CENTER FOR DISEASE CONTROL

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MMWR

MORBIDITY AND MORTALITY WEEKLY REPORT

Epidemiologic Notes and Reports

Heat Wave Related Mortality — United States

Beginning the last week of June 1980 in Texas and continuing through the first 3 weeks of July in 20 other, mainly southern, states a severe heat wave combined with drought-like conditions began to cause widespread discomfort, heat-related illness, and death. Hundreds of heat-related deaths were brought to public attention. Following requests for information and assistance by several states, CDC sent a team of epidemiologists to Dallas, Texas, Little Rock, Arkansas, and St. Louis, Missouri, to work with state and local health officials in designing epidemiologic studies on the health impact of this heat wave. Preliminary results are reported below, and more definitive studies are being planned.

St. Louis, Missouri: During the 28-day period from June 21 through July 18, there were 18 days in St. Louis in which the official maximum temperature was 95 F or higher. Between July 7 and July 18, the maximum temperature was 95 F or higher every day. On 7 of these days the maximum was 100 F or higher, including 3 days of record-high temperatures.

The city of St. Louis requires that a preliminary death certificate be filed before a burial permit is issued. Therefore, death records already on file offered an accurate estimate of recent deaths. For deaths occurring in St. Louis, all available death certificates were reviewed for the 4-week period June 21 through July 18, 1980, and for that same period in 1979. In 1980, 886 deaths occurred in this period; in 1979, there were 230 fewer deaths. In 1980, 63.6% of the deaths where age was recorded occurred in people age 65 or older, while in 1979, 61.0% occurred in this age group.

Between July 2 and July 18, 1980, the Medical Examiner's Office reported 108 deaths from heatstroke in St. Louis (Figure 1). Twenty-four heatstroke deaths occurred on July 13, alone. There were 3 circumstances in which heatstroke was diagnosed as the cause of death: 1) when antemortem clinical signs were present (hyperpyrexia, severe central nervous system disturbances, and anhidrosis); 2) when an internal body temperature of $\geq$106 F was recorded in the first 24 hours after death; or 3) in persons who had not been observed before death, when close evaluation by the Medical Examiner's Office indicated that there was evidence of heatstroke even if the initial body temperature was below 106 F. Seventy (66.0%) of the heatstroke deaths occurred in people age 65 or older. The age range for heatstroke deaths was 32 to 93 years. The heatstroke deaths were distributed mostly in inner-city and poverty areas.

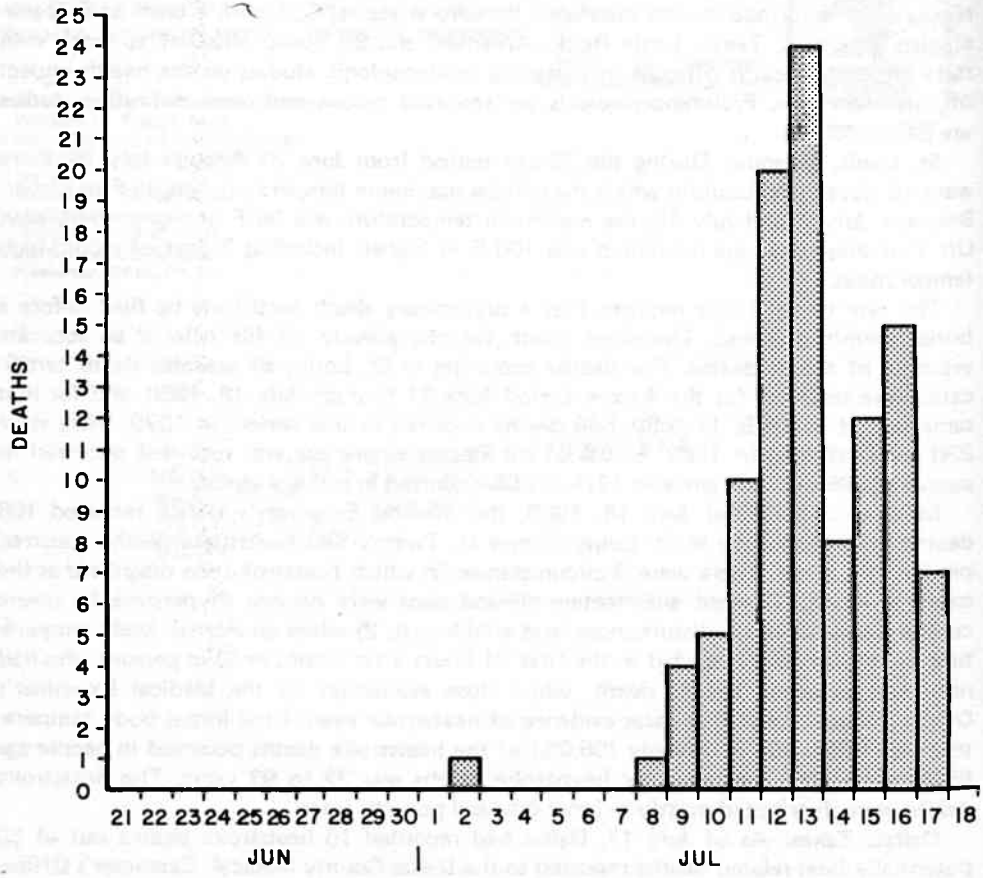
Dallas, Texas: As of July 17, Dallas had recorded 16 heatstroke deaths out of 60 potentially heat-related deaths reported to the Dallas County Medical Examiner's Office. A strict definition of heatstroke (postmortem rectal temperature $\geq$107 F plus antemortem clinical signs of heatstroke) limited to 16 the deaths attributed to heatstroke.

Heat Wave — Continued

The 44 that did not meet this definition were attributed to other causes, and no heat relationship was recorded on the death certificate. A map pinpointing the location of the 44 potentially heat-related deaths and the 16 heatstroke deaths showed few in affluent, suburban, or young singles areas of Dallas County. Death certificate review for 1980 indicated that, at this time, too few of these vital records have been received in Dallas County to allow analysis.

Arkansas: All available death certificates listing heatstroke as a cause of death or heat as a contributing factor were reviewed for the period of the heat wave, though it was clear that many deaths officially notified to the public had not yet been confirmed by receipt of the death certificate. Nevertheless, heatstroke deaths were recorded from all areas of this predominately rural state. A study was conducted of the date of receipt of death certificates in the state Vital Records Office in Little Rock for June and July 1979 deaths. It showed that 98% of the death certificates had been received within 3 months.

