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Epidemiologic Notes and Reports

Bacillus cereus Food Poisoning Associated with Fried Rice at Two Child Day Care Centers — Virginia, 1993

Bacillus cereus, an infectious cause of foodborne illness, accounted for 2% of outbreaks with confirmed etiology that were reported to CDC during 1973–1987 (*1*). On July 21, 1993, the Lord Fairfax (Virginia) Health District received reports of acute gastrointestinal illness that occurred among children and staff at two jointly owned child day care centers following a catered lunch. This report summarizes the investigation of this outbreak.

The catered lunch was served on July 21 to 82 children aged ≤6 years and to nine staff; dietary histories were obtained for 80 persons. Staff and all children aged ≥4 years were interviewed directly; staff and parents were questioned for children aged <4 years.

Of the 80 persons, 67 ate the catered lunch. A case was defined as vomiting by a person who was present at either day care center on July 21. Fourteen (21%) persons who ate the lunch became ill, compared with none of 13 who did not. Symptoms included nausea (71%), abdominal cramps or pain (36%), and diarrhea (14%). Twelve of the 14 cases occurred among children aged 2.5–5 years, and two occurred among staff. The median incubation period was 2 hours (range: 1.5–3.5 hours). Symptoms resolved a median of 4 hours after onset (range: 1.5–22 hours).

Chicken fried rice prepared at a local restaurant was the only food significantly associated with illness; illness occurred in 14 (29%) of 48 persons who ate chicken fried rice, compared with none of 16 who did not (relative risk=undefined; lower confidence limit=1.7); three persons who were not ill were uncertain if they had eaten the rice. *B. cereus* was isolated from leftover chicken fried rice (>10^6 organisms per gram) and from vomitus from one ill child (>10^5 organisms per gram) but not from samples of leftover milk. Other food items (peas and apple rings) were not available for analysis.

The rice had been cooked the night of July 20 and cooled at room temperature before refrigeration. On the morning of the lunch, the rice was pan-fried in oil with pieces of cooked chicken, delivered to the day care centers at approximately 10:30 a.m., held without refrigeration, and served at noon without reheating.

Bacillus cereus — *Continued*

Following the outbreak, health officials from the Lord Fairfax Health District recommended to day care staff and restaurant food handlers that the practice of cooling rice or any food at room temperature be discontinued, food be maintained at proper temperatures (i.e., below 41 F [5 C] or above 140 F [60 C]), and a thermometer be used to verify food temperatures.

Reported by: M Khodr, MD, S Hill, L Perkins, S Stiefel, C Comer-Morrison, S Lee, Lord Fairfax Health District, Winchester; DR Patel, D Peery, Virginia Div of Consolidated Laboratory Svcs, Dept of General Svcs; CW Armstrong, MD, GB Miller, Jr, MD, State Epidemiologist, Virginia Dept of Health. Div of Field Epidemiology, Epidemiology Program Office; Foodborne and Diarrheal Diseases Br, Div of Bacterial and Mycotic Diseases, National Center for Infectious Diseases, CDC.

Editorial Note: *B. cereus*, a ubiquitous, spore-forming bacteria, causes two recognized forms of foodborne gastroenteritis: an emetic syndrome resembling that caused by *Staphylococcus aureus* and characterized by an incubation period of 1–6 hours and a diarrheal illness characterized by an incubation period of 6–24 hours (*2*). Fever is uncommon with either syndrome. The emetic syndrome—which occurred in the outbreak described in this report—is mediated by a highly stable toxin that survives high temperatures and exposure to trypsin, pepsin, and pH extremes; the diarrheal syndrome is mediated by a heat- and acid-labile enterotoxin that is sensitive to proteolytic enzymes (*3*).

The diagnosis of *B. cereus* food poisoning can be confirmed by the isolation of $\geq 10^5$ *B. cereus* organisms per gram from epidemiologically implicated food. Underreporting of such outbreaks is likely because illness associated with *B. cereus* is usually self-limiting and not severe. In addition, findings of a recent survey about culture practices for outbreaks of apparent foodborne illness indicate that 20% of state public health laboratories do not make *B. cereus* testing routinely available (South Carolina Department of Health and Environmental Control and CDC, unpublished data, 1991).

Fried rice is a leading cause of *B. cereus* emetic-type food poisoning in the United States (*1,4*). *B. cereus* is frequently present in uncooked rice, and heat-resistant spores may survive cooking. If cooked rice is subsequently held at room temperature, vegetative forms multiply, and heat-stable toxin is produced that can survive brief heating, such as stir frying (*4*). In the outbreak described in this report, vegetative forms of the organism probably multiplied at the restaurant and the day care centers while the rice was held at room temperature.

The day care staff and restaurant food handlers in this report were unaware that cooked rice was a potentially hazardous food. This report underscores the ongoing need to educate food handlers about basic practices for safe food handling.

References

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Current Trends

Update: Influenza Activity — United States and Worldwide, 1993–94 Season, and Composition of the 1994–95 Influenza Vaccine

In collaboration with the World Health Organization (WHO) and its network of international collaborating laboratories and with state and local health departments in the United States, CDC conducts surveillance to monitor influenza activity and to detect antigenic changes in the circulating strains of influenza viruses. This report summarizes surveillance for influenza in the United States and worldwide during the 1993–94 season and describes the composition of the 1994–95 influenza vaccine.

United States

During August and early September 1993, three outbreaks of influenza type A(H3N2) associated with high attack rates occurred in Louisiana (*1*). Virologic or serologic evidence indicated that all three outbreaks were caused by viruses similar to the A/Beijing/32/92 strain, which was first isolated in the United States during the 1992–93 influenza season and was included in the influenza vaccine formulated for the 1993–94 season.

Regional* influenza activity associated with laboratory-confirmed outbreaks of influenza type A(H3N2) was first reported in early November 1993 in Wyoming and Montana and in mid-November in Idaho. In all three states, outbreaks were first recognized among schoolchildren (*2*).

Influenza activity increased from mid-November 1993 through early January 1994. Although the timing and intensity of influenza activity varied by region, influenza activity peaked nationally during the last week of 1993 and the first week of 1994. The proportion of patient visits for influenza-like illness to family practitioners participating in the CDC sentinel physician surveillance system peaked at 8% during the week ending January 1, 1994. Reports from state and territorial epidemiologists and from the WHO collaborating laboratories peaked during the week ending January 8, when state and territorial epidemiologists reported either widespread or regional influenza activity in 35 states, and WHO collaborating laboratories in the United States reported 709 influenza virus isolates.

Although most reported outbreaks occurred in schools, outbreaks were reported among persons in all age groups; reports of high absenteeism in the workplace were common during peak influenza activity. Outbreaks also occurred among residents of nursing homes.

Of total deaths reported through CDC's 121-city mortality surveillance system, the proportion attributed to pneumonia and influenza (P&I) exceeded the epidemic threshold† for 10 consecutive weeks from December 19, 1993, through February 26, 1994 (Figure 1). The highest proportion of P&I deaths (9.2% of total deaths) was reported the week ending January 22.

