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MORBIDITY AND MORTALITY WEEKLY REPORT

Current Trends

Measles — United States, First 26 Weeks, 1994

As of July 2, 1994 (week 26), local and state health departments in 31 states had reported a provisional total of 730 measles cases* to CDC for 1994 (*1*) (Figure 1). This represents a greater than fourfold increase over the historic low of 167 cases reported by 18 states during the same period in 1993. In addition, 250 cases were reported in 1994 for the U.S. territories of Guam (211) and the commonwealths of the Northern Mariana Islands (26) and Puerto Rico (13). This report summarizes the epidemiologic characteristics of measles cases reported in the United States for the first 26 weeks of 1994.

Characteristics

Case classification. Of the 730 reported cases, most (696 [95%]) were indigenous to the United States, including 588 (80%) acquired in the state reporting the case and 108 (15%) that resulted from spread from another state†. Fifteen states reported a total of 30 (4%) internationally acquired cases—one of which initiated a college outbreak in New Jersey resulting in approximately 100 cases. The 30 international importations originated from or occurred among persons who had traveled in Asia (Hong Kong, Indonesia, Japan, Korea, and Vietnam), Europe (England, France, Germany, Spain, and Switzerland), Latin America (Dominican Republic, Ecuador, and Mexico), Canada, Iran, and Israel. Of the 30 persons with internationally acquired measles, 11 were aged <5 years; 10, aged 5–19 years; and nine, aged ≥20 years. Six of the 20 persons for whom data were available were U.S. citizens.

Age. Of the 725 persons with cases for whom age was known, 172 (24%) occurred among persons aged <5 years, 368 (51%) among persons aged 5–19 years, and 185 (26%) among persons aged ≥20 years. Of the 172 cases among persons aged <5 years, 49 (28%) occurred among persons aged <12 months. Of the 71 cases for whom serologic testing for measles was reported, 70 were serologically confirmed.

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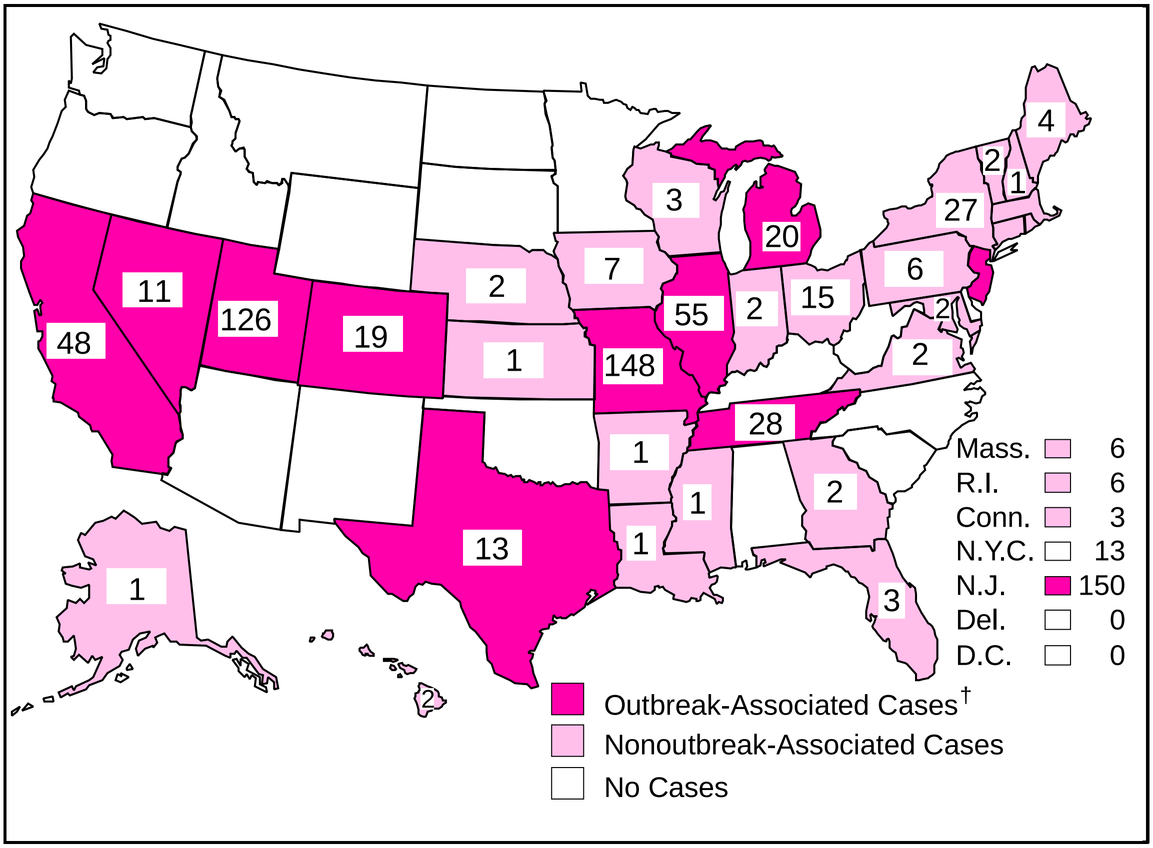
*Comprises cases reported to CDC's National Notifiable Diseases Surveillance System through July 2, 1994 (week 26), and cases reported subsequently that occurred during this period.
†Acquired in another state or linked within two generations to an out-of-state importation.

Measles — Continued

FIGURE 1. Reported cases* of measles, by state — United States, first 26 weeks, 1994



*n=730.
†State reporting more than five epidemiologically linked cases.

Vaccination Status

Of 274 reported patients for whom vaccination data were available, 44 (16%) had received at least one dose of measles-containing vaccine (MCV) on or after their first birthday and >14 days before the onset of symptoms. A total of 81 (30%) patients considered to be unvaccinated received a first dose of MCV ≤14 days before the onset of symptoms; most vaccinations were administered during an outbreak involving previously unvaccinated persons (*2*). Five cases were reported among persons who had received two doses of MCV; for two of these five persons, the second dose was administered ≤14 days before symptom onset.

Of the 230 patients who were either unvaccinated or vaccinated ≤14 days before illness onset, 166 (72%) had a religious or philosophic exemption to vaccination. Forty-three (19%) patients were unvaccinated but vaccine-eligible (i.e., U.S. citizen aged ≥16 months with no medical, religious, or philosophic exemption to vaccination), and 21 (9%) were younger than the recommended age for vaccination. Vaccination status varied by age group. Of measles patients aged 5–19 years, 14% had received at least one dose of MCV at an appropriate age, compared with 23% of patients aged 1–4 years.

Measles — Continued

Outbreaks

Fifteen measles outbreaks (clusters of five or more epidemiologically linked cases) were reported by 10 states during the first 26 weeks of 1994 and accounted for 82% of all cases reported for this period. Six outbreaks (range: 25–148 cases) occurred in high schools or colleges, five (range: 5–32 cases) among preschool-aged children, and four (range: 5–126 cases) in other settings. All high school and college outbreaks occurred in institutions with no vaccination requirements (two institutions) or a requirement for only one dose of MCV (four institutions). Three of the largest outbreaks occurred among persons who do not routinely accept vaccination in St. Louis County, Missouri (148 cases, high school); Jersey County, Illinois (52 cases, college); and Salt Lake County, Utah (126 cases, community). In addition to these outbreaks, a large outbreak (approximately 200 cases) occurred predominantly among preschool-aged children in Guam.