FIGURE 1. Deaths from heatstroke,* city of St. Louis, Missouri, June 21-July 18, 1980



*Source: Medical Examiner's Office, St. Louis.

Heat Wave -- Continued

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Editorial Note: Because there is no agreed-upon definition of heatstroke or of the other illnesses that make up most heat-related mortality, a retrospective assessment of all death certificates within the affected areas will be needed to determine the impact of this heat wave. At this time, since there are unavoidable delays in reviewing death certificates in most jurisdictions, CDC has no estimate of heat-related mortality.

The preliminary data reported above concur with published analyses of previous heat wave mortality in the United States in implicating poverty as an important risk factor (*1*). In possible contrast to the reports of large numbers of deaths in elderly people and urban residents in previous heat waves, the St. Louis data suggest that the additional deaths this year as compared to 1979 were not confined to the over-65 age group. The definitive results from Arkansas are expected to be useful in estimating the potentially considerable numbers of rural residents experiencing heat-related mortality.

Reference

1. Henschel A, Burton LL, Margolies L, Smith JE. An analysis of the heat deaths in St. Louis during July 1966. Am J Public Health 1969; 59:2232-42.

Glioblastoma Cluster in a Chemical Plant -- Texas

In November 1978, a Texas petrochemical worker informed a local office of the Occupational Safety and Health Administration (OSHA) that he and several of his former coworkers had been diagnosed as having brain cancer. Epidemiologic investigation was undertaken and, while still ongoing, has identified 18 deaths due to brain tumor in former employees of a large, diversified, petrochemical plant on the Texas Gulf Coast (*1*). The workers' death certificates listed malignant, benign, or unspecified primary brain tumors* as the primary cause of death. Review of additional information has revealed that 15 of the 18 tumors were glioblastomas. Of the remaining 3, 2 were meningiomas and 1 was an astrocytoma grade I.

To determine whether this number of cases exceeds the expected, a cohort mortality study was initiated. Seventeen of the 18 cases met the study's case definition (death certificate diagnosis of brain tumor, white male, date of death between 1940 and 1979). After appropriate adjustment for year of death and age at death, 11.2 such cases would have been expected (SMR† = 152). Preliminary analysis revealed a trend of increasing excess mortality with increasing length of employment (<10 years, SMR = 95; 10–<20 years, SMR = 131; >20 years, SMR = 304).

Preliminary review of work records for the 18 cases reveals no obvious common exposure factor within the plant. The cohort mortality study, a case-control study, and characterization of potential industrial exposures will continue.

*Categories 191,192,225, and 238 of the 8th revision of the International Classification of Diseases, adapted. This case count does not include the original caller, whose cancer was determined to be metastatic, but does include his 4 coworkers.

†Standardized Mortality Ratio = observed/expected X 100.

Glioblastoma – Continued

Reported by Houston South Area Office and Division of Technical Support, OSHA; Industry-wide Studies Br, Div of Surveillance, Hazard Evaluation and Field Studies, National Institute for Occupational Safety and Health, CDC.

Editorial Note: Brain cancer has been associated in humans with only 1 occupational agent, vinyl chloride (*2*), although numerous other agents, such as acrylonitrile, cause brain cancer in animals (*3*). Epidemiologic investigations have shown excesses of brain tumor in chemists (*4*) and associations between brain tumor and employment in oil refineries and chemical plants (*5,6*).

The uniformity of cell type among these cases distinguishes this group from clinical series in which greater histologic variety is noted. Glioblastoma multiforme was, however, the predominant cell type among brain tumors in workers exposed to vinyl chloride (*2*).

Since determination of vital status is complete in only 47% of the cohort in this study (3,106 out of 6,677 workers) and because the expected number of cases is calculated by assuming that those workers not yet located are still alive, the estimated SMRs probably underrepresent the true excess of brain tumor mortality in this population.

Determination of a causative agent in this episode awaits further study.

References

1. Alexander V, Leffingwell S, Lloyd W, Waxweiler R, Miller R. Brain cancer in petroleum workers—a case series report. American Journal of Industrial Medicine (in press).
2. Waxweiler RJ, Stringer W, Wagoner JK, Jones J. Neoplastic risk among workers exposed to vinyl chloride. Ann NY Acad Sci 1976, 270:40-8.

(Continued on page 365)

TABLE I. Summary – cases of specified notifiable diseases, United States

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

DISEASE	30th WEEK ENDING		MEDIAN 1975-1979	CUMULATIVE, FIRST 30 WEEKS		
	July 26, 1980	July 28, 1979		July 26, 1980	July 28, 1979	MEDIAN 1975-1979
Aseptic meningitis	123	218	174	2,216	2,246	1,716
Brucellosis	2	1	8	101	80	121
Chickenpox	802	734	777	153,373	169,202	148,322
Diphtheria	–	–	1	2	6	54
Encephalitis: Primary (arthropod-borne & unspec.)	11	28	26	345	351	399
Post-infectious	3	8	8	120	156	156
Hepatitis, Viral: Type B	379	309	309	9,727	8,146	8,573
Type A	569	637	624	15,281	16,886	17,889
Type unspecified	207	176	160	6,731	5,740	4,928
Malaria	44	19	19	1,062	367	289
Measles (rubeola)	158	104	227	12,395	11,231	22,650
Meningococcal infections: Total	32	54	24	1,701	1,761	1,144
Civilian	32	53	24	1,694	1,743	1,137
Military	–	1	–	7	18	17
Mumps	57	62	157	6,735	10,616	15,249
Pertussis	52	27	41	723	733	733
Rubella (German measles)	53	87	106	3,093	10,309	14,380
Tetanus	2	1	2	37	36	36
Tuberculosis	585	509	630	15,702	15,901	17,322
Tularemia	7	1	3	86	105	80
Typhoid fever	5	10	10	229	260	216
Typhus fever, tick-borne (Rky. Mt. spotted)	56	69	55	590	561	561
Venereal diseases:						
Gonorrhea: Civilian	20,398	19,531	21,669	550,385	553,305	551,768
Military	469	451	579	15,215	15,560	15,629
Syphilis, primary & secondary: Civilian	610	448	486	14,812	13,662	13,662
Military	8	10	9	179	171	176
Rabies in animals	127	95	78	3,832	2,789	1,737