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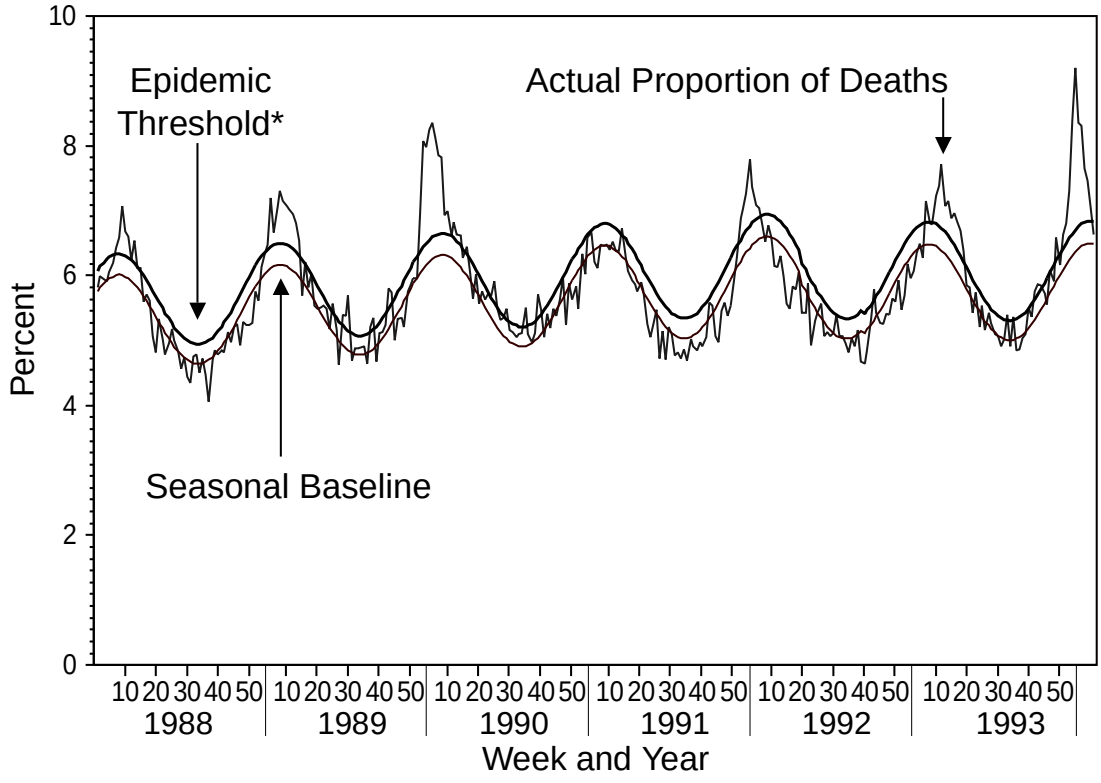
*Levels of activity are 1) *sporadic*—sporadically occurring influenza-like illness (ILI) or culture-confirmed influenza with no outbreaks detected; 2) *regional*—outbreaks of ILI or culture-confirmed influenza in counties with a combined population of less than 50% of the state's total population; and 3) *widespread*—outbreaks of ILI or culture-confirmed influenza in counties having a combined population of 50% or more of the state's total population.

†The epidemic threshold is 1.645 standard deviations above the seasonal baseline. The expected seasonal baseline is projected using a robust regression procedure in which a periodic regression model is applied to observed percentages of deaths from P&I since 1983.

Influenza — Continued

FIGURE 1. Weekly pneumonia and influenza mortality as a proportion of all deaths for 121 cities — United States, January 1, 1988–December 31, 1993



* The epidemic threshold is 1.645 standard deviations above the seasonal baseline. The expected seasonal baseline is projected using a robust regression procedure in which a periodic regression model is applied to observed percentages of deaths from pneumonia and influenza since 1983.

Of the 3963 influenza virus isolates reported to CDC from WHO collaborating laboratories in the United States through March 5, 99.9% were influenza type A; only four of the isolated viruses were influenza type B. Of the 1899 influenza type A viruses that have been subtyped, 99% have been influenza type A(H3N2).

Worldwide

Influenza activity worldwide has occurred at moderate to moderately severe levels. Influenza viruses have been isolated in association with sporadic activity, outbreaks, or epidemic activity in Asia, Europe, and North America. Although most activity has been associated with influenza type A(H3N2), influenza type B viruses were isolated during periods of sporadic activity or outbreaks in some countries. Isolation of influenza type A(H1N1) viruses has been rare.

Influenza type A(H3N2) viruses were first detected during localized outbreaks that occurred during August and September in the United States and in Scotland. An epidemic caused by type A(H3N2) occurred in the United Kingdom during November and December. In western and northern continental Europe (Austria, Belgium, Denmark, Finland, France, the Netherlands, Norway, Sweden, and Switzerland), influenza type A(H3N2) epidemics occurred during November and December. From October through

Influenza — Continued

February, sporadic cases or outbreaks caused by influenza type A(H3N2) also were reported in Bulgaria, Croatia, the Czech Republic, Germany, Greece, Iceland, Ireland, Italy, Japan, People's Republic of China, Romania, the Russian Federation, Spain, Yugoslavia, and Zambia.

When compared with type A influenza, type B viruses have been isolated less frequently worldwide; influenza type B isolates were first reported in association with sporadic activity in China, Hong Kong, and Thailand during October and November. Outbreaks caused by type B viruses subsequently occurred in China during December and January. Influenza type B viruses also were reported during outbreaks in Slovakia and in association with sporadic activity in Canada, Finland, Japan, the Netherlands, Portugal, the Russian Federation, Spain, Sweden, Switzerland, the United Kingdom, and the United States.

Influenza type A(H1N1) viruses have been reported in association with sporadic activity from Hungary, Hong Kong, the Netherlands, the Russian Federation, and the United States.

Composition of the 1994–95 Vaccine

The Food and Drug Administration Vaccines and Related Biologicals Advisory Committee (VRBAC) has recommended that the 1994–95 trivalent influenza vaccine for the United States contain A/Texas/36/91-like (H1N1), A/Shangdong/9/93-like (H3N2), and B/Panama/45/90-like viruses. This recommendation was based on the antigenic analysis of recently isolated influenza viruses and the antibody response of persons vaccinated with the 1993–94 vaccine.

Although many of the influenza type A(H3N2) viruses that have been antigenically characterized are similar to the A/Beijing/32/92 strain included in the 1993–94 vaccine, some recently isolated strains from Asia, Europe, and North America are more similar to the antigenic variant A/Shangdong/9/93 (Table 1). Vaccines containing the A/Beijing/32/92 virus induced a good antibody response to the vaccine strain but induced lower and less frequent antibody responses to recent type A(H3N2) strains such as A/Shangdong/9/93 (*3*). Therefore, VRBAC recommended changing the influenza type A(H3N2) vaccine component to an A/Shangdong/9/93-like strain for the 1994–95 season.

Influenza B viruses that have been antigenically characterized, including the most recent isolates from China, are similar to B/Panama/45/90 and the closely related vari-

TABLE 1. Hemagglutination-inhibition titers of influenza A(H3N2) viruses with serum specimens from infected ferrets*

	Ferret antiserum		
Viral antigen	**A/Beijing/32/92**	**A/Hong Kong/23/92**	**A/Shangdong/9/93**
Reference antigen			
A/Beijing/32/92	**640**	160	320
A/Hong Kong/23/92	160	**640**	320
A/Shangdong/9/93	160	320	**320**
Recent isolates			
A/Georgia/3/93	80	80	320
A/Canada/251/94	80	160	160
A/Lyon/1983/93	160	160	320
A/Nanchang/58/93	160	160	320
A/Netherlands/261/93	80	320	160

* A fourfold difference in hemagglutination-inhibition titers with two viruses is usually indicative of antigenic variation between viruses.

Influenza — Continued

ant B/Qingdao/102/91 (*4*). Vaccines containing B/Panama/45/90 virus induced antibodies at a similar frequency and titer to the vaccine virus and to representative recent isolates. VRBAC therefore recommended retaining a B/Panama/45/90-like vaccine strain in the 1994–95 vaccine.

Because isolation of influenza type A(H1N1) virus has been rare worldwide during the 1993–94 season, no type A(H1N1) viruses isolated since October 1993 have been characterized. However, viruses characterized during the 1992–93 season were closely related to the reference strains A/Taiwan/1/86 or A/Texas/36/91. Vaccines containing the A/Texas/36/91 strain induced antibodies with similar frequency and titer to the vaccine virus and to type A(H1N1) strains isolated during the 1992–93 influenza season. Therefore, VRBAC recommended retaining an A/Texas/36/91-like strain in the 1994–95 vaccine.

Reported by: Participating state and territorial health dept epidemiologists and state public health laboratory directors. M Chakraverty, PhD, Central Public Health Laboratory, J Skehel, PhD, A Hay, PhD, National Institute for Medical Research, London; G Schild, PhD, J Wood, PhD, National Institute for Biological Standards and Control, Hertfordshire, England. I Gust, MD, A Hampson, Commonwealth Serum Laboratories, Parkville, Australia. World Health Organization National Influenza Centers, Microbiology and Immunology Support Svcs, Geneva. Div of Virology, Center for Biologics Evaluation and Research, Food and Drug Administration. Epidemiology Activity and World Health Organization Collaborating Center for Surveillance, Epidemiology, and Control of Influenza, Div of Viral and Rickettsial Diseases, National Center for Infectious Diseases, CDC.

