CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

January 22, 1993 / Vol. 42 / No. 2

MMWR
MORBIDITY AND MORTALITY WEEKLY REPORT

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Epidemiologic Notes and Reports

Coccidioidomycosis — United States, 1991–1992

During 1991, reported cases of coccidioidomycosis (i.e., valley fever) in California increased more than three-fold over the annual number of cases reported since 1986; during 1992, the number of reported cases increased 10-fold. Coccidioidomycosis, a fungal disease caused by *Coccidioides immitis*, is endemic in certain parts of Arizona, California, Nevada, New Mexico, Texas, and Utah. Sporadic cases occur each year in parts of the United States in which the disease is not endemic and may present diagnostic difficulties and laboratory hazards because health-care workers may be unfamiliar with coccidioidomycosis. Recent increases in California and reports of isolated cases in areas without endemic disease suggest that physicians and laboratory personnel should be alert to the possible role of *C. immitis*. This report summarizes the occurrence of coccidioidomycosis in California during 1991 and 1992 and highlights three cases that occurred in areas in which the disease is not endemic.

Outbreak in California

In 1991, 1208 new cases of coccidioidomycosis were reported to the California Department of Health Services (CDHS), compared with an average of 450 cases per year during the previous 5 years. Of these cases, 959 (80%) were reported from Kern County, where coccidioidomycosis is known to be endemic and where the county health department serves as a referral laboratory for coccidioidomycosis serologic tests. Of all cases reported to CDHS in 1991, 765 (63%) were reported from October through December. In 1992, 4541 cases of coccidioidomycosis were reported to CDHS (Figure 1). Of these, 4198 (92%) were reported from the central valley and southern California, including 3027 (67%) from Kern County. Reports from the Coccidioidomycosis Serology Laboratory of the University of California at Davis, a reference laboratory that receives specimens from areas of California other than Kern County, also documented an increased incidence in 1991 and 1992.

Coccidioidomycosis — Continued

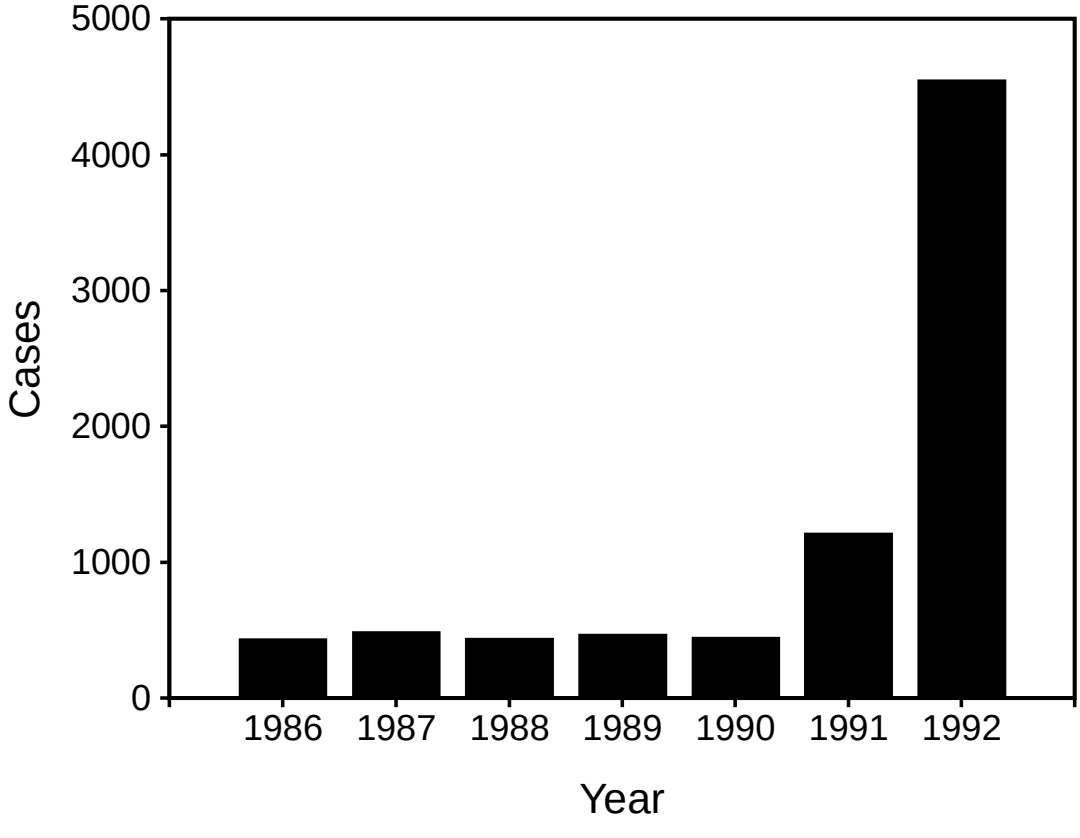
Nonendemic Coccidioidomycosis

Although no national surveillance system exists for coccidioidomycosis, each year several cases are reported to CDC that occur outside of the southwestern United States, where the disease is endemic. Three such case-reports follow.

Case 1. In September 1992, a 24-year-old black man from Virginia developed pulmonary coccidioidomycosis 2 weeks after driving through California. He was admitted to a hospital after a chest radiograph indicated bilateral lower lobe infiltrates with extensive mediastinal and hilar lymphadenopathy. He was presumed to have bacterial pneumonia and was treated with antibiotics. Efforts to diagnose the pneumonia, which included bronchoalveolar lavage and transbronchial biopsy, were unsuccessful until an open-lung biopsy was performed. Culture of the biopsy specimen grew *C. immitis*. The patient was treated with an intravenous antifungal agent and was discharged after 12 days.

Case 2. In August 1992, a 13-year-old black male from Georgia developed symptoms that included hoarseness, noisy breathing, and difficult breathing 2 months after visiting southern California, Nevada, and northern Mexico. During initial evaluation, a laryngeal mass was detected; a laryngeal papilloma was suspected. Treatment with steroids and bronchodilaters resulted in symptomatic improvement. In October 1992, a subsequent laryngoscopy detected diffuse granular tissue on the larynx. His-

FIGURE 1. Reported cases of coccidioidomycosis, by year — California, 1986–1992



Coccidioidomycosis — Continued

topathologic examination of the biopsy revealed spherules of *C. immitis* and culture of the biopsy specimen grew *C. immitis*. The patient was treated with an intravenous antifungal agent and, after 5 days, was discharged on an oral antifungal agent.

Case 3. In October 1992, a 30-year-old black woman, who had previously resided in Arizona, was hospitalized in Florida because of chronic disseminated coccidioidomycosis. A slant of *C. immitis* culture isolated from her blood was inadvertently broken in the hospital's microbiology laboratory. The fungus had not been handled in a biological cabinet. The spill was promptly cleaned and disinfected. No subsequent evidence of clinical infection was found in potentially exposed laboratory personnel.

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Editorial Note: *C. immitis* resides in the soil in certain parts of the southwestern United States, northern Mexico, and a few other areas in the Western Hemisphere. Infection is caused by inhalation of airborne, infective arthroconidia, one stage in the organism's life cycle. In the host, these conidia convert into endosporulating spherules, the organism's other morphologic form. The disease is not transmitted from person to person (*1–3*).

A substantial proportion of adults who are long-time residents of areas where the disease is endemic have evidence of prior infection with *C. immitis* by positive coccidioidin or spherulin skin tests. However, in addition to sporadic disease, these areas also experience outbreaks, demonstrated by the recent sharp increase in disease incidence in California. The current outbreak in California may be associated with weather conditions, especially a recent protracted drought followed by occasional heavy rains. The magnitude of the outbreak may be partially explained by recent migration of persons previously unexposed to *C. immitis* into areas of California where coccidioidomycosis is endemic. This outbreak illustrates how factors such as weather and demographic changes can affect the emergence of public health problems from infectious diseases (*4*).

Approximately 60% of persons infected with *C. immitis* remain asymptomatic. Symptomatic coccidioidomycosis has a wide clinical spectrum, ranging from mild influenza-like illness to serious pneumonia to widespread dissemination. Dissemination outside the lungs occurs in approximately 0.5% of infections. Coccidioidal meningitis is a particularly serious manifestation of disseminated coccidioidomycosis. Among persons who become infected, blacks, Filipinos and other Asians, Hispanics, and women who acquire the primary infection during the later stages of pregnancy are at increased risk for disseminated coccidioidomycosis (*2,3,5*). Extrapulmonary coccidioidomycosis is an acquired immunodeficiency syndrome-defining illness when it occurs in a person with evidence of infection with human immunodeficiency virus (*6*).

Infection with *C. immitis* in persons residing outside coccidioidomycosis-endemic areas may occur as a result of travel in these areas, laboratory exposure, or inhalation of contaminated fomites (e.g., soil, cotton, packing material, or museum artifacts) taken from areas with endemic coccidioidomycosis (*7,8*).

