CENTERS FOR DISEASE CONTROL

MMWR

MORBIDITY AND MORTALITY WEEKLY REPORT

October 21, 1983 / Vol. 32 / No. 41

Epidemiologic Notes and Reports

Gastrointestinal Illness Associated with Imported Brie Cheese — District of Columbia

Between September 19 and September 27, 1983, three outbreaks of a gastrointestinal illness affecting 45 people were reported to the District of Columbia Department of Human Services. All three outbreaks followed office parties that occurred on September 13 (11 of 16 persons ill), September 16 (27/71), and September 22 (7/7). Four people sought medical attention, but none required hospitalization. The mean incubation period was 44 hours, and the mean duration of symptoms was 4.4 days. Illness was characterized by watery diarrhea (91%), abdominal cramps (80%), nausea (38%), and fever (20%). Vomiting and blood in the stool were each reported by one patient.

Analysis of data from a questionnaire administered to 70 of the 71 people who attended the largest party showed a strong association between eating imported French brie cheese and becoming ill ($p < 0.001$). The same brand of cheese was also served at the other two parties.

The cheese was purchased at two stores in the Washington, D.C., area, which were supplied by the same distributor. The cheese bore the brand name Marcillat and the lot number 20208 and was produced in France on July 21, 1983. No evidence of mishandling or improper refrigeration could be determined. No information is yet available about the manufacturing plant in France.

Washington, D.C., area retailers of the cheese were notified of possible contamination and advised by health officials not to sell cheese of the implicated lot. Retailers in Washington, D.C., voluntarily relinquished the remaining quantities of lot 20208 to health officials. Since the shelf-life of brie cheese is short, none of that lot should be available now. However, health departments in other states in which the cheese was distributed have been contacted—Colorado, Connecticut, Florida, Georgia, Illinois, Louisiana, Massachusetts, Minnesota, New Jersey, New York, North Carolina, Pennsylvania, and Texas.

Cultures performed in the laboratory of the District of Columbia Department of Human Services on one cheese sample and four stool samples did not detect any routine enteric pathogens but did detect *Citrobacter freundii* in the cheese and in three of the stools. *C. freundii* is not generally recognized as an enteric pathogen, and its role in these outbreaks is uncertain. Specimens of stool and blood from ill and well persons who attended the parties have been obtained for further evaluation at CDC. The U.S. Food and Drug Administration is testing cheese from the implicated lot and from other lots produced by the same manufacturer.

Reported by ME Levy, MD, District Epidemiologist, District of Columbia Dept of Human Svcs; Emergency and Epidemiology Operations Br, US Food and Drug Administration; Enteric Diseases Br, Div of Bacterial Diseases, Center for Infectious Diseases, CDC.

Current Trends

Antigenic Analysis of Recent Influenza A(H1N1) Viruses

Laboratory tests with animal sera have demonstrated that influenza A(H1N1) viruses isolated from outbreaks in Southeast Asia and some parts of Oceania from approximately March to August 1983 (*1*) have undergone antigenic drift from the previously prevalent strains. Post-infection ferret serum to A/Brazil/11/78, which reacted well with the A/England/333/80-like strains that had been preponderant among H1N1 isolates during the past 2-3 years (*2,3*), reacts poorly with most recent isolates in hemagglutination inhibition (HI) tests. Ferret antiserum to another variant, A/India/6263/80, which has cocirculated with A/England/333/80 (*2,3*), also reacts poorly with the recent isolates.

When compared in reciprocal HI tests, the recent isolates are heterogenous (Table 1). One type of reaction pattern is exemplified by the virus A/Chile/1/83, which is rather poorly inhibited by all heterologous sera. The A/Chile/1/83 virus itself induces broadly reactive antibodies when used to infect ferrets. Viruses with similar characteristics to A/Chile/1/83 have comprised the majority of recently tested isolates from Singapore and Thailand. Viruses from New Caledonia and New Zealand, however, have exhibited two alternative types of reaction patterns. Examples are shown with A/New Caledonia/4/83 and A/Dunedin/7/83 (Table 1). When inoculated into ferrets, each virus induces antibody that reacts more with itself than with other 1983 variants. Both A/New Caledonia/4/83- and A/Dunedin/7/83-like variants have been found from within the same outbreaks in New Caledonia and New Zealand. Preliminary tests in man show that vaccine containing A/Brazil/11/78 virus induces antibody that inhibits the new H1N1 variants better than does post-infection A/Brazil/11/78 ferret serum.

TABLE 1. Hemagglutination inhibition reactions of influenza A(H1N1) variant — March-August 1983.*

	Post-infection ferret sera					
Antigen	*A/Brazil/11/78*	*A/England/333/80*	*A/India/6263/80*	*A/Chile/1/83*	*A/New Caledonia/4/83*	*A/Dunedin/7/83*
A/Brazil/11/78	320	320	20	80	80	40
A/England/333/80	320	640	80	160	80	160
A/India/6263/80	40	160	320	160	80	160
A/Chile/1/83	20	80	40	80	40	40
A/New Caledonia/4/83	40	80	40	80	160	160
A/Dunedin/7/83	<20	40	40	80	40	640

*Homologous reactions are underlined. When comparing antigens, differences of fourfold or greater in titer with the same serum are considered experimentally significant. Titers can be affected by differences in avidity between strains, and antigenic differences between strains may be asymmetric (i.e., nonreciprocal when comparing two viruses with their respective antisera).

Influenza — Continued

Reported by WHO Collaborating Center for Influenza, Influenza Br, Div of Viral Diseases, Center for Infectious Diseases, CDC.

Editorial Note: It is possible that the genetic difference between the new variants from Oceania is very small and that the two strains shown represent minor variants in a common evolutionary path; this would parallel a situation observed with some cocirculating variants of influenza A(H3N2), such as A/Bangkok/1/79 and A/Bangkok/2/79, whose hemagglutinin antigenic sites differ from each other by only two amino acids (*4*).