Editorial Note: The outbreaks of influenza in Louisiana in August and September 1993 were unusual because they occurred during the summer and were characterized by high attack rates. Influenza virus infections during the summer or fall in the United States usually occur as sporadic cases rather than as outbreaks. Outbreaks of influenza during the summer have been associated with earlier than usual epidemic influenza activity (*5*–*7*). The 1993–94 influenza season began and peaked earlier than usual in the United Kingdom and in the United States. In the United States, reports of sustained regional and widespread activity began and peaked 1–6 weeks (mean: 5 weeks) earlier than in 10 of the previous 11 influenza seasons; sustained excess mortality attributable to P&I began earlier than in any of the previous 11 seasons.

Compared with seasons of predominant influenza type A(H1N1) or type B activity, seasons in which influenza type A(H3N2) viruses predominate are associated with higher morbidity and mortality among the elderly. During the 1993–94 season—which has been characterized by predominant type A(H3N2) activity—all age groups have been affected, and influenza-related mortality has been high, especially among the elderly.

Strains to be included in the next season's influenza vaccine are selected usually during the preceding late January through February because of scheduling requirements for production, quality control, packaging, and distribution of vaccine for administration before onset of the next influenza season. Recommendations of the Advisory Committee on Immunization Practices for the use of vaccine and antiviral agents for prevention and control of influenza are published annually in the *MMWR Recommendations and Reports*, usually during May.

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Influenza — Continued

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International Notes

Epidemic Neuropathy — Cuba, 1991–1994

From January 1, 1992, through January 14, 1994, the Ministry of Public Health of Cuba (MINSAP) identified 50,862 cases of a neuropathy in residents of Cuba (1993 population: 10.8 million); affected persons had onset beginning July 1, 1991. The neuropathy has included an optic form—characterized by subacute (i.e., 3–30 days) onset, decreased visual acuity, decreased color vision, and/or central or cecocentral scotomata—and a peripheral form; both forms have been characterized by weight loss and easy fatigability. This report presents a preliminary summary of an investigation by MINSAP of this epidemic.

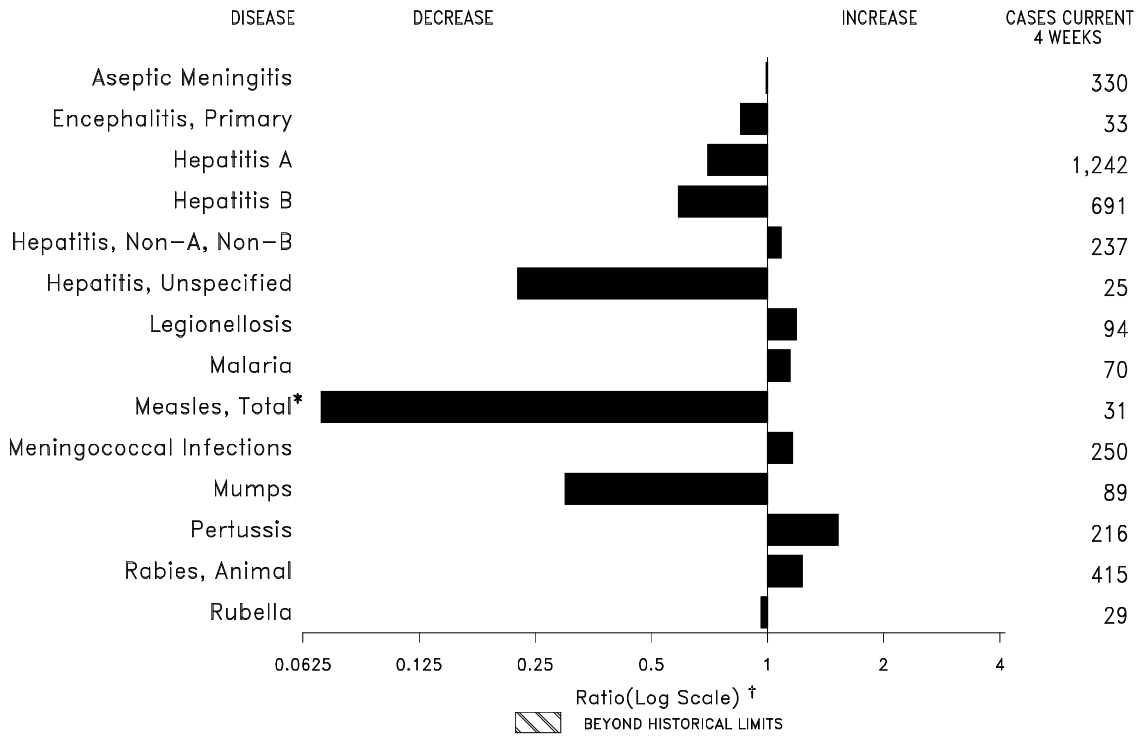
In January 1992, physicians in Pinar del Río, the westernmost province of Cuba (Figure 1, page 189), began to report cases of optic neuropathy, predominantly among adult men who used both tobacco and alcohol; the illnesses were diagnosed as tobacco- alcohol amblyopia. During January–June 1992, 14–36 cases of optic neuropathy were reported each month in rural areas of Pinar del Río. During 1992, a total of 472 cases were reported in Cuba, including 340 (72%) from Pinar del Río and 132 (28%) from five of the other 13 provinces. Physicians also reported cases with peripheral neurologic features—including a predominantly sensory neuropathy and evidence of posterior spinal cord involvement—with or without simultaneous optic neuropathy.

In March 1993, MINSAP initiated intensive case-finding efforts through approximately 18,000 community-based family physicians by using clinical criteria for surveillance case ascertainment* (*1*). Persons whose clinical presentation met either the optic case definition or both the optic and peripheral case definitions were classi-

(Continued on page 189)

*For the optic form, major criteria were 1) decreased visual acuity (below 20/25), 2) decreased color vision (failure to identify two or more of the first eight Ishihara plates), 3) bilateral central or cecocentral scotomata, 4) decreased contrast sensitivity, and 5) bilateral loss of optic nerve fibers in the papillo-macular bundle; minor criteria were 1) temporal pallor of optic disk (1 month after symptom onset), 2) photophobia or ocular burning sensation, and 3) loss of horizontal smooth pursuit. A confirmed diagnosis required at least four major criteria. For the peripheral form, major criteria were 1) peripheral sensory symptoms (e.g., tingling, cramps, numbness, and/or burning sensation), 2) decreased perception of vibration or pin prick, and 3) altered deep tendon reflexes in lower limbs, generally with decreased or absent ankle reflex with or without patellar hyperreflexia; minor criteria were 1) urinary urgency, nocturia, increased frequency, or incontinence, 2) autonomic dysfunction (e.g., coldness, heat, or excessive sweating of hands or feet, palpitations, or tachycardia), and 3) other signs and symptoms including hearing loss, dysphagia, dysphonia, sensory ataxia, constipation, diarrhea, sexual impotence, irritability, and sleep disturbance. A confirmed diagnosis required three major criteria OR two major criteria and a minor criterion, always including peripheral sensory symptoms.

FIGURE I. Notifiable disease reports, comparison of 4-week totals ending March 12, 1994, with historical data — United States



*The large apparent decrease in reported cases of measles (total) reflects dramatic fluctuations in the historical baseline.

† Ratio of current 4-week total to mean of 15 4-week totals (from previous, comparable, and subsequent 4-week periods for the past 5 years). The point where the hatched area begins is based on the mean and two standard deviations of these 4-week totals.

TABLE I. Summary — cases of specified notifiable diseases, United States, cumulative, week ending March 12, 1994 (10th Week)

	Cum. 1994		Cum. 1994
AIDS*	10,369	Measles: imported	6
Anthrax	-	indigenous	44
Botulism: Foodborne	6	Plague	-
Infant	14	Poliomyelitis, Paralytic§	-
Other	4	Psittacosis	4
Brucellosis	8	Rabies, human	-
Cholera	-	Syphilis, primary & secondary	3,530
Congenital rubella syndrome	3	Syphilis, congenital, age < 1 year	-
Diphtheria	-	Tetanus	4
Encephalitis, post-infectious	18	Toxic shock syndrome	43
Gonorrhea	64,774	Trichinosis	15
Haemophilus influenzae (invasive disease)†	216	Tuberculosis	2,645
Hansen Disease	17	Tularemia	2
Leptospirosis	6	Typhoid fever	44
Lyme Disease	424	Typhus fever, tickborne (RMSF)	17

*Updated monthly; last update February 22, 1994.
†Of 202 cases of known age, 64 (32%) were reported among children less than 5 years of age.
§No cases of suspected poliomyelitis have been reported in 1994; 3 cases of suspected poliomyelitis have been reported in 1993; 4 of the 5 suspected cases with onset in 1992 were confirmed; the confirmed cases were vaccine associated.