Coccidioidomycosis — Continued

In laboratory cultures, *C. immitis* develops the highly infectious mycelial form and may pose a hazard to laboratory workers if arthroconidia from cultures are inadvertently aerosolized. When clinical laboratories handle *C. immitis*, laboratory activities should be performed at biosafety level 3. Subculturing or harvesting of arthroconidia and opening tubes containing cultures of *C. immitis* should be performed only in an appropriate biological cabinet (*9*). Agar slants or bottles should be used, instead of petri dishes, for the isolation of *C. immitis* (*10*). If a plate culture is prepared, the plate should be sealed with adhesive tape once growth is evident, and the culture plate should be destroyed after 10–14 days. Cultures sent through the mail should be packaged and labeled in accordance with regulations concerning the interstate shipment of etiologic agents.*

Clinicians should consider the diagnosis of coccidioidomycosis in persons with undiagnosed respiratory illnesses or syndromes that could represent disseminated coccidioidomycosis for those who reside in, or have traveled to, areas where the disease is endemic, or who have had occupational exposure to *C. immitis*. Laboratory personnel should be reminded of necessary safety precautions when handling *C. immitis*.

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*42 CFR Part 72.

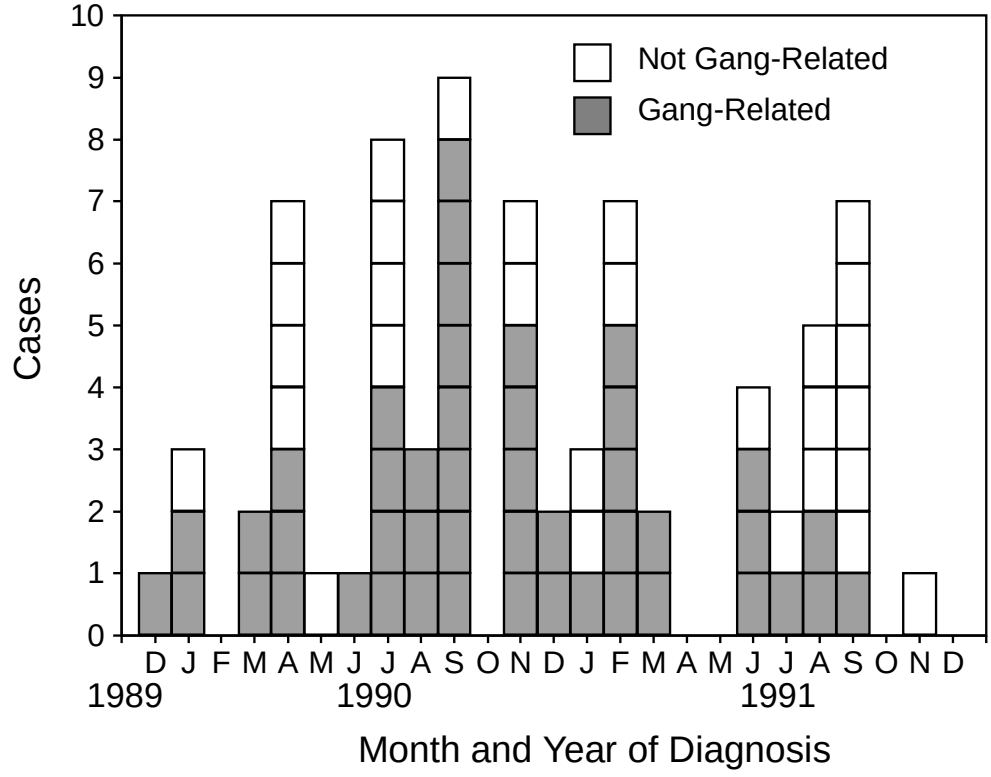
Current Trends

Gang-Related Outbreak of Penicillinase-Producing *Neisseria gonorrhoeae* and Other Sexually Transmitted Diseases — Colorado Springs, Colorado, 1989–1991

In April 1990, the El Paso County (Colorado) Health Department (EPCHD) recognized an outbreak of penicillinase-producing *Neisseria gonorrhoeae* (PPNG) and other sexually transmitted diseases (STDs) occurring in Colorado Springs (1990 census population: 397,014), Colorado. An investigation by the EPCHD and the Colorado Department of Health eventually identified 56 cases of PPNG from December 1989 through March 1991 (Figure 1). The outbreak revealed a previously unidentified core group of persons with STDs in Colorado Springs. This report summarizes traditional and innovative measures used to investigate and manage the outbreak, and describes this core group and its role in STD transmission in Colorado Springs.

Disease intervention specialists (DISs) used both traditional (e.g., partner notification and referral) and innovative (e.g., ethnographic methods) approaches to obtain the cooperation of persons with PPNG and other STDs (*1*) and to help identify other persons who had been sexually exposed. Persons were interviewed in STD clinics, in

FIGURE 1. Number of cases of penicillinase-producing *Neisseria gonorrhoeae* among persons not related to or related to a gang sociosexual network, by month and year of diagnosis — Colorado Springs, Colorado, December 1989–December 1991



PPNG — Continued

their homes, and at locations where they congregated (e.g., movie theaters, shopping malls, clubs, and bars). Network analysis (*2*) was performed on case-finding data to characterize sexual and social connections of those identified.

The network analysis included 578 persons connected through social or sexual associations. A densely connected subset of 410 persons (218 men and 192 women) within this network included adolescents and young adults associated with street gangs. These gangs, which originated in Los Angeles and are associated with the crack cocaine trade in the United States, had not been observed in Colorado Springs before May 1988 (*3,4*). The men in this subset were young (mean age: 21.5 years) and mostly black (87.2%), and the women were younger (mean age: 19.7 years) and more racially/ethnically diverse. During interviews with DISs, many women reported engaging in multiple risk behaviors associated with transmission of STDs (e.g., engaging in frequent sexual encounters with multiple sex partners, exchanging sex for crack cocaine, and heavily using crack cocaine). In comparison, fewer men reported heavy use of crack cocaine, but many reported having engaged in frequent sexual encounters and having had multiple sex partners.

Of the 410 persons in this subset, 300 received medical examinations at public STD clinics, hospitals, and community health centers (Figure 2); of these 300 persons, 248 (83%) were infected with one or more STDs. A total of 390 laboratory-confirmed sexually transmitted infections, including two early syphilis infections, were diagnosed among these 248 persons. A relatively high proportion of those infected with *N. gonorrhoeae* were coinfected with *Chlamydia trachomatis*; 18 (46%) of 39 PPNG episodes and 64 (29%) of 222 nonresistant-gonorrhea episodes involved coinfection with *C. trachomatis*.

During interviews by DISs, 200 (81%) of the 248 persons with infections named 558 sex partners and 571 others in the sociosexual network (*5,6*). Through outreach efforts (including partner notification and referral), DISs identified 91 persons that represented 130 (33%) of the 390 sexually transmitted infections diagnosed (12 PPNG infections, 62 gonococcal infections, 55 genital chlamydial infections, and one syphilitic infection) (Figure 2); 21 of these infections were identified in other members in the sociosexual network.

During December 1989–March 1991, the 39 gang-related PPNG cases accounted for 70% of the total 56 cases reported in Colorado Springs. Persons in this core group and their sex partners accounted for 261 (22%) of 1170 gonorrhea infections, 127 (11%) of 1164 chlamydial infections, and two (11%) of 18 infectious syphilis cases during that period.