TABLE II. Notifiable diseases of low frequency, United States

	CUM. 1980		CUM. 1980
Anthrax	–	Poliomyelitis: Total	6
Botulism	25	Paralytic	4
Cholera	9	Psittacosis (Mass. 1, Fla. 1, Wash. 1)	47
Congenital rubella syndrome (Calif. 1)	39	Rabies in man	–
Leprosy	105	Trichinosis (Me. 1)	72
Leptospirosis (Iowa 2, Fla. 1, Hawaii 1)	36	Typhus fever, flea-borne (endemic, murine) (Tex. 1)	40
Plague	7		

All delayed reports will be included in the following week's cumulative totals.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending July 26, 1980, and July 28, 1979 (30th week)

REPORTING AREA	ASEPTIC MENINGITIS	BRUCELLOSIS	CHICKENPOX	DIPHTHERIA		ENCEPHALITIS			HEPATITIS (VIRAL), BY TYPE			MALARIA	
						Primary		Post-infectious	B	A	Unspecified		
	1980	1980	1980	1980	CUM. 1980	1980	1979	1980	1980	1980	1980	1980	CUM. 1980
UNITED STATES	123	2	802	–	2	11	28	3	379	569	207	44	1,062
NEW ENGLAND	6	–	76	–	–	–	–	–	9	6	5	3	70
Maine	–	–	6	–	–	–	–	–	1	–	–	–	12
N.H.	–	–	–	–	–	–	–	–	–	–	–	–	7
Vt.	–	–	6	–	–	–	–	–	–	–	–	–	–
Mass.	2	–	36	–	–	–	–	–	5	3	4	2	35
R.I.	2	–	4	–	–	–	–	–	1	1	–	–	6
Conn.	2	–	24	–	–	–	–	–	2	2	1	1	10
MID. ATLANTIC	8	–	169	–	1	1	1	1	58	58	35	5	143
Upstate N.Y.	3	–	80	–	–	1	–	1	10	13	11	–	21
N.Y. City	–	–	85	–	1	–	–	–	9	7	4	–	37
N.J.	NA	–	NN	–	–	–	–	–	18	14	12	2	38
Pa.	5	–	4	–	–	–	1	–	21	24	8	3	47
E.N. CENTRAL	8	–	374	–	1	2	7	–	36	74	13	3	54
Ohio	–	–	10	–	–	–	2	–	8	22	6	–	8
Ind.	1	–	45	–	–	–	1	–	1	7	–	–	3
Ill.	–	–	46	–	–	1	–	–	6	22	2	1	19
Mich.	7	–	91	–	1	1	3	–	14	10	3	2	18
Wis.	–	–	182	–	–	–	1	–	7	13	2	–	6
W.N. CENTRAL	3	–	13	–	–	–	1	–	17	24	6	1	38
Minn.	–	–	–	–	–	–	–	–	1	8	–	–	15
Iowa	–	–	3	–	–	–	1	–	2	7	1	1	5
Mo.	2	–	2	–	–	–	–	–	11	5	4	–	9
N. Dak.	–	–	7	–	–	–	–	–	–	–	–	–	–
S. Dak.	–	–	1	–	–	–	–	–	–	–	–	–	2
Nebr.	1	–	–	–	–	–	–	–	–	–	1	–	4
Kans.	–	–	–	–	–	–	–	–	3	4	–	–	3
S. ATLANTIC	41	2	75	–	–	3	5	1	77	102	30	7	110
Del.	–	–	8	–	–	–	–	–	1	–	–	–	–
Md.	–	–	27	–	–	–	2	–	15	6	10	–	20
D.C.	1	–	1	–	–	–	–	–	3	2	–	–	1
Va.	8	1	4	–	–	1	1	–	10	4	2	6	42
W. Va.	2	–	15	–	–	–	–	–	2	4	1	–	3
N.C.	13	–	NN	–	–	2	2	–	8	16	4	–	5
S.C.	3	–	1	–	–	–	–	–	2	4	1	–	5
Ga.	–	1	1	–	–	–	–	–	9	14	–	–	13
Fla.	14	–	18	–	–	–	–	1	27	52	12	1	21
E.S. CENTRAL	9	–	4	–	–	2	4	–	25	24	2	–	10
Ky.	–	–	2	–	–	–	1	–	–	–	–	–	2
Tenn.	1	–	NN	–	–	1	3	–	7	12	–	–	–
Ala.	4	–	1	–	–	1	–	–	10	3	2	–	6
Miss.	4	–	1	–	–	–	–	–	8	9	–	–	2
W.S. CENTRAL	14	–	44	–	–	2	3	1	32	106	42	2	107
Ark.	–	–	–	–	–	–	–	1	1	14	1	–	6
La.	4	–	NN	–	–	–	–	–	14	17	4	–	39
Okla.	1	–	–	–	–	1	1	–	2	10	5	–	10
Tex.	9	–	44	–	–	1	2	–	15	65	32	2	52
MOUNTAIN	3	–	20	–	–	–	2	–	6	24	6	–	42
Mont.	–	–	3	–	–	–	–	–	–	1	–	–	–
Idaho	–	–	–	–	–	–	–	–	–	1	–	–	1
Wyo.	–	–	–	–	–	–	–	–	–	2	–	–	2
Colo.	2	–	17	–	–	–	2	–	3	14	2	–	21
N. Mex.	1	–	–	–	–	–	–	–	–	–	–	–	2
Ariz.	NA	NA	NN	NA	–	NA	–	–	NA	NA	NA	NA	10
Utah	–	–	–	–	–	–	–	–	–	3	1	–	–
Nev.	–	–	–	–	–	–	–	–	3	3	3	–	6
PACIFIC	31	–	27	–	–	1	5	–	119	151	68	23	488
Wash.	1	–	16	–	–	–	1	–	2	2	2	2	34
Oreg.	–	–	2	–	–	–	1	–	3	10	1	–	28
Calif.	25	–	–	–	–	1	2	–	107	138	56	21	407
Alaska	1	–	2	–	–	–	1	–	1	–	5	–	5
Hawaii	4	–	7	–	–	–	–	–	6	1	4	–	14
Guam	NA	NA	NA	NA	–	NA	–	–	NA	NA	NA	NA	2
P.R.	NA	NA	NA	NA	–	NA	–	–	NA	NA	NA	NA	1
V.I.	NA	NA	NA	NA	–	NA	–	–	NA	NA	NA	NA	–
Pac. Trust Terr.	NA	NA	NA	NA	–	NA	–	–	NA	NA	NA	NA	–

NN: Not notifiable. NA: Not available.

All delayed reports and corrections will be included in the following week's cumulative totals.