TABLE II. Cases of selected notifiable diseases, United States, weeks ending March 12, 1994, and March 13, 1993 (10th Week)

Reporting Area	AIDS*	Aseptic Menin-gitis	Encephalitis		Gonorrhea		Hepatitis (Viral), by type				Legionel-losis	Lyme Disease
			Primary	Post-in-fectious			A	B	NA,NB	Unspeci-fied		
	Cum. 1994	Cum. 1994	Cum. 1994	Cum. 1994	Cum. 1994	Cum. 1993	Cum. 1994	Cum. 1994	Cum. 1994	Cum. 1994	Cum. 1994	Cum. 1994
UNITED STATES	10,369	855	106	18	64,774	76,885	3,271	1,936	746	67	259	424
NEW ENGLAND	483	40	5	1	1,595	1,703	58	74	19	12	11	55
Maine	21	4	1	-	9	15	8	-	-	-	1	-
N.H.	18	1	-	1	-	14	2	2	3	-	-	3
Vt.	6	3	-	-	6	11	-	-	-	-	-	1
Mass.	246	14	3	-	576	637	27	70	9	12	8	35
R.I.	66	18	1	-	78	85	11	2	7	-	2	10
Conn.	126	-	-	-	926	941	10	-	-	-	-	6
MID. ATLANTIC	3,752	71	10	6	6,099	7,844	137	161	104	2	32	244
Upstate N.Y.	167	30	4	1	1,523	1,267	60	55	49	-	9	97
N.Y. City	2,881	-	-	-	1,595	2,986	-	-	-	-	-	-
N.J.	451	-	-	-	591	1,097	44	67	45	-	6	49
Pa.	253	41	6	5	2,390	2,494	33	39	10	2	17	98
E.N. CENTRAL	785	165	31	6	12,186	16,262	307	186	50	2	73	6
Ohio	137	48	10	-	4,679	4,802	110	42	2	-	42	6
Ind.	41	44	2	-	1,604	1,595	70	39	2	-	11	-
Ill.	490	15	6	1	2,369	5,371	45	6	-	1	4	-
Mich.	102	57	13	5	3,337	3,219	55	71	46	1	14	-
Wis.	15	1	-	-	197	1,275	27	28	-	-	2	-
W.N. CENTRAL	132	53	4	1	3,224	4,234	151	92	48	1	36	3
Minn.	27	1	1	-	683	524	20	8	1	-	-	1
Iowa	13	23	-	-	264	327	6	6	1	-	14	1
Mo.	36	14	-	-	1,449	2,394	87	70	44	1	15	-
N. Dak.	1	1	1	-	-	12	1	-	-	-	-	-
S. Dak.	3	-	-	-	28	32	9	-	-	-	-	-
Nebr.	12	1	1	1	-	163	17	2	-	-	6	-
Kans.	40	13	1	-	800	782	11	6	2	-	1	1
S. ATLANTIC	2,213	218	16	2	20,182	19,868	228	550	150	8	51	94
Del.	35	1	-	-	317	275	3	9	19	-	1	40
Md.	163	30	3	-	3,577	3,203	33	57	11	2	13	8
D.C.	166	5	-	-	1,688	1,063	6	11	-	-	-	-
Va.	94	30	7	1	2,782	1,243	25	20	8	2	2	11
W. Va.	4	5	-	-	153	136	3	5	7	-	1	3
N.C.	187	38	6	-	5,018	4,563	19	72	13	-	5	16
S.C.	90	5	-	-	2,443	1,906	6	7	-	-	1	-
Ga.	291	7	-	-	-	2,791	24	282	61	-	18	15
Fla.	1,183	97	-	1	4,204	4,688	109	87	31	4	10	1
E.S. CENTRAL	177	62	10	1	8,172	7,139	84	236	170	-	15	3
Ky.	44	29	4	1	870	936	35	4	2	-	1	1
Tenn.	53	17	5	-	2,319	1,428	29	219	167	-	9	1
Ala.	50	12	1	-	2,971	2,821	10	13	1	-	3	1
Miss.	30	4	-	-	2,012	1,954	10	-	-	-	2	-
W.S. CENTRAL	1,255	36	4	-	7,425	10,031	435	194	54	15	8	2
Ark.	23	4	-	-	1,333	1,912	8	5	1	-	1	-
La.	122	1	1	-	2,775	2,012	15	24	15	-	-	-
Okla.	19	-	-	-	494	549	46	71	35	-	7	2
Tex.	1,091	31	3	-	2,823	5,558	366	94	3	15	-	-
MOUNTAIN	184	17	2	-	1,542	2,202	625	94	69	5	18	4
Mont.	4	-	-	-	25	13	7	4	-	-	8	-
Idaho	1	-	-	-	13	22	60	17	29	1	-	1
Wyo.	-	-	-	-	23	14	3	5	17	-	1	-
Colo.	62	6	-	-	494	814	27	2	5	2	1	-
N. Mex.	21	2	-	-	195	208	205	41	4	2	1	3
Ariz.	45	6	-	-	351	682	226	14	4	-	1	-
Utah	11	2	-	-	59	54	61	4	6	-	-	-
Nev.	40	1	2	-	382	395	36	7	4	-	6	-
PACIFIC	1,388	193	24	1	4,349	7,602	1,246	349	82	22	15	13
Wash.	157	-	-	-	629	788	72	17	14	-	3	-
Oreg.	63	-	-	-	200	271	59	12	2	1	-	-
Calif.	1,111	157	23	-	3,218	6,359	1,063	302	62	20	11	13
Alaska	8	3	1	-	160	107	43	2	-	-	-	-
Hawaii	49	33	-	1	142	77	9	16	4	1	1	-
Guam	-	-	-	-	19	16	-	-	-	-	-	-
P.R.	209	2	-	-	111	99	7	43	12	2	-	-
V.I.	5	-	-	-	4	19	-	1	-	-	-	-
Amer. Samoa	-	-	-	-	4	5	2	-	-	-	-	-
C.N.M.I.	1	-	-	-	13	11	1	-	-	-	-	-

N: Not notifiable U: Unavailable C.N.M.I.: Commonwealth of Northern Mariana Islands

*Updated monthly; last update February 22, 1994.

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending March 12, 1994, and March 13, 1993 (10th Week)