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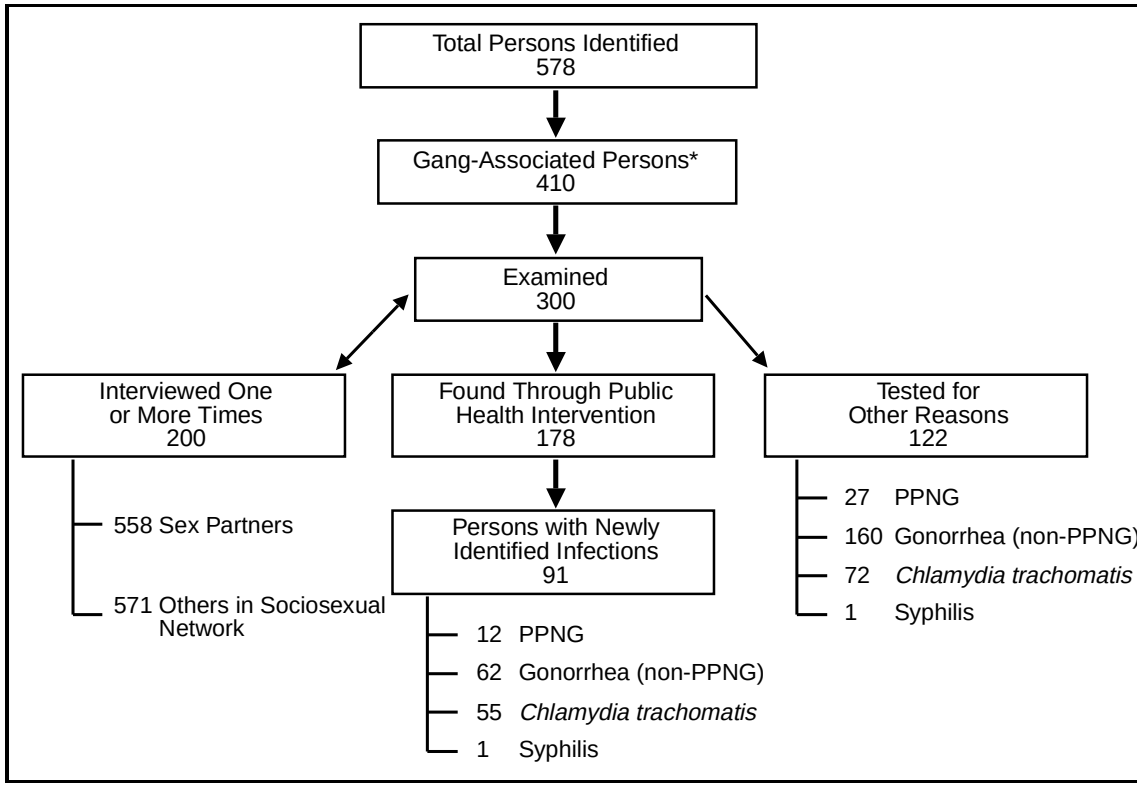
Editorial Note: Before this outbreak was detected, PPNG in Colorado Springs had been limited to sporadic cases, primarily among military personnel returning from Southeast Asia. From 1976 through 1989, a total of 105 PPNG cases (0.5% of all gonorrhea cases) were reported in Colorado Springs. The investigation of the occurrence of epidemic PPNG revealed a previously unidentified core group that appeared to play an important role in the incidence of many STDs in Colorado Springs. The 213 persons

PPNG — Continued

who had 261 episodes of gonorrhea (both PPNG and non-PPNG) during this outbreak represented only 0.1% of the population aged 18–44 years in Colorado Springs. However, this group accounted for 22% of all (1170) reported cases of gonorrhea during a 16-month period. The observation of at least 390 sexually transmitted infections in a group of 410 people and the high percentages of coinfection with other STDs further support the core-group concept for transmission of STDs.

Network analysis indicated that this group was strongly interconnected and comprised predominantly young men and women with social ties to street gangs. These findings correspond with observations from other cities (*7*) that gonorrhea incidence is unequally distributed and concentrated within certain core populations, and provide added evidence that such groups, once established, may be responsible for maintaining high levels of transmission of many endemic STDs (*8,9*). Age, sex, race/ethnicity, socioeconomic status, urban residence, cocaine use, or gang affiliation may serve as useful risk markers (*7*) for identifying core populations at greatest risk for STDs. Fur-

FIGURE 2. Public health intervention involving an outbreak of penicillinase-producing *Neisseria gonorrhoeae* (PPNG) and other sexually transmitted diseases — Colorado Springs, Colorado, 1989–1991



*The gang-associated group consists of all persons who were identified—either as cases, contacts, or others in the sociosexual network—as part of the network. These 410 persons represented the unduplicated count of those examined, interviewed, found through public health intervention, and who volunteered for health care.

PPNG — Continued

ther characterization of such groups at elevated risk is needed. Moreover, STD-prevention strategies responsive to the needs of specific populations (e.g., young urban persons) must be developed.

Rapid intervention using traditional case-finding techniques has been associated with the control of both highly focal and communitywide outbreaks of STDs (*10*). Management of this outbreak further illustrates how specially trained public health professionals, who combine traditional and innovative disease-control strategies, can work with street gang members and other disenfranchised groups (*5*).

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Effectiveness in Disease and Injury Prevention

Worksite Health Promotion — New Hampshire, 1992

Because a high proportion (85%) of the U.S. adult population is employed, the worksite setting offers immense potential for health-promotion efforts (*1*). Successful worksite health-promotion programs have targeted nutrition, cholesterol reduction, and cancer prevention (*2–4*). As part of an effort to strengthen such programs in New Hampshire, the Division of Public Health Services (DPHS), New Hampshire State Department of Health and Human Services, in collaboration with the University of New Hampshire and CDC, conducted a statewide survey of worksites from March through July 1992 to characterize employee health services. This report summarizes findings on the proportion of worksites that offered health-promotion activities.

A worksite was defined as any nonmilitary place of employment located in New Hampshire that had 50 or more employees at one location; branch offices and subsidi-

Worksite Health Promotion — Continued

aries with 50 or more employees were included as individual worksites. Worksites were stratified into two groups based on participation in the New Hampshire Employee Health Forum (NHEHF), a program sponsored by the DPHS to address worksite health promotion.* From a total of 1565 worksites, a stratified sample of 500 (32%) was selected, consisting of 200 NHEHF participant worksites and 300 nonparticipant worksites. The sampled worksites were mailed a questionnaire and up to three follow-up questionnaires. A total of 304 (61%) eligible worksites responded; 150 (49%) were participants in NHEHF.

Of the worksites that responded, 113 (37%) were manufacturing firms, 75 (25%) were service companies, and 53 (17%) were health-care organizations. Of the 304 worksites, 157 (52%) were part of a larger organization, 54 (18%) were located at company headquarters, and 62 (20%) employed union workers. The average number of employees was 286 (range: 50–5005) (Table 1). Worksites that participated in the NHEHF were larger and consisted of higher percentages of manufacturing and health-care companies than nonparticipant worksites; because these two groups did not differ in prevalence of health-promotion activities, results for the groups were combined.

Of the worksites surveyed, 48% offered at least one health-promotion activity. The most frequently offered activities were fitness and exercise (21.4%), smoking cessation (21.4%), weight control (21.0%), nutrition education (20.1%), cholesterol control (19.9%), and blood pressure control (19.2%). The prevalence of each specific health-promotion activity increased with the number of employees at the worksite (Table 2, page 35). Worksites involved in the health-care industry were more likely to offer

(Continued on page 35)

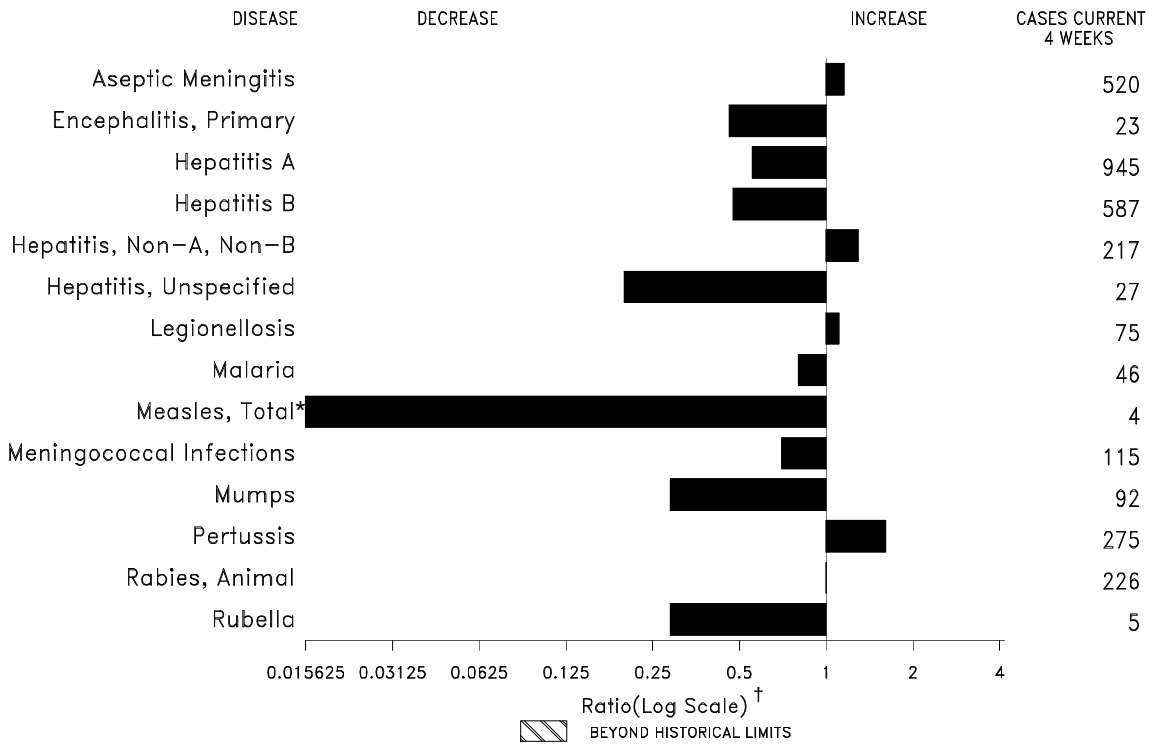
*During 1986, the DPHS established the New Hampshire Employee Health Forum that targets worksite policymakers and health-promotion service providers; the forum provides monthly workshops on health-promotion, employee-assistance, and occupational health and safety programs.

