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Epidemiologic Notes and Reports

Expanded Tuberculosis Surveillance and Tuberculosis Morbidity — United States, 1993

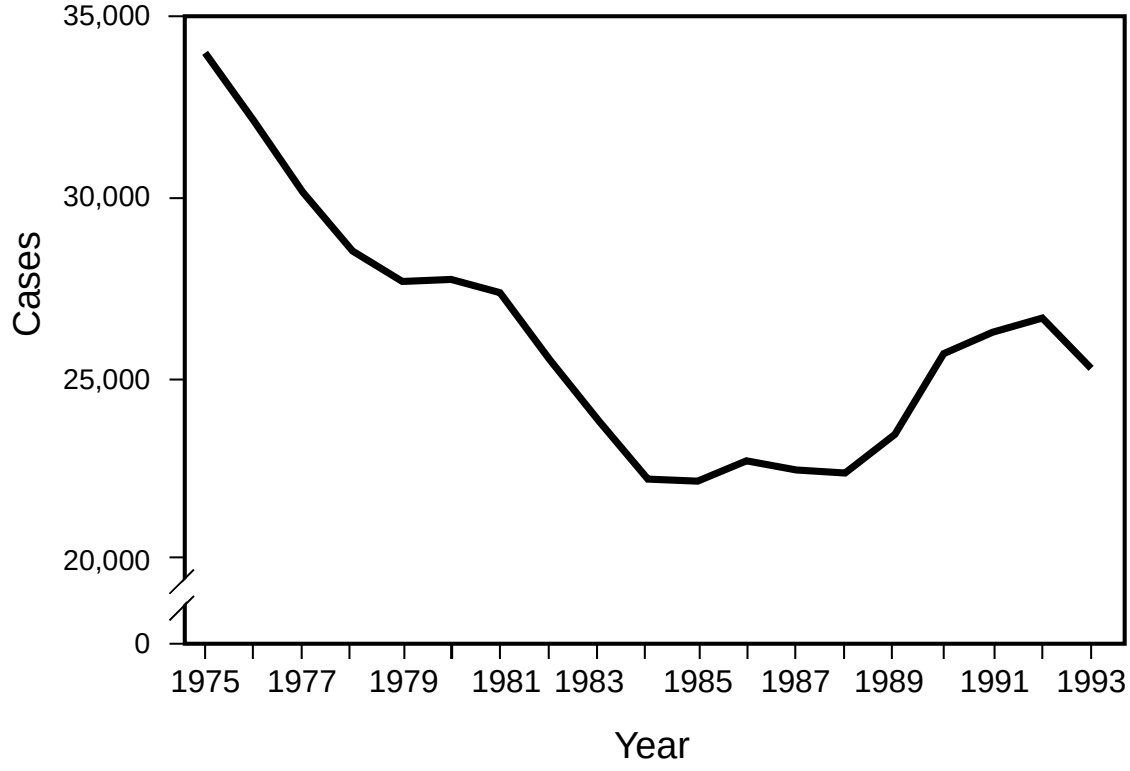
Because of the resurgence of tuberculosis (TB) in the United States, in 1987 the Advisory Committee for the Elimination of Tuberculosis recommended the strengthening of TB surveillance to improve monitoring and to assist in targeting groups at risk for disease (*1*). In addition, because of outbreaks of nosocomial multidrug-resistant TB (MDR-TB) in New York and Florida during 1990–1992 (*2*), in 1992, the National MDR TB Task Force recommended that drug-susceptibility testing be performed on all initial and final *Mycobacterium tuberculosis* isolates from each TB patient and that the results be reported to CDC (*3*). In January 1993, in conjunction with state and local health departments, CDC implemented an expanded surveillance system for TB. This report summarizes final TB surveillance data for 1993, compares findings with previous years, and provides information on expanded surveillance.

In November 1992, following approval of the Report of a Verified Case of TB (RVCT) form for reporting TB cases to CDC, TB programs in state and local health departments were asked to use the new surveillance form beginning January 1993. In July 1993, a new computer software package (SURVS-TB) was distributed for data entry, analysis, and transfer of records to CDC. Additional elements of the RVCT included results for human immunodeficiency virus (HIV) testing, occupation, history of substance abuse, homelessness, and residence in a correctional or long-term–care facility. To evaluate the outcomes of antituberculous therapy, information was collected about initial therapy, type of health-care provider, sputum culture conversion, and use of directly observed therapy (DOT).

