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Serious Eye Injuries Associated with Fireworks — United States, 1990–1994

Eye injuries caused by fireworks are often severe and can cause permanently reduced visual acuity or blindness. Findings from the National Electronic Injury Surveillance System database maintained by the U.S. Consumer Product Safety Commission (CPSC) indicate that approximately 12,000 persons are treated each year in U.S. emergency departments because of fireworks-related injuries; of these, an estimated 20% are eye injuries. To improve characterization of fireworks-related eye injuries, data were analyzed from the United States Eye Injury Registry (USEIR) for July 1990–December 1994 and from the Eye Injury Registry of Alabama (EIRA) for August 1982–July 1989. This report summarizes the findings of these analyses.

United States Eye Injury Registry

USEIR, a nonprofit organization sponsored by the Helen Keller Eye Research Foundation, is a federation of state eye registries that uses a standardized form to obtain voluntarily reported data on eye injuries and to obtain 6-month follow-up information. Reports are made by ophthalmologists to the USEIR database in Birmingham, Alabama. The primary purpose of USEIR is to provide prospective, population-based, epidemiologic data to improve the prevention and control of eye injuries. The registry contains information only for patients who have sustained a serious eye injury, defined as "an injury resulting in permanent and significant, structural or functional ocular change." USEIR comprises 39 state registry affiliates (representing 89% of the U.S. population); 32 states registered injuries during 1990–1994, and 27 states reported fireworks-related injuries during this period.

From July 1990 through December 1994, a total of 4575 serious eye injuries from all causes were reported to USEIR; of the 274 (6%) fireworks-related injuries, 255 (93%) were unintentional injuries. Persons injured by fireworks were aged 4–63 years (median: 15 years); 211 (77%) were males. The largest proportion (123 [45%]) of injured persons were bystanders; 96 (35%) were fireworks operators, and for 55 (20%), status was unknown. Most (219 [80%]) injuries occurred during the Independence Day holiday period*; 44 (16%) occurred during the New Year's holiday period*, and 11 (4%) at other times. Most (67%) injuries occurred at home; injuries also occurred in recrea-

*The number of days for the holiday period varied each year.

Fireworks-Associated Serious Eye Injuries — Continued

tional settings (14%), on a street or highway (5%), and in parking lots or occupational settings (1%). Location was unknown for 13%.

Most injuries were caused by bottle rockets (58%) (Figure 1). Bottle rockets accounted for 68% of the injuries to bystanders.

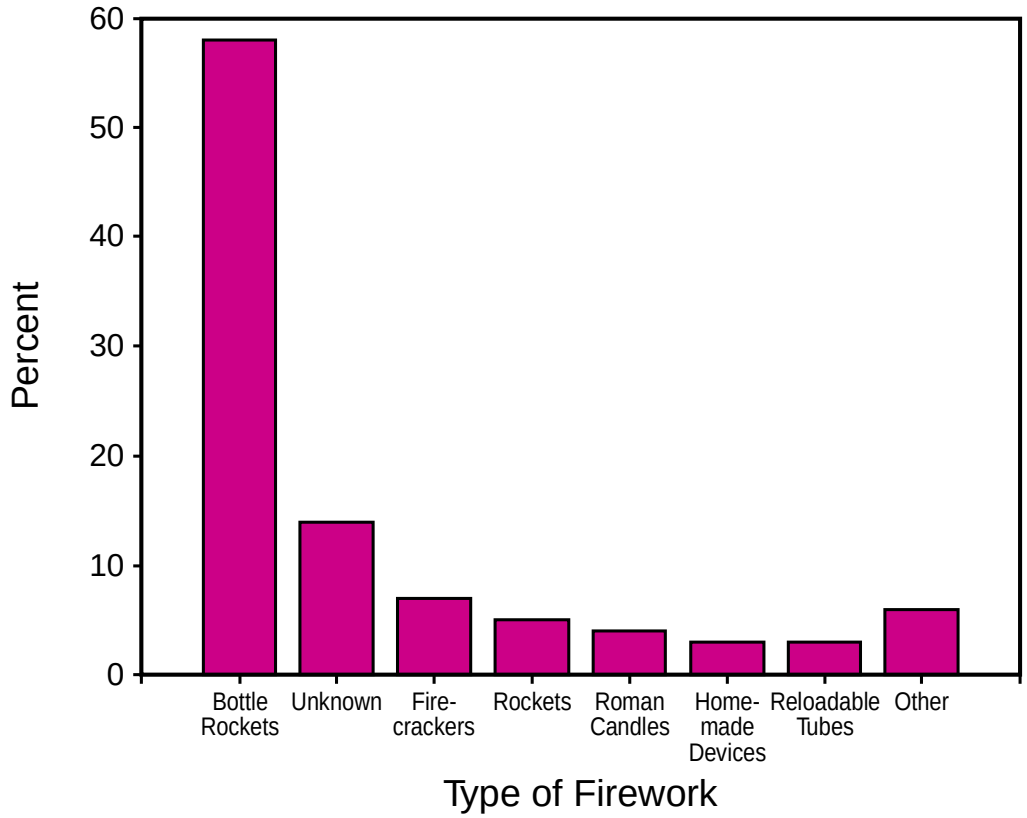
Eye Injury Registry of Alabama

A retrospective review was begun in 1989 of severely injured persons registered from August 1982 through July 1989 through the EIRA, the first state registry of USEIR. Reports to the EIRA are made by Alabama ophthalmologists. Data were obtained from EIRA standard report forms and from direct interviews with each injured person and/or family members.

Of the 70 fireworks-related injuries reported, 40 (57%) occurred during the Independence Day holiday period, and 27 (39%) occurred during the New Year's holiday period. These injuries resulted in legal blindness in 31 (44%) injured persons; in addition, enucleation was required for seven (10%). Bottle rockets accounted for 58 (83%) injuries, including eight of 10 injuries resulting in permanent damage to the optic nerve and all those resulting in enucleation.

Patients who sustained eye injuries resulting from bottle rockets reported that factors associated with their injuries included product misuse, (e.g., the intentional aiming of the device at others ["bottle rocket wars"] and throwing the device after it had been lit but before ignition), device malfunction (especially immediate explosion

FIGURE 1. Percentage of fireworks-related serious eye injuries, by type of firework — United States Eye Injury Registry, 1990–1994



Fireworks-Associated Serious Eye Injuries — Continued

after ignition), erratic flight characteristics even when used according to manufacturers' instructions, and device ricochet off hard surfaces (e.g., a car or the street).

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Editorial Note: Irreversible consequences—including reduced visual acuity and blindness—can result from the use of consumer fireworks, especially bottle rockets. Analysis of the USEIR database indicated that a high proportion of fireworks-related injuries occurred among young males—a finding consistent with previous reports (*1,2*). These findings are similar to the results of a study in Washington in which injuries were associated with improper use (both intentional and unintentional), product malfunctions (e.g., short fuses, erratic flight, or tip-over), and high temperature (*2*).