Reporting Area	Malaria	Measles (Rubeola)					Menin-gococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported*		Total									
	Cum. 1994	1994	Cum. 1994	1994	Cum. 1994	Cum. 1993	Cum. 1994	1994	Cum. 1994	1994	Cum. 1994	Cum. 1993	1994	Cum. 1994	Cum. 1993
UNITED STATES	172	9	44	-	6	65	659	20	229	53	601	602	6	57	29
NEW ENGLAND	15	2	3	-	-	39	38	2	8	4	44	170	3	39	1
Maine	1	-	-	-	-	-	6	-	3	-	2	3	-	-	1
N.H.	-	-	-	-	-	-	1	1	2	2	11	82	-	-	-
Vt.	-	-	-	-	-	21	1	-	-	-	7	22	-	-	-
Mass.	5	-	1	-	-	10	18	-	-	1	19	58	3	39	-
R.I.	4	2	2	-	-	-	-	1	1	-	2	1	-	-	-
Conn.	5	-	-	-	-	8	12	-	2	1	3	4	-	-	-
MID. ATLANTIC	23	1	3	-	1	5	53	2	23	14	131	93	-	4	12
Upstate N.Y.	7	1	2	-	-	-	21	-	2	5	46	29	-	4	-
N.Y. City	-	-	1	-	-	1	-	-	-	-	8	-	-	-	6
N.J.	12	-	-	-	-	4	15	-	-	-	-	25	-	-	5
Pa.	4	-	-	-	1	-	17	2	21	9	77	39	-	-	1
E.N. CENTRAL	18	1	2	-	1	-	100	-	37	8	103	140	-	2	1
Ohio	2	-	-	-	-	-	26	-	8	2	54	57	-	-	-
Ind.	5	1	1	-	-	-	20	-	2	2	14	8	-	-	-
Ill.	3	-	-	-	-	-	32	-	16	-	10	16	-	2	-
Mich.	7	-	-	-	-	-	11	-	11	4	20	6	-	-	-
Wis.	1	-	1	-	1	-	11	-	-	-	5	53	-	-	1
W.N. CENTRAL	5	-	-	-	-	-	45	1	8	9	19	22	-	-	1
Minn.	2	-	-	-	-	-	3	-	-	8	8	-	-	-	-
Iowa	1	-	-	-	-	-	4	1	3	1	1	-	-	-	-
Mo.	2	-	-	-	-	-	25	-	4	-	3	10	-	-	1
N. Dak.	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-
S. Dak.	-	-	-	-	-	-	4	-	-	-	-	1	-	-	-
Nebr.	-	-	-	-	-	-	1	-	-	-	1	4	-	-	-
Kans.	-	-	-	-	-	-	8	-	-	-	6	6	-	-	-
S. ATLANTIC	47	-	3	-	-	10	118	5	45	4	96	32	2	5	2
Del.	2	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Md.	15	-	-	-	-	1	8	2	7	-	29	16	-	-	-
D.C.	6	-	-	-	-	-	1	-	-	1	2	-	-	-	-
Va.	8	-	1	-	-	1	14	1	10	-	12	2	-	-	-
W. Va.	-	-	-	-	-	-	6	-	2	-	1	1	-	-	-
N.C.	1	-	-	-	-	-	20	-	16	3	30	-	-	-	-
S.C.	1	-	-	-	-	-	4	1	5	-	7	2	-	-	-
Ga.	6	-	-	-	-	-	20	-	1	-	6	8	-	-	-
Fla.	8	-	2	-	-	8	45	1	4	-	9	3	2	5	1
E.S. CENTRAL	5	2	21	-	-	-	50	-	3	-	22	21	-	-	-
Ky.	-	-	-	-	-	-	13	-	-	-	2	7	-	-	-
Tenn.	3	2	21	-	-	-	13	-	-	-	13	8	-	-	-
Ala.	1	-	-	-	-	-	18	-	-	-	7	5	-	-	-
Miss.	1	-	-	-	-	-	6	-	3	-	-	1	-	-	-
W.S. CENTRAL	5	3	3	-	1	1	85	8	54	1	24	7	-	-	1
Ark.	-	-	-	-	-	-	9	-	-	-	-	-	-	-	-
La.	-	-	-	-	-	1	9	2	3	-	1	-	-	-	-
Okla.	1	-	-	-	-	-	7	1	14	1	20	7	-	-	1
Tex.	4	3	3	-	1	-	60	5	37	-	3	-	-	-	-
MOUNTAIN	4	-	1	-	-	2	48	-	6	5	32	33	-	-	4
Mont.	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
Idaho	2	-	1	-	-	-	10	-	2	1	16	5	-	-	1
Wyo.	-	-	-	-	-	-	2	-	-	-	-	1	-	-	-
Colo.	-	-	-	-	-	2	2	-	-	3	5	12	-	-	-
N. Mex.	1	-	-	-	-	-	4	N	N	1	3	12	-	-	-
Ariz.	-	-	-	-	-	-	17	-	-	-	6	3	-	-	-
Utah	1	-	-	-	-	-	8	-	1	-	2	-	-	-	2
Nev.	-	-	-	-	-	-	3	-	3	-	-	-	-	-	1
PACIFIC	50	-	8	-	3	8	122	2	45	8	130	84	1	7	7
Wash.	1	-	-	-	-	-	10	-	2	1	11	5	-	-	-
Oreg.	1	-	-	-	-	-	12	N	N	2	13	-	-	-	1
Calif.	41	-	8	-	3	1	95	1	38	5	101	74	1	7	3
Alaska	-	-	-	-	-	-	1	-	2	-	-	1	-	-	1
Hawaii	7	-	-	-	-	7	4	1	3	-	5	4	-	-	2
Guam	-	U	1	U	-	-	-	U	-	U	-	-	U	-	-
P.R.	-	-	5	-	-	71	2	1	2	-	-	-	-	-	-
V.I.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amer. Samoa	-	-	-	-	-	1	-	-	1	-	1	2	-	-	-
C.N.M.I.	1	U	22	U	-	-	-	U	-	U	-	-	U	-	-

*For measles only, imported cases include both out-of-state and international importations.
N: Not notifiable U: Unavailable † International § Out-of-state

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending March 12, 1994, and March 13, 1993 (10th Week)

Reporting Area	Syphilis (Primary & Secondary)		Toxic-Shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1994	Cum. 1993	Cum. 1994	Cum. 1994	Cum. 1993	Cum. 1994	Cum. 1994	Cum. 1994	Cum. 1994
UNITED STATES	3,530	5,654	43	2,645	2,786	2	44	17	866
NEW ENGLAND	34	93	1	61	30	-	8	-	286
Maine	-	2	-	-	3	-	-	-	-
N.H.	-	10	-	2	1	-	-	-	33
Vt.	-	-	-	-	-	-	-	-	24
Mass.	10	45	1	24	6	-	4	-	121
R.I.	5	2	-	7	-	-	1	-	5
Conn.	19	34	-	28	20	-	3	-	103
MID. ATLANTIC	240	441	6	366	590	-	4	-	95
Upstate N.Y.	20	54	3	30	86	-	2	-	-
N.Y. City	147	297	-	207	361	-	-	-	-
N.J.	17	74	-	81	69	-	2	-	55
Pa.	56	16	3	48	74	-	-	-	40
E.N. CENTRAL	424	914	15	269	355	-	8	2	2
Ohio	181	241	5	43	44	-	1	1	-
Ind.	59	77	1	24	32	-	1	-	-
Ill.	106	357	3	150	207	-	3	-	-
Mich.	61	135	6	43	59	-	3	1	-
Wis.	17	104	-	9	13	-	-	-	2
W.N. CENTRAL	202	354	7	61	52	2	-	-	24
Minn.	10	22	-	11	-	-	-	-	-
Iowa	11	21	5	7	5	-	-	-	13
Mo.	181	283	1	32	31	2	-	-	2
N. Dak.	-	-	-	1	3	-	-	-	-
S. Dak.	-	-	-	6	4	-	-	-	1
Nebr.	-	3	1	-	2	-	-	-	-
Kans.	-	25	-	4	7	-	-	-	8
S. ATLANTIC	1,109	1,483	1	454	369	-	9	12	322
Del.	6	24	-	-	7	-	-	-	2
Md.	44	78	-	55	61	-	1	-	97
D.C.	51	70	-	26	21	-	1	-	1
Va.	126	119	-	58	-	-	-	-	69
W. Va.	5	1	-	15	10	-	-	-	13
N.C.	378	405	-	32	73	-	-	7	30
S.C.	132	247	-	72	71	-	-	-	28
Ga.	183	261	-	174	126	-	-	5	74
Fla.	184	278	1	22	-	-	7	-	8
E.S. CENTRAL	757	610	1	142	179	-	-	1	29
Ky.	52	57	-	49	52	-	-	-	-
Tenn.	187	112	1	1	-	-	-	-	9
Ala.	116	172	-	63	93	-	-	-	20
Miss.	402	269	-	29	34	-	-	1	-
W.S. CENTRAL	720	1,363	-	234	182	-	1	1	53
Ark.	108	235	-	45	16	-	-	-	5
La.	401	482	-	-	-	-	-	-	-
Okla.	5	72	-	18	14	-	-	1	11
Tex.	206	574	-	171	152	-	1	-	37
MOUNTAIN	39	48	2	94	64	-	5	-	14
Mont.	-	-	-	-	-	-	-	-	-
Idaho	1	-	1	6	-	-	-	-	-
Wyo.	-	1	-	3	-	-	-	-	4
Colo.	23	19	1	1	-	-	2	-	-
N. Mex.	1	10	-	15	-	-	-	-	-
Ariz.	10	17	-	50	44	-	-	-	10
Utah	4	-	-	-	7	-	1	-	-
Nev.	-	1	-	19	13	-	2	-	-
PACIFIC	5	348	10	964	965	-	9	1	41
Wash.	5	11	-	34	41	-	1	-	-
Oreg.	-	14	-	17	10	-	-	-	-
Calif.	-	322	9	863	858	-	7	1	29
Alaska	-	-	-	9	5	-	-	-	12
Hawaii	-	1	1	41	51	-	1	-	-
Guam	-	-	-	7	9	-	-	-	-
P.R.	72	108	-	-	24	-	-	-	13
V.I.	1	11	-	-	2	-	-	-	-
Amer. Samoa	-	-	-	-	1	-	1	-	-
C.N.M.I.	-	-	-	12	1	-	-	-	-