In 1993, 25,313 cases of TB (9.8 cases per 100,000 population) were reported to CDC from the 50 states, the District of Columbia, and New York City (Figure 1), a 5.1% decrease from 1992 (26,673 [10.5 cases per 100,000]) (*4*) but a 14% increase over 1985 (22,201) (the year with the lowest number of TB cases since national reporting began in 1953). During 1985–1993, there was an excess of approximately 64,000 reported cases, compared with the number predicted based on the trend of decline from 1980 through 1984.

Tuberculosis — Continued

FIGURE 1. Number of reported tuberculosis cases — United States,* 1975–1993



*Comprises the 50 states, the District of Columbia, and New York City.

During 1993, 33 states reported fewer TB cases than in 1992; in comparison, during 1992, 27 states and the District of Columbia reported fewer cases than in 1991. The states reporting fewer cases in 1993 included those characterized by the greatest increases in cases since 1985 (California, New York, and Texas). Fifteen states and the District of Columbia reported increases in TB cases (Table 1).

Compared with 1992, the number of reported TB cases decreased for all age groups except for persons aged <15 years. Decreases were greatest for persons aged 15–24 (6.6%) and 25–44 years (7.8%). Among persons aged <15 years, the number of cases increased 0.8%; of all cases, the proportion accounted for by persons in this group increased from 6.4% in 1992 to 6.8% in 1993. During 1993, persons born outside the United States and its territories (i.e., foreign-born) composed 29.6% of reported cases, compared with 27.4% in 1992.

Selected characteristics were analyzed for cases in states where ≥75% of records contained information requested for the first time in 1993 (Table 2). Among these persons, injecting-drug use was reported by 2.4%, noninjecting-drug use by 4.7%, excessive use of alcohol during the preceding 12 months by 13.0%, and homelessness by 5.3%. For patients aged 25–44 years, HIV test results were reported for 33%; 18 reporting areas reported HIV results for ≥50% of cases. These 18 reporting areas accounted for 63% of cases in persons aged 25–44 years with HIV results.

From January 1, 1993, through May 25, 1994, antibiotic-susceptibility results for *M. tuberculosis* isolates were reported for 10,941 (54%) of the 20,090 persons with

Tuberculosis — Continued

TABLE 1. Reported tuberculosis cases, by reporting area — United States, 1992–1993

Reporting area	No. reported cases 1992	1993	% Change
Areas with decreases			
Arizona	259	231	–10.8
Arkansas	257	209	–18.7
California	5,382	5,212	– 3.2
Colorado	104	102	– 1.9
Connecticut	156	155	– 0.6
Florida	1,707	1,655	– 3.0
Georgia	893	810	– 9.3
Hawaii	273	251	– 8.1
Idaho	26	12	–53.8
Illinois	1,270	1,242	– 2.2
Louisiana	373	367	– 1.6
Maryland	442	406	– 8.1
Massachusetts	428	370	–13.6
Michigan	495	480	– 3.0
Minnesota	165	141	–14.5
Mississippi	281	279	– 0.7
Nebraska	28	22	–21.4
Nevada	99	98	– 1.0
New Jersey	984	912	– 7.3
New Mexico	88	74	–15.9
New York	4,574	3,953	–13.6
North Carolina	604	594	– 1.7
North Dakota	11	7	–36.4
Ohio	358	315	–12.0
Oklahoma	216	209	– 3.2
Pennsylvania	758	746	– 1.6
South Dakota	32	16	–50.0
Texas	2,510	2,396	– 4.5
Utah	78	46	–41.0
Washington	306	286	– 6.5
West Virginia	92	75	–18.5
Wisconsin	106	100	– 5.7
Wyoming	8	7	–12.5
Areas with increases			
Alabama	418	487	+16.5
Delaware	55	66	+20.0
District of Columbia	146	161	+10.3
Indiana	247	248	+ 0.4
Iowa	49	59	+20.4
Kansas	56	80	+42.9
Kentucky	402	405	+ 0.7
Maine	24	27	+12.5
Missouri	245	257	+ 4.9
Montana	16	22	+37.5
New Hampshire	18	26	+44.4
Oregon	145	154	+ 6.2
Rhode Island	54	64	+18.5
South Carolina	387	401	+ 3.6
Tennessee	527	556	+ 5.5
Virginia	457	458	+ 0.2
Areas with no change			
Alaska	57	57	0
Vermont	7	7	0
TOTAL	**26,673**	**25,313**	**–5.1**