Consumer fireworks—including bottle rockets (classified as 1.4G [formally known as Class C] fireworks)—have been banned in 10 states (Arizona, Connecticut, Delaware, Georgia, Massachusetts, Minnesota, New Jersey, New York, Rhode Island, and Vermont). Six states (Illinois, Iowa, Maine, Maryland, Ohio, and Pennsylvania) permit the use only of sparklers and other novelties (e.g., poppers, wheels, and snaps). The District of Columbia and 32 states allow at least some 1.4G fireworks to be sold. Nevada and Hawaii have no laws regulating fireworks except for local ordinances. The CPSC has banned firecrackers with >50 mg pyrotechnic composition (including cherry bombs, M-80s, and silver salutes) designed to detonate on or near the ground and reloadable shell devices with diameters exceeding 1.75 inches; bottle-rockets can contain up to 130 mg pyrotechnic composition.

Because of the risks for injury associated with bottle rockets and other fireworks, several organizations have made specific recommendations regarding their use. USEIR recommends that persons attend public fireworks displays; however, if persons choose to use fireworks, USEIR recommends that they not use bottle rockets, and when other fireworks are used, eye protection should be worn by operators, bystanders, and spectators. CPSC and USEIR also advise that young children should never use fireworks, older children should be supervised when using fireworks, fireworks should be used only outdoors, a source of water should always be nearby for fire and to douse malfunctioning fireworks, instructions should be read and followed carefully, and malfunctioning fireworks should not be relit.

Several states have prohibited bottle rocket sales, and such bans are supported by the American Academy of Ophthalmology (*3*), American Academy of Pediatrics (*4*), and American Public Health Association (*5*). Despite the advisories regarding the dangers of fireworks use and state bans on use, fireworks continue to cause serious eye injuries—fireworks purchasers often cross state borders during holiday seasons to obtain fireworks that are illegal in their own states. In addition, because USEIR is a voluntary registry and not all states are affiliated, the numbers presented in this report may underestimate the problem nationally. CDC, concurring with the USEIR recommendations, suggests that health-care providers urge patients and their families to attend professionally conducted public displays of fireworks.

References

1. CDC. Fireworks-related injuries--Marion County, Indiana, 1986–1991. MMWR 1992;41:451–4.

Fireworks-Associated Serious Eye Injuries — Continued

2. CDC. Fireworks-related injuries--Washington. MMWR 1983;32:285–6.
3. Eye Safety and Sports Ophthalmology Committee. Fireworks remain serious health hazard and cause of blindness. San Francisco: American Academy of Ophthalmology, May 1995.
4. Committee on Injury and Poison Prevention. Children and fireworks. Pediatr 1991;88:652–3.
5. American Public Health Association. Resolution 9111—banning bottle rockets: prevention of ocular injuries. In: American Public Health Association. Public policy statements of the American Public Health Association. Washington, DC: American Public Health Association, 1994: 482–3.

Achievement of Dietary Goals — Kansas, 1993

Fat intake and other dietary factors are associated with increased risk for important chronic diseases, including cardiovascular disease and cancer (*1–4*). To characterize the nutritional behaviors of residents of Kansas, the Kansas Department of Health and Environment (KDHE) conducted a nutrition assessment survey in 1993 and has used the results as a baseline for monitoring progress toward attaining Healthy Kansans 2000 (HK2000) nutrition objectives. This report summarizes selected findings from the nutrition survey relative to three HK2000 objectives: 1) increase to 35% the proportion of adults who consume five or more daily servings of fruits and vegetables; 2) increase to 40% the proportion of adults whose dietary fat intake constitutes <30% of their total food-energy intake (a lower fat diet); and 3) increase to 70% the proportion of adults who consume ≥600 mg of calcium daily (75% of the Recommended Dietary Allowance for adults aged ≥25 years [*5*]).

A representative sample of 1387 civilian, noninstitutionalized adults (aged ≥18 years) was selected using a random-digit–dialing telephone method; 1119 (80.6%) completed the survey, and 268 (19.3%) persons refused or were unable to respond. The interviews were completed during June–July 1993. Participants responded to an interviewer-administered 24-hour dietary recall for the day before the call. Food portion sizes were estimated (e.g., a small apple is the size of a tennis ball), and a mention of a fruit or vegetable was used as a surrogate for a serving. Food Intake and Analysis Software was used to estimate nutrient amounts reported in the 24-hour dietary recall data (*6*). Point estimates were weighted by the age and sex of the Kansas population and by the number of adults in each household.

Overall, few (12.5%) respondents reported eating five or more fruits and vegetables during the previous day (Table 1); the prevalence of this behavior was higher among women (15.2%) than men (9.7%), and increased directly with age (persons aged 18–34 years: 7.0%; persons aged 35–64 years: 12.8%; and persons aged ≥65 years: 20.7%) and education (persons with ≤12 years of education: 9.5%; persons with 13–15 years: 12.1%; and persons with ≥16 years: 18.4%).

Nearly one third (29.8%) of respondents acquired <30% of their total food-energy intake from fat. The prevalence of this behavior was higher among women (33.4%) than men (26.5%), but did not vary by age or education. Approximately one half (47.9%) of respondents consumed ≥600 mg of calcium. The prevalence of this behavior was lower in women (40.7%) than men (55.3%) and varied inversely with age (persons aged 18–34 years: 56.3%; persons aged 35–64 years: 44.7%; and persons aged ≥65 years: 41.7%).

Dietary Goals — Continued

TABLE 1. Weighted estimates of selected nutritional behaviors, by sex, age, and education level — Kansas Nutritional Assessment Survey, 1993

	≥5 servings of fruits and vegetables		≤30% of calories from fat		≥600 mg calcium intake*	
Category	**%**	**(95% CI†)**	**%**	**(95% CI)**	**%**	**(95% CI)**
Sex						
Male	9.7	(±2.7)	26.5	(±4.2)	55.3	(±4.8)
Female	15.2	(±3.1)	33.4	(±4.0)	40.7	(±4.1)
Age group (yrs)						
18–34	7.0	(±2.7)	30.8	(±5.5)	56.3	(±5.9)
35–64	12.8	(±3.1)	26.9	(±3.9)	44.7	(±4.4)
≥65	20.7	(±5.5)	36.7	(±6.8)	41.7	(±7.0)
Education (yrs)						
≤12	9.5	(±2.7)	26.8	(±4.3)	45.5	(±4.8)
13–15	12.1	(±3.5)	31.8	(±5.4)	45.3	(±5.7)
≥16	18.4	(±5.0)	32.5	(±5.9)	54.5	(±6.2)
Total	**12.5**	**(±2.1)**	**29.8**	**(±2.9)**	**47.9**	**(±3.2)**

*Weighted estimates based on nonpregnant and nonlactating participants (n=1101).
†Confidence interval.