U: Unavailable

TABLE III. Deaths in 121 U.S. cities,* week ending March 12, 1994 (10th Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	698	494	120	48	20	16	58
Boston, Mass.	193	115	45	17	9	7	25
Bridgeport, Conn.	32	22	6	3	-	1	1
Cambridge, Mass.	28	19	7	2	-	-	3
Fall River, Mass.	39	31	6	-	1	1	-
Hartford, Conn.	46	37	3	4	2	-	2
Lowell, Mass.	33	26	3	4	-	-	4
Lynn, Mass.	22	19	2	-	1	-	-
New Bedford, Mass.	19	16	3	-	-	-	1
New Haven, Conn.	33	17	8	5	3	-	2
Providence, R.I.	50	36	8	6	-	-	8
Somerville, Mass.	9	7	2	-	-	-	-
Springfield, Mass.	59	45	7	2	1	4	3
Waterbury, Conn.	45	34	9	-	2	-	1
Worcester, Mass.	90	70	11	5	1	3	8
MID. ATLANTIC	2,805	1,862	511	307	57	67	135
Albany, N.Y.	43	33	3	7	-	-	1
Allentown, Pa.	28	21	6	1	-	-	-
Buffalo, N.Y.	100	70	20	5	4	1	2
Camden, N.J.	39	26	9	3	-	1	2
Elizabeth, N.J.	22	10	8	1	2	1	3
Erie, Pa.§	41	33	6	1	1	-	2
Jersey City, N.J.	50	26	13	6	1	4	-
New York City, N.Y.	1,384	885	245	193	26	35	51
Newark, N.J.	90	48	19	10	7	6	6
Paterson, N.J.	32	20	6	3	1	1	-
Philadelphia, Pa.	513	344	97	52	10	10	31
Pittsburgh, Pa.§	75	57	13	5	-	-	6
Reading, Pa.	17	11	3	2	1	-	6
Rochester, N.Y.	121	81	28	7	1	4	7
Schenectady, N.Y.	23	21	1	-	-	1	4
Scranton, Pa.§	40	32	6	2	-	-	2
Syracuse, N.Y.	106	86	12	3	3	2	7
Trenton, N.J.	26	20	4	2	-	-	2
Utica, N.Y.	30	22	8	-	-	-	-
Yonkers, N.Y.	25	16	4	4	-	1	3
E.N. CENTRAL	2,342	1,481	420	264	110	67	170
Akron, Ohio	51	30	14	4	1	2	-
Canton, Ohio	47	35	5	5	1	1	5
Chicago, Ill.	489	220	83	103	66	17	30
Cincinnati, Ohio	119	83	25	4	2	5	16
Cleveland, Ohio	170	89	43	25	8	5	1
Columbus, Ohio	203	139	36	18	5	5	18
Dayton, Ohio	147	110	26	7	1	3	8
Detroit, Mich.	245	139	40	42	13	11	7
Evansville, Ind.	57	39	12	2	-	4	4
Fort Wayne, Ind.	49	34	10	4	-	1	5
Gary, Ind.	19	9	4	3	2	1	-
Grand Rapids, Mich.	45	33	7	3	1	1	3
Indianapolis, Ind.	188	133	34	16	3	2	19
Madison, Wis.	68	51	13	3	1	-	6
Milwaukee, Wis.	141	113	21	2	3	2	19
Peoria, Ill.	35	32	1	2	-	-	1
Rockford, Ill.	54	36	10	7	-	1	10
South Bend, Ind.	41	26	10	3	-	2	6
Toledo, Ohio	106	78	17	6	2	3	9
Youngstown, Ohio	68	52	9	5	1	1	3
W.N. CENTRAL	783	548	124	67	20	24	39
Des Moines, Iowa	U	U	U	U	U	U	U
Duluth, Minn.	38	32	4	1	-	1	3
Kansas City, Kans.	43	29	10	2	1	1	1
Kansas City, Mo.	109	77	18	9	3	2	5
Lincoln, Nebr.	53	44	6	3	-	-	5
Minneapolis, Minn.	176	119	28	19	4	6	10
Omaha, Nebr.	104	66	23	10	2	3	4
St. Louis, Mo.	151	99	27	13	6	6	5
St. Paul, Minn.	43	38	2	1	-	2	4
Wichita, Kans.	66	44	6	9	4	3	2
S. ATLANTIC	1,336	790	265	188	62	30	75
Atlanta, Ga.	193	112	33	33	8	7	8
Baltimore, Md.	187	112	37	24	6	8	13
Charlotte, N.C.	110	59	31	16	3	1	3
Jacksonville, Fla.	133	58	25	37	10	3	8
Miami, Fla.	94	55	17	15	7	-	1
Norfolk, Va.	55	37	13	2	1	2	3
Richmond, Va.	103	67	15	11	7	3	5
Savannah, Ga.	52	32	13	4	2	1	6
St. Petersburg, Fla.	61	48	10	1	2	-	2
Tampa, Fla.	188	117	41	17	9	3	16
Washington, D.C.	142	77	29	27	7	2	6
Wilmington, Del.	18	16	1	1	-	-	4
E.S. CENTRAL	862	604	142	77	22	17	80
Birmingham, Ala.	116	85	14	8	5	4	2
Chattanooga, Tenn.	56	46	6	-	1	3	5
Knoxville, Tenn.	114	83	17	10	3	1	13
Lexington, Ky.	73	55	11	6	-	1	9
Memphis, Tenn.	208	143	41	15	5	4	25
Mobile, Ala.	57	35	13	8	1	-	5
Montgomery, Ala.	49	33	5	8	1	2	-
Nashville, Tenn.	189	124	35	22	6	2	21
W.S. CENTRAL	1,530	1,001	322	141	40	26	105
Austin, Tex.	83	44	20	15	4	-	8
Baton Rouge, La.	68	44	18	4	2	-	7
Corpus Christi, Tex.	50	32	14	4	-	-	1
Dallas, Tex.	212	138	35	27	5	7	10
El Paso, Tex.	67	47	15	2	1	2	7
Ft. Worth, Tex.	112	71	23	8	8	2	1
Houston, Tex.	321	196	76	38	8	3	34
Little Rock, Ark.	59	39	16	1	1	2	4
New Orleans, La.	142	91	30	16	3	2	-
San Antonio, Tex.	217	146	42	15	7	7	10
Shreveport, La.	86	65	13	7	1	-	9
Tulsa, Okla.	113	88	20	4	-	1	14
MOUNTAIN	1,042	679	195	104	31	33	91
Albuquerque, N.M.	113	82	19	6	3	3	5
Colo. Springs, Colo.	54	40	5	4	2	3	2
Denver, Colo.	125	79	25	14	1	6	13
Las Vegas, Nev.	206	119	51	18	10	8	12
Ogden, Utah	34	25	5	2	2	-	7
Phoenix, Ariz.	245	130	53	45	7	10	29
Pueblo, Colo.	26	23	2	1	-	-	3
Salt Lake City, Utah	106	80	12	8	4	2	8
Tucson, Ariz.	133	101	23	6	2	1	12
PACIFIC	1,909	1,279	353	180	51	39	167
Berkeley, Calif.	8	5	1	1	-	1	3
Fresno, Calif.	101	66	17	10	5	3	6
Glendale, Calif.	24	21	3	-	-	-	1
Honolulu, Hawaii	94	71	14	5	2	2	9
Long Beach, Calif.	55	36	6	6	3	4	7
Los Angeles, Calif.	438	288	74	54	15	1	23
Pasadena, Calif.	37	27	4	2	1	3	2
Portland, Oreg.	U	U	U	U	U	U	U
Sacramento, Calif.	178	128	30	13	4	3	24
San Diego, Calif.	311	202	60	30	9	9	39
San Francisco, Calif.	160	90	42	22	2	4	10
San Jose, Calif.	149	107	32	2	3	5	20
Santa Cruz, Calif.	35	25	5	2	3	-	4
Seattle, Wash.	161	96	37	25	2	1	4
Spokane, Wash.	55	36	15	2	1	1	4
Tacoma, Wash.	103	81	13	6	1	2	11
TOTAL	13,307¶	8,738	2,452	1,376	413	319	920

*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 3 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.