TABLE III (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending July 26, 1980, and July 28, 1979 (30th week)

REPORTING AREA	MEASLES (RUBEOLA)			MENINGOCOCCAL INFECTIONS TOTAL			MUMPS		PERTUSSIS	RUBELLA		TETANUS
	1980	CUM. 1980	CUM. 1979	1980	CUM. 1980	CUM. 1979	1980	CUM. 1980	1980	1980	CUM. 1980	CUM. 1980
UNITED STATES	158	12,395	11,231	32	1,701	1,761	57	6,735	52	53	3,093	37
NEW ENGLAND	2	658	281	3	98	88	1	542	3	3	202	1
Maine	–	33	17	1	5	5	–	284	–	–	68	1
N.H.	–	321	30	–	6	9	–	19	–	1	33	–
Vt.	–	226	116	–	13	5	–	7	–	–	3	–
Mass.	2	54	13	–	31	29	–	118	2	–	74	–
R.I.	–	2	102	–	7	5	–	20	1	–	9	–
Conn.	–	22	3	2	36	35	1	94	–	2	15	–
MID. ATLANTIC	67	3,680	1,344	3	308	260	8	749	17	22	499	5
Upstate N.Y.	12	659	569	–	103	96	3	93	5	–	170	1
N.Y. City	12	1,140	679	–	78	62	4	79	–	2	88	1
N.J.	21	818	53	–	60	64	–	91	2	20	96	–
Pa.	22	1,063	43	3	67	38	1	486	10	–	145	3
E.N. CENTRAL	45	2,263	2,966	5	196	179	9	2,622	14	2	748	2
Ohio	7	353	250	–	71	72	–	1,104	2	–	6	1
Ind.	4	93	192	2	34	38	2	104	10	2	318	–
Ill.	–	316	1,312	1	30	4	3	343	–	–	156	–
Mich.	–	230	784	2	49	47	3	789	2	–	121	1
Wis.	34	1,271	428	–	12	18	1	282	–	–	147	–
W.N. CENTRAL	7	1,298	1,497	1	64	58	2	243	–	3	216	3
Minn.	7	1,077	994	–	20	10	1	22	–	–	51	2
Iowa	–	–	16	–	8	9	–	37	–	–	7	–
Mo.	–	64	408	1	24	30	–	69	–	2	43	–
N. Dak.	–	–	18	–	1	1	–	4	–	–	5	–
S. Dak.	–	–	1	–	4	3	–	1	–	–	–	–
Nebr.	–	83	–	–	–	–	–	9	–	–	1	–
Kans.	–	74	60	–	7	5	1	101	–	1	109	1
S. ATLANTIC	7	1,842	1,676	6	408	435	22	870	7	6	301	6
Del.	–	3	1	–	2	5	–	37	–	–	1	–
Md.	1	71	13	–	42	38	10	300	1	–	70	–
D.C.	–	–	–	–	1	–	–	3	–	–	–	–
Va.	–	300	250	1	36	62	2	49	–	1	50	2
W. Va.	1	18	50	–	14	8	4	72	–	–	22	1
N.C.	1	125	108	3	78	61	2	85	–	1	43	–
S.C.	–	157	149	–	51	54	2	200	–	–	49	2
Ga.	–	799	359	–	72	64	–	1	2	–	–	–
Fla.	4	369	746	2	112	143	2	123	4	4	66	1
E.S. CENTRAL	2	335	185	3	157	131	–	819	–	1	77	3
Ky.	–	51	37	–	49	27	–	724	–	–	35	1
Tenn.	2	178	48	1	43	38	–	24	–	–	36	1
Ala.	–	22	80	2	42	32	–	14	–	–	4	1
Miss.	–	84	20	–	23	34	–	57	–	1	2	–
W.S. CENTRAL	1	905	875	–	182	281	7	235	6	1	109	9
Ark.	–	13	7	–	15	24	–	20	1	–	3	1
La.	–	13	245	–	66	109	–	64	1	–	9	2
Okla.	–	740	22	–	16	24	–	–	1	–	4	–
Tex.	1	139	601	–	85	124	7	151	3	1	93	6
MOUNTAIN	1	416	296	1	51	68	2	175	–	2	125	–
Mont.	–	1	53	–	2	6	–	50	–	1	35	–
Idaho	–	–	18	–	4	5	–	15	–	–	17	–
Wyo.	–	–	36	–	2	1	–	–	–	–	1	–
Colo.	1	23	55	1	13	4	2	46	–	1	9	–
N. Mex.	–	9	38	–	7	4	–	–	–	–	5	–
Ariz.	NA	329	70	–	8	31	NA	29	NA	NA	30	–
Utah	–	46	15	–	2	8	–	26	–	–	23	–
Nev.	–	8	11	–	13	9	–	9	–	–	5	–
PACIFIC	26	998	2,111	10	237	261	6	480	5	13	816	8
Wash.	1	170	1,119	1	45	42	–	120	–	2	69	–
Oreg.	–	1	56	3	40	18	–	57	–	–	50	–
Calif.	25	817	856	6	146	188	6	282	5	11	681	8
Alaska	–	5	17	–	5	5	–	11	–	–	10	–
Hawaii	–	5	63	–	1	8	–	10	–	–	6	–
Guam	NA	3	3	–	1	1	NA	7	NA	NA	–	–
P.R.	NA	92	312	–	7	3	NA	116	NA	NA	12	7
V.I.	NA	6	4	–	1	3	NA	2	NA	NA	–	–
Pac. Trust Terr.	NA	6	7	–	–	1	NA	13	NA	NA	1	–

NA: Not available.
All delayed reports and corrections will be included in the following week's cumulative totals.