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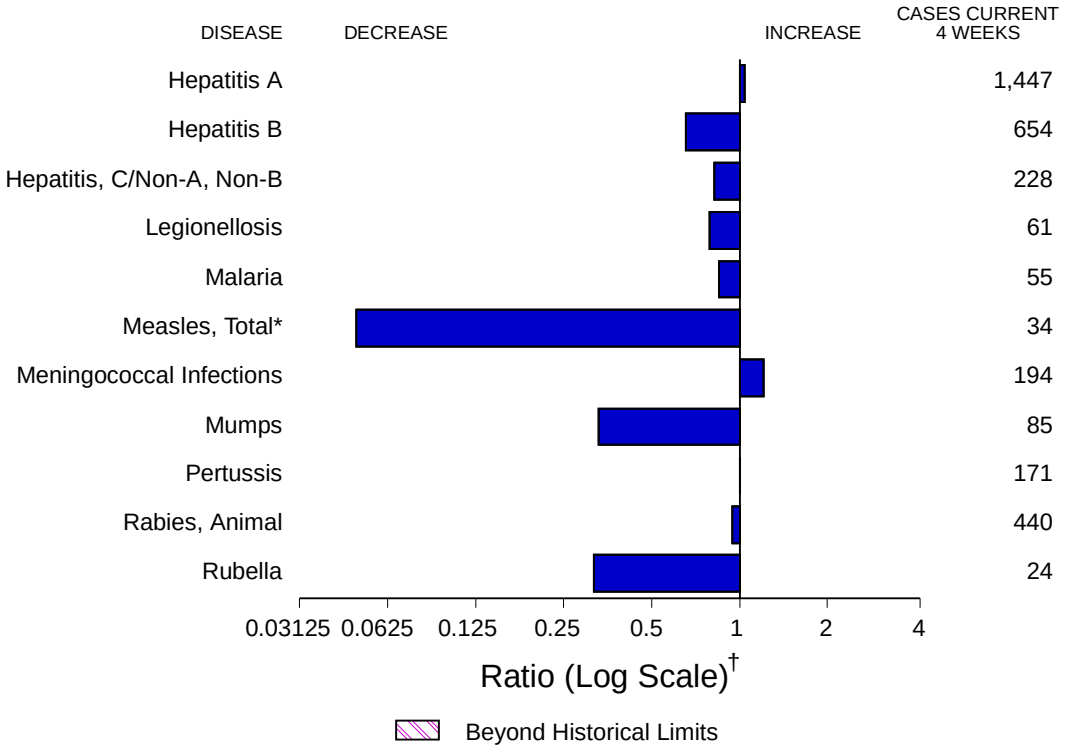
Editorial Note: The findings in this report indicate that most respondents did not meet the HK2000 goals, which were based on national nutrition guidelines (*7*) and were similar to the national health objectives for the year 2000 (*4*). Because national nutrition surveys (*4*) do not provide state-specific estimates and are often available only after prolonged periods, state population-based dietary surveys, such as that in Kansas, are essential for providing state-specific data to measure the effect of interventions and for monitoring progress toward state-specific year 2000 goals. The survey methodology used in Kansas may serve as a model for other states to establish baselines and to monitor the impact of interventions. KDHE plans to conduct these or similar surveys every 3–5 years.

The survey results from Kansas are subject to at least two limitations. First, because participants were interviewed during summer months when consumption of fruits and vegetables is likely to be higher than during other seasons of the year (*8*), reported fruit consumption may have been higher than if the survey had been conducted during other seasons. Second, 24-hour recall surveys may be less representative than multiple-day recall surveys because the actual amount of food consumed may differ from the usual intake of the respondent (*9*).

The results of the survey in Kansas are being used as a baseline for monitoring progress among statewide interventions. Kansas LEAN ("Low-fat Eating for America Now"), a state health department program involving a coalition of businesses, health agencies, schools and others, is working to improve dietary habits through interventions such as the statewide worksite promotion "Take the Challenge, Be a Leaner

(Continued on page 459)

FIGURE I. Notifiable disease reports, comparison of 4-week totals ending June 17, 1995, with historical data — United States



*The large apparent decrease in the number of 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 June 17, 1995 (24th Week)

	Cum. 1995		Cum. 1995
Anthrax	-	Psittacosis	28
Brucellosis	39	Rabies, human	1
Cholera	7	Rocky Mountain Spotted Fever	98
Congenital rubella syndrome	4	Syphilis, congenital, age < 1 year†	-
Diphtheria	-	Tetanus	12
*Haemophilus influenzae**	589	Toxic shock syndrome	94
Hansen Disease	60	Trichinosis	20
Plague	2	Typhoid fever	137
Poliomyelitis, Paralytic	-		

*Of 576 cases of known age, 142 (25%) were reported among children less than 5 years of age.
†Updated quarterly from reports to the Division of Sexually Transmitted Diseases and HIV Prevention, National Center for Prevention Services. First quarter data not yet available.
-: no reported cases

TABLE II. Cases of selected notifiable diseases, United States, weeks ending June 17, 1995, and June 18, 1994 (24th Week)

Reporting Area	AIDS*	Gonorrhea		Hepatitis (Viral), by type						Legionellosis	
				A		B		C/NA,NB			
	Cum. 1995	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994
UNITED STATES	29,887	159,706	176,038	11,243	10,165	4,403	5,313	1,957	1,978	585	699
NEW ENGLAND	1,471	2,199	3,771	111	150	84	192	49	72	12	12
Maine	26	34	48	15	12	6	9	-	-	3	-
N.H.	49	52	34	5	7	11	15	5	5	1	-
Vt.	14	21	12	3	2	1	5	1	6	-	-
Mass.	652	1,277	1,326	44	65	32	120	42	49	7	6
R.I.	122	235	207	12	13	8	3	1	12	1	6
Conn.	608	580	2,144	32	51	26	40	-	-	N	N
MID. ATLANTIC	7,605	17,043	19,609	666	717	531	694	171	241	66	85
Upstate N.Y.	836	2,612	4,307	176	252	169	189	89	105	21	19
N.Y. City	3,952	6,128	7,377	318	237	146	150	1	1	-	-
N.J.	1,794	1,704	2,410	92	152	131	187	69	111	14	15
Pa.	1,023	6,599	5,515	80	76	85	168	12	24	31	51
E.N. CENTRAL	2,492	34,621	35,895	1,448	950	461	548	130	173	163	240
Ohio	544	11,323	10,765	902	299	60	89	5	12	80	82
Ind.	200	2,982	3,668	74	154	107	103	-	4	35	79
Ill.	1,105	9,315	10,595	211	278	89	154	31	47	13	20
Mich.	502	8,500	7,656	179	121	182	163	94	110	18	36
Wis.	141	2,501	3,211	82	98	23	39	-	-	17	23
W.N. CENTRAL	697	8,499	9,650	706	494	242	301	50	42	58	45
Minn.	148	1,370	1,520	86	101	25	36	2	9	-	-
Iowa	40	674	621	38	27	19	16	3	7	12	21
Mo.	280	5,115	5,146	475	209	159	216	31	7	33	12
N. Dak.	2	13	20	14	1	3	-	3	1	3	4
S. Dak.	7	78	88	18	17	2	-	1	-	-	-
Nebr.	61	-	642	25	76	16	16	5	8	7	6
Kans.	159	1,249	1,613	50	63	18	17	5	10	3	2
S. ATLANTIC	7,773	47,504	46,565	539	505	634	1,045	147	256	92	164
Del.	154	912	836	7	14	2	8	1	1	-	-
Md.	1,133	5,621	8,844	91	79	102	167	5	15	19	37
D.C.	464	2,173	3,376	6	10	10	16	-	-	3	5
Va.	552	5,133	5,678	94	59	43	54	5	17	7	4
W. Va.	36	294	328	11	5	29	10	24	17	3	1
N.C.	405	11,190	11,187	56	55	144	129	27	29	17	12
S.C.	398	5,622	5,654	20	15	27	19	11	3	17	9
Ga.	935	7,718	U	47	23	58	447	15	148	11	74
Fla.	3,696	8,841	10,662	207	245	219	195	59	26	15	22
E.S. CENTRAL	961	19,973	20,269	522	220	429	532	560	403	15	56
Ky.	116	2,071	2,082	23	91	34	52	11	14	2	5
Tenn.	380	5,887	6,194	420	72	340	444	547	381	9	30
Ala.	263	8,471	7,286	50	33	55	36	2	8	3	7
Miss.	202	3,544	4,707	29	24	-	-	-	-	1	14
W.S. CENTRAL	2,513	14,781	20,453	1,332	1,316	627	534	270	171	7	15
Ark.	108	1,821	3,029	119	28	22	11	2	4	-	4
La.	366	5,477	5,535	43	68	81	79	64	54	2	-
Okla.	131	1,211	2,015	293	117	212	107	189	84	3	8
Tex.	1,908	6,272	9,874	877	1,103	312	337	15	29	2	3
MOUNTAIN	975	3,513	4,380	1,870	1,976	389	280	217	208	101	47
Mont.	8	38	38	34	13	10	10	9	4	4	14
Idaho	24	58	37	184	159	45	43	28	47	1	1
Wyo.	5	23	36	70	10	9	11	87	60	3	2
Colo.	339	1,388	1,527	240	233	59	49	32	35	30	10
N. Mex.	81	396	477	365	509	147	93	28	32	3	1
Ariz.	268	1,315	1,352	525	739	61	27	20	11	43	2
Utah	58	83	151	396	189	43	21	5	9	4	3
Nev.	192	212	762	56	124	15	26	8	10	13	14
PACIFIC	5,400	11,573	15,446	4,049	3,837	1,006	1,187	363	412	71	35
Wash.	463	1,110	1,354	316	517	76	108	102	125	7	8
Oreg.	184	202	414	708	408	40	75	22	18	-	-
Calif.	4,587	9,671	12,927	2,918	2,779	876	976	229	265	59	25
Alaska	45	342	405	17	105	5	7	1	-	-	-
Hawaii	121	248	346	90	28	9	21	9	4	5	2
Guam	-	31	64	2	12	-	4	-	-	-	1
P.R.	1,099	267	220	50	32	336	148	198	72	-	-
V.I.	19	4	11	-	2	2	4	-	1	-	-
Amer. Samoa	-	8	15	5	4	-	-	-	-	-	-
C.N.M.I.	-	13	25	15	3	7	-	-	-	-	-