CDC performed genomic sequencing of measles viruses isolated from seven outbreaks in the continental United States during 1993–1994. Preliminary analysis indicates that all of the viruses from these recent outbreaks (most from 1994) are genotypically different from viruses isolated during the 1989–1991 measles resurgence. All viruses obtained during 1989–1991 were closely related by sequence analysis, even though they were obtained from cases in different geographic regions. In contrast, isolates from recent U.S. outbreaks were genotypically similar to viruses from European or Japanese sources.

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Editorial Note: Although measles incidence has increased since the historic low reported in 1993, measles incidence during the first 26 weeks of 1994 remains substantially lower than in previous years. In addition, epidemiologic characteristics of cases reported in 1994 are consistent with patterns observed since the end of the measles resurgence during 1989–1991. These patterns include 1) a shift in age incidence from preschool-aged children to older age groups, 2) the importance of international importations in the spread of measles, and 3) the spread in groups whose members do not routinely accept vaccination—in particular, cases among groups with religious or philosophic exemption to vaccination accounted for 45% of all cases reported during the first 26 weeks of 1994. Maintaining communication with these groups permits rapid detection of cases and prompt implementation of outbreak-control measures when cases occur and may encourage some members to accept vaccination.

During 1994, measles cases have occurred predominantly among high school- and college-aged persons, many of whom previously had received one dose of measles vaccine. In contrast, during the 1989–1991 measles resurgence, cases occurred predominantly among preschool-aged children. Since 1991, the proportion of cases among persons aged <5 years has decreased substantially—from 49%–50% during 1991–1992 to 24% during the first 26 weeks of 1994. This decline may have resulted

Measles — Continued

from systematic efforts to increase measles vaccination coverage (approximately 85% in 1993) among preschool-aged children at 24 months of age (*3*).

The outbreaks among previously vaccinated high school- and college-aged persons emphasize the importance of implementing and enforcing vaccination with a second dose of MCV among persons in these age groups. Findings of a recent assessment indicated that the risk for measles outbreaks is lower among colleges that enforce prematriculation requirements for measles vaccination when compared with those that do not have or do not enforce such policies (*4*).

The laboratory findings during 1994 are consistent with other epidemiologic data suggesting that measles transmission may have been interrupted in the United States in late 1993 (*5*) and indicate that international importations account for a substantial proportion of disease attributable to measles in 1994. Although only one large outbreak has been epidemiologically linked to a known importation, genomic sequencing of measles viruses suggests that cases in 1994 resulted from reintroduction of measles by international importations.

Although indigenous measles transmission in the United States may have been transiently interrupted, the continued occurrence of measles among U.S. residents demonstrates that additional efforts are required to attain the Childhood Immunization Initiative goal of sustained elimination of indigenous measles in the United States by 1996. These efforts should include 1) rapid detection of cases and implementation of appropriate outbreak-control measures, 2) achievement and maintenance of high levels of vaccination coverage among preschool-aged children in all geographic regions, and 3) greater implementation and enforcement of the two-dose recommendation among high school and college students. In addition, the source of measles infection should be established for all cases to define better the chains of disease transmission and to help develop more effective control measures.

State and local health departments are encouraged to investigate thoroughly all cases to identify the source of measles infection and to obtain specimens for virus isolation. Specimens should be obtained from all sporadic cases and from selected outbreak-associated cases. Specimens may be collected from nasal washings within 1–3 days of rash onset or from urine samples within 2 weeks of rash onset. Additional guidelines for specimen collection and handling can be obtained from CDC's Division of Viral and Rickettsial Diseases, National Center for Infectious Diseases, telephone (404) 639-3512, or from CDC's National Immunization Program, telephone (404) 639-8226.

References

1. CDC. Table II. Cases of selected notifiable diseases, United States, weeks ending July 2, 1994, and July 3, 1993 (26th week). MMWR 1994;43:478.
2. CDC. Outbreak of measles among Christian Science students—Missouri and Illinois, 1994. MMWR 1994;43:463–5.
3. CDC. Vaccination coverage of 2-year-old children—United States, third quarter, 1993. MMWR 1994;43:556–9.
4. Baughman AL, Williams WW, Atkinson WL, Cook LG, Collins M. The impact of college prematriculation immunization requirements on risk for measles outbreaks. JAMA 1994 (in press).
5. CDC. Absence of reported measles—United States, November 1993. MMWR 1993;42:925–6.

Epidemiologic Notes and Reports

Ostrich Fern Poisoning — New York and Western Canada, 1994

Fiddleheads (crosiers) of the ostrich fern (*Matteuccia struthiopteris*) are a seasonal delicacy harvested commercially in the northeastern United States and in coastal provinces of Canada. Although some common ferns may be poisonous or carcinogenic, this species has been considered to be nontoxic. However, in May 1994, outbreaks of food poisoning were associated with eating raw or lightly cooked fiddlehead ferns in New York and western Canada. This report summarizes the investigations of these outbreaks.

Steuben County, New York

On May 19, 1994, a restaurant in Steuben County, New York, reported to the New York State Department of Health (NYSDOH) gastrointestinal illness among a group of 20 persons who had eaten at the restaurant the preceding night. Patrons complained of nausea, vomiting, and diarrhea shortly after eating, and some attributed their illness to the fiddlehead ferns served with their entree. The restaurant received similar complaints from a group of 22 persons who ate fiddlehead ferns on May 6 but had not previously reported illness.