TABLE III (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending July 26, 1980, and July 28, 1979 (30th week)

REPORTING AREA	TUBERCULOSIS		TULAREMIA	TYPHOID FEVER		TYPHUS FEVER (Tick-borne) (RMSF)		VENEREAL DISEASES (Civilian)						RABIES (in Animals)
								GONORRHEA			SYPHILIS (Pri. & Sec.)			
	1980	CUM. 1980	CUM. 1980	1980	CUM. 1980	1980	CUM. 1980	1980	CUM. 1980	CUM. 1979	1980	CUM. 1980	CUM. 1979	CUM. 1980
UNITED STATES	585	15,702	86	5	229	56	590	20,398	550,385	553,305	610	14,812	13,662	3,832
NEW ENGLAND	10	426	2	1	6	–	8	543	13,858	14,019	9	365	260	36
Maine	2	32	–	1	1	–	–	21	808	969	–	4	7	17
N.H.	–	9	–	–	–	–	–	25	467	519	–	1	13	6
Vt.	–	11	–	–	–	–	–	10	316	331	1	5	1	–
Mass.	5	230	1	–	3	–	4	225	5,718	5,569	5	232	152	6
R.I.	1	49	–	–	1	–	2	52	887	1,153	2	19	9	–
Conn.	2	95	1	–	1	–	2	210	5,662	5,478	1	104	78	7
MID. ATLANTIC	75	2,543	1	–	49	–	26	2,134	59,493	59,423	74	2,123	2,106	32
Upstate N.Y.	23	499	–	–	7	–	7	552	11,098	9,536	8	173	150	17
N.Y. City	31	915	1	–	20	–	2	850	23,031	23,591	46	1,403	1,437	–
N.J.	7	532	–	–	10	–	8	154	10,718	11,138	8	260	281	5
Pa.	14	597	–	–	12	–	9	578	14,646	15,158	12	287	238	10
E.N. CENTRAL	82	2,242	1	–	17	1	17	3,431	84,148	85,363	51	1,382	1,838	584
Ohio	7	381	–	–	4	–	10	602	22,557	23,633	7	227	339	29
Ind.	10	233	–	–	–	–	2	472	8,118	7,782	9	107	126	55
Ill.	33	816	–	–	7	1	5	1,365	26,323	25,849	33	771	1,057	339
Mich.	23	679	1	–	4	–	–	717	19,019	20,231	1	221	262	6
Wis.	9	133	–	–	2	–	–	275	8,131	7,868	1	56	54	155
W.N. CENTRAL	30	589	12	1	17	2	24	1,166	25,434	26,641	10	185	175	1,220
Minn.	4	107	1	–	1	–	–	244	4,218	4,472	3	65	48	127
Iowa	1	55	1	–	1	–	1	127	2,755	3,194	–	9	24	240
Mo.	17	273	9	1	13	1	13	532	11,148	11,515	7	92	74	282
N. Dak.	1	26	–	–	–	–	–	9	366	469	–	3	2	145
S. Dak.	4	33	–	–	1	1	1	34	780	903	–	2	1	249
Nebr.	3	27	1	–	–	–	–	52	2,008	1,891	–	7	2	62
Kans.	–	68	–	–	1	–	9	168	4,159	4,197	–	7	24	115
S. ATLANTIC	151	3,545	9	1	25	41	389	5,050	137,851	134,803	139	3,539	3,301	261
Del.	–	53	–	–	1	–	1	82	1,911	2,185	–	10	17	1
Md.	19	447	2	–	2	–	39	542	14,700	16,554	12	247	218	12
D.C.	9	205	–	–	3	–	–	399	9,522	8,672	15	257	251	–
Va.	13	383	–	–	4	2	40	513	12,028	12,774	18	322	288	8
W. Va.	5	131	–	1	2	–	2	81	1,697	1,869	1	13	41	12
N.C.	28	613	3	–	2	21	167	693	19,832	19,178	5	245	274	10
S.C.	16	317	–	–	3	4	104	544	13,088	12,507	4	196	158	40
Ga.	33	496	4	–	–	14	32	1,210	26,166	25,832	31	1,008	906	129
Fla.	28	900	–	–	8	–	4	986	38,907	35,232	53	1,241	1,148	49
E.S. CENTRAL	29	1,430	6	1	7	4	44	2,214	44,971	47,756	57	1,201	910	217
Ky.	7	310	–	–	2	–	2	337	6,737	6,331	1	77	96	98
Tenn.	8	482	6	–	–	3	31	878	16,191	16,870	19	496	388	93
Ala.	14	397	–	1	2	–	6	608	12,950	14,215	10	256	168	26
Miss.	–	241	–	–	3	1	5	391	9,093	10,340	27	372	258	–
W.S. CENTRAL	83	1,679	41	–	29	8	69	2,714	71,432	71,707	112	2,897	2,461	994
Ark.	17	169	26	–	2	3	13	255	5,459	5,657	–	85	90	130
La.	14	308	–	–	–	–	1	384	12,829	12,679	44	704	567	7
Okla.	3	171	11	–	1	4	39	233	7,001	6,724	2	58	54	167
Tex.	49	1,031	4	–	26	1	16	1,842	46,143	46,647	66	2,050	1,750	690
MOUNTAIN	11	411	11	–	16	–	9	595	21,010	21,591	16	359	273	127
Mont.	–	17	3	–	1	–	3	35	787	1,084	–	1	6	25
Idaho	1	20	1	–	1	–	1	56	961	885	–	22	19	1
Wyo.	–	15	3	–	–	–	2	23	634	540	–	8	5	5
Colo.	8	59	3	–	2	–	–	285	5,791	5,777	3	97	58	24
N. Mex.	–	85	–	–	2	–	2	88	2,635	2,797	11	66	52	26
Ariz.	NA	163	1	NA	7	NA	–	NA	5,480	5,958	NA	107	84	44
Utah	2	32	–	–	3	–	1	31	987	1,095	–	10	3	2
Nev.	–	20	–	–	–	–	–	77	3,735	3,455	2	48	46	–
PACIFIC	114	2,837	3	1	63	–	4	2,551	92,188	92,002	142	2,761	2,338	361
Wash.	16	256	–	–	1	–	–	NA	6,934	7,993	NA	123	133	–
Oreg.	1	102	1	1	9	–	1	106	6,419	5,729	2	64	104	–
Calif.	91	2,394	2	–	53	–	3	2,295	74,694	73,626	138	2,463	2,024	317
Alaska	–	41	–	–	–	–	–	75	2,245	2,979	–	8	15	44
Hawaii	6	44	–	–	–	–	–	75	1,896	1,675	2	103	62	–
Guam	NA	24	–	NA	–	NA	–	NA	50	70	NA	–	–	–
P.R.	NA	103	–	NA	1	NA	–	NA	1,422	1,177	NA	299	284	26
V.I.	NA	–	–	NA	–	NA	–	NA	108	99	NA	10	6	–
Pac. Trust Terr.	NA	26	–	NA	–	NA	–	NA	214	281	NA	–	1	–

NA: Not available.
All delayed reports and corrections will be included in the following week's cumulative totals.