TABLE 1. Characteristics of worksites,* by participation in the New Hampshire Employee Health Forum (NHEHF) — New Hampshire Worksite Health Promotion Survey, New Hampshire, 1992

Characteristic	NHEHF participation		
	Yes (n=150)	No (n=154)	Total (n=304)
No. employees			
Mean (standard error)	378 (48)	196 (28)	286 (28)
Industry			
Manufacturing	44%	31%	37%
Service	15%	34%	25%
Health-care	26%	10%	17%
Other	16%	25%	20%
Worksite part of a larger company	53%	51%	52%
Worksite located at company headquarters	19%	17%	18%
Worksite employed union workers	19%	21%	20%

*Nonmilitary places of employment with 50 or more employees.

FIGURE I. Notifiable disease reports, comparison of 4-week totals ending January 16, 1993, with historical data — United States



* The large apparent decrease in reported cases of measles(total) reflects dramatic fluctuations in the historical baseline. (Ratio (log scale) for week two is 0.01393).

† 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 thehatched 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 January 16, 1993 (2nd Week)

	Cum. 1993		Cum. 1993
AIDS*	-	Measles: imported	-
Anthrax	-	indigenous	1
Botulism: Foodborne	-	Plague	-
Infant	-	Poliomyelitis, Paralytic§	-
Other	-	Psittacosis	1
Brucellosis	1	Rabies, human	-
Cholera	-	Syphilis, primary & secondary	778
Congenital rubella syndrome	-	Syphilis, congenital, age < 1 year	-
Diphtheria	-	Tetanus	1
Encephalitis, post-infectious	2	Toxic shock syndrome	5
Gonorrhea	10,893	Trichinosis	-
Haemophilus influenzae (invasive disease)†	20	Tuberculosis	418
Hansen Disease	-	Tularemia	4
Leptospirosis	-	Typhoid fever	17
Lyme Disease	40	Typhus fever, tickborne (RMSF)	4

*AIDS case reports are updated monthly rather than weekly (*MMWR* Vol. 41, No. 18, p. 325). Case reports for January 1993 will be added to this table during the first week of February.
†Of 14 cases of known age, 8 (57%) were reported among children less than 5 years of age.
§No cases of suspected poliomyelitis have been reported in 1993; 4 cases of suspected poliomyelitis were reported in 1992; 6 of the 9 suspected cases with onset in 1991 were confirmed; all were vaccine associated.

TABLE II. Cases of selected notifiable diseases, United States, weeks ending January 16, 1993, and January 11, 1992 (2nd Week)

Reporting Area	AIDS*	Aseptic Meningitis	Encephalitis		Gonorrhea		Hepatitis (Viral), by type				Legionellosis	Lyme Disease
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
	Cum. 1993	Cum. 1993	Cum. 1993	Cum. 1993	Cum. 1993	Cum. 1992	Cum. 1993	Cum. 1993	Cum. 1993	Cum. 1993	Cum. 1993	Cum. 1993
UNITED STATES	-	181	17	2	10,893	15,014	434	261	72	13	41	40
NEW ENGLAND	-	2	1	-	222	198	41	27	1	2	2	14
Maine	-	-	-	-	3	-	1	-	-	-	1	-
N.H.	-	1	-	-	5	-	2	5	-	-	-	-
Vt.	-	-	-	-	4	-	-	-	-	-	-	-
Mass.	-	1	1	-	210	159	25	17	1	2	1	7
R.I.	-	-	-	-	-	8	13	5	-	-	-	7
Conn.	-	-	-	-	-	31	-	-	-	-	-	-
MID. ATLANTIC	-	2	-	-	363	636	10	2	-	-	1	17
Upstate N.Y.	-	-	-	-	-	11	-	-	-	-	-	1
N.Y. City	-	-	-	-	-	333	-	-	-	-	-	-
N.J.	-	-	-	-	-	292	6	-	-	-	-	3
Pa.	-	2	-	-	363	-	4	2	-	-	1	13
E.N. CENTRAL	-	43	3	1	2,112	2,786	90	90	30	-	20	1
Ohio	-	23	2	-	976	1,786	6	3	1	-	6	1
Ind.	-	5	1	-	301	245	73	67	2	-	5	-
Ill.	-	1	-	-	417	238	-	-	-	-	-	-
Mich.	-	14	-	1	343	403	11	20	27	-	9	-
Wis.	-	-	-	-	75	114	-	-	-	-	-	-
W.N. CENTRAL	-	5	-	-	475	1,715	10	1	1	-	3	-
Minn.	-	-	-	-	79	20	1	-	-	-	-	-
Iowa	-	4	-	-	116	-	1	1	1	-	-	-
Mo.	-	-	-	-	270	1,242	-	-	-	-	-	-
N. Dak.	-	-	-	-	-	2	-	-	-	-	-	-
S. Dak.	-	-	-	-	10	3	1	-	-	-	-	-
Nebr.	-	1	-	-	-	2	7	-	-	-	3	-
Kans.	-	-	-	-	-	446	-	-	-	-	-	-
S. ATLANTIC	-	27	1	-	3,498	5,950	5	8	4	2	1	1
Del.	-	-	-	-	61	46	-	-	3	1	-	-
Md.	-	-	1	-	333	427	-	1	-	-	-	-
D.C.	-	1	-	-	213	301	-	1	-	-	-	-
Va.	-	-	-	-	231	668	-	-	-	-	-	-
W. Va.	-	2	-	-	26	49	-	1	-	1	-	1
N.C.	-	-	-	-	1,040	-	-	-	-	-	-	-
S.C.	-	-	-	-	466	646	-	2	-	-	-	-
Ga.	-	2	-	-	539	2,760	-	-	1	-	1	-
Fla.	-	22	-	-	589	1,053	5	3	-	-	-	-
E.S. CENTRAL	-	13	-	-	1,822	728	3	17	-	-	2	-
Ky.	-	5	-	-	167	134	2	2	-	-	1	-
Tenn.	-	1	-	-	603	225	1	11	-	-	1	-
Ala.	-	7	-	-	710	198	-	4	-	-	-	-
Miss.	-	-	-	-	342	171	-	-	-	-	-	-
W.S. CENTRAL	-	1	-	-	980	405	9	1	3	1	3	1
Ark.	-	-	-	-	167	-	1	1	-	-	-	-
La.	-	-	-	-	358	330	-	-	-	-	-	-
Okla.	-	-	-	-	137	75	8	-	3	1	3	1
Tex.	-	1	-	-	318	-	-	-	-	-	-	-
MOUNTAIN	-	6	1	-	271	590	87	15	6	-	5	-
Mont.	-	-	-	-	10	3	5	-	-	-	-	-
Idaho	-	1	-	-	5	2	3	1	-	-	-	-
Wyo.	-	-	-	-	-	1	-	-	-	-	2	-
Colo.	-	-	1	-	69	155	45	-	1	-	-	-
N. Mex.	-	4	-	-	35	40	12	7	4	-	-	-
Ariz.	-	-	-	-	75	324	19	3	-	-	-	-
Utah	-	-	-	-	-	3	-	-	-	-	-	-
Nev.	-	1	-	-	77	62	3	4	1	-	3	-
PACIFIC	-	82	11	1	1,150	2,006	179	100	27	8	4	6
Wash.	-	-	-	-	200	92	-	-	-	-	-	-
Oreg.	-	-	-	-	58	32	15	4	-	-	-	-
Calif.	-	82	10	1	866	1,828	156	96	27	8	4	6
Alaska	-	-	1	-	16	26	2	-	-	-	-	-
Hawaii	-	-	-	-	10	28	6	-	-	-	-	-
Guam	-	-	-	-	-	6	-	-	-	-	-	-
P.R.	-	-	-	-	11	1	-	14	1	-	-	-
V.I.	-	-	-	-	6	-	-	1	-	-	-	-
Amer. Samoa	-	-	-	-	1	5	-	-	-	-	-	-
C.N.M.I.	-	2	-	-	4	-	-	-	-	-	-	-

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

*AIDS case reports are updated monthly rather than weekly (*MMWR* Vol. 41, No. 18, p. 325). Case reports for January 1993 will be added to this table during the first week of February.