Continuing study of influenza A(H1N1) viruses from different parts of the world, including the Northern Hemisphere, is necessary to determine whether any of the new variants will predominate. Despite the antigenic differences detected with highly specific, post-infection ferret sera, it is likely that this year's vaccine, which contains A/Brazil/11/78 as its H1N1 antigenic component, would be of benefit in protecting many people against the new virus variants if they spread in the United States, due to the broader antibody response in man. Furthermore, H3N2 and type B viruses, which continue to circulate in the world, are also included in the vaccine.

References

1. CDC. Influenza—worldwide. MMWR 1983;32:502-4.
2. Cox NJ, Bai ZS, Kendal AP. Laboratory-based surveillance of influenza A(H1N1) and A(H3N2) viruses in 1980-81: antigenic and genomic analyses. Bull WHO, 1983;143-52.
3. World Health Organization. Influenza in the world, October 1981-September 1982. WHO Wkly Epidem Rec 1982;50:389-93.
4. Both GW, Sleigh MS, Cox NJ, Kendal AP. H3 influenza haemagglutinin from 1968-1980: multiple evolutionary path ways and sequential amino acid changes at key antigenic sites. J Virol 1983;48:52-60.

Enterovirus Surveillance — United States, 1983

As part of continuing, laboratory-based surveillance of enterovirus infections in the United States, 33 state public health laboratories reported 752 enterovirus isolates to CDC from January to mid-September 1983. The most commonly reported enterovirus isolate was Coxsackie B5, accounting for 22.9% (172/752) of the isolates (Table 2). Coxsackie B5 was the most frequently reported nonpolio enterovirus in seven of the nine U.S. regions; it has not

TABLE 2. The five most common enterovirus isolations, by region — United States, January-August 1983.

Rank	New England	Middle Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Mountain	Pacific
1	Polio 2	Cox B5	Cox B5	Cox B5	Echo 30	Polio 2	Cox B5	Cox B5	Cox B3
2	Cox B5	Polio 3	Polio 2	Cox B1*	Cox B5	Cox B5*	Echo 11	Cox A 16*	Cox A9
3	Polio 3	Cox A9	Echo 24	Cox B2*	Echo 6*	Polio 3*	Echo 24	Cox B3*	Echo 11
4	Cox A9	Polio 2*	Polio 3	Echo 11*	Echo 11*		Cox B2*	Echo 11*	Echo 30*
5	Polio 1	Echo 6*	Echo 30	Echo 20*	Echo 20*		Polio 2*	Polio 2*	Cox B4*
		Cox B1*		Echo 27*			Polio 3*		
				Polio 2*					
Total no. of isolates per region	54	26	125	97	95	4	251	48	52

*These viruses were isolated in equal numbers in this reporting area.

Enterovirus – Continued

been isolated in such large numbers since a nationwide epidemic in 1972-1973. In 1982, it was the third most common isolate.

The predominant types of enteroviruses isolated each year may vary considerably (*1*). In 1981, the two most common isolates were echo 30 and echo 9, and in 1982, echo 30 and echo 11. Consistent with past experience, polioviruses were among the most common enteroviruses isolated; they are likely related to excretion of virus after administration of live poliovirus vaccine.

As in previous years, most isolates came from children—52.5% in the 0-4-year age group (395/752) and 64.2% in those through age 14 (483/752). The most frequently reported clinical syndromes were aseptic meningitis or encephalitis—20.6% (155/752)—the more common serious manifestations of enterovirus disease. Most enterovirus infections are asymptomatic or produce mild symptoms, such as fever, upper respiratory tract illness, gastroenteritis, and/or rash.

Reported by Respective State Virus Laboratory Directors; Div of Viral Diseases, Center for Infectious Diseases, CDC.

Editorial Note: The above data on virus isolates were provided by 38 state laboratories with virus isolation capabilities; these states report monthly to CDC. Thirty-three of the 38 states have submitted the reports on which this report is based.

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TABLE I. Summary—cases specified notifiable diseases, United States

Disease	41st Week Ending			Cumulative, 41st Week Ending		
	October 15, 1983	October 16, 1982	Median 1978-1982	October 15, 1983	October 16, 1982	Median 1978-1982
Aseptic meningitis	401	315	308	9,226	7,114	6,320
Encephalitis: Primary (arthropod-borne & unspec.)	58	57	54	1,338	1,214	952
Post-infectious	-	1	4	62	64	171
Gonorrhea: Civilian	16,006	20,148	20,020	701,959	757,270	789,267
Military	438	317	393	19,097	21,185	21,796
Hepatitis: Type A	439	482	612	16,862	17,869	22,110
Type B	391	396	385	17,897	16,897	14,030
Non A, Non B	61	55	N	2,629	1,874	N
Unspecified	187	137	182	6,214	6,844	8,056
Legionellosis	6	11	N	546	482	N
Leprosy	2	2	2	193	160	160
Malaria	10	11	21	648	862	862
Measles: Total*	15	36	58	1,310	1,378	12,347
Indigenous	12	N	N	1,081	N	N
Imported	3	N	N	229	N	N
Meningococcal infections: Total	37	47	47	2,218	2,416	2,160
Civilian	37	47	47	2,203	2,402	2,144
Military	-	-	-	15	14	16
Mumps	42	44	92	2,626	4,437	7,392
Pertussis	56	41	41	1,852	1,246	1,246
Rubella (German measles)	9	6	34	818	2,065	3,388
Syphilis (Primary & Secondary): Civilian	517	615	537	25,317	25,931	20,914
Military	9	9	5	315	344	251
Toxic-shock syndrome	4	N	N	313	N	N
Tuberculosis	413	491	486	18,399	19,953	21,333
Tularemia	4	7	6	254	209	181
Typhoid fever	15	6	12	338	314	403
Typhus fever, tick-borne (RMSF)	13	14	16	1,097	899	975
Rabies, animal	70	132	113	4,858	5,075	5,075