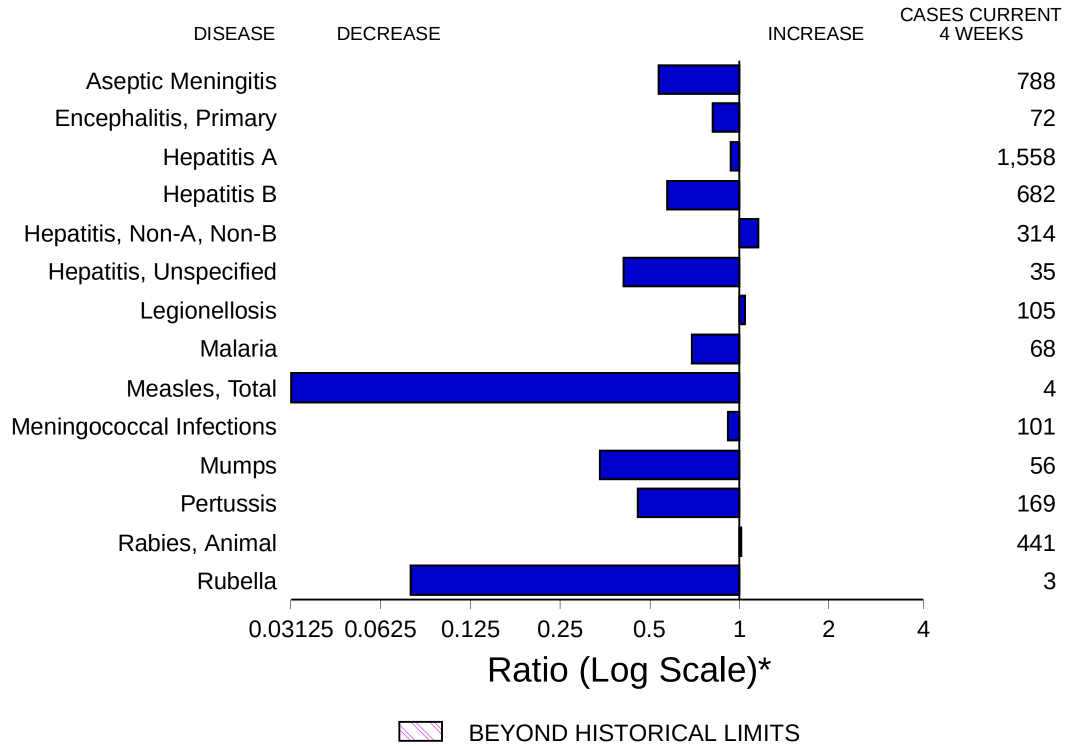
During May 25–28, NYSDOH conducted a telephone survey of persons who had eaten at the restaurant on days fiddlehead ferns were served (May 6, 7, and 18). A case was defined as vomiting or diarrhea within 12 hours of eating at the restaurant. Of the 56 restaurant patrons who could be contacted, 31 (55%) met the case definition. Of these, 30 (97%) reported diarrhea; 22 (71%), nausea; 10 (32%), vomiting; and eight (26%), abdominal cramps. The mean incubation period was 6.7 hours (range: 0.5–11.5 hours). Symptoms lasted a mean of 1.3 days (range: 3 hours–3 days). Cases occurred among 30 (67%) of 45 persons who ate fiddlehead ferns, compared with one of 11 persons who did not (relative risk [RR]=7.3; 95% confidence interval [CI]=1.1–48.1). The risk for illness was greater for those who ate a full order of ferns (i.e., 8–10 fiddleheads) (RR=8.8; 95% CI=1.4–57.5) than for those who ate a half order or only tasted the ferns (RR=2.2; 95% CI=0.2–20.7). No other restaurant food was associated with illness. A stool sample obtained from one patient was negative for bacterial pathogens.

The ferns had been harvested from two alluvial sites in Chemung County. Both sites abutted corn fields and were approximately three miles from any industry or sewage treatment plants. The harvester delivered the ferns to the restaurant washed, dehusked, and packed in plastic food storage bags. Before being served, the ferns were removed from a refrigerator and sauteed for 2 minutes in butter, garlic, salt, and pepper. No deficiencies in food handling or storage were identified. Cultures of uncooked ferns were negative for *Staphylococcus aureus* and *Bacillus cereus*. Standard tests for nitrogen/phosphorous and organochlorine pesticides were negative for chemical contamination.

On May 17, the harvester had sold ferns to a second restaurant in the area; at this restaurant, ferns were boiled for 10 minutes before they were sauteed with butter and lemon. Of six patrons who ate ferns at this restaurant on May 18, none reported illness.

(Continued on page 683)

FIGURE I. Notifiable disease reports, comparison of 4-week totals ending September 17, 1994, with historical data — United States



*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 September 17, 1994 (37th Week)

	Cum. 1994		Cum. 1994
AIDS*	53,596	Measles: imported	165
Anthrax	-	indigenous	654
Botulism: Foodborne	45	Plague	14
Infant	50	Poliomyelitis, Paralytic§	1
Other	6	Psittacosis	26
Brucellosis	66	Rabies, human	1
Cholera	10	Syphilis, primary & secondary	15,282
Congenital rubella syndrome	3	Syphilis, congenital, age < 1 year¶	532
Diphtheria	1	Tetanus	24
Encephalitis, post-infectious	86	Toxic shock syndrome	132
Gonorrhea	269,563	Trichinosis	27
Haemophilus influenzae (invasive disease)†	831	Tuberculosis	15,064
Hansen Disease	84	Tularemia	68
Leptospirosis	23	Typhoid fever	296
Lyme Disease	7,367	Typhus fever, tickborne (RMSF)	310

*Updated monthly to the Division of HIV/AIDS, National Center for Infectious Diseases; last update August 30, 1994.
†Of 792 cases of known age, 220 (28%) were reported among children less than 5 years of age.
§The remaining 5 suspected cases with onset in 1994 have not yet been confirmed. In 1993, 3 of 10 suspected cases were confirmed. Two of the confirmed cases of 1993 were vaccine-associated and one was classified as imported.
¶Total reported to the Division of Sexually Transmitted Diseases and HIV Prevention, National Center for Prevention Services, through first quarter 1994.