N: Not notifiable U: Unavailable -: no reported cases C.N.M.I.: Commonwealth of Northern Mariana Islands

*Updated monthly to the Division of HIV/AIDS Prevention, National Center for Prevention Services, last update May 25, 1995.

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending June 17, 1995, and June 18, 1994 (24th Week)

Reporting Area	Lyme Disease		Malaria		Measles (Rubeola)						Meningococcal Infections		Mumps	
					Indigenous		Imported*		Total					
	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	1995	Cum. 1995	1995	Cum. 1995	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994
UNITED STATES	1,972	2,546	426	433	11	195	-	8	203	726	1,594	1,527	434	700
NEW ENGLAND	259	294	19	26	-	4	-	-	4	22	80	62	7	11
Maine	3	2	1	1	-	-	-	-	-	4	6	12	4	3
N.H.	11	10	1	3	-	-	-	-	-	1	16	6	-	4
Vt.	4	3	-	1	-	-	-	-	-	2	6	2	-	-
Mass.	47	42	6	11	-	2	-	-	2	6	25	26	1	-
R.I.	53	32	2	4	-	2	-	-	2	6	-	-	-	1
Conn.	141	205	9	6	-	-	-	-	-	3	27	16	2	3
MID. ATLANTIC	1,388	1,690	94	69	-	1	-	2	3	199	201	153	63	65
Upstate N.Y.	861	1,336	20	19	-	-	-	-	-	15	67	47	16	18
N.Y. City	29	2	40	22	-	1	-	2	3	12	19	21	5	-
N.J.	133	210	23	16	-	-	-	-	-	165	57	36	5	11
Pa.	365	142	11	12	-	-	-	-	-	7	58	49	37	36
E.N. CENTRAL	27	198	50	48	-	6	-	1	7	91	214	210	71	126
Ohio	20	12	3	7	-	1	-	-	1	15	69	60	22	31
Ind.	3	8	4	9	-	-	-	-	-	1	32	24	1	6
Ill.	3	9	29	19	-	-	-	-	-	54	63	76	22	55
Mich.	1	1	9	11	-	3	-	1	4	18	41	27	26	29
Wis.	-	168	5	2	-	2	-	-	2	3	9	23	-	5
W.N. CENTRAL	27	35	9	22	-	1	-	-	1	161	93	103	28	38
Minn.	-	-	3	5	-	-	-	-	-	-	16	9	2	3
Iowa	1	1	1	4	-	-	-	-	-	-	16	13	8	10
Mo.	10	29	3	9	-	1	-	-	1	159	35	49	14	22
N. Dak.	-	-	-	1	-	-	-	-	-	-	1	1	-	2
S. Dak.	-	-	-	-	-	-	-	-	-	-	4	6	-	-
Nebr.	1	2	2	2	-	-	-	-	-	1	9	8	4	1
Kans.	15	3	-	1	-	-	-	-	-	1	12	17	-	-
S. ATLANTIC	182	241	93	89	2	5	-	-	5	11	274	225	45	104
Del.	7	30	1	3	-	-	-	-	-	-	3	2	-	-
Md.	124	80	23	39	-	-	-	-	-	2	18	16	-	26
D.C.	-	2	9	8	-	-	-	-	-	-	1	2	-	-
Va.	13	22	16	9	-	-	-	-	-	2	33	38	13	24
W. Va.	12	7	1	-	-	-	-	-	-	-	5	9	-	3
N.C.	14	33	7	2	-	-	-	-	-	-	45	38	16	24
S.C.	5	3	-	2	-	-	-	-	-	-	36	11	7	6
Ga.	5	59	11	14	2	2	-	-	2	2	59	53	-	7
Fla.	2	5	25	12	-	3	-	-	3	5	74	56	9	14
E.S. CENTRAL	11	18	8	13	-	-	-	-	-	28	95	123	15	13
Ky.	1	12	-	4	-	-	-	-	-	-	29	25	-	-
Tenn.	7	5	3	6	-	-	-	-	-	28	26	24	4	5
Ala.	1	1	5	2	-	-	-	-	-	-	25	48	4	1
Miss.	2	-	-	1	-	-	-	-	-	-	15	26	7	7
W.S. CENTRAL	43	37	9	14	4	17	-	-	17	12	192	183	29	153
Ark.	1	2	2	-	-	2	-	-	2	1	19	29	2	4
La.	1	-	1	2	4	15	-	-	15	1	27	23	7	15
Okla.	18	19	-	2	-	-	-	-	-	-	21	18	-	22
Tex.	23	16	6	10	-	-	-	-	-	10	125	113	20	112
MOUNTAIN	3	1	27	19	4	50	-	1	51	154	125	110	29	46
Mont.	-	-	2	-	-	-	-	-	-	-	2	2	1	-
Idaho	-	1	1	2	1	1	-	-	1	-	5	14	3	5
Wyo.	1	-	-	-	-	-	-	-	-	-	5	5	-	1
Colo.	1	-	15	8	1	8	-	-	8	19	29	17	1	2
N. Mex.	-	-	3	3	-	28	-	-	28	-	28	11	N	N
Ariz.	-	-	3	1	2	12	-	-	12	-	42	40	7	25
Utah	-	-	2	4	-	-	-	1	1	126	7	15	10	7
Nev.	1	-	1	1	U	1	U	-	1	9	7	6	6	6
PACIFIC	32	32	117	133	1	111	-	4	115	48	320	358	147	144
Wash.	2	-	11	14	-	13	-	2	15	-	54	54	10	8
Oreg.	2	2	4	10	-	1	-	-	1	-	53	78	N	N
Calif.	28	30	94	101	1	97	-	1	98	46	205	220	124	126
Alaska	-	-	1	-	-	-	-	-	-	-	6	2	9	2
Hawaii	-	-	7	8	-	-	-	1	1	2	2	4	4	8
Guam	-	-	-	-	U	-	U	-	-	227	2	-	3	4
P.R.	-	-	1	2	-	9	-	-	9	11	12	5	-	2
V.I.	-	-	-	-	U	-	U	-	-	-	-	-	2	3
Amer. Samoa	-	-	-	-	U	-	U	-	-	-	-	-	-	1
C.N.M.I.	-	-	1	1	-	-	-	-	-	29	-	-	-	2