TABLE II. Notifiable diseases of low frequency, United States

	Cum. 1983		Cum. 1983
Anthrax	-	Plague	36
Botulism: Foodborne	14	Poliomyelitis: Total	5
Infant	47	Paralytic (Ind. 1)	5
Other	-	Psittacosis (Conn. 1, Calif. 2)	100
Brucellosis (S. Dak. 1)	152	Rabies, human	2
Cholera	1	Tetanus	63
Congenital rubella syndrome	18	Trichinosis (Pa. 1)	28
Diphtheria	3	Typhus fever, flea-borne (endemic, murine)	42
Leptospirosis	38		

*There were no cases of internationally imported measles reported for this week.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending October 15, 1983 and October 16, 1982 (41st week)

Reporting Area	Aseptic Meningitis	Encephalitis		Gonorrhea (Civilian)		Hepatitis (Viral), by type				Legionellosis	Leprosy	Malaria
		Primary	Post-infectious			A	B	NA,NB	Unspecified			
	1983	Cum. 1983	Cum. 1983	Cum. 1983	Cum. 1982	1983	1983	1983	1983	1983	Cum. 1983	Cum. 1983
UNITED STATES	401	1,338	62	701,959	757,270	439	391	61	187	6	193	648
NEW ENGLAND	14	54	-	18,277	18,283	5	27	3	22	1	3	30
Maine	-	-	-	895	929	-	1	-	-	-	-	1
N.H.	-	5	-	579	616	1	-	-	-	-	2	2
Vt.	-	1	-	358	343	-	-	-	-	-	-	1
Mass.	3	26	-	7,668	8,258	1	5	-	22	1	-	13
R.I.	2	1	-	1,005	1,205	-	1	-	-	-	-	4
Conn.	9	21	-	7,772	6,932	3	20	3	-	-	1	9
MID ATLANTIC	49	105	4	89,607	94,511	53	60	4	15	1	25	87
Upstate N.Y.	26	27	-	14,520	15,289	7	12	3	4	-	-	26
N.Y. City	13	10	-	35,538	38,792	26	7	-	5	1	24	21
N.J.	-	17	-	16,887	17,496	5	15	-	5	-	-	24
Pa.	10	51	4	22,662	22,934	15	26	1	1	-	1	16
E.N. CENTRAL	105	489	20	96,806	108,455	31	34	3	5	-	6	51
Ohio	24	161	9	25,992	29,280	15	10	-	3	-	1	8
Ind.	18	170	1	10,276	12,756	3	3	1	1	-	-	7
Ill.	-	17	7	24,263	30,842	2	-	-	1	-	2	16
Mich.	63	102	-	27,258	25,919	11	21	2	-	-	3	15
Wis.	-	39	3	9,017	9,658	-	-	-	-	-	-	5
W.N. CENTRAL	19	106	9	32,985	35,568	9	9	3	1	2	6	25
Minn.	-	24	1	4,720	5,194	2	3	-	-	-	4	7
Iowa	7	52	-	3,680	3,706	-	2	2	1	-	-	3
Mo.	1	24	-	15,737	16,936	1	4	1	-	2	1	5
N. Dak.	-	-	-	368	471	-	-	-	-	-	-	2
S. Dak.	-	1	2	857	956	3	-	-	-	-	-	1
Nebr.	-	4	-	2,155	2,139	3	-	-	-	-	-	1
Kans.	11	1	6	5,468	6,166	-	-	-	-	-	1	6
S. ATLANTIC	75	189	15	182,616	199,002	39	67	6	19	-	11	107
Del.	1	-	-	3,363	3,239	-	-	-	-	-	-	1
Md.	2	19	-	23,477	25,029	3	12	1	1	-	1	22
D.C.	-	-	-	12,527	11,764	1	5	-	-	-	-	15
Va.	-	44	2	16,627	15,772	1	2	-	2	-	1	24
W. Va.	1	38	-	2,039	2,249	-	-	-	-	-	-	1
N.C.	57	42	-	28,234	31,382	2	11	-	4	-	2	3
S.C.	1	4	-	17,143	19,300	1	3	-	2	-	-	5
Ga.	1	7	1	36,120	39,315	6	11	-	2	-	1	9
Fla.	12	35	12	43,086	50,952	25	23	5	8	-	6	27
E.S. CENTRAL	38	62	1	59,488	65,334	28	34	9	6	-	-	12
Ky.	13	15	-	7,033	8,835	17	1	-	-	-	-	2
Tenn.	6	16	-	24,295	25,884	5	5	3	2	-	-	-
Ala.	18	23	-	18,398	18,977	2	26	6	4	-	-	6
Miss.	1	8	1	9,762	11,638	4	2	-	-	-	-	4
W.S. CENTRAL	25	135	2	100,448	103,793	108	41	1	76	-	28	56
Ark.	-	6	-	7,818	8,630	1	1	1	6	-	-	1
La.	-	17	-	19,544	18,716	6	6	-	6	-	1	8
Okla.	6	27	1	11,587	11,430	16	14	-	12	-	-	10
Tex.	19	85	1	61,499	65,017	85	20	-	52	-	27	37
MOUNTAIN	19	61	4	22,546	25,599	52	21	6	9	-	12	24
Mont.	-	2	-	931	1,074	-	-	1	1	-	-	-
Idaho	-	1	-	1,002	1,217	-	-	-	-	-	-	2
Wyo.	-	2	-	607	738	-	-	-	-	-	-	1
Colo.	7	36	-	6,309	6,900	25	5	1	-	-	2	8
N. Mex.	1	1	-	2,767	3,434	1	1	-	1	-	-	5
Ariz.	4	9	4	6,377	6,738	14	11	1	4	-	9	5
Utah	5	10	-	1,084	1,251	4	2	2	2	-	1	3
Nev.	2	-	-	3,469	4,247	8	2	1	1	-	-	-
PACIFIC	57	137	7	99,186	106,725	114	98	26	34	2	102	256
Wash.	2	13	1	7,380	8,983	1	7	1	3	-	15	12
Oreg.	-	-	3	5,316	6,335	22	4	2	-	-	1	9
Calif.	50	116	3	81,954	86,713	91	86	23	31	2	58	234
Alaska	-	-	-	2,633	2,695	-	-	-	-	-	-	-
Hawaii	5	8	-	1,903	1,999	-	1	-	-	-	28	1
Guam	U	-	-	90	112	U	U	U	U	U	-	2
P.R.	-	1	1	1,893	2,152	1	6	-	-	-	-	2
V.I.	-	-	-	212	222	-	-	-	-	-	-	-
Pac. Trust Terr.	U	-	-	-	362	U	U	U	U	U	-	-