TABLE II. Cases of selected notifiable diseases, United States, weeks ending September 17, 1994, and September 18, 1993 (37th 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	53,596	5,278	441	86	269,563	280,282	15,500	8,174	3,083	308	1,141	7,367
NEW ENGLAND	1,990	212	13	4	5,608	5,322	210	253	102	16	44	2,077
Maine	71	20	2	-	62	59	20	11	-	-	4	16
N.H.	44	21	-	2	75	43	13	16	9	-	-	17
Vt.	22	23	1	-	22	18	6	-	-	-	-	10
Mass.	1,031	60	8	1	2,224	2,087	84	159	73	14	33	178
R.I.	170	88	2	1	336	302	19	6	20	2	7	307
Conn.	652	-	-	-	2,889	2,813	68	61	-	-	-	1,549
MID. ATLANTIC	16,214	565	40	15	29,451	30,996	1,195	1,032	349	9	179	4,300
Upstate N.Y.	1,504	252	21	2	7,139	6,741	398	275	175	5	44	2,652
N.Y. City	9,831	106	6	5	10,249	8,300	474	235	1	-	8	12
N.J.	3,252	-	-	-	3,410	3,042	217	273	144	-	31	954
Pa.	1,627	207	13	8	8,653	12,913	106	249	29	4	96	682
E.N. CENTRAL	4,228	926	111	20	51,460	59,382	1,508	812	222	7	355	69
Ohio	797	244	33	3	15,040	16,330	597	121	17	-	163	49
Ind.	441	137	10	1	6,235	5,899	269	141	9	-	94	11
Ill.	2,035	201	36	5	12,907	19,863	306	163	44	3	16	4
Mich.	703	337	28	11	12,623	12,594	197	273	149	4	57	5
Wis.	252	7	4	-	4,655	4,696	139	114	3	-	25	-
W.N. CENTRAL	1,083	289	20	6	14,663	15,395	745	457	121	11	95	124
Minn.	274	20	2	-	2,320	1,623	160	43	17	1	1	66
Iowa	59	84	-	1	1,080	1,207	43	23	7	9	27	13
Mo.	486	108	7	4	8,521	9,210	347	345	75	1	43	28
N. Dak.	18	8	3	-	18	35	3	-	-	-	4	-
S. Dak.	11	2	2	-	137	182	24	-	-	-	1	-
Nebr.	65	14	4	1	-	484	89	19	8	-	14	9
Kans.	170	53	2	-	2,587	2,654	79	27	14	-	5	8
S. ATLANTIC	11,932	1,059	94	26	74,043	71,852	1,021	1,757	477	30	257	601
Del.	188	30	1	-	1,368	1,004	15	4	1	-	26	38
Md.	1,597	183	17	4	12,614	11,434	145	291	27	6	64	242
D.C.	986	38	-	1	5,185	3,341	17	40	-	-	8	6
Va.	778	181	25	6	9,399	8,535	120	92	20	5	6	113
W. Va.	40	22	14	-	557	454	10	29	23	-	2	15
N.C.	887	170	36	1	18,921	17,707	92	194	47	-	18	64
S.C.	780	24	-	-	9,056	7,690	30	23	7	-	9	7
Ga.	1,371	47	1	-	-	4,660	24	523	167	-	92	99
Fla.	5,305	364	-	14	16,943	17,027	568	561	185	19	32	17
E.S. CENTRAL	1,441	351	27	2	32,112	32,022	387	778	633	2	48	34
Ky.	226	120	12	1	3,552	3,379	115	59	21	-	8	17
Tenn.	483	65	10	-	9,537	9,760	152	660	598	1	25	11
Ala.	422	130	5	1	11,357	11,416	72	59	14	1	11	6
Miss.	310	36	-	-	7,666	7,467	48	-	-	-	4	-
W.S. CENTRAL	5,361	571	41	2	34,110	31,727	2,272	1,015	392	60	36	90
Ark.	182	38	-	-	4,892	4,766	149	22	6	1	7	8
La.	864	26	5	-	8,613	8,616	120	129	128	1	12	1
Okla.	193	-	-	-	2,832	3,320	221	233	219	1	11	50
Tex.	4,122	507	36	2	17,773	15,025	1,782	631	39	57	6	31
MOUNTAIN	1,551	209	7	3	5,758	8,250	2,933	458	321	41	68	13
Mont.	18	7	-	-	66	53	17	21	6	-	14	-
Idaho	45	4	-	-	64	137	244	65	63	1	1	3
Wyo.	16	2	1	2	55	64	22	20	119	-	3	3
Colo.	580	86	1	-	1,883	2,756	359	72	51	13	15	-
N. Mex.	118	11	-	-	693	668	831	156	43	9	3	5
Ariz.	421	44	-	-	2,209	2,933	942	30	8	10	7	-
Utah	96	29	1	1	176	323	354	53	19	1	7	1
Nev.	257	26	4	-	612	1,316	164	41	12	7	18	1
PACIFIC	9,796	1,096	88	8	22,358	25,336	5,229	1,612	466	132	59	59
Wash.	636	-	-	-	3,234	2,730	258	51	51	1	6	-
Oreg.	431	-	-	-	570	878	388	37	14	1	-	-
Calif.	8,570	986	86	7	17,465	20,922	4,376	1,491	396	127	50	59
Alaska	32	16	2	-	626	429	163	9	-	-	-	-
Hawaii	127	94	-	1	463	377	44	24	5	3	3	-
Guam	1	9	-	-	87	75	19	2	-	4	2	-
P.R.	1,578	24	-	3	320	365	50	256	111	10	-	-
V.I.	34	-	-	-	18	79	-	1	-	-	-	-
Amer. Samoa	-	-	-	-	21	37	7	-	-	-	-	-
C.N.M.I.	-	-	-	-	32	65	4	1	-	-	-	-

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

*Updated monthly to the Division of HIV/AIDS, National Center for Infectious Diseases; last update August 30, 1994.