*For imported measles, cases include only those resulting from importation from other countries.
N: Not notifiable U: Unavailable -: no reported cases

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending June 17, 1995, and June 18, 1994 (24th Week)

Reporting Area	Pertussis			Rubella			Syphilis (Primary & Secondary)		Tuberculosis		Rabies, Animal	
	1995	Cum. 1995	Cum. 1994	1995	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994
UNITED STATES	36	1,326	1,645	10	62	170	6,905	9,899	8,083	8,907	2,926	3,289
NEW ENGLAND	4	164	175	7	14	118	87	103	164	183	772	856
Maine	-	18	2	-	1	-	2	4	-	-	-	-
N.H.	1	14	39	-	1	-	1	1	5	6	88	95
Vt.	-	3	27	-	-	-	-	-	2	3	106	75
Mass.	-	119	89	-	2	117	34	42	91	89	270	324
R.I.	-	-	3	-	-	1	1	9	18	18	131	5
Conn.	3	10	15	7	10	-	49	47	48	67	177	357
MID. ATLANTIC	4	118	297	-	5	6	421	614	1,720	1,839	674	795
Upstate N.Y.	1	62	113	-	3	5	24	80	180	240	261	563
N.Y. City	-	22	62	-	2	-	217	288	925	1,127	-	-
N.J.	-	2	9	-	-	1	81	102	315	321	170	142
Pa.	3	32	113	-	-	-	99	144	300	151	243	90
E.N. CENTRAL	6	132	252	-	-	6	1,199	1,395	823	901	19	19
Ohio	1	45	69	-	-	-	423	491	137	131	2	-
Ind.	5	13	35	-	-	-	103	112	21	81	2	3
Ill.	-	22	52	-	-	1	463	500	467	444	3	4
Mich.	-	40	23	-	-	5	130	144	171	217	11	6
Wis.	-	12	73	-	-	-	80	148	27	28	1	6
W.N. CENTRAL	-	63	73	-	-	2	360	587	265	240	142	93
Minn.	-	28	39	-	-	-	22	23	58	43	6	8
Iowa	-	2	6	-	-	-	28	23	35	17	54	39
Mo.	-	5	15	-	-	2	301	501	103	116	17	10
N. Dak.	-	6	3	-	-	-	-	1	1	4	17	5
S. Dak.	-	7	-	-	-	-	-	1	10	14	22	14
Nebr.	-	4	4	-	-	-	-	8	10	8	-	-
Kans.	-	11	6	-	-	-	9	30	48	38	26	17
S. ATLANTIC	7	117	166	-	15	10	1,667	2,533	1,483	1,185	988	872
Del.	-	5	-	-	-	-	7	13	12	17	33	21
Md.	2	15	53	-	-	-	36	104	204	149	208	286
D.C.	-	2	3	-	-	-	60	120	49	51	9	2
Va.	-	8	15	-	-	-	305	347	105	172	191	180
W. Va.	-	-	2	-	-	-	1	8	45	40	43	36
N.C.	-	50	44	-	-	-	535	820	175	216	198	87
S.C.	1	12	10	-	-	-	303	325	145	193	63	82
Ga.	-	1	13	-	-	-	247	403	271	347	139	177
Fla.	4	24	26	-	15	10	173	393	477	-	104	1
E.S. CENTRAL	2	29	91	-	-	-	1,911	1,744	459	658	80	96
Ky.	-	-	53	-	-	-	100	106	53	149	9	6
Tenn.	-	4	16	-	-	-	391	465	162	199	11	34
Ala.	2	25	14	-	-	-	293	330	179	196	60	56
Miss.	-	-	8	-	-	-	1,127	843	65	114	-	-
W.S. CENTRAL	3	65	51	-	2	7	954	2,300	1,025	1,104	54	360
Ark.	-	-	10	-	-	-	157	238	75	101	11	14
La.	-	4	5	-	-	-	499	848	-	7	23	41
Okla.	1	14	20	-	-	4	35	76	96	111	20	19
Tex.	2	47	16	-	2	3	263	1,138	854	885	-	286
MOUNTAIN	3	443	199	3	7	3	103	148	256	241	61	59
Mont.	-	3	3	-	-	-	3	1	3	9	22	8
Idaho	-	74	23	1	1	-	-	1	6	6	-	-
Wyo.	-	1	-	-	-	-	2	-	1	2	16	11
Colo.	1	13	106	-	-	-	65	76	4	20	-	2
N. Mex.	1	32	9	-	-	-	5	6	40	37	3	2
Ariz.	1	305	44	2	5	-	18	34	143	95	18	34
Utah	-	10	12	-	1	2	3	7	10	16	1	-
Nev.	U	5	2	U	-	1	7	23	49	56	1	2
PACIFIC	7	195	341	-	19	18	203	475	1,888	2,556	136	139
Wash.	3	37	44	-	1	-	7	21	121	113	-	-
Oreg.	1	8	42	-	1	-	6	17	23	63	-	-
Calif.	2	132	249	-	15	16	189	434	1,634	2,228	132	108
Alaska	-	-	-	-	-	-	1	2	36	33	4	31
Hawaii	1	18	6	-	2	2	-	1	74	119	-	-
Guam	U	-	2	U	-	1	1	3	4	30	-	-
P.R.	-	6	2	-	-	-	138	155	56	62	19	43
V.I.	U	-	-	U	-	-	1	22	-	-	-	-
Amer. Samoa	U	-	1	U	-	-	-	1	3	3	-	-
C.N.M.I.	-	-	-	-	-	-	3	-	13	16	-	-