TABLE IV. Deaths in 121 U.S. cities,* week ending July 26, 1980 (30th week)

REPORTING AREA	ALL CAUSES, BY AGE (YEARS)					P&I** TOTAL
	ALL AGES	>65	45-64	25-44	<1	
NEW ENGLAND	662	426	171	33	19	31
Boston, Mass.	191	105	59	15	9	12
Bridgeport, Conn.	37	27	7	2	1	4
Cambridge, Mass.	37	30	6	1	–	2
Fall River, Mass.	28	18	9	–	–	–
Hartford, Conn.	63	44	12	3	2	–
Lowell, Mass.	18	8	8	2	–	1
Lynn, Mass.	18	13	5	–	–	1
New Bedford, Mass.	25	21	3	1	–	1
New Haven, Conn.	60	43	9	3	1	2
Providence, R.I.	56	34	20	1	–	1
Somerville, Mass.	10	6	3	–	1	–
Springfield, Mass.	32	17	12	1	2	3
Waterbury, Conn.	39	30	6	2	1	2
Worcester, Mass.	48	30	12	2	2	2
MID. ATLANTIC	2,684	1,773	605	162	59	107
Albany, N.Y.	58	38	12	4	2	–
Allentown, Pa.	29	25	4	–	–	–
Buffalo, N.Y.	123	77	34	5	3	8
Camden, N.J.	32	16	13	1	1	1
Elizabeth, N.J.	27	19	5	2	–	1
Erie, Pa.†	35	22	9	2	1	1
Jersey City, N.J.	45	32	11	–	1	1
Newark, N.J.	61	27	27	4	2	4
N.Y. City, N.Y.	1,549	1,043	323	103	30	51
Paterson, N.J.	25	20	4	–	–	–
Philadelphia, Pa.†	236	139	57	15	10	13
Pittsburgh, Pa.†	90	55	28	5	1	4
Reading, Pa.	34	22	8	2	1	5
Rochester, N.Y.	104	75	19	6	1	5
Schenectady, N.Y.	30	23	5	1	–	1
Scranton, Pa.†	38	30	7	1	–	2
Syracuse, N.Y.	90	59	21	6	3	2
Trenton, N.J.	32	20	8	2	2	3
Utica, N.Y.	22	14	6	2	–	1
Yonkers, N.Y.	24	17	4	1	1	4
E.N. CENTRAL	2,417	1,468	569	161	109	54
Akron, Ohio	54	32	13	1	4	–
Canton, Ohio	45	27	14	2	2	–
Chicago, Ill.	581	333	144	46	26	15
Cincinnati, Ohio	147	102	27	8	3	4
Cleveland, Ohio	150	83	37	5	21	3
Columbus, Ohio	127	79	25	9	4	6
Dayton, Ohio	129	75	33	12	5	4
Detroit, Mich.	277	155	81	24	8	8
Evansville, Ind.	47	35	7	1	3	–
Fort Wayne, Ind.	56	41	9	4	–	4
Gary, Ind.	21	7	6	3	1	–
Grand Rapids, Mich.	50	32	12	2	1	2
Indianapolis, Ind.	201	126	38	16	10	1
Madison, Wis.	41	25	11	2	1	3
Milwaukee, Wis.	156	92	39	8	8	1
Peoria, Ill.	46	26	12	3	5	1
Rockford, Ill.	44	33	7	3	–	1
South Bend, Ind.	58	42	10	4	1	1
Toledo, Ohio	126	86	26	7	3	–
Youngstown, Ohio	61	37	18	1	3	–
W.N. CENTRAL	953	641	191	46	28	32
Des Moines, Iowa	58	38	14	1	2	–
Duluth, Minn.	31	24	5	2	–	4
Kansas City, Kans.	54	39	7	3	2	6
Kansas City, Mo.	188	124	43	11	5	5
Lincoln, Nebr.	38	27	9	–	1	1
Minneapolis, Minn.	102	64	23	5	3	5
Omaha, Nebr.	88	56	21	7	1	3
St. Louis, Mo.	240	158	47	9	11	4
St. Paul, Minn.	68	56	5	3	2	1
Wichita, Kans.	86	55	17	5	1	3

REPORTING AREA	ALL CAUSES, BY AGE (YEARS)					P&I** TOTAL
	ALL AGES	>65	45-64	25-44	<1	
S. ATLANTIC	1,184	680	298	85	63	25
Atlanta, Ga.	164	94	43	18	–	–
Baltimore, Md.	273	151	73	21	12	4
Charlotte, N.C.	57	28	17	3	7	2
Jacksonville, Fla.	135	80	34	8	3	3
Miami, Fla.	88	52	24	5	4	4
Norfolk, Va.	51	21	21	1	6	2
Richmond, Va.	96	49	26	8	9	5
Savannah, Ga.	26	14	7	2	2	1
St. Petersburg, Fla.	81	67	10	2	2	2
Tampa, Fla.	76	49	16	4	4	1
Washington, D.C.	82	41	16	9	11	1
Wilmington, Del.	55	34	11	4	3	–
E.S. CENTRAL	905	562	217	71	24	25
Birmingham, Ala.	151	92	36	7	10	3
Chattanooga, Tenn.	81	49	18	11	–	3
Knoxville, Tenn.	51	37	11	–	1	2
Louisville, Ky.	106	73	20	5	5	8
Memphis, Tenn.	253	156	68	15	3	2
Mobile, Ala.	85	51	13	15	2	2
Montgomery, Ala.	61	36	19	6	–	1
Nashville, Tenn.	117	68	32	12	3	4
W.S. CENTRAL	1,482	820	383	132	51	29
Austin, Tex.	47	26	12	5	1	–
Baton Rouge, La.	43	26	7	5	–	1
Corpus Christi, Tex.	38	20	11	1	4	–
Dallas, Tex.	216	111	61	20	11	2
El Paso, Tex.	78	36	16	11	5	4
Fort Worth, Tex.	106	62	28	6	3	4
Houston, Tex.	362	190	104	36	2	4
Little Rock, Ark.	87	56	15	4	8	3
New Orleans, La.	176	101	49	16	3	–
San Antonio, Tex.	169	98	44	10	8	7
Shreveport, La.	73	43	17	7	4	2
Tulsa, Okla.	87	51	19	11	2	2
MOUNTAIN	528	298	124	38	28	13
Albuquerque, N.Mex.	36	19	8	2	2	–
Colo. Springs, Colo.	28	17	6	2	–	2
Denver, Colo.	107	70	14	12	5	3
Las Vegas, Nev.	34	14	16	2	1	1
Ogden, Utah	11	7	2	–	2	–
Phoenix, Ariz.	140	73	37	10	13	2
Pueblo, Colo.	18	14	3	1	–	4
Salt Lake City, Utah	52	20	13	3	3	1
Tucson, Ariz.	102	64	25	6	2	–
PACIFIC	1,672	995	411	120	60	57
Berkeley, Calif.	21	12	6	2	–	–
Fresno, Calif.	63	33	11	10	3	9
Glendale, Calif.	34	23	8	2	1	1
Honolulu, Hawaii	69	36	25	2	3	5
Long Beach, Calif.	105	72	23	6	2	1
Los Angeles, Calif.	450	254	116	36	13	14
Oakland, Calif.	77	39	17	9	5	5
Pasadena, Calif.	35	22	9	3	–	2
Portland, Oreg. ††	123	77	29	7	5	2
Sacramento, Calif.	61	47	8	4	2	3
San Diego, Calif. ††	126	72	33	9	5	1
San Francisco, Calif.	133	81	38	4	4	2
San Jose, Calif.	165	100	40	10	4	4
Seattle, Wash.	123	79	25	10	7	6
Spokane, Wash.	53	30	12	4	6	1
Tacoma, Wash.	34	18	11	2	–	1
TOTAL	12,487	7,663	2,969	848	441	373