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending January 16, 1993, and January 11, 1992 (2nd Week)

Reporting Area	Malaria	Measles (Rubeola)					Menin-gococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported*		Total									
	Cum. 1993	1993	Cum. 1993	1993	Cum. 1993	Cum. 1992	Cum. 1993	1993	Cum. 1993	1993	Cum. 1993	Cum. 1992	1993	Cum. 1993	Cum. 1992
UNITED STATES	19	-	1	-	-	2	53	22	34	26	48	12	1	3	2
NEW ENGLAND	5	-	-	-	-	1	10	-	1	14	17	-	-	-	-
Maine	-	-	-	-	-	-	1	-	-	-	2	-	-	-	-
N.H.	-	-	-	-	-	-	4	-	-	14	14	-	-	-	-
Vt.	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
Mass.	4	-	-	-	-	-	1	-	-	-	-	-	-	-	-
R.I.	1	-	-	-	-	-	2	-	1	-	1	-	-	-	-
Conn.	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
MID. ATLANTIC	-	-	-	-	-	-	3	1	1	8	8	-	-	-	-
Upstate N.Y.	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-
N.Y. City	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N.J.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pa.	-	-	-	-	-	-	3	1	1	7	7	-	-	-	-
E.N. CENTRAL	1	-	-	-	-	-	4	8	13	-	8	4	-	-	-
Ohio	-	-	-	-	-	-	-	7	10	-	7	-	-	-	-
Ind.	1	-	-	-	-	-	3	-	-	-	-	4	-	-	-
Ill.	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Mich.	-	-	-	-	-	-	-	1	3	-	1	-	-	-	-
Wis.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.N. CENTRAL	-	-	-	-	-	-	1	1	2	-	1	3	-	-	-
Minn.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iowa	-	-	-	-	-	-	1	1	2	-	-	-	-	-	-
Mo.	-	-	-	-	-	-	-	-	-	-	1	3	-	-	-
N. Dak.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S. Dak.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nebr.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kans.	-	U	-	U	-	-	-	U	-	U	-	-	U	-	-
S. ATLANTIC	1	-	-	-	-	-	10	3	3	-	-	1	-	-	-
Del.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Md.	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-
D.C.	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Va.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W. Va.	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-
N.C.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S.C.	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-
Ga.	1	-	-	-	-	-	5	-	-	-	-	-	-	-	-
Fla.	-	-	-	-	-	-	3	1	1	-	-	-	-	-	-
E.S. CENTRAL	-	-	-	-	-	1	4	-	3	-	3	-	-	-	-
Ky.	-	-	-	-	-	1	2	-	-	-	1	-	-	-	-
Tenn.	-	-	-	-	-	-	1	-	2	-	1	-	-	-	-
Ala.	-	-	-	-	-	-	1	-	1	-	1	-	-	-	-
Miss.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W.S. CENTRAL	-	-	-	-	-	-	-	2	3	1	2	-	-	-	-
Ark.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
La.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Okla.	-	-	-	-	-	-	-	1	2	1	2	-	-	-	-
Tex.	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-
MOUNTAIN	-	-	-	-	-	-	-	2	2	1	1	1	-	-	-
Mont.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Idaho	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-
Wyo.	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-
Colo.	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
N. Mex.	-	-	-	-	-	-	-	N	N	-	-	-	-	-	-
Ariz.	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-
Utah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nev.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PACIFIC	12	-	1	-	-	-	21	5	6	2	8	3	1	3	2
Wash.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oreg.	-	-	-	-	-	-	3	N	N	-	-	-	-	-	-
Calif.	12	-	1	-	-	-	18	4	5	2	6	3	-	2	2
Alaska	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-
Hawaii	-	-	-	-	-	-	-	-	-	-	2	-	1	1	-
Guam	-	U	-	U	-	-	-	U	-	U	-	-	U	-	-
P.R.	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-
V.I.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amer. Samoa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C.N.M.I.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*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 January 16, 1993, and January 11, 1992 (2nd Week)

Reporting Area	Syphilis (Primary & Secondary)		Toxic-Shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1993	Cum. 1992	Cum. 1993	Cum. 1993	Cum. 1992	Cum. 1993	Cum. 1993	Cum. 1993	Cum. 1993
UNITED STATES	778	657	5	418	494	4	17	4	153
NEW ENGLAND	26	20	-	6	3	-	-	1	43
Maine	-	-	-	2	-	-	-	-	-
N.H.	-	-	-	-	-	-	-	-	1
Vt.	-	-	-	-	-	-	-	-	-
Mass.	16	9	-	1	-	-	-	1	8
R.I.	-	-	-	-	-	-	-	-	-
Conn.	10	11	-	3	3	-	-	-	34
MID. ATLANTIC	84	44	-	29	83	-	5	-	54
Upstate N.Y.	-	-	-	-	-	-	-	-	43
N.Y. City	84	20	-	20	83	-	-	-	-
N.J.	-	6	-	-	-	-	-	-	11
Pa.	-	18	-	9	-	-	5	-	-
E.N. CENTRAL	72	75	3	38	6	1	-	-	2
Ohio	40	24	3	6	5	-	-	-	-
Ind.	13	7	-	3	1	-	-	-	-
Ill.	6	10	-	29	-	-	-	-	-
Mich.	12	9	-	-	-	1	-	-	-
Wis.	1	25	-	-	-	-	-	-	2
W.N. CENTRAL	73	79	-	4	19	-	-	-	3
Minn.	1	-	-	-	18	-	-	-	2
Iowa	4	-	-	-	1	-	-	-	-
Mo.	68	78	-	4	-	-	-	-	-
N. Dak.	-	-	-	-	-	-	-	-	1
S. Dak.	-	-	-	-	-	-	-	-	-
Nebr.	-	1	-	-	-	-	-	-	-
Kans.	-	-	-	-	-	-	-	-	-
S. ATLANTIC	207	261	1	27	79	-	-	-	47
Del.	6	6	-	-	1	-	-	-	3
Md.	11	14	-	20	28	-	-	-	-
D.C.	7	53	-	-	3	-	-	-	-
Va.	21	26	-	-	-	-	-	-	20
W. Va.	1	-	-	2	3	-	-	-	2
N.C.	39	21	-	-	6	-	-	-	-
S.C.	18	22	-	5	6	-	-	-	4
Ga.	54	71	-	-	-	-	-	-	18
Fla.	50	48	1	-	32	-	-	-	-
E.S. CENTRAL	177	59	-	16	29	1	-	-	2
Ky.	20	5	-	5	5	-	-	-	-
Tenn.	47	18	-	-	-	-	-	-	-
Ala.	58	12	-	11	5	1	-	-	2
Miss.	52	24	-	-	19	-	-	-	-
W.S. CENTRAL	135	83	-	-	-	-	-	3	-
Ark.	21	-	-	-	-	-	-	-	-
La.	81	77	-	-	-	-	-	-	-
Okla.	27	6	-	-	-	-	-	3	-
Tex.	6	-	-	-	-	-	-	-	-
MOUNTAIN	2	32	-	10	-	-	-	-	1
Mont.	-	-	-	-	-	-	-	-	-
Idaho	-	-	-	-	-	-	-	-	-
Wyo.	-	-	-	-	-	-	-	-	-
Colo.	-	2	-	-	-	-	-	-	-
N. Mex.	-	2	-	-	-	-	-	-	-
Ariz.	2	7	-	7	-	-	-	-	1
Utah	-	-	-	-	-	-	-	-	-
Nev.	-	21	-	3	-	-	-	-	-
PACIFIC	2	4	1	288	275	2	12	-	1
Wash.	-	4	-	6	3	-	-	-	-
Oreg.	1	-	-	-	-	-	-	-	-
Calif.	-	-	1	275	263	2	12	-	-
Alaska	-	-	-	-	5	-	-	-	1
Hawaii	1	-	-	7	4	-	-	-	-
Guam	-	1	-	-	-	-	-	-	-
P.R.	29	-	-	-	-	-	-	-	-
V.I.	3	-	-	-	-	-	-	-	-
Amer. Samoa	-	-	-	-	-	-	-	-	-
C.N.M.I.	-	-	-	-	3	-	-	-	-

