donors is emphasized by this report. Current recommendations of the American Association of Blood Banks are that persons who have visited a malarious area and have not taken malaria chemoprophylaxis should not be allowed to donate blood for 6 months after they return to the United States. Persons who have been treated for malaria or who have taken malaria chemoprophylaxis while in a malarious country should not donate blood for a period of 3 years (*1*).

Reference

1. American Assoc of Blood Banks: Standards for Blood Banks and Transfusion Services. 8th ed. Washington, D.C., 1976, p 5

Follow-up on Dengue — Puerto Rico

The first cycle of aerial ultra-low-volume (ULV) application of malathion over all the metropolitan areas of Puerto Rico has been completed. Indications from several check points show that the insecticide was correctly delivered and resulted in death for all of the caged *Aedes aegypti* mosquitoes, the vectors of dengue. A second 4-6 day cycle of repeated island-wide, aerial spraying, supplemented by ground ULV spraying in the San Juan area, began on September 28. Four treatment cycles are planned depending on the extent of continued activity. Source reduction programs to eliminate containers that may breed *A. aegypti* mosquitoes are under way in all regions of the island.

Although the estimated dengue attack rate remains low, cases are being reported from all regions of Puerto Rico. The number of reported cases continues to increase: 1,088 and 1,221 cases for the weeks ending September 14 and September 21, respectively (Table 1). No classic hemorrhagic cases have been discovered, but in 232 cases some sign of bleeding tendency, such as nosebleed, ecchymosis, or low platelet count ($< 100{,}000/mm^3$), has been reported.

Reported by J Chiriboga, MD, Environmental Health Dept, Puerto Rico Dept of Health; San Juan Laboratories, Bur of Laboratories, Bur of Tropical Diseases, and Viral Diseases Div, Bur of Epidemiology, CDC.

TABLE 1. Reported dengue, Puerto Rico, July-Sept, 1977

2-Week Period Ending	Number Of Cases
July 16	15
July 30	48
August 10	91
August 24	370
Sept 7	1,220
Sept 21	2,309
Total	**4,053**

International Notes

Follow-up on Cholera — Middle East and the Gilbert Islands

The World Health Organization (WHO) has received confirmed reports of 3 cholera cases in Iraq and 11 cases in Iran. The cumulative totals for the Middle Eastern countries previously reported to have cholera outbreaks (MMWR 26: 319, 1977) are Jordan 397 cases, Lebanon 26, the Syrian Arab Republic 2,217, and Saudi Arabia 17. Other Middle Eastern countries may be affected, but they have not submitted confirmed reports to WHO.

The Gilbert Islands reported a cumulative total of 380 cholera cases and 17 deaths as of September 22; the outbreak appears to be subsiding.

Reported by the World Health Organization; and Quarantine Div, and Enteric Diseases Br, Bacterial Diseases Div, Bur of Epidemiology, CDC.

Epidemiologic Notes and Reports

Follow-up on Legionnaires' Disease — Vermont

Three confirmed and 1 suspected case of Legionnaires' disease with onset between August 7 and September 3, 1977, have been identified in patients in a Burlington, Vermont, hospital. All 4 had pneumonia, and 1 case was fatal. Two cases were confirmed by rise in indirect fluorescent antibody (IFA) titer and 1 by demonstration of the bacterium by direct FA technique in lung specimens obtained post mortem. One case is suspected of being Legionnaires' disease on the basis of a high stable convalescent IFA titer (1:256).

Three of these patients had received renal homografts; they also developed pneumonia while hospitalized on the same surgical floor. The interval between receiving the homograft and developing pneumonia was 2 days for the first and 5 days for the second. The third patient was hospitalized because of trauma sustained in an automobile accident; he had received the renal homograft 3 years earlier. The fourth patient, a 73-year-old man, began having symptoms of pneumonia in another state; the place of exposure is not known, but this case appears to be unrelated to the others.

Investigation is now under way to identify persons with pneumonia of uncertain etiology seen at the hospital since July 1, and obtain serum specimens from them to determine whether additional cases of Legionnaires' disease have occurred.

Reported by A Phillips, MD, H Beaty, MD, Mary Fletcher Hospital, Burlington; AM McBean, MD, Vermont Health Commissioner; Leprosy and Rickettsia Br, Virology Div, Analytical Bacteriology Br, Bacteriology Div, Bur of Laboratories; Field Services Div and Epidemiologic Investigations Laboratory Br, Hospital Infections Br, and Special Pathogens Br, Bacterial Diseases Div, Bur of Epidemiology, CDC.

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