*Mortality data in this table are voluntarily reported from 121 cities in the United States, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

**Pneumonia and influenza

†Because of changes in reporting methods in these 4 Pennsylvania cities, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

††Data not available. Figures are estimates based on average percent of regional totals.

Glioblastoma – Continued

3. Maltoni C, Ciliberti A, DiMaio V. Carcinogenicity bioassays on rats of acrylonitrile administered by inhalation and ingestion. Med Lav 1977;68:400.
4. Olin GR, Ahlbom A. The cancer mortality among Swedish chemists graduated during three decades. Environ Res 1980;22:154-60.
5. Theriault G, Goulet L. A mortality study of oil refinery workers. Journal of Occupational Medicine 1979;20:367-70.
6. Thomas TL, deCoufle P, Moure-Eraso R. Mortality among workers employed in petroleum refinery and petrochemical plants. Journal of Occupational Medicine 1980;22:97-103.

Follow-up on Mount St. Helens

July 22 eruption of Mount St. Helens

Mount St. Helens erupted 3 times on the evening of July 22. The eruptions (and their approximate duration) were at 5:13 pm (2 minutes), 6:26 pm (10 minutes), and 7:00 pm (3 hours), and effectively blew out the developing dome.

Individuals with permits to be on the mountain were cleared from the hazardous zone after the earthquake activity began; no fatalities occurred. There was some pyroclastic flow in the direction of the Spirit Lake area, but no mudflows or significant ashfall on the mountain. These eruptions, therefore, should not significantly increase any existing risks of flooding or other dislocations in the area.

The ashfall was east-northeast of the mountain, in the general direction of the plume from the first eruption on May 18, although the total ashfall was less. The most heavily affected area was in northeast Washington, north of Spokane. The hospitals in the CDC surveillance network, as well as other hospitals in the plume trajectory, rapidly provided unofficial estimates of ashfall in their communities. All of the hospitals reported a 0- to 1/8-inch accumulation, except in an area in northeast Washington (including Chewelah, Colville, Ruby, and Metaline Falls—all north of Spokane), where 1/8-1/4 inch of ashfall was reported.

Preliminary data on total suspended particulates (TSP) from the Environmental Protection Agency (EPA) Region X (Table 1) showed TSP increases in the plume path during the 24-hour post-eruption period; the peak levels measured were considerably lower, however, than those measured after the May 18 eruption. Addy, which is in the area that received the heaviest fallout, had an unconfirmed report of TSP of 4,497 $\mu g/m^3$. Yakima and Richland, on the fringe of the plume, and Spokane showed lesser increases.

TABLE 1. Preliminary reports of total suspended particulates (TSP) measurements, July 21-24, 1980

Station	Date	Time frame (hours)	TSP ($\mu g/m^3$)
Addy	July 23	0-2400	4,997
Yakima	July 20-21	900-900	100
	July 22-23	1800-1100	850
	July 23-24	1100-900	427
Richland	July 22-23	600-600	1,394
Spokane	July 21	0-2400	165
	July 22	0-2400	271
	July 23	0-2400	655
	July 24	0-800	278

Mount St. Helens – Continued

Hospital emergency-room surveillance

Surveillance of visits to hospital emergency rooms (ER) in Yakima, Centralia, and Chehalis, Washington, after the May 18 and May 25 eruptions, is continuing. As earlier data suggested (*1,2*), there appear to have been rapid but transient ash-related increases in ER visits for the subgroup of diagnoses that include asthma, bronchitis, and other "airway" problems. These findings are similar to those noted in studies on the health effects of air pollution.

Reported by EPA; and the Chronic Diseases Div, Bur of Epidemiology, CDC.

References

1. MMWR 29:312, 317-8, 1980.
2. MMWR 29:299-300, 1980.

Current Trends

Measles – United States, First 26 Weeks, 1980

A total of 11,689 measles cases were reported from 57 reporting areas for the first 26 weeks (6 months) of 1980, a 7.5% increase from the 10,872 cases reported for the same period in 1979 (Figure 2). The 1980 incidence rate was 17.6 cases per 100,000 persons under 18 years of age compared to 16.3 in 1979. Nine areas (California, Georgia, Minnesota, New Jersey, New York City, New York State, Oklahoma, Pennsylvania, and Wisconsin—the same number as last year) reported more than 500 cases in this 26-week period. Four of these areas had in excess of 500 cases in both years (California, Minnesota, New York City, and New York State).

Thus far in 1980, 7 states have reported rates of measles above 40 per 100,000; 3 states had comparably high rates in 1979. However, in both years, more than half of all the reporting areas had rates below 10 per 100,000. In 1980, 34 reporting areas had at least one 4-week period without reported measles in the first 26 weeks, compared to 40 reporting areas with a similar measles-free period in 1979.