N: Not notifiable U: Unavailable

TABLE III. (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending October 15, 1983 and October 16, 1982 (41st week)

Reporting Area	Measles (Rubeola)					Menin-gococcal Infections	Mumps			Pertussis			Rubella		
	Indigenous		Imported*		Total										
	1983	Cum. 1983	1983	Cum. 1983	Cum. 1982	Cum. 1983	1983	Cum. 1983	Cum. 1982	1983	Cum. 1983	Cum. 1982	1983	Cum. 1983	Cum. 1982
UNITED STATES	12	1,081	3	229	1,378	2,218	42	2,626	4,437	56	1,852	1,246	9	818	2,065
NEW ENGLAND	1	3	-	14	14	115	5	114	169	-	61	47	-	13	17
Maine	-	-	-	-	-	8	1	18	41	-	4	4	-	-	-
N.H.	-	-	-	3	3	4	-	21	16	-	9	4	-	4	10
Vt.	-	-	-	-	2	9	-	14	7	-	8	2	-	3	-
Mass.	1	3	-	3	3	39	2	30	72	-	34	21	-	6	2
R.I.	-	-	-	-	-	9	1	14	15	-	5	11	-	-	1
Conn.	-	-	-	8	6	46	1	17	18	-	1	5	-	-	4
MID ATLANTIC	-	71	-	40	161	367	1	216	283	4	336	249	-	138	102
Upstate N.Y.	-	2	-	10	111	115	1	84	70	2	108	99	-	29	49
N.Y. City	-	43	-	26	42	68	-	33	47	-	51	35	-	86	34
N.J.	-	26	-	1	4	60	-	37	41	-	19	21	-	3	18
Pa.	-	-	-	3	4	124	-	62	125	2	158	94	-	20	1
E.N. CENTRAL	8	635	-	56	77	403	11	1,225	2,309	7	381	287	-	113	184
Ohio	-	72	-	13	1	120	-	541	1,577	-	127	79	-	2	-
Ind.	6	402	-	4	2	45	3	38	37	4	52	19	-	23	28
Ill.	2	159	-	33	24	121	1	134	266	-	110	128	-	48	67
Mich.	-	2	-	5	50	73	7	440	314	3	37	23	-	16	49
Wis.	-	-	-	1	-	44	-	72	115	-	55	38	-	24	40
W.N. CENTRAL	-	1	-	7	49	128	3	145	570	7	115	64	-	39	59
Minn.	-	1	-	-	-	20	-	27	438	1	41	25	-	8	5
Iowa	-	-	-	-	-	14	-	37	34	-	6	7	-	-	-
Mo.	-	-	-	1	2	63	-	21	10	-	15	14	-	-	38
N. Dak.	-	-	-	-	-	4	-	-	-	-	2	-	-	-	-
S. Dak.	-	-	-	-	-	4	-	-	1	-	7	5	-	-	1
Nebr.	-	-	-	-	3	3	-	2	-	-	2	1	-	-	-
Kans.	-	-	-	6	44	20	3	58	87	6	42	12	-	31	15
S. ATLANTIC	-	172	-	31	44	460	6	182	267	6	216	223	1	94	81
Del.	-	-	-	-	-	11	-	8	12	2	5	6	-	-	1
Md.	-	6	-	4	3	45	4	33	29	-	17	51	-	3	34
D.C.	-	-	-	-	1	5	-	-	-	-	-	1	-	-	-
Va.	-	10	-	13	14	66	-	31	36	2	50	25	-	3	12
W. Va.	-	-	-	-	3	2	-	45	94	-	9	7	-	-	1
N.C.	-	-	-	1	1	92	2	12	16	-	27	41	-	10	1
S.C.	-	-	-	4	-	47	-	10	16	-	13	16	-	1	1
Ga.	-	8	-	-	-	74	-	43	18	-	56	36	-	11	14
Fla.	-	148	-	9	22	118	-	-	46	2	39	40	1	66	17
E.S. CENTRAL	1	2	-	5	7	132	1	50	52	4	31	48	2	16	46
Ky.	-	-	-	1	1	27	-	21	18	2	13	5	2	15	28
Tenn.	1	1	-	-	6	44	1	24	19	2	8	25	-	-	2
Ala.	-	1	-	4	-	39	-	2	9	-	5	5	-	1	-
Miss.	-	-	-	-	-	22	-	3	6	-	5	13	-	-	16
W.S. CENTRAL	-	39	-	35	134	234	2	220	193	26	396	86	1	113	106
Ark.	-	5	-	8	-	18	-	2	7	1	18	3	-	-	1
La.	-	-	-	25	2	45	-	45	6	1	8	18	-	10	1
Okla.	-	1	-	-	30	29	-	-	-	23	289	5	-	-	3
Tex.	-	33	-	2	102	142	2	173	180	1	81	60	1	103	101
MOUNTAIN	-	-	3	6	21	93	6	128	93	1	201	60	-	33	78
Mont.	-	-	3 §	3	-	20	1	3	3	-	1	1	-	6	5
Idaho	-	-	-	-	-	6	-	6	4	-	15	11	-	8	6
Wyo.	-	-	-	-	1	2	1	2	2	-	6	3	-	4	7
Colo.	-	-	-	2	8	33	2	30	17	-	122	16	-	1	6
N. Mex.	-	-	-	-	-	7	-	-	-	1	13	7	-	-	6
Ariz.	-	-	-	1	12	16	2	76	41	-	22	21	-	6	14
Utah	-	-	-	-	-	8	-	6	20	-	22	1	-	7	22
Nev.	-	-	-	-	-	1	-	5	6	-	-	-	-	1	12
PACIFIC	2	158	-	35	871	286	7	346	501	1	115	182	5	259	1,392
Wash.	-	1	-	4	41	42	2	42	64	-	16	27	-	12	38
Oreg.	1	8	-	2	16	45	-	-	-	-	8	27	-	13	6
Calif.	1	148	-	27	808	190	5	273	412	1	84	100	5	232	1,336
Alaska	-	-	-	2	1	2	-	13	10	-	4	-	-	1	5
Hawaii	-	1	-	-	5	7	-	18	15	-	3	28	-	1	7
Guam	U	1	U	1	6	1	U	1	5	U	-	-	U	-	2
P.R.	-	94	-	-	126	11	-	119	84	-	11	21	-	5	11
V.I.	-	-	-	5	-	-	-	-	4	-	-	-	-	2	1
Pac. Trust Terr.	U	-	U	-	1	-	U	-	6	U	-	-	U	-	-