Tuberculosis — Continued

TABLE 2. Reported tuberculosis cases, by selected characteristic, number of areas with information about ≥75% of cases, and percentage of cases with characteristics — United States*, 1993

Characteristic	No. areas with information for ≥75% of cases	% Cases with characteristic†
Initial drug regimen	50	—
Isoniazid and rifampin	—	14.2
Isoniazid, rifampin, and pyrazinamide	—	39.9
Isoniazid, rifampin, pyrazinamide, and ethambutol or streptomycin	—	32.5
Other	—	13.4
Injecting-drug use	15	2.4
Noninjecting-drug use	15	4.7
Excessive alcohol use§	11	13.0
Homelessness	36	5.3
Residence		
Correctional institution	47	3.7
Long-term–care facility	45	4.5
Occupation	23	—
Health-care worker	—	3.2
Correctional employee	—	0.2
Migrant worker	—	0.8
Unemployed	—	68.2
Other	—	27.6

*Comprises the 50 states, the District of Columbia, and New York City.
†Comprises reporting areas with information on characteristics reported for ≥75% of cases.
§During preceding 12 months.

culture-positive TB. For 26 reporting areas, drug-susceptibility results were available for ≥75%; however, these areas included only two of the 12 states in which ≥1% of cases had isoniazid and rifampin resistance in the previous national survey (*5*).

Reported by: Div of Tuberculosis Elimination, National Center for Prevention Svcs, CDC.

Editorial Note: The findings in this report document a substantial decrease in the number of reported TB cases from 1992 to 1993 (5.1%; p<0.001*), probably reflecting the effectiveness of prevention and control measures implemented during 1989–1993. However, a portion of this decrease may be due to two other factors, including 1) delayed reporting caused by use of the new TB surveillance reporting form and the change from paper records to a computerized system; and 2) underreporting because of modification of the acquired immunodeficiency syndrome (AIDS) surveillance case definition in January 1993 (*6*).

Following the resurgence of TB in 1985 and the recognition of nosocomial outbreaks of MDR-TB in 1991 (*2*), the Public Health Service increased funding to state and

*Statistical significance assessed by Chi Square test for dispersion; statistical tests for differences in surveillance data must be interpreted in relation to epidemiologic and programmatic considerations.

Tuberculosis — Continued

local health departments for TB-prevention and TB-control activities, including DOT—which has been shown to reduce TB case rates even in the presence of HIV infection — and screening programs for persons at high risk for TB infection (*7–9*). In addition, some hospitals implemented recommendations to prevent nosocomial transmission of *M. tuberculosis* (*10*). These measures may account for a substantial proportion of the decrease in reported TB cases in 1993.

Most states require that laboratories notify the health department about patients with cultures positive for *M. tuberculosis*; during 1993, 79% of all reported TB cases were culture-positive for *M. tuberculosis*. In response to the initial report, local health departments conduct investigations to verify the diagnosis of TB and to collect information needed for completion of reporting. The addition of information needed for the new TB surveillance form may have delayed investigation of suspected TB cases and completion of case reports in 1993. Ongoing analysis is assessing the impact of delayed reporting.

The expansion of the TB surveillance system during 1993 coincided with the revision of the AIDS surveillance case definition. The revised AIDS case definition classifies as AIDS cases HIV-infection in persons who have either pulmonary TB or extrapulmonary TB (*6*). As a consequence, HIV-infected persons with pulmonary or extrapulmonary TB may have been reported to the AIDS surveillance program at the local or state health department but not to the TB program. This explanation may account for the apparent decrease in the number of reported TB cases in states characterized by a high incidence of AIDS (California, New York, and Texas) and in persons aged 15–24 and 25–44 years.

In the states with the largest TB/AIDS co-morbidity (i.e., California and New York), laws to protect the confidentiality of persons with AIDS have been interpreted to prohibit the disclosure of patients' names to anyone outside the AIDS program, including other programs within the state health department. Information on the HIV status of persons with TB in 1993 is incomplete (missing/unknown for 67% of TB patients in the 25–44-year age group); thus, the impact of HIV on the TB epidemic in the United States can only be indirectly measured in 1993. Collaboration between TB and HIV/AIDS surveillance programs will be necessary to accurately measure the extent of overlap between the TB and HIV epidemics.