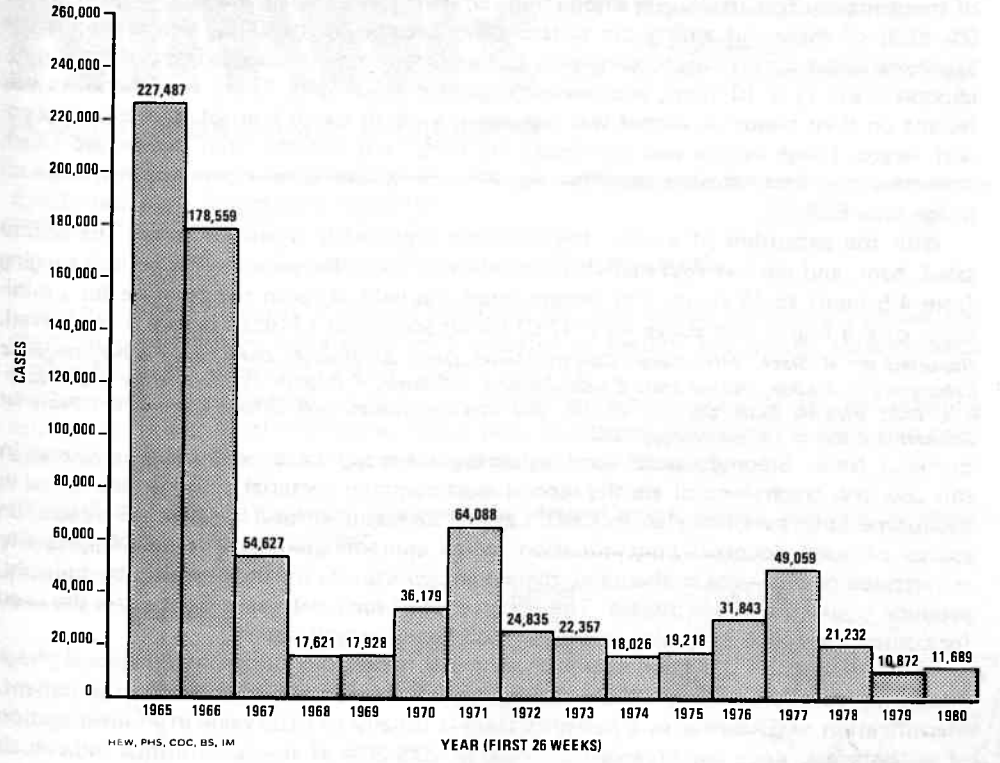
Reported by the Immunization Div, Bur of State Services, CDC.

Editorial Note: Before measles vaccine was licensed in 1963, there was a striking periodicity in measles occurrence, with peaks in incidence occurring every 2-3 years. The widespread use of measles vaccine rapidly brought about a decrease in incidence of more than 90% and apparently changed this pattern. Although the data suggest that there now may be a new cycle of 5 to 6 years (Figure 2), it must be noted that measles incidence is highly responsive to the level of immunization activity. In fact, each of the low points in incidence (1968, 1974, and 1979) followed a period of increased emphasis on measles vaccination. Similarly, each peak in incidence (in 1971 and 1977) followed a period of reduced emphasis on measles vaccination. Thus, it seems likely that the new pattern is artificial. This year's increase in cases is due, at least in part, to increased surveillance activities.

It is of interest that the 2 low periods before 1979 were almost identical—17,621 and 18,026 cases, respectively—whereas in 1979 and 1980 at least one-third fewer cases were seen. This occurred in spite of significant improvements in casefinding and reporting and illustrates how responsive measles incidence is to control efforts. Continued and increased emphasis must be placed on such activities if measles is to be eliminated as an indigenous disease during the next 2 years.

Measles — Continued

FIGURE 2. Reported measles cases, United States, first 26 weeks, 1965-1980.



Epidemiologic Notes and Reports

Staphylococcal Food Poisoning — West Virginia

On May 20, 1980, 17 cases of acute gastrointestinal disease occurred among 33 students and instructors at a graduating class banquet in Mason County, West Virginia.

Symptoms included nausea and vomiting (100%), diarrhea (90%), and abdominal cramps and pain (55%). All affected sought medical aid. Ten were hospitalized, and the remaining 7 were treated in the hospital emergency room. Incubation periods of the illness ranged from 1.3 to 5.5 hours, with a median of 3.0 hours.

The Morbidity and Mortality Weekly Report, circulation 88,700, 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.

Food Poisoning – Continued

Food histories, obtained from 23 of the guests, implicated potato salad as the vehicle of transmission. The attack rate among those who ate potato salad was 79% (11/14), while 0% (0/9) of those not eating the potato salad became ill ($p<.005$). Coagulase-positive *Staphylococcus aureus* was subsequently isolated from the potato salad (3×10^8 per gm), chocolate pie (1×10^5/gm), and deviled eggs (1.8×10^5/gm). The 2 food handlers had lesions on their hands; *S. aureus* was isolated from their hands but not from nasopharyngeal swabs. Phage typing was conducted by CDC, and isolates from the potato salad, chocolate pie, ham, deviled eggs, the food handlers, and feces from 1 patient were all phage type 83A/85.

With the exception of a cake, the food was prepared in a private home. The potato salad, ham, and deviled eggs had all been stored at room temperature for periods ranging from 4.5 hours to 12 hours. The potato salad was held at room temperature for a minimum of 6.5 hours, and above 45 F (7 C) for an additional 17 hours before it was served.

Reported by R Slack, MD, Mason County Health Dept; JW Brough, DrPH, JA Fischer, Hygienic Laboratory, L Haddy, Acting State Epidemiologist, PR Jones, E DeBarr, Environmental Health Services, West Virginia State Dept of Health; Bur of Laboratories, and Enteric Diseases Br, Bacterial Diseases Div, Bur of Epidemiology, CDC.

Editorial Note: Staphylococcal food poisoning is a major cause of foodborne disease in this country; staphylococci are the second most common bacterial pathogen identified in foodborne outbreaks reported to CDC. Lesions on hands of food handlers are a common source of staphylococcal contamination; when contaminated food is then improperly refrigerated or otherwise mishandled, there is an opportunity for the organism to multiply, produce toxin, and cause disease. The occurrence of such outbreaks emphasizes the need for continuing public education in proper food-handling techniques.

This investigation is a good example of how it is possible, using staphylococcal phage typing, to identify a probable chain of transmission from food handler to food to patient. Identification of *S. aureus* in a patient's stool is usually of little value in an investigation of an outbreak since the organism is found in 20%-30% of stools of normal individuals (*1*); however, further evidence of an outbreak's etiology can be provided by showing that the phage type of the staphylococci isolated from the stool is the same as that in the incriminated food.

Reference

1. Williams REO. Health carriage of *Staphylococcus aureus*: its prevalence and importance. Bacteriol Rev 1963;27:56-71.

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