U: Unavailable

TABLE III. Deaths in 121 U.S. cities,* week ending January 16, 1993 (2nd Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	653	453	113	57	10	20	45
Boston, Mass.	168	109	28	19	3	9	13
Bridgeport, Conn.	43	27	8	3	5	-	3
Cambridge, Mass.	26	21	5	-	-	-	-
Fall River, Mass.	33	26	4	1	-	2	-
Hartford, Conn.	57	36	13	6	-	2	1
Lowell, Mass.	33	22	8	2	1	-	3
Lynn, Mass.	12	7	3	2	-	-	-
New Bedford, Mass.	25	20	4	1	-	-	-
New Haven, Conn.	54	37	12	5	-	-	-
Providence, R.I.	33	24	6	3	-	-	3
Somerville, Mass.	6	5	1	-	-	-	-
Springfield, Mass.	54	41	9	3	-	1	8
Waterbury, Conn.	43	32	5	5	-	1	4
Worcester, Mass.	66	46	7	7	1	5	10
MID. ATLANTIC	3,117	2,049	587	361	61	58	137
Albany, N.Y.	56	40	11	2	-	3	4
Allentown, Pa.	22	18	4	-	-	-	1
Buffalo, N.Y.	115	79	24	8	2	2	6
Camden, N.J.	52	33	8	5	-	6	-
Elizabeth, N.J.	34	28	5	1	-	-	2
Erie, Pa.§	64	50	11	-	2	1	6
Jersey City, N.J.	61	35	15	8	-	3	-
New York City, N.Y.	1,725	1,090	325	245	35	30	64
Newark, N.J.	62	26	14	18	1	2	2
Paterson, N.J.	31	18	3	10	-	-	1
Philadelphia, Pa.	390	276	75	27	8	4	23
Pittsburgh, Pa.§	90	63	17	6	3	1	8
Reading, Pa.	16	8	3	2	3	-	2
Rochester, N.Y.	148	103	29	10	5	1	11
Schenectady, N.Y.	25	18	4	2	-	1	1
Scranton, Pa.§	31	23	7	1	-	-	-
Syracuse, N.Y.	106	79	18	7	2	-	2
Trenton, N.J.	33	22	4	4	-	3	1
Utica, N.Y.	31	24	5	2	-	-	1
Yonkers, N.Y.	25	16	5	3	-	1	2
E.N. CENTRAL	2,172	1,361	421	226	110	54	116
Akron, Ohio	65	50	11	3	-	1	-
Canton, Ohio	41	32	8	1	-	-	5
Chicago, Ill.	517	207	118	107	71	14	15
Cincinnati, Ohio	100	70	16	5	5	4	7
Cleveland, Ohio	147	90	39	14	2	2	-
Columbus, Ohio	U	U	U	U	U	U	U
Dayton, Ohio	149	97	36	5	5	6	10
Detroit, Mich.	270	157	64	29	12	8	9
Evansville, Ind.	57	46	6	3	2	-	2
Fort Wayne, Ind.	71	53	11	4	1	2	6
Gary, Ind.	14	9	3	1	1	-	-
Grand Rapids, Mich.	65	48	7	4	1	5	4
Indianapolis, Ind.	183	131	28	16	4	4	12
Madison, Wis.	29	24	3	2	-	-	2
Milwaukee, Wis.	154	114	29	9	1	1	19
Peoria, Ill.	47	40	3	1	2	1	4
Rockford, Ill.	64	47	9	5	2	1	10
South Bend, Ind.	50	34	6	7	1	2	2
Toledo, Ohio	100	74	17	7	-	2	5
Youngstown, Ohio	49	38	7	3	-	1	4
W.N. CENTRAL	942	696	145	56	20	25	46
Des Moines, Iowa	83	68	9	3	-	3	6
Duluth, Minn.	40	31	8	1	-	-	3
Kansas City, Kans.	27	20	6	1	-	-	1
Kansas City, Mo.	128	87	29	7	3	2	5
Lincoln, Nebr.	40	34	4	2	-	-	5
Minneapolis, Minn.	255	183	37	15	7	13	11
Omaha, Nebr.	86	64	12	6	3	1	3
St. Louis, Mo.	136	99	20	9	5	3	6
St. Paul, Minn.	71	54	10	6	1	-	4
Wichita, Kans.	76	56	10	6	1	3	2

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	≥65	45-64	25-44	1-24	<1	
S. ATLANTIC	1,400	873	273	162	45	45	80
Atlanta, Ga.	228	125	53	33	7	10	3
Baltimore, Md.	284	166	54	45	9	10	27
Charlotte, N.C.	82	58	17	6	1	-	6
Jacksonville, Fla.	132	87	27	13	1	3	8
Miami, Fla.	U	U	U	U	U	U	U
Norfolk, Va.	63	37	15	3	3	5	8
Richmond, Va.	109	71	22	8	4	4	4
Savannah, Ga.	56	37	9	8	-	2	4
St. Petersburg, Fla.	77	51	11	8	4	3	-
Tampa, Fla.	196	136	34	14	8	3	11
Washington, D.C.	144	86	22	23	8	5	9
Wilmington, Del.	29	19	9	1	-	-	-
E.S. CENTRAL	946	631	200	72	30	13	66
Birmingham, Ala.	150	94	31	15	8	2	4
Chattanooga, Tenn.	105	74	24	3	-	4	9
Knoxville, Tenn.	73	42	24	4	2	1	8
Lexington, Ky.	88	61	19	2	3	3	7
Memphis, Tenn.	236	156	44	28	8	-	15
Mobile, Ala.	64	46	10	6	2	-	6
Montgomery, Ala.	41	29	9	2	1	-	-
Nashville, Tenn.	189	129	39	12	6	3	17
W.S. CENTRAL	1,841	1,160	389	179	73	40	102
Austin, Tex.	93	63	20	4	2	4	4
Baton Rouge, La.	86	61	12	8	3	2	3
Corpus Christi, Tex.	67	46	16	3	2	-	5
Dallas, Tex.	238	141	47	37	5	8	8
El Paso, Tex.	83	60	16	1	4	2	2
Ft. Worth, Tex.	135	87	24	15	6	3	8
Houston, Tex.	447	248	111	51	23	14	48
Little Rock, Ark.	102	68	22	10	-	2	6
New Orleans, La.	245	144	58	24	17	2	-
San Antonio, Tex.	160	115	26	12	5	2	7
Shreveport, La.	41	34	5	2	-	-	2
Tulsa, Okla.	144	93	32	12	6	1	9
MOUNTAIN	1,051	716	200	92	18	25	100
Albuquerque, N.M.	129	83	24	17	2	3	3
Colo. Springs, Colo.	57	37	7	5	3	5	2
Denver, Colo.	160	106	33	17	1	3	18
Las Vegas, Nev.	163	112	32	16	1	2	9
Ogden, Utah	40	28	8	2	1	1	1
Phoenix, Ariz.	224	142	53	17	7	5	38
Pueblo, Colo.	23	21	-	2	-	-	2
Salt Lake City, Utah	90	62	16	10	1	1	9
Tucson, Ariz.	165	125	27	6	2	5	18
PACIFIC	1,696	1,161	264	187	47	37	133
Berkeley, Calif.	20	9	3	6	1	1	3
Fresno, Calif.	139	101	22	9	3	4	8
Glendale, Calif.	U	U	U	U	U	U	U
Honolulu, Hawaii	80	60	11	7	1	1	7
Long Beach, Calif.	U	U	U	U	U	U	U
Los Angeles, Calif.	U	U	U	U	U	U	U
Pasadena, Calif.	26	19	3	3	1	-	-
Portland, Oreg.	143	100	22	16	2	3	5
Sacramento, Calif.	185	135	30	10	3	7	23
San Diego, Calif.	360	229	57	47	15	12	43
San Francisco, Calif.	192	124	25	38	4	1	4
San Jose, Calif.	216	154	34	20	6	2	25
Santa Cruz, Calif.	U	U	U	U	U	U	U
Seattle, Wash.	186	116	36	23	8	3	4
Spokane, Wash.	50	39	7	1	1	2	3
Tacoma, Wash.	99	75	14	7	2	1	8
TOTAL	13,818¶	9,100	2,592	1,392	414	317	825

*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.

TABLE 2. Number* and percentage of worksites that offered selected health-promotion activities, by number of employees and by industry — New Hampshire Worksite Health Promotion Survey, New Hampshire, 1992

	No. employees								
	50–99			100–199			≥200		
Activity	No. worksites	%	(95% CI†)	No. worksites	%	(95% CI)	No. worksites	%	(95% CI)
Smoking cessation	112	8.9	(±4.2)	81	7.4	(±2.9)	88	50.0	(±7.0)
Weight control	112	5.4	(±3.2)	82	11.0	(±4.3)	87	50.6	(±7.2)
Nutrition education	111	5.4	(±3.5)	81	11.1	(±4.7)	86	47.7	(±7.1)
Cholesterol control	112	6.3	(±3.5)	83	13.3	(±5.1)	87	43.7	(±6.7)
Blood pressure	110	4.5	(±2.8)	83	12.0	(±4.7)	88	44.3	(±6.9)
Stress management	111	6.3	(±3.8)	82	12.2	(±4.8)	89	32.6	(±6.4)
Drug education	109	3.7	(±3.0)	83	10.8	(±4.6)	89	18.0	(±5.2)
Alcohol education	110	4.5	(±3.1)	82	6.1	(±4.1)	87	14.9	(±5.0)
Fitness and exercise	112	8.9	(±4.2)	84	15.5	(±5.5)	89	42.7	(±7.0)

	Industry											
	Manufacturing			Service			Health care			Other		
Activity	No. worksites	%	(95% CI)	No. worksites	%	(95% CI)	No. worksites	%	(95% CI)	No. worksites	%	(95% CI)
Smoking cessation	108	23.1	(±5.1)	68	11.8	(±6.5)	47	38.3	(±8.4)	57	15.8	(±6.7)
Weight control	106	18.9	(±4.0)	67	14.9	(±6.9)	49	38.8	(±8.6)	58	12.1	(±6.1)
Nutrition education	106	18.9	(±4.9)	66	9.1	(±5.3)	47	44.7	(±9.0)	58	15.5	(±7.3)
Cholesterol control	109	21.1	(±4.5)	69	14.5	(±6.5)	46	30.4	(±8.2)	57	15.8	(±7.1)
Blood pressure	109	22.9	(±4.7)	69	14.5	(±6.5)	45	20.0	(±6.9)	57	17.5	(±7.3)
Stress management	106	5.6	(±2.7)	69	15.9	(±6.5)	48	35.4	(±8.2)	58	20.7	(±8.2)
Drug education	111	7.2	(±2.7)	67	9.0	(±5.3)	46	15.2	(±6.3)	56	14.3	(±7.4)
Alcohol education	108	5.6	(±2.5)	67	6.0	(±4.9)	46	10.9	(±5.7)	57	14.0	(±7.3)
Fitness and exercise	109	19.3	(±4.9)	70	20.0	(±7.4)	47	21.3	(±6.3)	58	27.6	(±9.0)

*Because of missing data, numbers may not total 304.
† Confidence interval.