*For measles only, imported cases includes both out-of-state and international importations. U: Unavailable †International §Out-of-state

TABLE III. (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending October 15, 1983 and October 16, 1982 (41st week)

Reporting Area	Syphilis (Civilian) (Primary & Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1983	Cum. 1982	1983	1983	Cum. 1983	Cum. 1983	Cum. 1983	Cum. 1983	Cum. 1983
UNITED STATES	25,317	25,931	4	413	18,399	254	338	1,097	4,858
NEW ENGLAND	533	465	-	12	547	4	13	6	30
Maine	18	4	-	-	29	-	-	-	8
N.H.	18	5	-	-	31	-	-	1	4
Vt.	1	2	-	-	10	-	-	-	1
Mass.	335	307	-	4	286	3	11	2	11
R.I.	16	19	-	2	45	1	-	-	-
Conn.	145	128	-	6	146	-	2	3	6
MID ATLANTIC	3,262	3,522	2	99	3,303	1	63	26	211
Upstate N.Y.	235	375	-	13	559	1	7	6	70
N.Y. City	1,944	2,092	-	28	1,296	-	22	2	-
N.J.	646	489	-	17	691	-	28	8	24
Pa.	437	566	2	41	757	-	6	10	117
E.N. CENTRAL	1,230	1,550	-	57	2,480	3	53	79	425
Ohio	352	248	-	13	393	-	16	42	56
Ind.	92	157	-	12	279	-	3	14	29
Ill.	525	831	-	30	1,071	1	24	14	220
Mich.	191	239	-	U	610	1	10	7	19
Wis.	70	75	-	2	127	1	-	2	101
W.N. CENTRAL	310	439	1	15	573	79	9	55	687
Minn.	119	102	1	7	127	-	2	-	121
Iowa	18	24	-	1	50	-	-	-	166
Mo.	116	253	-	7	282	55	6	28	93
N. Dak.	2	7	-	-	6	-	-	1	69
S. Dak.	11	2	-	-	32	8	-	5	107
Nebr.	12	11	-	-	20	8	-	3	60
Kans.	32	40	-	-	56	8	1	18	71
S. ATLANTIC	6,866	7,084	-	75	3,753	13	54	459	1,738
Del.	28	19	-	2	53	-	-	4	5
Md.	467	383	-	4	299	5	8	39	621
D.C.	297	376	-	3	152	-	3	-	133
Va.	468	483	-	12	388	1	15	62	550
W. Va.	20	25	-	2	113	-	2	12	107
N.C.	665	572	-	20	564	6	4	195	22
S.C.	420	434	-	5	337	-	2	78	29
Ga.	1,225	1,465	-	12	699	1	2	65	176
Fla.	3,276	3,327	-	15	1,148	-	18	4	95
E.S. CENTRAL	1,754	1,798	1	35	1,641	17	8	101	318
Ky.	136	106	1	10	430	1	3	22	71
Tenn.	472	515	-	17	487	11	1	48	173
Ala.	689	667	-	5	419	-	1	24	74
Miss.	457	510	-	3	305	5	3	7	-
W.S. CENTRAL	6,604	6,728	-	49	2,182	105	45	356	891
Ark.	155	163	-	2	264	65	2	38	148
La.	1,361	1,484	-	12	298	3	3	1	27
Okla.	161	143	-	13	209	29	2	227	94
Tex.	4,927	4,938	-	22	1,411	8	38	90	622
MOUNTAIN	533	648	-	9	484	26	13	13	211
Mont.	7	5	-	1	42	5	1	6	66
Idaho	7	24	-	-	23	2	-	2	16
Wyo.	10	16	-	-	11	5	-	2	11
Colo.	131	176	-	3	62	5	1	-	23
N. Mex.	143	149	-	2	91	3	1	-	12
Ariz.	134	162	-	3	198	1	8	1	33
Utah	20	19	-	-	32	4	1	1	10
Nev.	81	97	-	-	25	1	1	1	40
PACIFIC	4,225	3,697	-	62	3,436	6	80	2	347
Wash.	143	132	-	1	193	2	3	-	2
Oreg.	117	90	-	2	146	2	3	-	1
Calif.	3,892	3,374	-	58	2,853	2	72	2	329
Alaska	12	14	-	-	56	-	-	-	15
Hawaii	61	87	-	1	188	-	2	-	-
Guam	-	1	U	U	5	-	-	-	-
P.R.	648	613	-	5	385	-	-	-	46
V.I.	17	25	-	-	2	-	-	-	-
Pac. Trust Terr.	-	-	U	U	-	-	-	-	-

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending October 15, 1983 (41st week)