Maintaining the current decline in TB morbidity and reaching the goal of eliminating TB in the United States will require sustaining prevention and control activities. In particular, health-care providers should attempt to identify all TB cases and report them to health departments and ensure that persons with active TB successfully complete treatment (e.g., DOT). In addition, TB skin-test screening programs that target persons at highest risk (e.g., contacts of persons with active cases) can ensure appropriate use of preventive therapy.

References

1. CDC. A strategic plan for the elimination of tuberculosis in the United States. MMWR 1989;38(no. S-3).
2. CDC. Nosocomial transmission of multidrug-resistant tuberculosis among HIV-infected persons—Florida and New York, 1988–1991. MMWR 1991;40:585–91.
3. CDC. National action plan to combat multidrug-resistant tuberculosis. MMWR 1992;41 (no. RR-11):1–48.
4. CDC. Tuberculosis morbidity—United States, 1992. MMWR 1993;42:696–7,703–4.

Tuberculosis — Continued

5. Bloch AB, Cauthen GM, Onorato IM, et al. Nationwide survey of drug-resistant tuberculosis in the United States. JAMA 1994;271:665–71.
6. CDC. 1993 Revised classification system for HIV infection and expanded surveillance case definition for AIDS among adolescents and adults. MMWR 1992;41(no. RR-17).
7. Weis SE, Slocum PC, Blais FX, et al. The effect of directly observed therapy on the rates of drug resistance and relapse in tuberculosis. N Engl J Med 1994;330:1179–84.
8. Chaulk CP, Chaisson RE, Lewis JN, Rizzo RT. Treating multidrug-resistant tuberculosis: compliance and side effects [Letter]. JAMA 1994;271:103–4.
9. CDC. Tuberculosis prevention in drug-treatment centers and correctional facilities—selected U.S. sites, 1990–1991. MMWR 1993;42:210–3.
10. Fridkin SK, Manangan LP, Mayhall CG, et al. A survey of the use and efficacy of tuberculosis infection precautions. Proceedings of the Fourth Annual Meeting of the Society for Hospital Epidemiology of America. West Deptford, New Jersey: Society for Hospital Epidemiology of America, March 1994.

Epidemiologic Notes and Reports

Chlamydia Prevalence and Screening Practices — San Diego County, California, 1993

Chlamydia trachomatis is the most common bacterial sexually transmitted disease in the United States and causes an estimated 4 million infections annually (*1*). Approximately 70% of infected women have few or no symptoms (*2*), and asymptomatic infection in women can persist for up to 15 months (*3*). Infection can progress to involve the upper reproductive tract and may result in serious complications. To identify women who may have chlamydial infections, CDC has recommended routine testing based on age, risk behavior, and clinical findings—especially in clinics and group practices that provide reproductive health care to adolescent and young women (*4*). This report describes the prevalence of chlamydial infections among patients visiting the family-planning clinic service of the San Diego County Department of Health Services from July 1989 through June 1993 and summarizes the findings of a survey in May 1993 that assessed chlamydia screening, reporting, and treatment practices for women who attended primary-care community-based clinics and group practices in San Diego County.

Prevalence of Chlamydial Infections

The San Diego County Department of Health Services provides family-planning services in San Diego County in six public health centers. Each clinic follows a written protocol that requires screening of all clients during their initial visit and recommends screening for clients during annual visits—particularly for those whose sexual behavior increases their risk for infection. From March 1989 through February 1991, endocervical specimens were tested at the San Diego County Public Health Laboratory using the Chlamydia Antigen ELISA (Ortho Diagnostic Systems, Inc.*, Raritan, New Jersey); beginning March 1991, specimens were tested using the MicroTrak EIA (Syva, San Jose, California). The proportion of women screened was determined using data from annual family-planning clinic-service utilization reports. Test results and

*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.

Chlamydia — *Continued*

demographic and limited clinical information were obtained from the laboratory's chlamydia-test database.