Worksite Health Promotion — Continued

nutrition-education, stress-management, weight-control, and smoking-cessation programs than were other worksites (Table 2).

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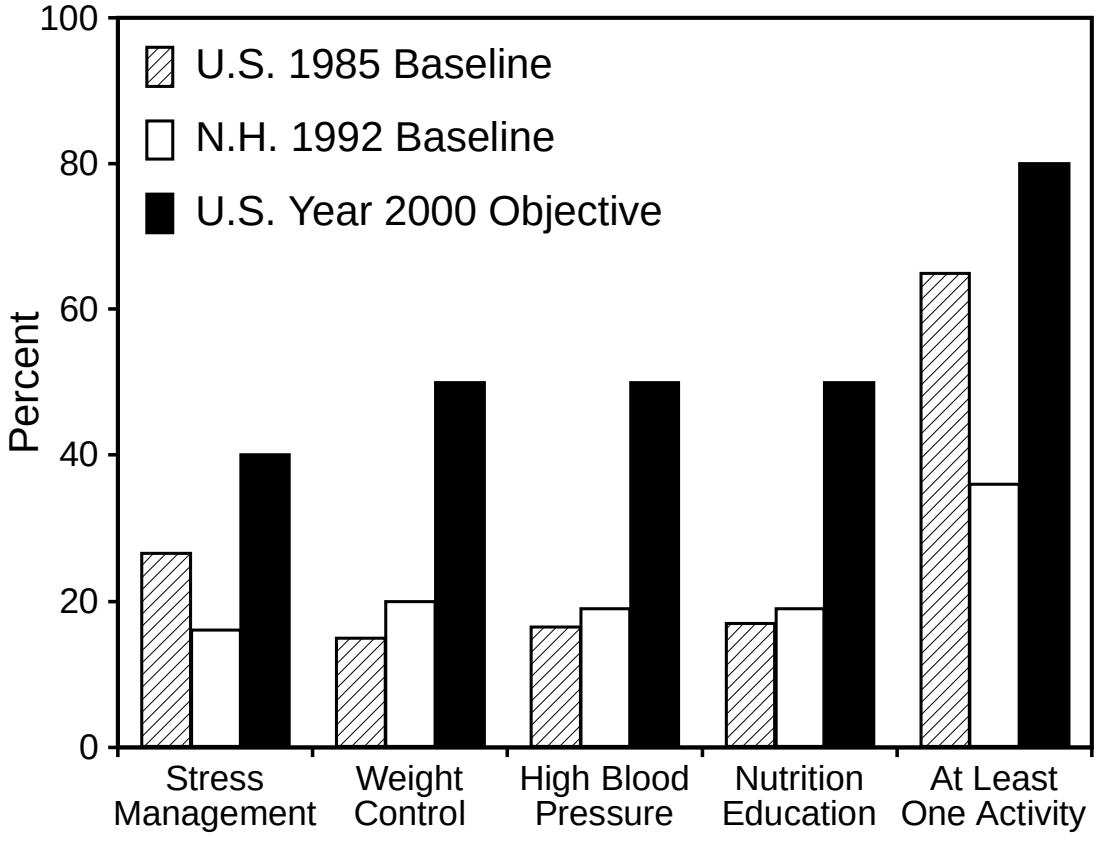
Editorial Note: The findings in New Hampshire are consistent with national data in which the prevalence of health-promotion activities was directly associated with the number of employees at worksites (*5*). In addition, the findings indicated that New Hampshire slightly exceeded 1985 national baseline estimates for national health objectives for the year 2000 (*1*) in providing weight-control, blood pressure, and nutrition-education activities but lagged behind the national baseline in stress management and in providing at least one worksite activity (objectives 6.11, 2.20, 15.16, 2.20, and 8.6, respectively) (Figure 1). The findings also indicate areas that should be addressed by the NHEHF to increase the prevalence of worksite health-promotion activities in New Hampshire and to achieve the national health objectives for the year 2000 regarding worksite health promotion.

FIGURE 1. National and New Hampshire baseline estimates, and national year 2000 objectives for worksite health-promotion activities — New Hampshire, 1992



Worksite Health Promotion — Continued

In this effort, during 1990, DPHS published *Work Healthy New Hampshire: A Guide to Worksite Health and Safety Programs* (*6*) that lists approximately 200 local businesses that provide health services for worksites. The guide is used by companies to establish worksite programs including health-promotion, occupational health and safety, and employee-assistance programs. The national *Directory of Worksite Health Promotion Resources* (*7*) has also been used as a resource by businesses establishing worksite health-related programs.

During 1993, DPHS will initiate a pilot worksite cervical and breast cancer education project at 40 manufacturing worksites to increase knowledge of cervical and breast cancer mortality risk factors and encourage use of Papanicolaou tests, clinical breast examinations, and mammograms. In addition, DPHS will link this education project to state-funded cancer screening programs.

In the fall of 1993, the Worksite Health Promotion Survey and operations manual will be available for public health agencies interested in monitoring worksite health promotion and national year 2000 objectives. Copies of the survey will be available free of charge from CDC's Preventive Health and Health Services Block Grant, Office of Surveillance and Analysis, National Center for Chronic Disease Prevention and Health Promotion, Mailstop K-30, 4770 Buford Highway, NE, Atlanta, GA 30341-3724.

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Current Trends

Preliminary Data: Exposure of Persons Aged ≥4 Years to Tobacco Smoke — United States, 1988–1991

The recent report of the U.S. Environmental Protection Agency on the respiratory health effects of passive smoking (*1*) and the known adverse effects of active smoking emphasize the need to quantify the exposure of the U.S. population to tobacco smoke. Measurements of cotinine (a nicotine metabolite) in serum, urine, and saliva have been used effectively to quantify exposure to tobacco smoke (*2–10*). As part of the

Tobacco Smoke Exposure — Continued

Third National Health and Nutrition Examination Survey (NHANES III), CDC's National Center for Environmental Health and National Center for Health Statistics is measuring serum levels of cotinine to assess exposure to tobacco smoke by persons in the United States aged ≥4 years. This report presents preliminary findings on the first 800 persons in this survey of tobacco-smoke exposure.

NHANES III is being conducted from 1988 through 1994 in 81 counties throughout the United States and consists of two national probability samples: one from October 1988 through October 1991 and the second from October 1991 through October 1994. For the two national samples in NHANES III, CDC is measuring serum cotinine levels for approximately 23,000 persons. NHANES III also includes questionnaire data on individual smoking and smokeless tobacco habits, smoking habits of persons in the household, and exposure to tobacco smoke at work.

CDC developed an isotope dilution-liquid chromatography-tandem mass spectrometry method (CDC, unpublished data) to measure serum cotinine at levels as low as 0.030 nanograms per milliliter (ng/mL). No known substances interfere with the analysis of cotinine using the tandem mass spectrometry procedure (i.e., the specificity of the analytic procedure for serum cotinine is extremely high). This analytic method allows quantitative measurement of both low levels of tobacco-smoke exposure from environmental tobacco smoke (ETS) and higher levels of exposure from active smoking.

Serum samples have been analyzed for cotinine for 800 persons aged 4–91 years in the NHANES III survey. All (100%) of the 800 persons tested had measurable levels of cotinine in their serum. The frequency distribution of these serum cotinine levels appears bimodal, with one group of persons having cotinine levels greater than 10–15 ng/mL and a second group with levels below 10–15 ng/mL. For the 800 persons tested, serum cotinine levels ranged from 0.030 to 650 ng/mL, a span of more than four orders of magnitude.

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Editorial Note: Cotinine in serum results from exposure to nicotine. The most common sources of nicotine exposure are active smoking and exposure to ETS. Appropriate interpretation of serum cotinine levels must also consider other nicotine sources including nicotine gum, nicotine dermal patches, chewing tobacco, and snuff.

The presence of cotinine in the serum of all 800 persons indicates at least some exposure to nicotine in each of the survey participants. Other investigators (*7–9*) have found that levels of serum cotinine greater than approximately 10–15 ng/mL characterize smokers, and serum cotinine levels less than this amount characterize nonsmokers. Serum cotinine levels below 10–15 ng/mL have been attributed to exposure to ETS (*7–10*). Further interpretation of these NHANES III serum cotinine levels must await analysis of the smoking questionnaire data in the survey.

The new analytic method for measuring serum cotinine and its application in NHANES III affords a rare opportunity to obtain objective estimates of exposure to tobacco smoke in a representative sample of the U.S. population aged ≥4 years. In addition, substantial samples of persons in different racial/ethnic and age groups and persons of differing socioeconomic status in NHANES III will provide important data on exposure in these population groups.