Reporting Area	All Causes, By Age (Years)						P&I** Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	608	410	142	25	15	16	44
Boston, Mass.	163	91	51	9	7	5	18
Bridgeport, Conn.	37	29	7	1	-	-	4
Cambridge, Mass.	30	20	9	-	1	-	2
Fall River, Mass.	32	25	5	1	1	-	-
Hartford, Conn.	74	52	17	1	1	3	-
Lowell, Mass.	22	14	6	-	1	1	1
Lynn, Mass.	18	14	3	-	-	1	-
New Bedford, Mass.	21	18	1	2	-	-	-
New Haven, Conn.	33	19	9	4	-	1	2
Providence, R.I.	53	40	6	2	2	3	6
Somerville, Mass.	7	3	4	-	-	-	-
Springfield, Mass.	42	31	8	2	-	1	-
Waterbury, Conn.	29	22	6	-	1	-	6
Worcester, Mass.	47	32	10	3	1	1	5
MID. ATLANTIC	2,426	1,619	503	169	72	63	88
Albany, N.Y.	49	35	9	2	1	2	-
Allentown, Pa.	22	16	6	-	-	-	-
Buffalo, N.Y.	110	75	25	7	1	2	9
Camden, N.J.	32	18	8	2	2	2	1
Elizabeth, N.J.	35	26	5	4	-	-	3
Erie, Pa.†	42	30	8	2	-	2	-
Jersey City, N.J.	38	25	9	1	2	1	-
N.Y. City, N.Y.	1,323	866	278	104	41	34	40
Newark, N.J.	48	27	11	7	3	-	2
Paterson, N.J.	16	9	5	1	-	1	-
Philadelphia, Pa.†	225	154	48	12	6	5	9
Pittsburgh, Pa.†	61	41	14	2	2	2	5
Reading, Pa.	24	18	5	1	-	-	2
Rochester, N.Y.	113	79	22	6	3	3	8
Schenectady, N.Y.	24	18	4	1	1	-	1
Scranton, Pa.†	28	21	4	3	-	-	1
Syracuse, N.Y.	138	91	25	8	8	6	2
Trenton, N.J.	49	35	9	2	-	3	1
Utica, N.Y.	23	20	2	1	-	-	3
Yonkers, N.Y.	26	15	6	3	2	-	1
E.N. CENTRAL	2,060	1,291	535	128	56	50	80
Akron, Ohio	49	34	11	3	1	-	-
Canton, Ohio	27	13	11	3	-	-	-
Chicago, Ill	537	318	155	43	15	6	20
Cincinnati, Ohio	97	62	28	3	2	2	12
Cleveland, Ohio	133	84	34	8	6	1	3
Columbus, Ohio	136	84	33	11	2	6	4
Dayton, Ohio	99	64	21	10	1	3	4
Detroit, Mich.	222	137	58	14	2	11	5
Evansville, Ind.	34	21	10	2	1	-	1
Fort Wayne, Ind.	50	36	11	3	-	-	4
Gary, Ind.	14	8	3	2	1	-	-
Grand Rapids, Mich.	27	21	4	1	1	-	2
Indianapolis, Ind.	155	96	42	5	6	6	-
Madison, Wis.	43	29	9	2	2	1	6
Milwaukee, Wis.	139	86	38	6	5	4	5
Peoria, Ill.	34	20	11	1	1	1	1
Rockford, Ill.	45	33	5	3	2	2	4
South Bend, Ind.	73	53	17	1	2	-	7
Toledo, Ohio	100	61	26	6	4	3	2
Youngstown, Ohio	46	31	8	1	2	4	-
W.N. CENTRAL	690	450	162	40	16	16	33
Des Moines, Iowa	64	45	12	3	1	3	6
Duluth, Minn.	39	21	18	-	-	-	1
Kansas City, Kans.	23	15	5	-	2	1	1
Kansas City, Mo.	100	63	23	4	2	2	3
Lincoln, Nebr.	38	32	5	1	-	-	5
Minneapolis, Minn.	80	46	18	10	1	5	1
Omaha, Nebr.	73	54	12	3	2	2	2
St. Louis, Mo.	155	99	42	10	1	3	3
St. Paul, Minn.	53	33	12	5	3	-	3
Wichita, Kans.	65	42	15	4	4	-	8
S. ATLANTIC	864	516	215	77	32	24	37
Atlanta, Ga.	103	49	40	9	2	3	4
Baltimore, Md.	124	79	23	18	3	1	-
Charlotte, N.C.	59	33	18	2	2	4	3
Jacksonville, Fla.	72	42	18	9	1	2	4
Miami, Fla.	76	47	18	6	4	1	1
Norfolk, Va.	46	27	11	2	4	2	4
Richmond, Va.	67	38	15	5	3	6	6
Savannah, Ga.	36	19	8	5	4	-	2
St. Petersburg, Fla.	89	71	11	2	3	2	5
Tampa, Fla.	49	26	14	4	3	2	2
Washington, D.C.	122	75	31	12	3	1	5
Wilmington, Del.	21	10	8	3	-	-	1
E.S. CENTRAL	685	406	178	47	20	34	35
Birmingham, Ala.	103	57	32	5	4	5	4
Chattanooga, Tenn.	59	35	17	5	2	-	6
Knoxville, Tenn.	42	30	8	2	1	1	-
Louisville, Ky.	90	46	30	5	5	4	10
Memphis, Tenn.	182	104	37	19	4	18	8
Mobile, Ala.	61	43	14	-	-	4	5
Montgomery, Ala.	44	29	11	2	1	1	1
Nashville, Tenn.	104	62	29	9	3	1	1
W.S. CENTRAL	1,334	762	326	125	56	65	38
Austin, Tex.	63	33	12	10	4	4	2
Baton Rouge, La.	65	36	18	6	-	5	3
Corpus Christi, Tex.	31	11	12	4	1	3	1
Dallas, Tex.	188	117	40	15	7	9	4
El Paso, Tex.	62	38	17	4	1	2	1
Fort Worth, Tex.	88	53	19	7	4	5	4
Houston, Tex.	355	175	88	48	23	21	8
Little Rock, Ark.	63	29	18	10	4	2	3
New Orleans, La.	126	65	43	6	6	6	3
San Antonio, Tex.	149	99	32	8	5	5	5
Shreveport, La.	54	38	13	2	-	1	-
Tulsa, Okla.	90	68	14	5	1	2	4
MOUNTAIN	662	422	141	49	25	25	32
Albuquerque, N.Mex.	74	46	12	10	4	2	1
Colo. Springs, Colo.	31	20	7	2	1	1	6
Denver, Colo.	138	80	38	10	5	5	4
Las Vegas, Nev.	67	31	25	7	1	3	3
Ogden, Utah	21	16	-	3	-	2	3
Phoenix, Ariz.	150	102	30	7	6	5	5
Pueblo, Colo.	38	33	3	1	1	-	3
Salt Lake City, Utah	48	30	13	1	1	3	1
Tucson, Ariz.	95	64	13	8	6	4	6
PACIFIC	1,460	985	286	94	40	55	89
Berkeley, Calif.	12	11	1	-	-	-	-
Fresno, Calif.	71	44	14	4	2	7	5
Glendale, Calif.	13	12	1	-	-	-	-
Honolulu, Hawaii	52	31	12	4	1	4	3
Long Beach, Calif.	83	55	20	3	2	3	2
Los Angeles, Calif.	325	195	72	29	10	19	9
Oakland, Calif.	64	42	12	5	3	2	2
Pasadena, Calif.	30	23	2	3	-	2	3
Portland, Oreg.	121	86	24	8	2	1	12
Sacramento, Calif.	59	42	9	2	3	3	5
San Diego, Calif.	123	84	28	6	2	3	9
San Francisco, Calif.	117	79	22	10	4	2	3
San Jose, Calif.	126	85	28	5	5	3	13
Seattle, Wash.	136	102	25	6	2	1	10
Spokane, Wash.	59	45	6	5	1	2	5
Tacoma, Wash.	69	49	10	4	3	3	8
TOTAL	10,789††	6,861	2,488	754	332	348	476