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending September 17, 1994, and September 18, 1993 (37th 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	716	1	654	-	165	263	1,918	5	998	32	2,312	3,903	1	207	161
NEW ENGLAND	58	-	14	-	14	61	99	-	15	11	252	536	-	127	1
Maine	4	-	1	-	4	1	18	-	3	3	12	15	-	-	1
N.H.	3	-	1	-	-	2	6	-	4	3	52	123	-	-	-
Vt.	3	-	2	-	1	31	2	-	-	-	28	65	-	-	-
Mass.	27	-	2	-	6	17	41	-	-	2	133	275	-	123	-
R.I.	5	-	4	-	3	1	-	-	2	-	5	7	-	2	-
Conn.	16	-	4	-	-	9	32	-	6	3	22	51	-	2	-
MID. ATLANTIC	135	-	167	-	22	21	192	1	80	7	401	622	-	9	57
Upstate N.Y.	36	-	12	-	3	5	66	1	22	4	174	174	-	6	15
N.Y. City	50	-	14	-	2	7	11	-	8	3	76	49	-	1	22
N.J.	29	-	137	-	14	9	47	-	6	-	9	66	-	2	15
Pa.	20	-	4	-	3	-	68	-	44	-	142	333	-	-	5
E.N. CENTRAL	65	-	59	-	41	27	310	-	157	1	306	976	-	11	7
Ohio	9	-	15	-	-	9	85	-	42	-	106	243	-	-	1
Ind.	13	-	-	-	1	-	49	-	7	-	48	67	-	-	2
Ill.	23	-	17	-	39	9	98	-	71	-	67	331	-	3	1
Mich.	18	-	24	-	1	6	47	-	33	1	36	59	-	8	2
Wis.	2	-	3	-	-	3	31	-	4	-	49	276	-	-	1
W.N. CENTRAL	31	-	126	-	44	3	132	-	48	3	123	298	-	2	1
Minn.	10	-	-	-	-	-	11	-	5	-	51	146	-	-	-
Iowa	4	-	6	-	1	-	16	-	12	1	9	23	-	-	-
Mo.	11	-	118	-	42	1	66	-	26	1	33	93	-	2	1
N. Dak.	1	-	-	-	-	-	1	-	3	-	5	5	-	-	-
S. Dak.	-	-	-	-	-	-	8	-	-	1	8	8	-	-	-
Nebr.	3	U	1	U	1	-	9	U	2	U	7	8	U	-	-
Kans.	2	-	1	-	-	2	21	-	-	-	10	15	-	-	-
S. ATLANTIC	158	-	49	-	6	26	332	-	150	2	230	338	-	11	6
Del.	3	-	-	-	-	-	5	-	-	-	2	8	-	-	-
Md.	75	-	2	-	2	4	30	-	46	-	66	98	-	-	2
D.C.	12	-	-	-	-	-	4	-	-	-	5	9	-	-	-
Va.	20	-	1	-	1	2	52	-	35	1	29	48	-	-	-
W. Va.	-	-	36	-	-	-	11	-	3	1	4	8	-	-	-
N.C.	9	-	2	-	1	-	42	-	36	-	58	52	-	-	-
S.C.	4	U	-	U	-	-	19	U	7	U	12	12	U	-	-
Ga.	19	-	2	-	-	-	65	-	8	-	22	34	-	2	-
Fla.	16	-	6	-	2	20	104	-	15	-	32	69	-	9	4
E.S. CENTRAL	27	-	28	-	-	1	114	-	18	-	111	241	-	-	-
Ky.	9	-	-	-	-	-	33	-	-	-	57	31	-	-	-
Tenn.	8	-	28	-	-	-	25	-	7	-	18	150	-	-	-
Ala.	9	-	-	-	-	1	56	-	5	-	29	50	-	-	-
Miss.	1	-	-	-	-	-	-	-	6	-	7	10	-	-	-
W.S. CENTRAL	35	-	9	-	7	10	240	1	192	3	108	93	-	12	17
Ark.	3	-	-	-	1	-	37	-	1	3	21	7	-	-	-
La.	6	-	-	-	1	1	29	-	22	-	10	8	-	-	1
Okla.	3	-	-	-	-	-	25	-	23	-	22	56	-	4	1
Tex.	23	-	9	-	5	9	149	1	146	-	55	22	-	8	15
MOUNTAIN	24	-	148	-	17	4	123	2	116	5	307	290	1	6	10
Mont.	-	-	-	-	-	-	6	-	-	-	4	4	-	-	-
Idaho	2	-	-	-	-	-	15	-	7	-	42	81	-	-	1
Wyo.	1	-	-	-	-	-	5	-	2	-	-	1	-	-	-
Colo.	11	-	16	-	3	3	24	-	2	-	108	95	-	-	2
N. Mex.	3	-	-	-	-	-	13	N	N	-	20	33	-	1	-
Ariz.	1	-	1	-	1	-	40	1	80	2	115	46	-	-	2
Utah	4	-	131	-	2	-	15	-	12	3	16	27	1	4	4
Nev.	2	-	-	-	11	1	5	1	12	-	2	3	-	1	1
PACIFIC	183	1	54	-	14	110	376	1	222	-	474	509	-	29	62
Wash.	7	-	-	-	-	-	25	-	6	-	26	49	-	-	-
Oreg.	8	-	-	-	1	4	66	N	N	-	38	37	-	2	-
Calif.	153	-	47	-	9	84	277	-	197	-	393	414	-	22	35
Alaska	1	1	7	-	-	2	2	1	3	-	-	5	-	1	1
Hawaii	14	-	-	-	4	20	6	-	16	-	17	4	-	4	26
Guam	2	U	211	U	-	2	1	U	4	U	2	-	U	1	-
P.R.	2	-	13	-	-	338	14	-	2	-	1	1	-	-	-
V.I.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amer. Samoa	-	-	-	-	-	-	-	-	1	-	2	2	-	-	-
C.N.M.I.	1	U	26	U	-	1	-	U	2	U	-	1	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 September 17, 1994, and September 18, 1993 (37th 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	15,282	18,768	132	15,064	15,930	68	296	310	4,381
NEW ENGLAND	162	250	4	362	351	1	21	13	1,345
Maine	4	4	1	21	16	-	-	-	-
N.H.	3	22	-	14	15	-	-	-	112
Vt.	-	1	1	7	4	-	-	-	102
Mass.	69	103	2	183	196	1	17	8	508
R.I.	12	11	-	35	41	-	1	-	44
Conn.	74	109	-	102	79	-	3	5	579
MID. ATLANTIC	974	1,698	22	2,963	3,324	1	82	14	488
Upstate N.Y.	127	156	12	204	502	1	7	5	115
N.Y. City	437	816	-	1,835	1,983	-	59	1	-
N.J.	138	220	-	547	357	-	15	2	204
Pa.	272	506	10	377	482	-	1	6	169
E.N. CENTRAL	2,045	3,112	25	1,490	1,613	7	55	38	45
Ohio	867	863	9	245	229	1	6	24	4
Ind.	181	265	2	127	159	2	5	5	12
Ill.	556	1,192	5	753	841	2	33	7	11
Mich.	210	426	9	322	320	1	4	2	10
Wis.	231	366	-	43	64	1	7	-	8
W.N. CENTRAL	866	1,231	20	392	335	28	1	26	150
Minn.	39	48	1	95	41	1	-	-	13
Iowa	45	54	7	42	39	-	-	1	65
Mo.	742	1,011	5	167	176	18	1	11	13
N. Dak.	-	4	1	6	6	-	-	-	8
S. Dak.	-	2	-	17	11	1	-	10	24
Nebr.	-	10	2	18	16	1	-	1	-
Kans.	40	102	4	47	46	7	-	3	27
S. ATLANTIC	4,422	4,891	7	2,599	3,212	1	40	145	1,458
Del.	21	85	-	26	32	-	1	-	41
Md.	195	264	-	224	280	-	10	12	405
D.C.	161	252	-	92	125	-	1	-	2
Va.	563	464	1	214	309	-	6	15	286
W. Va.	8	10	-	60	61	-	-	2	58
N.C.	1,212	1,383	1	352	364	-	-	48	124
S.C.	560	730	-	253	282	-	-	11	132
Ga.	1,116	816	1	591	554	1	2	54	280
Fla.	586	887	4	787	1,205	-	20	3	130
E.S. CENTRAL	2,712	2,825	4	961	1,144	-	2	25	138
Ky.	151	233	2	234	270	-	1	6	14
Tenn.	721	817	2	289	348	-	1	13	34
Ala.	497	601	-	295	351	-	-	2	90
Miss.	1,343	1,174	-	143	175	-	-	4	-
W.S. CENTRAL	3,344	3,670	1	2,091	1,846	18	11	36	470
Ark.	370	404	-	213	140	16	-	7	23
La.	1,288	1,861	-	94	187	-	3	-	55
Okla.	100	230	1	186	109	2	2	25	28
Tex.	1,586	1,175	-	1,598	1,410	-	6	4	364
MOUNTAIN	181	182	7	356	392	9	9	13	102
Mont.	3	1	-	9	13	3	-	4	14
Idaho	1	-	1	11	10	-	-	-	3
Wyo.	-	7	-	8	2	-	-	2	16
Colo.	96	55	4	21	56	1	3	4	8
N. Mex.	18	24	-	43	46	1	1	1	6
Ariz.	33	77	-	154	160	-	1	1	38
Utah	7	4	2	34	25	2	2	-	10
Nev.	23	14	-	76	80	2	2	1	7
PACIFIC	576	909	42	3,850	3,713	3	75	-	185
Wash.	46	44	2	201	180	-	3	-	-
Oreg.	21	35	-	90	-	2	3	-	8
Calif.	503	819	37	3,328	3,305	-	65	-	148
Alaska	4	6	-	41	46	1	-	-	29
Hawaii	2	5	3	190	182	-	4	-	-
Guam	4	3	-	68	42	-	1	-	-
P.R.	212	387	-	120	165	-	-	-	51
V.I.	24	34	-	-	2	-	-	-	-
Amer. Samoa	1	-	-	4	4	-	1	-	-
C.N.M.I.	2	3	-	22	24	-	1	-	-