U: Unavailable -: no reported cases

TABLE III. Deaths in 121 U.S. cities,* week ending June 17, 1995 (24th Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	494	327	92	50	9	16	26
Boston, Mass.	163	97	26	27	5	8	5
Bridgeport, Conn.	31	18	8	1	3	1	1
Cambridge, Mass.	20	12	6	2	-	-	-
Fall River, Mass.	25	20	3	2	-	-	1
Hartford, Conn.	U	U	U	U	U	U	U
Lowell, Mass.	24	16	6	2	-	-	1
Lynn, Mass.	17	12	3	2	-	-	1
New Bedford, Mass.	25	19	4	2	-	-	-
New Haven, Conn.	44	29	7	3	-	5	2
Providence, R.I.	48	36	10	1	-	1	4
Somerville, Mass.	2	1	1	-	-	-	1
Springfield, Mass.	18	12	4	-	1	1	-
Waterbury, Conn.	33	26	5	2	-	-	3
Worcester, Mass.	44	29	9	6	-	-	7
MID. ATLANTIC	2,438	1,505	486	278	93	76	94
Albany, N.Y.	37	21	11	4	1	-	5
Allentown, Pa.	22	18	1	2	1	-	-
Buffalo, N.Y.	95	69	13	10	2	1	-
Camden, N.J.	34	18	8	4	3	1	1
Elizabeth, N.J.	20	12	7	1	-	-	-
Erie, Pa.§	54	41	11	-	-	2	4
Jersey City, N.J.	47	28	10	5	1	3	-
New York City, N.Y.	1,318	791	278	180	38	31	35
Newark, N.J.	70	23	25	16	4	2	1
Paterson, N.J.	32	14	9	7	-	2	-
Philadelphia, Pa.	345	193	62	23	36	31	17
Pittsburgh, Pa.§	66	43	13	7	2	1	3
Reading, Pa.	9	6	1	2	-	-	1
Rochester, N.Y.	116	95	11	6	3	1	12
Schenectady, N.Y.	17	12	5	-	-	-	-
Scranton, Pa.§	25	24	1	-	-	-	-
Syracuse, N.Y.	75	61	9	5	-	-	10
Trenton, N.J.	21	9	7	3	1	1	3
Utica, N.Y.	15	13	-	2	-	-	-
Yonkers, N.Y.	20	14	4	1	1	-	2
E.N. CENTRAL	2,110	1,396	390	194	67	63	129
Akron, Ohio	41	30	7	4	-	-	-
Canton, Ohio	37	23	6	3	2	3	4
Chicago, Ill.	396	244	75	50	15	12	33
Cincinnati, Ohio	153	106	25	12	5	5	13
Cleveland, Ohio	146	76	42	18	3	7	3
Columbus, Ohio	194	140	35	9	5	5	9
Dayton, Ohio	128	88	24	13	3	-	10
Detroit, Mich.	206	111	52	33	4	6	3
Evansville, Ind.	37	25	6	2	2	2	-
Fort Wayne, Ind.	64	42	11	4	6	1	3
Gary, Ind.	18	8	3	3	4	-	-
Grand Rapids, Mich.	50	38	5	3	-	4	3
Indianapolis, Ind.	186	125	31	15	5	10	14
Madison, Wis.	46	30	10	2	2	2	2
Milwaukee, Wis.	134	99	24	9	1	1	8
Peoria, Ill.	35	30	4	1	-	-	6
Rockford, Ill.	38	26	4	5	1	2	4
South Bend, Ind.	42	34	4	1	2	1	3
Toledo, Ohio	103	75	17	6	4	1	5
Youngstown, Ohio	56	46	5	1	3	1	6
W.N. CENTRAL	725	527	104	41	24	15	45
Des Moines, Iowa	79	61	10	6	1	1	6
Duluth, Minn.	39	31	5	1	1	1	4
Kansas City, Kans.	U	U	U	U	U	U	U
Kansas City, Mo.	101	62	14	5	3	3	5
Lincoln, Nebr.	45	35	8	1	1	-	4
Minneapolis, Minn.	205	152	31	11	6	5	11
Omaha, Nebr.	89	70	8	6	3	2	6
St. Louis, Mo.	116	83	16	8	6	3	5
St. Paul, Minn.	51	33	12	3	3	-	4
Wichita, Kans.	U	U	U	U	U	U	U
S. ATLANTIC	1,359	826	262	181	55	34	71
Atlanta, Ga.	159	92	31	26	7	3	4
Baltimore, Md.	272	161	47	48	9	7	20
Charlotte, N.C.	117	64	32	14	6	1	11
Jacksonville, Fla.	129	83	23	13	5	5	3
Miami, Fla.	99	52	23	15	7	2	1
Norfolk, Va.	68	46	8	7	4	3	5
Richmond, Va.	87	59	14	11	1	2	6
Savannah, Ga.	43	26	9	7	-	1	5
St. Petersburg, Fla.	53	32	11	6	3	1	3
Tampa, Fla.	178	125	32	9	9	2	9
Washington, D.C.	144	78	31	24	4	7	4
Wilmington, Del.	10	8	1	1	-	-	-
E.S. CENTRAL	814	522	169	66	31	26	61
Birmingham, Ala.	120	71	28	10	3	8	-
Chattanooga, Tenn.	65	42	15	3	5	-	5
Knoxville, Tenn.	78	52	18	6	1	1	5
Lexington, Ky.	56	34	15	3	3	1	7
Memphis, Tenn.	243	163	50	18	10	2	20
Mobile, Ala.	69	49	4	6	2	8	3
Montgomery, Ala.	42	31	5	3	1	2	3
Nashville, Tenn.	141	80	34	17	6	4	18
W.S. CENTRAL	1,515	963	308	158	54	32	77
Austin, Tex.	63	38	9	10	4	2	2
Baton Rouge, La.	77	46	20	8	1	2	-
Corpus Christi, Tex.	51	35	10	4	1	1	-
Dallas, Tex.	194	119	46	20	7	2	5
El Paso, Tex.	84	55	17	9	3	-	3
Ft. Worth, Tex.	96	62	18	11	3	2	6
Houston, Tex.	354	223	73	36	15	7	27
Little Rock, Ark.	77	41	18	11	3	4	9
New Orleans, La.	140	83	27	15	11	4	-
San Antonio, Tex.	209	141	38	23	2	5	10
Shreveport, La.	50	30	13	4	3	-	5
Tulsa, Okla.	120	90	19	7	1	3	10
MOUNTAIN	862	572	171	73	30	16	57
Albuquerque, N.M.	100	63	22	4	6	5	3
Colo. Springs, Colo.	43	30	9	3	1	-	5
Denver, Colo.	122	91	18	8	2	3	7
Las Vegas, Nev.	171	107	44	15	4	1	7
Ogden, Utah	25	20	3	1	1	-	5
Phoenix, Ariz.	163	104	31	14	11	3	14
Pueblo, Colo.	26	19	6	1	-	-	-
Salt Lake City, Utah	97	52	19	20	4	2	6
Tucson, Ariz.	115	86	19	7	1	2	10
PACIFIC	1,891	1,263	322	193	50	47	163
Berkeley, Calif.	9	6	2	1	-	-	-
Fresno, Calif.	88	59	17	3	3	6	7
Glendale, Calif.	24	17	5	2	-	-	2
Honolulu, Hawaii	73	48	12	7	2	4	11
Long Beach, Calif.	67	48	9	5	2	3	9
Los Angeles, Calif.	528	339	100	66	15	5	23
Pasadena, Calif.	40	28	6	2	-	4	5
Portland, Oreg.	133	89	22	12	6	4	12
Sacramento, Calif.	156	104	31	12	5	4	14
San Diego, Calif.	135	94	19	19	1	2	14
San Francisco, Calif.	137	83	18	18	2	3	15
San Jose, Calif.	176	123	29	10	7	7	20
Santa Cruz, Calif.	25	19	2	2	1	1	6
Seattle, Wash.	144	98	22	16	4	4	7
Spokane, Wash.	49	37	6	5	1	-	9
Tacoma, Wash.	107	71	22	13	1	-	9
TOTAL	12,208¶	7,901	2,304	1,234	413	325	723

*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 -: no reported cases

Dietary Goals — Continued

Eater" to reduce the proportion of total food-energy intake from fat. In addition to interventions targeted toward adults, Kansas LEAN emphasizes the education of children about appropriate nutrition. Long-term nutritional habits can be improved by introducing new foods to children, lowering the fat content of school lunches, and educating children (*10*). For example, a "Check Your Six" program targeted toward fifth-grade and preschool-aged children has been initiated to increase the quantity of grain products consumed.