* 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.

†† Total includes unknown ages.

Enterovirus — Continued

CDC has collected information on enterovirus isolates from state health departments since 1961 and established a voluntary, formal enterovirus surveillance program in 1969. The reporting unit is the patient; thus, multiple isolates from the same patient are only counted once, and the clinical diagnoses are reported in the following categories: (1) paralytic disease, (2) encephalitis, (3) aseptic meningitis, (4) carditis, (5) pneumonia/respiratory, (6) other, (7) unknown.

This laboratory-based surveillance system has been expanded to include isolates of noninfluenza respiratory viruses (surveillance of influenza virus isolates is maintained through a separate reporting system). Regular updates of the isolation patterns of respiratory viruses and enteroviruses will be published in the *MMWR.*

Reference

1. CDC. Enterovirus surveillance: summary 1970-1979. Atlanta, Georgia: Centers for Disease Control, 1981.

Epidemiologic Notes and Reports

Acute Occupational Exposure to Sulfur Dioxide — Missouri

On March 18, 1982, workers at a manufacturing facility in St. Louis, Missouri, were acutely exposed to sulfur dioxide following an industrial accident (*1*). In an attempt to clean a dip tank containing chromic acid solution, a cleaning contractor added sodium bisulfite. The resulting reaction liberated gaseous sulfur dioxide, which spread rapidly in the plant, causing evacuation of the plant's 148 workers.

Forty employees who worked near the tank were evaluated at a local hospital or by a company physician. The principal symptoms reported were cough (78%), chest discomfort (78%), and irritation of the throat (78%) and eyes (50%). These symptoms were still present 2 weeks after the incident: cough (8%), chest discomfort (30%), and irritation of the throat (18%) and eyes (1%). Such symptoms are consistent with acute exposure to sulfur dioxide. In 28 cases, chest radiographs were taken within 2 weeks of the incident; 19 (68%) of these x-ray reports were interpreted by investigators from the National Institute for Occupational Safety and Health (NIOSH), and none showed radiographic evidence of chemical pneumonitis or bronchopneumonia. Results of pulmonary function tests indicated one worker had obstruction of the airways (*2*). However, because no results of similar tests done before the incident were available for comparison, it was not possible to determine whether this abnormality was associated with the exposure to sulfur dioxide. The results of other laboratory tests showed no consistent patterns of abnormalities.

The day after the accident, an industrial hygienist sampled air at the plant to measure concentrations of sulfur dioxide and total and hexavalent chromium; airborne concentrations of these contaminants were below the analytic limits of detection. On March 25, additional air samples were collected to measure sulfur dioxide. Samples taken at various locations near the tank showed no detectable sulfur dioxide, but two air samples taken inside the covered dip tank revealed sulfur dioxide levels of 5 and 7 parts per million (ppm).

The dip tank was covered and vented 2 weeks after the incident. During the weekend after the visit by NIOSH investigators, the company made another attempt to clean the dip tank; the operation was completed without incident.

Reported by Hazard Evaluations and Technical Assistance Br, Div of Surveillance, Hazard Evaluations, and Field Studies, National Institute for Occupational Safety and Health, CDC.

Editorial Note: Sulfur dioxide is a colorless, water-soluble gas that forms sulfurous acid (H_2SO_3) on contact with moisture. This reaction may occur on mucous membranes lining the

Sulfur Dioxide – Continued

respiratory tract after the gas is inhaled. Acute inhalation causes immediate irritation of the respiratory tract and can cause bronchial constriction, which produces symptoms such as cough, breathlessness, a choking sensation, and tightness or discomfort of the chest. These acute effects are usually reversible if the individual is rapidly removed from exposure.