U: Unavailable

TABLE III. Deaths in 121 U.S. cities,* week ending September 17, 1994 (37th Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	588	396	109	53	18	12	52
Boston, Mass.	140	76	41	14	5	4	15
Bridgeport, Conn.	37	30	4	2	1	-	2
Cambridge, Mass.	17	15	1	1	-	-	3
Fall River, Mass.	27	21	5	1	-	-	1
Hartford, Conn.	58	39	8	7	2	2	2
Lowell, Mass.	35	28	4	3	-	-	-
Lynn, Mass.	13	10	3	-	-	-	2
New Bedford, Mass.	19	16	2	1	-	-	-
New Haven, Conn.	45	23	11	5	5	1	-
Providence, R.I.	28	17	4	3	4	-	8
Somerville, Mass.	5	4	1	-	-	-	-
Springfield, Mass.	44	25	5	11	1	2	5
Waterbury, Conn.	44	36	7	1	-	-	4
Worcester, Mass.	76	56	13	4	-	3	10
MID. ATLANTIC	2,509	1,548	527	327	66	41	100
Albany, N.Y.	44	31	5	6	1	1	2
Allentown, Pa.	18	15	3	-	-	-	-
Buffalo, N.Y.	U	U	U	U	U	U	U
Camden, N.J.	24	11	9	3	1	-	2
Elizabeth, N.J.	25	19	3	3	-	-	-
Erie, Pa.§	26	19	4	2	1	-	1
Jersey City, N.J.	52	35	7	8	2	-	-
New York City, N.Y.	1,336	794	294	193	34	21	41
Newark, N.J.	87	35	27	20	4	1	2
Paterson, N.J.	10	6	1	2	-	1	-
Philadelphia, Pa.	394	229	91	49	15	10	24
Pittsburgh, Pa.§	85	51	21	7	3	3	6
Reading, Pa.	18	15	1	2	-	-	1
Rochester, N.Y.	118	86	19	8	4	1	10
Schenectady, N.Y.	22	17	1	4	-	-	-
Scranton, Pa.§	39	33	5	-	1	-	1
Syracuse, N.Y.	122	93	22	5	-	2	10
Trenton, N.J.	43	27	5	10	-	1	-
Utica, N.Y.	11	7	4	-	-	-	-
Yonkers, N.Y.	35	25	5	5	-	-	-
E.N. CENTRAL	2,154	1,361	425	221	103	44	114
Akron, Ohio	67	48	11	7	-	1	-
Canton, Ohio	37	34	2	1	-	-	5
Chicago, Ill.	443	188	88	96	65	6	23
Cincinnati, Ohio	74	53	13	5	1	2	6
Cleveland, Ohio	174	110	39	14	5	6	2
Columbus, Ohio	142	93	32	7	3	7	11
Dayton, Ohio	129	93	26	7	2	1	13
Detroit, Mich.	266	148	65	31	15	7	6
Evansville, Ind.	35	25	8	1	1	-	-
Fort Wayne, Ind.	56	43	8	4	1	-	-
Gary, Ind.	22	10	6	5	1	-	1
Grand Rapids, Mich.	44	36	4	1	-	3	5
Indianapolis, Ind.	186	132	39	10	2	3	12
Madison, Wis.	65	43	12	5	3	2	9
Milwaukee, Wis.	118	90	18	6	2	2	2
Peoria, Ill.	36	25	8	1	-	2	4
Rockford, Ill.	47	34	8	3	1	1	7
South Bend, Ind.	27	18	5	4	-	-	-
Toledo, Ohio	115	87	16	10	1	1	6
Youngstown, Ohio	71	51	17	3	-	-	2
W.N. CENTRAL	808	576	126	65	20	12	34
Des Moines, Iowa	82	59	11	8	4	-	6
Duluth, Minn.	37	28	6	2	1	-	2
Kansas City, Kans.	18	12	4	1	1	-	-
Kansas City, Mo.	88	52	13	10	3	1	4
Lincoln, Nebr.	38	25	9	3	1	-	3
Minneapolis, Minn.	198	141	27	23	4	3	11
Omaha, Nebr.	83	61	17	1	2	2	5
St. Louis, Mo.	131	96	16	11	3	5	1
St. Paul, Minn.	76	58	14	2	1	1	2
Wichita, Kans.	57	44	9	4	-	-	-

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	≥65	45-64	25-44	1-24	<1	
S. ATLANTIC	1,316	763	277	180	50	45	56
Atlanta, Ga.	172	96	39	23	8	6	5
Baltimore, Md.	187	98	47	32	7	3	14
Charlotte, N.C.	80	44	24	8	2	2	2
Jacksonville, Fla.	135	80	29	13	7	6	8
Miami, Fla.	127	61	27	30	3	5	1
Norfolk, Va.	58	32	12	4	3	7	2
Richmond, Va.	71	42	16	9	1	3	3
Savannah, Ga.	39	28	2	7	1	1	4
St. Petersburg, Fla.	41	27	8	3	-	3	3
Tampa, Fla.	169	115	26	17	9	2	8
Washington, D.C.	226	132	45	34	8	7	6
Wilmington, Del.	11	8	2	-	1	-	-
E.S. CENTRAL	705	457	143	65	22	18	48
Birmingham, Ala.	118	78	16	18	1	5	2
Chattanooga, Tenn.	77	49	18	8	1	1	5
Knoxville, Tenn.	71	49	16	3	3	-	6
Lexington, Ky.	79	44	23	8	2	2	4
Memphis, Tenn.	122	85	19	5	9	4	17
Mobile, Ala.	56	32	15	8	-	1	3
Montgomery, Ala.	47	32	9	4	1	1	2
Nashville, Tenn.	135	88	27	11	5	4	9
W.S. CENTRAL	1,442	856	329	181	46	30	80
Austin, Tex.	86	51	17	15	2	1	2
Baton Rouge, La.	43	35	5	2	1	-	1
Corpus Christi, Tex.	28	20	7	1	-	-	3
Dallas, Tex.	225	122	49	38	12	4	2
El Paso, Tex.	88	56	16	5	5	6	14
Ft. Worth, Tex.	103	66	20	15	2	-	4
Houston, Tex.	356	204	95	41	6	10	27
Little Rock, Ark.	63	41	16	2	1	3	2
New Orleans, La.	110	63	27	17	1	2	-
San Antonio, Tex.	212	124	45	28	11	4	20
Shreveport, La.	30	17	9	2	2	-	2
Tulsa, Okla.	98	57	23	15	3	-	3
MOUNTAIN	827	577	144	68	20	18	50
Albuquerque, N.M.	88	59	18	9	-	2	3
Colo. Springs, Colo.	52	34	11	4	3	-	4
Denver, Colo.	115	68	28	9	5	5	10
Las Vegas, Nev.	91	64	18	4	4	1	4
Ogden, Utah	24	15	5	3	1	-	1
Phoenix, Ariz.	191	140	23	16	5	7	14
Pueblo, Colo.	27	19	6	2	-	-	2
Salt Lake City, Utah	92	70	14	6	1	1	9
Tucson, Ariz.	147	108	21	15	1	2	3
PACIFIC	1,258	829	226	136	38	28	86
Berkeley, Calif.	21	15	4	2	-	-	1
Fresno, Calif.	80	50	16	10	2	2	3
Glendale, Calif.	U	U	U	U	U	U	U
Honolulu, Hawaii	75	50	16	4	3	2	-
Long Beach, Calif.	70	45	12	4	7	2	9
Los Angeles, Calif.	U	U	U	U	U	U	U
Pasadena, Calif.	21	11	6	2	-	2	4
Portland, Oreg.	172	119	24	16	6	6	4
Sacramento, Calif.	U	U	U	U	U	U	U
San Diego, Calif.	178	116	30	25	3	4	18
San Francisco, Calif.	125	77	21	26	1	-	21
San Jose, Calif.	182	122	41	14	4	1	14
Santa Cruz, Calif.	30	25	3	1	1	-	4
Seattle, Wash.	163	114	24	17	3	5	3
Spokane, Wash.	47	24	13	4	4	2	2
Tacoma, Wash.	94	61	16	11	4	2	3
TOTAL	11,607¶	7,363	2,306	1,296	383	248	620

*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.