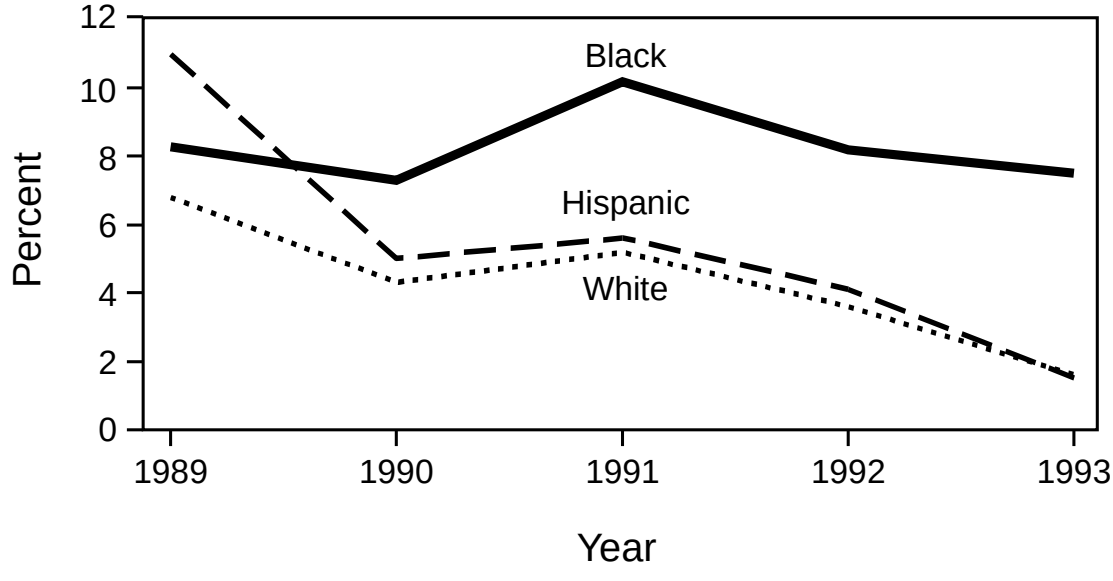
During July 1989–June 1993, approximately 95% of family-planning clients were tested for *Chlamydia* during their initial visit, and 70% were tested during their annual visit. Of 11,044 specimens tested, 91% were obtained during routine testing of clients without symptoms. The prevalence of chlamydial infections decreased from 10.0% during July–December 1989 to 1.9% during January-June 1993, a decline of 81.0%.

During July 1989–June 1993, the prevalence of chlamydia among black women was 8.5%, more than 1.5 times that among Hispanic (5.3%) and white (4.5%) women. During the 4-year period, the prevalence declined minimally among black women and steadily among white and Hispanic women (Figure 1). Prevalence was inversely related to age, with the highest prevalence among women aged <20 years (8.4%); among women aged <20 years, the prevalence decreased from 9.9% during July 1989–December 1990 to 4.8% during January 1992–June 1993, a 51.5% decline.

Chlamydia-Screening Practices Survey

The survey of chlamydia screening and related practices was mailed in May 1993 to all 171 primary-care clinics and group practices in San Diego County that provided women's health services. The survey requested information about chlamydia screening, reporting, diagnosis and treatment practices, types of clinical services, and other chlamydia-related issues. Chlamydia-screening practices were classified as clinician-directed screening (i.e., when testing was based on the clinician's assessment of signs, symptoms, or risk behavior) or as protocol screening (i.e., when clinics followed

FIGURE 1. Prevalence of chlamydia among clients of Department of Health Services family-planning clinics, by race/ethnicity* — San Diego County, California, July 1989–June 1993†



*Data for races/ethnicities other than black, white, and Hispanic were too few for meaningful analysis.

†Data in 1989 were based on reports from July through December and, in 1993, on reports from January through June.

Chlamydia — *Continued*

a policy to test all women of reproductive age or all those aged <20 years at their initial or annual visit).

Surveys were returned by 85 (50%) of the providers. All providers reported conducting clinician-directed screening; 45 (53%) followed protocol screening in at least one clinical service. Public providers were more likely than private providers to follow protocol screening (60% versus 37%). Protocol screening was used commonly in prenatal services (79%), compared with initial visits for adolescent services (39%), initial visits for family-planning services (33%), and gynecologic services (20%) (Table 1). Among providers following protocol screening, written screening policies had been established most commonly in prenatal services (75%), followed by family-planning (58%) and gynecologic (46%) services.

Almost all (≥92%) providers reported testing and immediately treating (i.e., on the same day as their visit and before test results were known) clients who had chlamydia-related syndromes (e.g., pelvic inflammatory disease [PID] or mucopurulent cervicitis) or who had reported a sexual exposure to a *Chlamydia*-infected person. In California, both PID and chlamydial infections are notifiable conditions; however, only 34 (54%) of the 63 providers who responded to this question routinely reported PID cases, and 55 (75%) of 73 responding providers reported positive chlamydia test results. Reporting practices were similar for private and public providers. DNA probe testing was the most frequently used chlamydia test (47 [58%] of 81).