Tobacco Smoke Exposure — Continued

Comparison of serum cotinine results of the first national sample in NHANES III with the second national sample in NHANES III and subsequent NHANES surveys will help in assessing the effectiveness of public health efforts to reduce exposure to tobacco smoke in the United States. CDC is continuing to analyze NHANES III serum samples for cotinine and will publish results of these analyses when the first national probability sample is completed.

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Ceftriaxone-Associated Biliary Complications of Treatment of Suspected Disseminated Lyme Disease — New Jersey, 1990–1992

Lyme disease (LD) is endemic in Monmouth and Ocean counties, New Jersey (*1*). In June 1992, CDC and the New Jersey Department of Health (NJDOH) conducted a telephone survey in both counties of 65 schoolchildren who required home instruction because of suspected LD to determine the public health impact of the disease. Most children had received prolonged and repeated courses of oral antimicrobials and/or home intravenous infusion of antimicrobials; 79% had been hospitalized for treatment of suspected LD or management of treatment complications, most notably drug- induced symptoms of gallbladder disease occurring in patients receiving ceftriaxone (Rocephin®*), and bloodstream infections associated with intravenous catheters. To determine the characteristics of and treatment complications for patients hospitalized for treatment of LD, a computerized search of hospital discharge data in New Jersey

*Use of trade names and commercial sources is for identification only and does not imply endorsement by the Public Health Service or the U.S. Department of Health and Human Services.

Lyme Disease — Continued

was performed; nearly 30% of all hospitalizations for LD during 1990–1991 were at a regional hospital serving Monmouth and Ocean counties. This report presents findings of an analysis of patients admitted to that hospital for treatment of LD.

A total of 1352 patients was identified as having been discharged from the hospital during January 1, 1990–November 11, 1992, with a primary or secondary diagnosis of LD (*International Classification of Diseases, Ninth Revision* [ICD-9], code 088.81). To determine risk factors for biliary complications of treatment of suspected LD, a case-control study was conducted. A case was defined as the occurrence of cholecystitis, cholelithiasis, or a cholecystectomy within 90 days of receiving antimicrobial treatment for LD. Cases were identified through cross-referencing the 1352 patients with codes for biliary disease (ICD-9 codes 574.0–576.9) or cholecystectomy (ICD-9 codes 51.22–51.23). Controls were selected randomly from hospitalized patients who had received antimicrobial treatment for LD but who did not develop evidence of gallbladder disease.

Twenty-five (2% of the cohort) case-patients were identified, with a median age of 12.0 years (range: 3–40 years); 84% were female. All had received intravenous ceftriaxone within 90 days preceding the onset of biliary symptoms. Daily dosage of ceftriaxone at the time of onset of biliary symptoms averaged 57 mg/kg (range: 27–96 mg/kg) in 17 case-patients for whom information was available in inpatient medical records. The median duration of treatment with ceftriaxone in the treatment course immediately preceding the onset of biliary symptoms was 28 days (range: 4–170 days) in 21 case-patients for whom information was available in medical records. Of the 25 patients, 14 (56%) underwent laparoscopic cholecystectomy; 12 of these 14 patients were ≤18 years of age. In 11 of these 14 surgical cases, pathology reports described gallbladder calculi (often multiple) of 2–10 mm in diameter and in some cases soft and greenish in color. In two surgical cases, the gallbladder was acalculous; in one, it contained fine gravel.

Fifteen (58%) of 26 controls were documented to have received at least one course of intravenous ceftriaxone for treatment of LD. When case-patients were compared with controls, risk factors for biliary disease included being aged ≤18 years (odds ratio [OR]=8.4; 95% confidence interval [CI]=1.4–64.5), being female (OR=4.5; 95% CI=1.0–21.0), or having a history of treatment with intravenous ceftriaxone (OR undefined; $p<0.001$, Fisher's exact test).

Of those for whom data were available in their inpatient records, one of 24 case-patients and one of 21 controls had a documented history of physician-observed erythema migrans (EM), and four of 24 case-patients and two of 21 controls had documented objective evidence of disseminated LD (i.e., secondary EM, arthritis, carditis, meningitis, neuritis, encephalomyelitis, or encephalopathy) (*2,3*). Laboratory reports of results of serologic tests for antibody to *Borrelia burgdorferi* were contained in the medical records of 22 (88%) case-patients and 18 (69%) controls. Of the 51 patients, six (12%) had only positive test results documented; 26 (51%) had only negative test results documented; eight (16%) had both positive and negative tests results documented; and 11 (22%) had no results documented. Case-patients and controls had each received a median of three courses of antimicrobials (range: 1–7) for suspected LD.

A review of records of the original cohort also revealed 22 patients with intravenous catheter-associated bloodstream infections; 29 separate episodes of bloodstream in-

Lyme Disease — Continued

fection occurred in these patients. The median duration of catheterization in these patients (measured from insertion to diagnosis of bloodstream infection) was 152.5 days (range: 16–764 days). The blood isolates from these patients included a variety of gram-positive and gram-negative bacteria. Studies are in progress to identify risk factors for such infections.

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Editorial Note: During 1982–1991, more than 40,000 cases of LD were reported by state health departments to CDC, 92% of which were reported by states in northeastern, north central, and Pacific coast areas in which LD is known to be endemic (*4*). Early localized LD is characterized by an EM lesion and a variety of nonspecific symptoms and signs (*2*). Disseminated LD usually is preceded by untreated or inadequately treated EM by weeks to years and characterized by major manifestations such as arthritis, neuritis, meningitis, encephalomyelitis, encephalopathy, or carditis (*2*). Most patients infected with *B. burgdorferi* develop detectable antibody within a few weeks after infection (although early treatment may delay or prevent further development of antibody) and most patients with late LD are seropositive (*2,3,5*). However, not all LD patients develop a recognized EM, signs and symptoms of disseminated LD are protean and can lead to diagnostic confusion, and problems exist with the reliability and accuracy of serologic tests (*2,5,6*). Most patients treated for local or disseminated LD respond to standard courses of oral or parenteral antimicrobials, including ceftriaxone (*5*).

This report highlights several important issues related to the diagnosis and management of suspected LD. Most patients hospitalized for suspected LD in this study lacked documented objective manifestations of disseminated LD or seropositivity to *B. burgdorferi*. The demographic profile of these patients, mostly preadolescent and adolescent females, differs from that of LD patients reported nationally during the study period (*4*). The repeated and often prolonged courses of antimicrobials prescribed in these cases suggest that antimicrobial therapy did not achieve satisfactory remission of symptoms and was associated with biliary complications resulting in cholecystectomy in some patients.

Ceftriaxone is recommended in the literature for treatment of disseminated LD (*7*), although it has not been approved for this use by the Food and Drug Administration. Ceftriaxone is a semisynthetic third-generation cephalosporin that is excreted primarily in urine but also in bile (*7*). Biliary precipitation of ceftriaxone as a calcium salt is a known cause of sporadic cases of pseudocholelithiasis (sludging), frank cholelithiasis, biliary colic, and cholecystitis (*8,9*). Upper abdominal ultrasonography should be considered for patients who develop biliary colic while receiving ceftriaxone. Biliary precipitates of ceftriaxone may be evident sonographically after as few as 4 days of treatment, are possibly dose-related, and are often asymptomatic (*7–9*). Spontaneous disappearance of these precipitates within 2–63 days following the last dose of ceftriaxone has been documented; discontinuation of ceftriaxone and nonsurgical management of this complication has been recommended (*8,9*). Although bloodstream infection is a well recognized complication of indwelling central catheters (*10*), it has not been previously reported in relation to LD treatment.

Lyme Disease — Continued

Physicians should be familiar with the diagnosis and management of LD and its treatment complications (*2,5,6*). Hospitals and clinics, particularly in areas with endemic LD, should follow recommendations that address these issues, as well as the use and interpretation of laboratory diagnostic tests (*6*). In-home intravenous therapy programs as well as health-care facilities should be alert to potential complications associated with LD treatment. Because new information on LD is rapidly developing, ongoing medical-education programs on this disease are needed. CDC is working with professional societies and others to develop guidelines on diagnosis and management and to provide training materials. LD information can be obtained 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 (303) 221-6453; or from the National Institutes of Health, National Institute of Allergy and Infectious Diseases, Office of Communications, telephone (301) 496-5717.

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Notice to Readers

Change in Table I

Haemophilus influenzae type b disease became a nationally notifiable condition in 1992. Because vaccination for *H. influenzae* type b disease is recommended for all children 2–59 months of age, the number of cases reported among children aged <5 years will be reported as a footnote to Table I beginning this week.

Erratum: Vol. 41, No. SS-6

In the *CDC Surveillance Summaries* article "Measles Surveillance—United States, 1991" the Y-axis of Figure 1 on page 2 was mislabeled. The label reads "Reported cases/1,000 population." The label should read *Reported cases (X 1,000)*.

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