Ostrich Fern Poisoning — Continued

Western Canada

On May 17, 1994, three cases of gastrointestinal illness linked to meals served at a restaurant in Banff, Alberta, were reported by the Banff National Park Health Unit to the Health Protection Branch (HPB) of Health Canada (*1*). A HPB investigation confirmed illness in 17 persons who had eaten at one of eight franchises of the restaurant chain in British Columbia, Alberta, or Saskatchewan during May 10–May 16. The only food eaten by all ill persons was fiddlehead ferns. Fourteen persons had eaten ferns that had been sauteed for 2 minutes with mushrooms, onions, butter, salt, and pepper; three persons had consumed fiddlehead fern soup.

During May 23–June 2, 1994, three persons contacted the HPB complaining of nausea and diarrhea after eating fiddlehead ferns purchased at Vancouver and Victoria markets. One person became ill after eating raw fiddleheads. The other two became ill after eating ferns cooked in a microwave for 7–8 minutes on low power.

On June 10, 1994, a restaurant in British Columbia reported illness among members of three groups who had eaten at the restaurant during May 28–29, 1994. Fiddlehead ferns blanched for 2 minutes in boiling water had been served with all entrees. Of the 21 persons in these groups, illness occurred among 13 (87%) of 15 persons who ate ferns but in no persons who did not eat ferns (RR=undefined; $p<0.01$).

Of the 33 ill persons interviewed, all reported illness within 12 hours of eating ferns (mean: 3.2 hours). Twenty-eight (85%) persons reported diarrhea; 22 (67%), nausea; 11 (33%), abdominal cramps; six (18%), vomiting; and five (15%), headache. In 29 cases, symptoms lasted less than 24 hours. Stool cultures from two ill persons were negative for bacterial pathogens.

A single commercial fern harvester supplied the restaurant chain. Experienced harvesters collected 3–4-inch high ferns during May 1–May 16 on federal land in British Columbia where ferns have been collected for 14 years. The site is approximately 10 miles from any development and industry and had not been sprayed with pesticides or recently flooded. The ferns were inspected to remove debris, packed in open crates, and refrigerated until delivered to purchasers.

Cooked and uncooked samples of ferns from the restaurant and raw ferns collected by the commercial harvester in British Columbia were negative for *B. cereus*, *S. aureus*, aerobic and anaerobic spore-forming bacteria, and staphylococcal toxin. There was no evidence of acute illness in mice and rats fed raw and cooked fiddlehead ferns.

Because of concerns that the ferns might contain a heat-labile toxin, Health Canada issued a warning advising that fiddleheads be boiled for 15 minutes or steamed for 10–12 minutes before eating.

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Editorial Note: The ostrich fern was a spring vegetable for American Indians of eastern North America and became part of the regular diet of settlers to New Brunswick in the late 1700s (*2*). Until recently, it was consumed primarily in the Maritime Provinces of

Ostrich Fern Poisoning — Continued

Canada and in the northeastern United States. The ferns are available commercially either canned or frozen, but since the early 1980s, farmers' markets and supermarket chains have sold fresh ferns in season.

None of the fiddlehead ferns of eastern and central North America previously have been reported to be poisonous (*3*). Although some ferns may be carcinogenic (*4*), the ostrich fern has been considered to be safe to eat either raw or cooked (*5–9*). One field guide indicates that wild greens may have laxative qualities and recommends boiling them and discarding the first water (*8*).

In both outbreaks described in this report, the specific cause of illness was undetermined. Although the short incubation period suggests poisoning by a preformed toxin, there was no evidence of common bacterial toxins, such as *S. aureus* or *B. cereus*. Alternatively, the plants could have been contaminated by an undetected viral agent, although this possibility is unlikely because of the apparent short incubation period. Although the ostrich fern accumulates some heavy metals (*9*), the symptoms reported in these outbreaks were not characteristic of heavy metal poisoning, and it is unlikely that absorption of heavy metals occurred at two different sites.

Because of the short incubation period and a lack of other plausible causes, the most likely cause of illness in each of these outbreaks was an unidentified toxin. Heating and boiling may either inactivate or leach the toxin from the plant. Fresh fiddlehead ferns only recently have become widely available in restaurants. In addition, many vegetables now are lightly cooked rather than steamed or boiled (*10*). In both outbreaks, the implicated ferns were either raw or lightly cooked (sauteed, parboiled, and microwaved). In a similar outbreak in British Columbia in 1990, eating lightly cooked fiddleheads was associated with gastrointestinal illness (P. Morgan, Health Canada, personal communication, 1994). Although a toxin has not been identified in the fiddleheads of the ostrich fern, the findings in this report suggest it may be prudent to cook fiddleheads thoroughly (e.g., boiling for 10 minutes) before eating.

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Current Trends

Leading Causes of Death, by Age and Sex — Utah, 1988–1992

Mortality statistics are frequently used to measure the health status of a population (*1*) and to assess the importance of public health problems. However, for most diseases, crude and age-adjusted death rates are primarily influenced by deaths among the elderly. Although years of potential life lost (YPLL) is one approach that has been used to identify causes of premature death (*2*), the results of YPLL analysis are subject to certain limitations (*3*). As an alternative approach to identifying causes of premature death, the Utah Department of Health (UDOH) analyzed age- and sex-specific death rates among Utah residents during 1988–1992. This report summarizes the results of that analysis and compares findings with national data.

The underlying cause of death was coded according to the *International Classification of Diseases, Ninth Revision* (*4*); the codes were grouped to be comparable with national vital statistics reporting based on the 72 selected causes of death (*5*). Deaths attributed to unintentional injury were separated into those attributed to motor-vehicle crashes and those from all other causes. Initially, death rates and the ordering of underlying causes were examined for 13 age groups (<1 year; 1–4 years; 5-year intervals from 5 through 24 years; 10-year intervals from 25 through 84 years; and ≥85 years). Age groups were combined when the ordering of the leading underlying causes of death appeared comparable. Seven age groups resulted: <1 year, 1–14 years, 15–24 years, 25–44 years, 45–64 years, 65–84 years, and ≥85 years. For each age and sex group, up to 10 causes of death for which at least 20 deaths occurred during the 5-year period were reported.

Injuries (i.e., suicide, homicide, motor-vehicle crashes, and all other unintentional injuries) were the leading causes of death among young persons in Utah, particularly men (Figures 1 and 2). Injuries accounted for 82% of deaths among men aged 15–24 years and 45% of all deaths among men aged 25–44 years; for women in these age groups, the percentages were 70% and 30%, respectively.