U: Unavailable.

Neuropathy — Continued

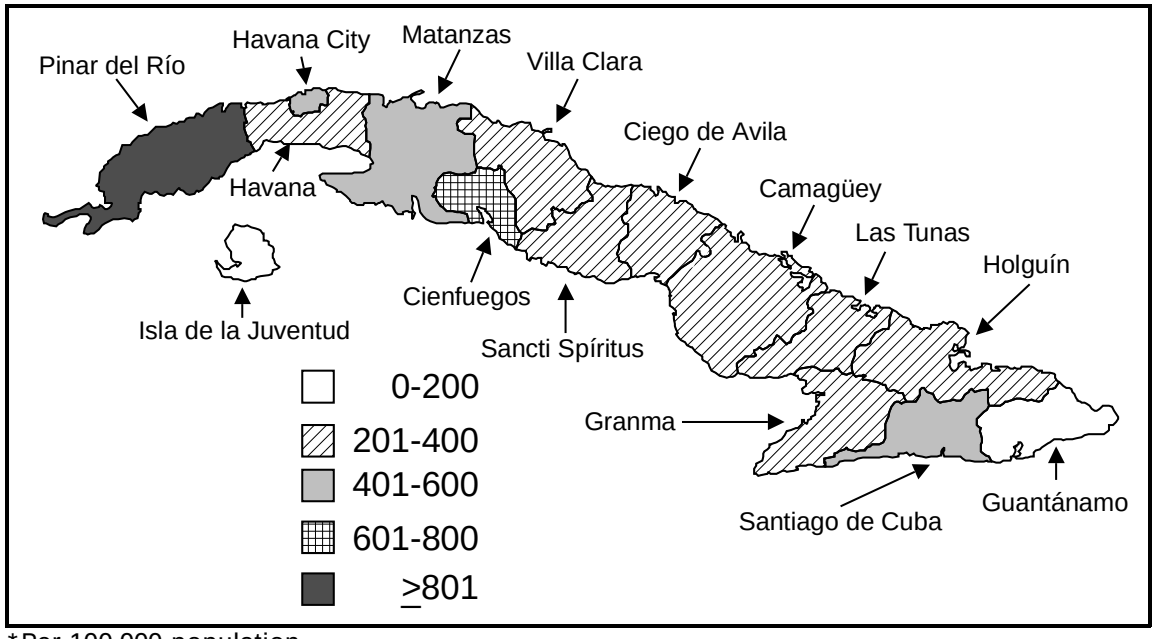
fied as having the optic form; those with only peripheral signs and symptoms were classified as having the peripheral form.

The 50,862 cases accounted for a national cumulative incidence of 461.4 per 100,000 persons (566.7 for females and 368.5 for males). Of these, 26,446 (52%) had the optic form and 24,416 (48%), the peripheral form; the optic form predominated among males and the peripheral form, among females. Age-specific incidence rates were highest for persons aged 45–65 years (926.7 per 100,000) and lowest for children aged <15 years (4.2 per 100,000), persons aged >65 years (290.9 per 100,000), and pregnant women. Cumulative incidence rates were highest in Pinar del Río (1332.8 per 100,000) and lowest in Guantánamo, the easternmost province (65 per 100,000) (Figure 1). Within provinces, however, incidence rates varied widely by municipality.

No fatal cases were reported, and resolution was partial to complete in many patients following parenteral treatment with B-complex vitamins. Oral supplements of B-complex vitamins and vitamin A had been provided by MINSAP through community-based family physicians to persons in Pinar del Río province in March 1993 and to persons in other provinces in May 1993. The incidence of cases decreased during May–June 1993 (Figure 2).

Preliminary results of case-control studies conducted by MINSAP in Isla de la Juventud province suggest that risk for illness was associated with tobacco smoking, lower body mass index, and lower intake of animal protein, fat, and foods that contain B-vitamins. Results of sural nerve biopsies indicated noninflammatory axonal neuropathy consistent with a nutritional, metabolic, or toxic etiology. The potential roles of neurotoxic agents and of the Inoue-Melnick agent (*2*), which has been isolated from many specimens of cerebrospinal fluid (CSF) of patients in Cuba, is still under investigation.

FIGURE 1. Incidence rate* of neuropathy, by geographic region — Cuba, January 1, 1992–January 14, 1994



*Per 100,000 population.

Source: Ministry of Public Health, Cuba.

Reported by: Ministry of Public Health of Cuba; National Center of Toxicology; Center of Genetic Engineering; Center of Neurosciences; National Center of Scientific Investigations; Coordinating Center for Clinical Trials; Center of Medical/Surgical Investigations;

Neuropathy — Continued

multifactorial, specific etiologic agents (e.g., cyanogenic glycosides from cassava [*4,5*] and human lymphotropic virus type I [*6*]) have been implicated in some reports.

Epidemics of optic and peripheral neuropathy occurred among persons in prisoner-of-war camps in the Middle East and Southeast Asia during World War II (*7*). Isolated cases of B-vitamin–deficiency syndromes (e.g., beriberi and pellagra) were reported in these settings. However, cases of neuropathy not associated with signs of frank B-vitamin deficiency also were reported. The cause of neuropathies such as these was postulated, but not clearly established, to be related to B-vitamin–complex deficiency, possibly complicated by tropical malabsorption. The investigation of an epidemic of subacute myelo-optic neuropathy (SMON) in Japan during the 1960s implicated use of the antidiarrheal drug clioquinol as a cause of the problem (*8*); however, the Inoue-Melnick agent—a virus not previously described—was isolated from the CSF of many patients in Japan (*2*), and the role of this putative virus in the etiology of SMON remains undetermined.

In Cuba, the apparent clinical response of patients with neuropathy to vitamin supplementation suggests that lifestyle and dietary patterns may be important in this epidemic. Economic difficulties in Cuba since 1989 have been associated with widespread changes in dietary and lifestyle patterns. For example, the consumption of some locally produced foods has increased; the availability of other foods, including meat, dairy products, oils, and fats, has been reduced; and some basic food items (e.g., rice and beans) have been rationed. Toxicity from cyanide or cyanoglycosides in cassava and tobacco can be exacerbated by relative deficiencies of B-vitamins and sulfur-containing amino acids, which are necessary for the detoxification of these compounds (*9,10*). In addition, because of decreased availability of fuel for transportation, alternative approaches to transportation (e.g., walking or bicycling) have increased personal energy expenditures, which are associated with depletion of B-complex vitamins.

In the epidemic described in this report, the incidence of neuropathy was lower in children aged <7 years, persons aged ≥65 years, and pregnant women—groups that receive supplements of dairy products; therefore, the low incidence of neuropathy in these groups may reflect the increased consumption of dairy products and, among pregnant women, vitamin supplements. However, because the clinical and epidemiologic patterns of this epidemic of neuropathy differ from those of previously described epidemics associated with toxic etiologies or nutritional deficiencies, the continuing investigation must examine further the potential cause(s) of this problem.

MINSAP, in collaboration with the Pan American Health Organization, CDC, the National Institutes of Health, the Food and Drug Administration, and Emory University, is continuing this investigation and is focusing on the role of potentially contributory factors, including dietary insufficiencies, ingested toxins, pesticide exposure, and underlying mitochondrial deoxyribonucleic acid abnormalities.

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Emerging Infectious Diseases

Laboratory Screening for *Escherichia coli* O157:H7 — Connecticut, 1993

Escherichia coli O157:H7, first recognized as a pathogen in humans in 1982 (*1*), is a common cause of bloody diarrhea and a leading cause of acute renal failure in children. In June 1993, the Council of State and Territorial Epidemiologists (CSTE) recommended that clinical laboratories screen at least all bloody stools for *E. coli* O157:H7 using sorbitol-MacConkey medium (*2*). Following the CSTE issuance, in late June the Connecticut Department of Public Health and Addiction Services (DPHAS) mailed the same recommendation to all clinical laboratories in the state and encouraged laboratories to send suspected *E. coli* O157:H7 strains to the DPHAS laboratory for confirmation. To assess the impact of the DPHAS recommendations and to characterize the screening practices for *E. coli* O157:H7, in November 1993 DPHAS surveyed laboratories in Connecticut. This report presents the findings of the survey.