Almost all (74 [97%] of 76) providers who responded reported referring male sex partners for examination and treatment. The most common approaches were on-site examination with presumptive treatment (57%) and health department referral (35%). However, only 14 (18%) of 80 providers reported having a method of following up sex partners' treatment for chlamydia.

TABLE 1. Chlamydia protocol screening* in clinics and group practices providing women's health services — San Diego County, May 1993

	Private provider†			Public provider§			Total		
		Protocol screening			Protocol screening			Protocol screening	
Clinical service	Total providers	No.	(%)	Total providers	No.	(%)	Total providers	No.	(%)
Family planning									
Initial visit	28	8	(29)	32	12	(38)	**60**	**20**	**(33)**
Annual visit	27	5	(19)	32	8	(25)	**59**	**13**	**(22)**
Prenatal initial visit	20	12	(60)	18	18	(100)	**38**	**30**	**(79)**
Gynecologic annual visit	39	5	(13)	32	9	(28)	**71**	**14**	**(20)**
Adolescent									
Initial visit	23	6	(26)	18	10	(56)	**41**	**16**	**(39)**
Annual visit	21	3	(14)	17	7	(41)	**38**	**10**	**(26)**

*Screening of all women of reproductive age or all women aged <20 years at their initial or annual visit.

†Comprises private group practices (45), hospital-based clinics (three), and health-maintenance organizations (one).

§Comprises community health centers (18), student health-services centers (six), Planned Parenthood clinics (four), health department clinics (three), Indian Health Service clinics (two), military clinics (two), and prison clinics (one).

Chlamydia — *Continued*

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Editorial Note: The decline in the prevalence of chlamydial infections among women receiving family-planning clinic services in San Diego County during 1989–1993 was consistent with patterns in other areas. For example, findings from a screening demonstration project in Public Health Service Region X (Alaska, Idaho, Oregon, and Washington) indicated that, among the approximately 70,000 women screened annually in public and private family-planning clinics, the prevalence declined from 9.3% in 1988 to 4.2% in 1993 (*5*). The prevalence also decreased among women attending family-planning clinics in Wisconsin, where a statewide selective screening program has been operated since 1986 (*6*).

Although the low response rate in San Diego County precludes generalization, the results of the screening practices survey suggest that the use of protocol screening was limited. A policy implemented in California in August 1993 by the California Office of Family Planning now requires chlamydia screening for all women undergoing initial examinations and for women at increased risk undergoing annual and limited examinations who seek services at clinics funded by the California Office of Family Planning. To assist health-care providers in developing protocols and policies, CDC has recommended chlamydia screening for 1) all women with mucopurulent cervicitis; 2) all sexually active women aged <20 years; and 3) women aged 20–24 years who meet either of two criteria or women aged >24 years who meet both criteria—a) inconsistent use of barrier contraception or b) a new sex partner or more than one sex partner during the previous 3 months (*4*).