Injuries were also leading causes of death for young persons nationally; however, the pattern of violent deaths was substantially different in Utah (Table 1). Death rates from suicide were 25%–50% higher for Utah than nationally; deaths from most other types of injury occurred at higher rates nationally than in Utah.

Death rates for males were substantially higher than rates for females at every age. Among persons in younger age groups (i.e., ≤45 years), higher rates for males were attributed primarily to injuries; at older ages, higher rates were largely attributed to heart disease and cancer.

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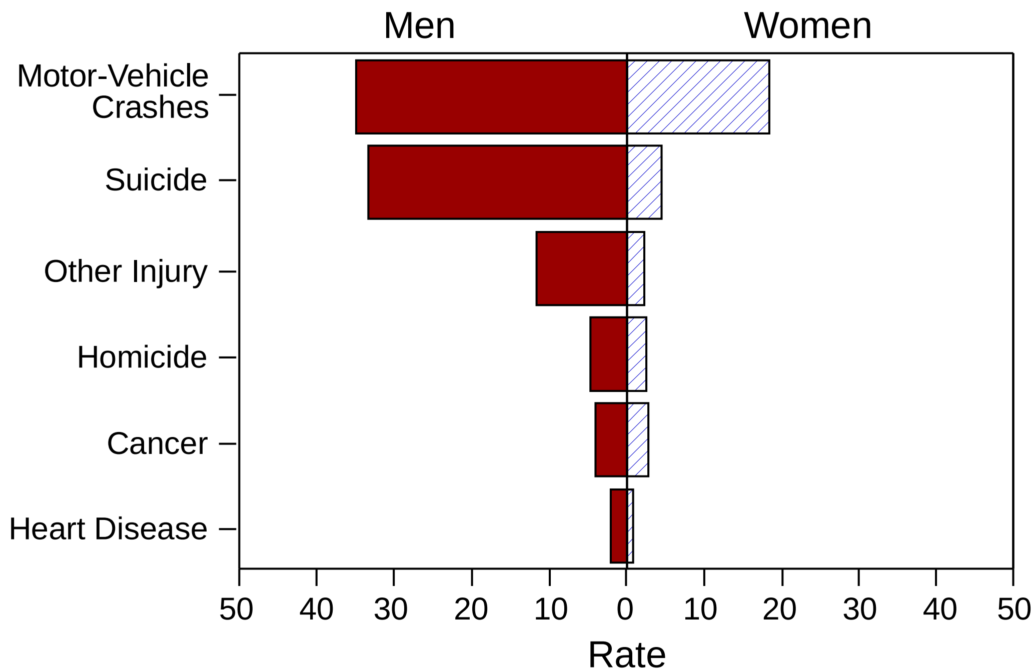
Editorial Note: The findings in this report indicate that suicide has been an important cause of death for young men in Utah. From 1988–1992, the suicide rate for young men in Utah was higher than the national rate, and suicide was relatively more important in Utah because of lower death rates from other causes in these age groups. The

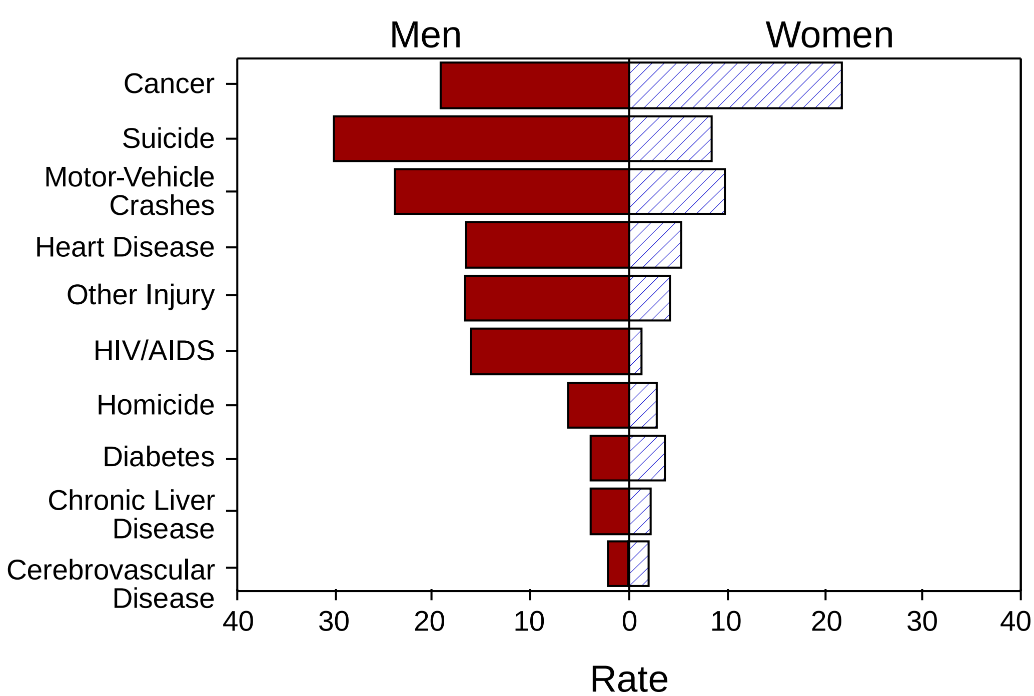
Causes of Death — Continued

FIGURE 1. Death rates* for persons aged 15–24 years for the six leading causes of death, by sex — Utah, 1988–1992



*Per 100,000 persons aged 15–24 years of each sex.

FIGURE 2. Death rates* for persons aged 25–44 years for the 10 leading causes of death, by sex — Utah, 1988–1992



*Per 100,000 persons aged 25–44 years of each sex.

Causes of Death — Continued

TABLE 1. Death rates* for injuries† among men aged 15–44 years — Utah, 1988–1992, and United States, 1988–1991

Age group (yrs)	Motor-vehicle crashes	Homicide	Suicide	Other
15–24				
Utah	34.9	4.7	33.3	11.7
United States	49.9	29.8	21.7	17.0
25–44				
Utah	23.9	6.3	30.2	16.8
United States	30.1	22.5	24.1	23.8

*Per 100,000 men aged 15–44 years.
†Deaths associated with motor-vehicle crash (*International Classification of Diseases, Ninth Revision* codes E810–E825), all other accidents and adverse effects (codes E800–E807 and E826–E949), homicide and legal intervention (codes E960–E978), and suicide (codes E950–E959).

UDOH is gathering and analyzing additional data on suicide in Utah to better identify high-risk populations and potential interventions.

The collection, analysis, and use of public health data at local levels offers at least two important advantages to public health agencies and other decision-makers. First, information at local levels will provide the most timely and accurate indication of the health status of that population. Second, local data may be the most useful to legislators and other decision-makers.

Presenting age-specific leading causes of death with simple graphics can effectively communicate information about premature mortality to a wide audience. To further increase the local applicability of this type of analysis, the UDOH has developed a computer information system that allows local health departments to replicate these analyses using data that are specific to local populations. This approach is consistent with the recommendations of the Institute of Medicine to improve local use of data to measure health status (*6*).

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