DPHAS mailed questionnaires to all 139 licensed clinical laboratories in Connecticut; laboratories that did not respond to the mailed questionnaire were contacted by telephone. The response rate for the survey was 100%.

Of the 139 laboratories, 44 (32%) performed on-site testing of stool specimens received directly from health-care providers or referred from other laboratories. Of these 44 laboratories, 19 (43%) screened all stool specimens for *E. coli* O157:H7, 21 (48%) screened only bloody stools, and four (9%) screened only at physician request.

Of the 44 laboratories that performed on-site testing of stool specimens, the number that cultured all stools or all bloody stools for *E. coli* O157:H7 increased from 11 (25%) in June 1993 to 40 (91%) in November 1993. Of the 29 laboratories that changed their policy to culture all stools or all bloody stools for *E. coli* O157:H7, 21 (72%) reported beginning in response to the DPHAS notification, four (14%) as a result of publicity associated with the *E. coli* outbreaks in the western United States in early 1993, two (7%) following the general meeting of the American Society of Micro-

Escherichia coli — *Continued*

biology in May 1993 where information on *E. coli* O157:H7 screening was presented, and two (7%) for a combination of these and other reasons.

Reported by: PA Mshar, ML Cartter, MD, JL Hadler, MD, State Epidemiologist, Connecticut Dept of Public Health and Addiction Svcs. Foodborne and Diarrheal Diseases Br, Div of Bacterial and Mycotic Diseases, National Center for Infectious Diseases; Div of Field Epidemiology, Epidemiology Program Office, CDC.

Editorial Note: *E. coli* O157:H7 is not usually detected by the methods used to isolate and identify other bacterial enteric pathogens (*1*). Sorbitol-MacConkey medium and O157 antiserum, which are both readily available, should be used to identify the organism (*1*). Most outbreaks of illness caused by *E. coli* O157:H7 have been detected because of clusters of hemolytic uremic syndrome, thrombotic thrombocytopenic purpura, or severe diarrheal illness (*1,3,4*). In the absence of routine screening of diarrheal stool specimens for *E. coli* O157:H7, neither small outbreaks nor isolated cases in persons without severe illness are likely to be detected. Routine screening of stool specimens for *E. coli* O157:H7 may reduce the likelihood of unnecessary diagnostic procedures and treatments while permitting detection of outbreaks, timely initiation of public health intervention, and refined characterization of the epidemiology of this problem.

The findings in this report suggest that, in Connecticut, routine screening for *E. coli* O157:H7 resulted in an increase in the number of reported cases and contributed to the recognition of the first outbreak of *E. coli* O157:H7 infections in the state. Reporting of *E. coli* O157:H7 isolates by laboratories to DPHAS has been required since 1990. No cases were reported in 1990, one in 1991, 19 in 1992, and 50 in 1993, with a marked increase in reporting beginning in June 1993. In September 1993, an outbreak of O157 infections was detected following the isolation of the organism from four persons on the same day; the hospital laboratory involved had initiated a policy in June 1993 to screen all bloody stools for *E. coli* O157:H7.

The proportion of clinical laboratories in the United States that routinely screen at least bloody stools for *E. coli* O157:H7 is not well described. A recent survey in the San Francisco Bay area found that only eight (20%) of 41 laboratories performed such screening (CDC, unpublished data, 1994). Nationally, as of October 1993, 17 (34%) states required that *E. coli* O157:H7 isolates be reported to state health departments; 20 additional states are establishing such requirements (G. Birkhead, New York State Health Department, personal communication, March 14, 1994). The findings in this report suggest that a substantial proportion of laboratories would perform these screenings if encouraged by state health departments.

A CDC-developed video, "*E. coli* O157:H7—What the Clinical Microbiologist Should Know," provides a guide to the isolation and identification of *E. coli* O157:H7. This video is available from the Association of State and Territorial Public Health Laboratory Directors, 1211 Connecticut Avenue, NW, Suite 608, Washington, DC 20036; fax (202) 887-5098.

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Emerging Infectious Diseases

Coccidioidomycosis Following the Northridge Earthquake — California, 1994

From January 24 through March 15, 1994, 170 persons with laboratory evidence of acute coccidioidomycosis* were identified in Ventura County, California. This number—which comprises cases identified through active surveillance—substantially exceeds the total number of coccidioidomycosis cases (52) reported through routine passive surveillance during all of 1993 in Ventura County, which has been considered an area of low incidence for this disease. The increase in cases follows the January 17 earthquake centered in Northridge (in adjacent Los Angeles County), which may have exposed Ventura County residents to increased levels of airborne dust. The California Department of Health Services, local public health agencies, and CDC are conducting an investigation to determine the magnitude of the outbreak, risk factors for infection, and its possible association with the Northridge earthquake.

Reported by: D Pappagianis, MD, Univ of California, Davis; G Feldman, MD, M Billimek, MSH, Ventura County Public Health Dept, Ventura; L Mascola, MD, Los Angeles County Health Dept, Los Angeles; SB Werner, MD, RJ Jackson, MD, GW Rutherford, III, MD, State Epidemiologist, California Dept of Health Svcs. Emergency Response Coordination Group, National Center for Environmental Health; Office of the Director, National Institute for Occupational Safety and Health; Div of Bacterial and Mycotic Diseases, National Center for Infectious Diseases; Div of Field Epidemiology, Epidemiology Program Office, CDC.

Editorial Note: *Coccidioides immitis* is a dimorphic fungus that grows in soil in much of the southwestern United States; infection results from inhalation of airborne *C. immitis* arthroconidia. Coccidioidomycosis is not transmitted from person to person. Approximately 60% of infected persons are asymptomatic; the remainder can develop a spectrum of manifestations that range from mild to moderate influenza-like illness to pneumonia to disseminated disease, including meningitis (*1*). Extrapulmonary coccidioidomycosis in a person infected with human immunodeficiency virus is considered an acquired immunodeficiency syndrome-defining illness (*2*).

Previous outbreaks of *C. immitis* infection have occurred in association with windborne exposures; such outbreaks illustrate the relation between environmental conditions and emergence of infectious diseases (*3*). Since 1990, the number of re-

*The presence of *Coccidioides immitis*-specific immunoglobulin M (IgM) antibody (using enzyme immunoassay or immunodiffusion) **OR** serologic evidence of acute *C. immitis* infection, by positive IgM using latex agglutination test in the presence of pneumonia or erythema nodosum **OR** if IgM was not available, serologic evidence of recent infection, by positive immunoglobulin G (IgG) using immunodiffusion or complement fixation tests in the presence of pneumonia or erythema nodosum **OR** a positive sputum culture (with no history of previous coccidioidal infection).

Coccidioidomycosis — Continued

ported cases of coccidioidomycosis in California has increased substantially; most illnesses have occurred in Kern and Tulare counties in the San Joaquin Valley (*1*). Most cases have occurred in residents of areas where coccidioidomycosis is endemic; however, visitors to these areas also are at risk for infection.

Because the incubation period for this infection usually ranges from 1 to 4 weeks, persons who may have become infected while visiting areas where coccidioidomycosis is endemic may not become ill until after they return home, and the diagnosis may not be considered by clinicians in areas where coccidioidomycosis is not endemic. Recent environmental exposure to *C. immitis* may have occurred among residents of and travelers to Ventura County, Los Angeles County, or other counties in or near the San Joaquin Valley following the earthquake and its aftershocks and during clean-up activities.

Acute coccidioidomycosis can be diagnosed by serologic tests for immunoglobulin M (IgM) detection (such as tube precipitin, enzyme immunoassay, latex agglutination, or immunodiffusion), and immunoglobulin G (IgG) detection (such as immunodiffusion or complement fixation) in the presence of pneumonia or erythema nodosum and occasionally by positive sputum culture (*4*).

Cases of coccidioidomycosis suspected to be temporally associated with the earthquake should be reported through state and local health departments to CDC. Information about coccidioidomycosis is available from CDC's Voice Information System, telephone (404) 332-4554, and from CDC's Emerging Bacterial and Mycotic Diseases Branch, Division of Bacterial and Mycotic Diseases, National Center for Infectious Diseases, at the same telephone number.

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