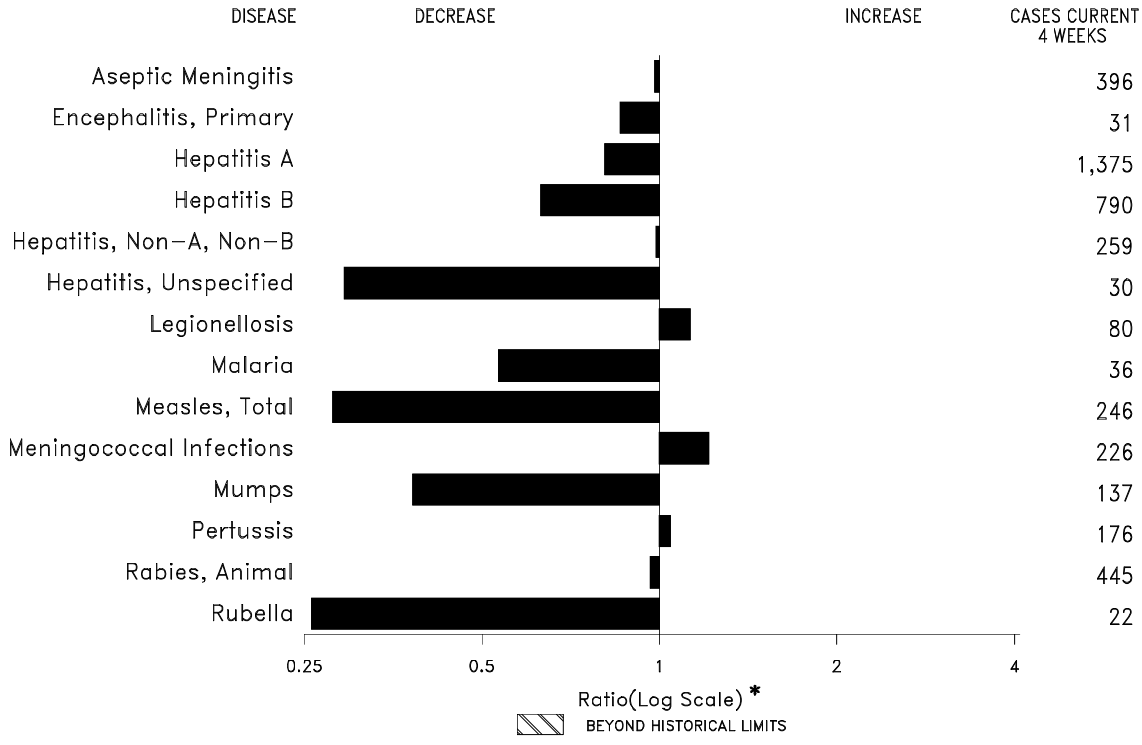
The Preventive Health Amendments of 1992 authorized CDC to develop a national program to prevent infertility resulting from treatable sexually transmitted diseases in women. Findings from San Diego County, Region X, and Wisconsin also suggest that efforts to prevent chlamydia-associated infertility through the delivery of early detection and treatment services—particularly for women with asymptomatic infections—may have been effective in reducing the prevalence of chlamydial infections. A new program to prevent infertility will expand services to approximately 800,000 women in the four Public Health Service regions in which chlamydia-prevention projects have been established (Regions III, VII, VIII, and X) and will evaluate critical issues in operational research.

Ongoing analysis of surveillance data and other information characterizing chlamydial infection can assist clinical programs in modifying screening practices to ensure effectiveness. In San Diego County, the prevalence of chlamydial infection was higher among black women than women in other racial/ethnic groups; however, information was not obtained about the social and economic status of patients. Therefore, in San Diego County, race should be considered a risk marker rather than a screening criterion for chlamydial infection.

Health-care facilities that provide family-planning, adolescent health, and routine gynecologic services to adolescent and young adult women should consider the use of screening protocols for all clients at risk for chlamydial infections. Important components of chlamydia-control programs include treatment and risk-reduction

(Continued on page 375)

FIGURE I. Notifiable disease reports, comparison of 4-week totals ending May 21, 1994, with historical data — United States



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

TABLE I. Summary — cases of specified notifiable diseases, United States, cumulative, week ending May 21, 1994 (20th Week)

	Cum. 1994		Cum. 1994
AIDS*	26,335	Measles: imported	210
Anthrax	-	indigenous	307
Botulism: Foodborne	24	Plague	2
Infant	24	Poliomyelitis, Paralytic[§]	-
Other	7	Psittacosis	12
Brucellosis	25	Rabies, human	-
Cholera	6	Syphilis, primary & secondary	8,189
Congenital rubella syndrome	3	Syphilis, congenital, age < 1 year	-
Diphtheria	-	Tetanus	14
Encephalitis, post-infectious	39	Toxic shock syndrome	91
Gonorrhea	137,634	Trichinosis	24
Haemophilus influenzae (invasive disease)[†]	493	Tuberculosis	7,343
Hansen Disease	37	Tularemia	7
Leptospirosis	11	Typhoid fever	131
Lyme Disease	1,247	Typhus fever, tickborne (RMSF)	53

*Updated monthly; last update April 26, 1994.
[†]Of 452 cases of known age, 134 (30%) were reported among children less than 5 years of age.
[§]No cases of suspected poliomyelitis have been reported in 1994; 3 cases of suspected poliomyelitis have been reported in 1993; 4 of the 5 suspected cases with onset in 1992 were confirmed; the confirmed cases were vaccine associated.