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Lyme Disease — United States, 1994

For surveillance purposes, Lyme disease (LD) is defined as the presence of an erythema migrans rash ≥5 cm in diameter or laboratory confirmation of infection with *Borrelia burgdorferi* and at least one objective sign of musculoskeletal, neurologic, or cardiovascular disease (*1*). In 1982, CDC initiated surveillance for LD, and in 1990, the Council of State and Territorial Epidemiologists adopted a resolution that designated LD a nationally notifiable disease. This report summarizes surveillance data for LD in the United States during 1994.

In 1994, 13,083 cases of LD were reported to CDC by 44 state health departments, 4826 (58%) more than the 8257 cases reported in 1993 (Figure 1). As in previous years, most cases were reported from the northeastern and north-central regions (Figure 2). The overall incidence of reported LD was 5.2 per 100,000 population. Eight states reported incidences of more than 5.2 per 100,000 (Connecticut, 62.2; Rhode Island, 47.2; New York, 29.2; New Jersey, 19.6; Delaware, 15.5; Pennsylvania, 11.9; Wisconsin, 8.4; and Maryland, 8.3); these states accounted for 11,476 (88%) of nationally reported cases. Six states (Alaska, Arizona, Hawaii, Mississippi, Montana, and North Dakota) reported no cases. Reported incidences were ≥100 per 100,000 in 15 counties in Con-

Lyme Disease — Continued

FIGURE 1. Number of reported Lyme disease cases, by year — United States, 1982–1994

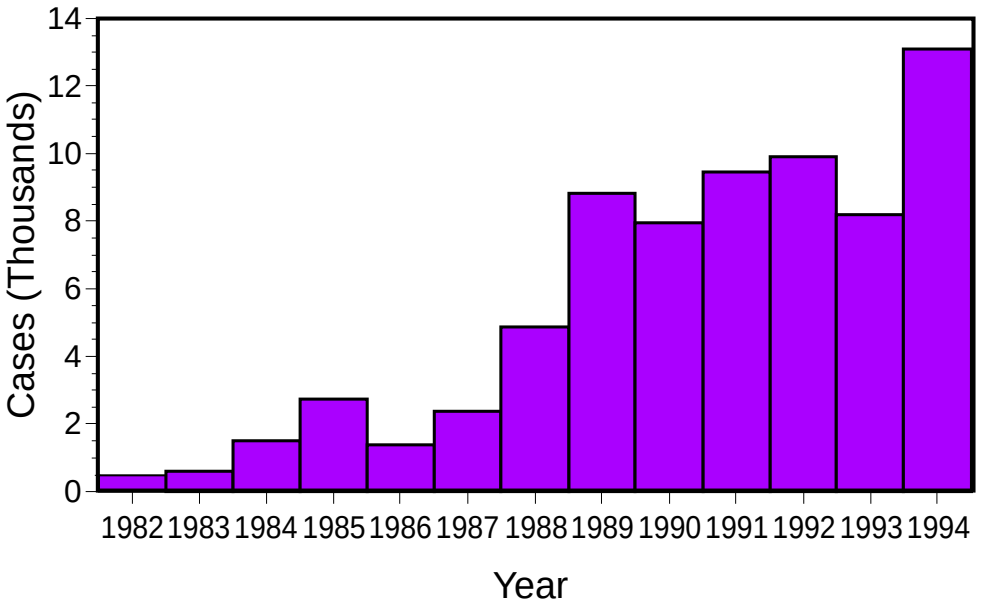
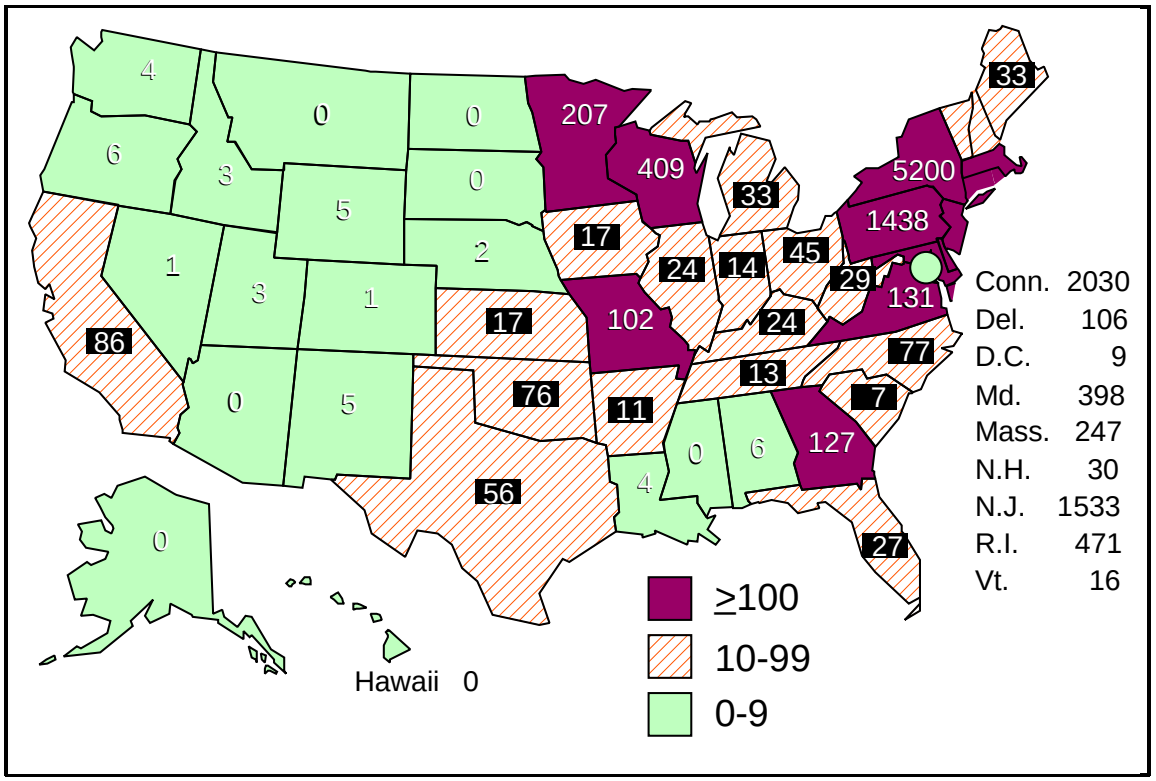


FIGURE 2. Number of reported Lyme disease cases, by state — United States, 1994



Lyme Disease — Continued

necticut, Maryland, Massachusetts, New Jersey, New York, Pennsylvania, and Wisconsin; the incidence was highest in Nantucket County, Massachusetts (1197.6).