Although atmospheric levels of sulfur dioxide of 1-3 ppm have been reported to cause severe narrowing of the bronchioles (*3*), sensitivity to the broncho-constricting effects of sulfur dioxide varies among different individuals. Repeated exposures to 10 ppm have caused nosebleeds among exposed workers (*4*), and acute overexposures to sulfur dioxide may result in death from asphyxia (*5*). Survivors of such acute exposures may suffer chemical bronchopneumonia and bronchiolitis obliterans (narrowing and inflammation of the small airways), which can be fatal after a few days; delayed chemical pneumonitis and bronchial asthma can also result (*6*). Delayed chemical pneumonitis has been described following acute exposure to other noxious gases, such as ozone, nitrogen dioxide, and phosgene (*3,5*).

Sulfur dioxide and other air pollutants have been reported to contribute to or aggravate acute, nonspecific diseases of the upper respiratory tract, chronic bronchitis, emphysema, and lung cancer (*3*). These effects usually result from long-term chronic exposure rather than a single, acute exposure.

Although the current permissible exposure limit promulgated by the Occupational Safety and Health Administration standard is 5 ppm for an 8-hour time-weighted average (TWA) exposure (*7*), based on available scientific information, NIOSH recommends that occupational exposures to sulfur dioxide not exceed an 8-hour TWA of 0.5 ppm (*4*).

Information obtained during this investigation indicates that sodium bisulfite was added to a chromic acid solution to convert all hexavalent chromium to the more stable and acceptably disposable trivalent form. The sulfur dioxide formed usually dissolves readily; the release of sulfur dioxide into the air in this accident was probably caused by too rapid addition of bisulfite and/or inadequate mixing of the solution during the reaction. Either could have resulted in localized heating of the solution, and rapid release of gaseous sulfur dioxide.

To prevent such accidents in the future, NIOSH recommends that if sodium bisulfite is to be used for cleaning dip tanks, it should be added to the tank slowly, with adequate mixing during the process. Only trained personnel, aware of the potentially hazardous chemical reaction and the necessary precautions to prevent it, should participate in such procedures.

References

1. National Institute for Occupational Safety and Health. Health hazard evaluation report no. HETA 82-191-1267. Cincinnati, Ohio: National Institute for Occupational Safety and Health, 1983.
2. National Institute for Occupational Safety and Health. Manual of spirometry in occupational medicine. Cincinnati, Ohio: National Institute for Occupational Safety and Health, Division of Training and Manpower Development, 1981.
3. Doull J, Klaassen CD, Amdur MO, eds. Casarett and Doull's toxicology: the basic science of poisons. 2nd ed. New York: Macmillan Publishing Co., Inc., 1980.
4. National Institute for Occupational Safety and Health. NIOSH/OSHA occupational health guidelines for chemical hazards. Cincinnati, Ohio: National Institute for Occupational Safety and Health, 1981. (DHHS [NIOSH] publication no. 81-123).
5. National Institute for Occupational Safety and Health. Occupational diseases: a guide to their recognition. Revised ed. Cincinnati, Ohio: National Institute for Occupational Safety and Health, 1977. (DHEW [NIOSH] publication no. 77-181).
6. National Institute for Occupational Safety and Health. Criteria for a recommended standard: occupational exposure to sulfur dioxide. Cincinnati, Ohio: National Institute for Occupational Safety and Health, 1974. (DHEW publication no. [NIOSH] 74-111).
7. Occupational Safety and Health Administration. OSHA safety and health standards. 29 CFR 1910.1000. Occupational Safety and Health Administration, revised 1980.

Notice to Readers

Smallpox Vaccine Available for Protection of At-Risk Laboratory Workers

In May 1983, the distribution of smallpox vaccine to civilians was discontinued by the only active United States-licensed manufacturer (*1*). However, smallpox vaccination is still recommended to protect civilian laboratory personnel exposed to orthopox viruses (particularly variola [smallpox] and vaccinia viruses) (*2*) and persons involved in producing or testing smallpox vaccine. CDC will be the only source of smallpox vaccine for civilians. Vaccine will be provided only to laboratories meeting the sole remaining indication (*2*) for administration to eligible employees under the supervision of a physician. Vaccine will be shipped to physicians responsible for vaccinating at-risk workers. Requests for vaccine should be sent to:

Immunobiologics Activity
Center for Infectious Diseases
Building 6, Room 159
Centers for Disease Control
Atlanta, Georgia 30333
Attn: Julia Wood
(404) 329-3356

Reported by International Health Program Office; Div of Host Factors, Div of Viral Diseases, Center for Infectious Diseases; Div of Immunization, Center for Prevention Svcs, CDC.

References

1. CDC. Smallpox vaccine no longer available for civilians—United States. MMWR 1983;32:387.
2. Immunization Practices Advisory Committee. Smallpox vaccine. MMWR 1980;29:417-20.

Errata: Vol. 32, No. 39

p. 505. In the article, "Rubella and Congenital Rubella—United States, 1980-1983," the last sentence of the first paragraph on page 506 should read: The number of counties reporting rubella declined from 676 (21.5% of all counties) in 1980 to 494 (15.7%) in 1981 to 366 (11.7%) in 1982.

The second sentence of the second full paragraph on page 506 should read: Fifteen states and the District of Columbia have reported no cases thus far in 1983, twice as many reporting areas as were free of rubella during the same period in 1982.

Reference 8 on page 509 should read: Immunization Practices Advisory Committee. Rubella prevention. MMWR 1981;37-42,47.

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p. 523. In the article, "The Feasibility of Measles Elimination in Europe," the first sentence of the first full paragraph on page 530 should read: Initial success in reducing the occurrence of measles has led several countries to consider elimination of indigenous disease, i.e., cases of measles that cannot be traced directly (within a few generations of transmission) to a foreign source.

The *Morbidity and Mortality Weekly Report* is prepared by the Centers for Disease Control, Atlanta, Georgia, and available on a paid subscription basis from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, (202) 783-3238.

The data in this report are provisional, based on weekly reports 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. Such reports and any other matters pertaining to editorial or other textual considerations should be addressed to: ATTN: Editor, *Morbidity and Mortality Weekly Report*, Centers for Disease Control, Atlanta, Georgia 30333.

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HHS Publication No. (CDC) 83-8017