Six northeastern states accounted for 95% of the increase in reported cases for 1994: Maryland, New Jersey, New York, Rhode Island, Connecticut, and Pennsylvania. Reported cases increased by 218 cases (121%) in Maryland, 747 cases (95%) in New Jersey, 2382 cases (85%) in New York, 199 cases (73%) in Rhode Island, 680 cases (50%) in Connecticut, and 353 cases (33%) in Pennsylvania. Reported cases remained stable in the states with endemic disease in the north-central region (Minnesota and Wisconsin) and decreased in California (36%).

Males and females were nearly equally affected in all age groups except those aged 10–19 years (males: 55%) and those aged 30–39 years (females: 56%).

Reported by: State health departments. Bacterial Zoonoses Br, Div of Vector-Borne Infectious Diseases, National Center for Infectious Diseases, CDC.

Editorial Note: LD is the most commonly reported vectorborne infectious disease in the United States. Infection with *B. burgdorferi* results from exposure to nymphal and adult forms of tick vectors of the genus *Ixodes*: *I. scapularis* (black-legged tick) in the northeastern and upper north-central United States, and *I. pacificus* (western black-legged tick) in the Pacific coastal states.

Risk for exposure to *B. burgdorferi* is strongly associated with the prevalence of tick vectors and the proportion of those ticks that carry *B. burgdorferi*. The risk for exposure may be highly focal (*2*) and can differ substantially between adjacent states, counties, communities, and areas on the same residential property (*3,4*). In northeastern states with endemic disease, the infection rate of nymphal *I. scapularis* ticks with *B. burgdorferi* is commonly 20%–35%, and even modest changes in tick numbers can substantially affect the risk for exposure to infected vectors (*5*). In one area of Connecticut where approximately 15% of *I. scapularis* are infected with *B. burgdorferi*, changes in the annual incidence of LD have paralleled changes in *I. scapularis* densities (M. Cartter, Connecticut Department of Health and Addiction Services, K. Stafford, Connecticut Agricultural Experimental Station, personal communication, 1995). In 1994, tick surveillance in the Northeast indicated increases over previous years in vector tick density. For example, in one site in Westchester County, New York, population density of *I. scapularis* nymphs increased 400% from 0.4 nymphs per square meter in 1993 to 1.6 nymphs per square meter in 1994 (T. Daniels, Fordham University, R. Falco, Westchester County Department of Health, personal communication, 1995), and in Rhode Island, nymphal *I. scapularis* density measured at sites throughout the state increased 158% from 1993 to 1994 (T. Mather, University of Rhode Island, personal communication, 1995).

Ascertainment of LD cases based only on passive surveillance may result in underreporting of cases (*6,7*). Because of this and in accordance with recommendations for control of emerging diseases (*8*), some states in which LD is endemic have expanded surveillance efforts. In 1994, the New York State Department of Health augmented surveillance with additional staff, intensified active case detection, and validated some cases reported in the previous year; these efforts probably accounted for some of the increase in reported cases for New York in 1994 (D. White, New York State Department of Health, personal communication, 1995). Active surveillance, with support from CDC, is conducted by health departments in Connecticut, Michigan, Minnesota, New Jersey, New York, Oregon, Rhode Island, and West Virginia.

Lyme Disease — Continued

The risk for infection among persons residing in or visiting areas where LD is endemic can be reduced through avoidance of known tick habitats; other preventive measures include wearing long pants and long-sleeved shirts, tucking pants into socks, applying tick repellents containing N,N-diethyl-m-toluamide ("DEET") to clothing and/or exposed skin according to manufacturer's instructions, checking thoroughly and regularly for ticks, and promptly removing any attached ticks. Acaracides containing permethrin kill ticks on contact and can provide further protection when applied to clothing, but are not approved for use on skin.

Additional information about LD is available from state and local health departments, from CDC's Voice Information System, telephone (404) 332-4555; from CDC's Bacterial Zoonoses Branch, Division of Vector-Borne Infectious Diseases, National Center for Infectious Diseases, telephone (970) 221-6453; and from the Office of Communications, National Institute of Allergy and Infectious Diseases, National Institutes of Health, telephone (301) 496-5717.

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African Pygmy Hedgehog-Associated Salmonellosis — Washington, 1994

During 1994, the Washington Department of Health Public Health Laboratory reported the isolation from a human of a rare *Salmonella* serotype, *Salmonella* serotype Tilene. This report summarizes the epidemiologic investigation of the case by the Seattle-King County Department of Public Health, which suggested the infection was related to exposure to African pygmy hedgehogs.

On April 9, 1994, a 10-month old girl was evaluated in a hospital emergency department in King County for an acute febrile, nonbloody diarrheal illness; the fever resolved without treatment but the diarrhea persisted for 3 weeks. On April 28, she was evaluated in an outpatient clinic; a stool sample yielded *Salmonella* Tilene. The infant had been breast-fed and received supplemental solid foods; she did not attend a child care center. Her parents were asymptomatic, and cultures of stool samples from both were negative. The family owned a dog and a breeding herd of 80 apparently healthy African pygmy hedgehogs; a stool sample from one of three hedgehogs

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cultured yielded *Salmonella* Tilene. Although the infant had not had direct contact with the hedgehogs, the hedgehogs were handled frequently by one member of the family. The infant's illness resolved after treatment for an upper respiratory infection with trimethoprim-sulfamethoxazole.

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Editorial Note: *Salmonella* Tilene is an uncommon cause of human illness; the organism was first isolated in 1960 from a child in Senegal (*1*). Although the patient in Washington had the first documented human infection with this serotype in the United States,* since January 1991 the U.S. Department of Agriculture (USDA) has identified two isolates from animals at the National Veterinary Services Laboratory—both were from African pygmy hedgehogs (K. Ferris, USDA, personal communication, April 1995). Although the African pygmy hedgehog is an unusual pet, ownership of these animals is reportedly increasing in the United States (*2*). African pygmy hedgehogs are bred domestically in the United States; importation from Africa has been prohibited since 1991 because they can carry foot-and-mouth disease, a disease of livestock that is not found in the United States (R. Perkins, USDA, personal communication, May 1995).

Salmonella spp. are found worldwide in domestic and wild animals, including mammals, reptiles, and birds. Although ingestion of contaminated food is the most important source of salmonellosis in humans (*3*), pets are another potential source of infection (*4,5*). The overall risk for acquiring salmonellosis from pets is low; however, the risk is increased with exposure to animals with high fecal carriage rates of *Salmonella*. In general, carriage rates are higher in animals that are young, have diarrhea, or live in overcrowded conditions (*4*). Reported carriage rates are highest in reptiles (as high as 90%), and lowest in dogs and cats (*4*). Carriage rates have not been reported for African pygmy hedgehogs.

The investigation of this case and a recent report involving reptile-associated transmission of *Salmonella* (*5*) underscore the potential risk for transmission of *Salmonella* from an infected pet to members of the household who do not have direct contact with the pet. This risk can be reduced by handwashing after handling of pets, especially before eating or handling food, and by avoiding contact with pets' feces (*6*).

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* On June 21, the Texas Department of Health reported to CDC the second human infection with *Salmonella* Tilene in the United States; the patient's family owned a hedgehog.

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