TABLE II. Cases of selected notifiable diseases, United States, weeks ending May 21, 1994, and May 22, 1993 (20th Week)

Reporting Area	AIDS*	Aseptic Menin-gitis	Encephalitis		Gonorrhea		Hepatitis (Viral), by type				Legionel-losis	Lyme Disease
			Primary	Post-in-fectious			A	B	NA,NB	Unspeci-fied		
	Cum. 1994	Cum. 1994	Cum. 1994	Cum. 1994	Cum. 1994	Cum. 1993	Cum. 1994	Cum. 1994	Cum. 1994	Cum. 1994	Cum. 1994	Cum. 1994
UNITED STATES	26,335	1,851	202	39	137,634	150,363	7,463	4,287	1,636	146	555	1,247
NEW ENGLAND	994	58	6	2	3,139	3,082	127	178	53	13	20	136
Maine	30	7	1	-	34	34	11	7	-	-	-	-
N.H.	24	3	-	1	-	20	4	10	7	-	-	4
Vt.	15	5	-	-	8	13	1	-	-	-	-	1
Mass.	513	22	4	-	1,129	1,118	60	137	35	12	16	50
R.I.	93	21	1	1	177	149	12	3	11	1	4	22
Conn.	319	-	-	-	1,791	1,748	39	21	-	-	-	59
MID. ATLANTIC	7,735	143	18	6	14,715	17,100	416	405	205	2	60	814
Upstate N.Y.	582	75	10	1	3,493	3,152	191	144	101	-	18	581
N.Y. City	4,921	9	1	-	5,118	5,067	56	39	-	-	-	2
N.J.	1,532	-	-	-	1,840	2,367	116	139	89	-	9	97
Pa.	700	59	7	5	4,264	6,514	53	83	15	2	33	134
E.N. CENTRAL	1,859	315	58	9	27,228	29,885	682	433	128	2	166	17
Ohio	346	82	17	-	9,375	8,327	228	78	8	-	73	13
Ind.	285	58	2	-	2,983	3,013	135	81	3	-	53	3
Ill.	768	50	21	3	6,221	9,939	166	75	24	1	5	-
Mich.	342	120	17	6	6,483	6,177	97	134	93	1	27	1
Wis.	118	5	1	-	2,166	2,429	56	65	-	-	8	-
W.N. CENTRAL	550	126	8	1	7,383	8,324	338	227	79	4	57	19
Minn.	134	11	1	-	1,242	1,007	76	28	6	-	-	7
Iowa	22	39	-	-	544	677	11	12	7	3	20	1
Mo.	237	39	-	-	4,052	4,562	159	159	57	1	25	8
N. Dak.	5	1	2	-	7	19	1	-	-	-	2	-
S. Dak.	9	-	1	-	45	90	15	1	-	-	-	-
Nebr.	31	5	3	1	-	463	32	11	3	-	8	-
Kans.	112	31	1	-	1,493	1,506	44	16	6	-	2	3
S. ATLANTIC	5,517	434	33	14	39,355	40,656	499	1,045	334	13	149	195
Del.	78	2	-	-	690	519	8	12	19	-	1	40
Md.	489	64	6	1	7,247	6,500	65	137	13	5	36	50
D.C.	422	12	-	-	2,931	2,058	10	16	-	-	4	1
Va.	414	59	11	5	5,047	4,330	53	46	17	2	3	20
W. Va.	10	8	-	-	278	236	4	10	13	-	1	5
N.C.	455	62	15	-	9,571	9,157	46	115	27	-	10	27
S.C.	444	12	-	-	4,656	3,758	11	14	3	-	3	1
Ga.	684	15	1	-	-	4,660	34	421	151	-	67	46
Fla.	2,521	200	-	8	8,935	9,438	268	274	91	6	24	5
E.S. CENTRAL	714	124	19	1	16,904	15,452	175	455	304	1	26	11
Ky.	126	42	8	1	1,697	1,753	79	31	10	-	4	6
Tenn.	213	23	7	-	5,125	3,904	54	394	289	1	13	4
Ala.	210	45	4	-	6,251	6,060	25	30	5	-	7	1
Miss.	165	14	-	-	3,831	3,735	17	-	-	-	2	-
W.S. CENTRAL	2,841	163	10	1	15,193	16,947	1,102	471	145	37	11	27
Ark.	78	9	-	-	2,505	2,066	20	8	3	-	4	-
La.	306	8	2	-	4,704	4,422	60	68	36	1	-	-
Okla.	91	-	-	-	496	1,400	95	120	80	-	7	17
Tex.	2,366	146	8	1	7,488	9,059	927	275	26	36	-	10
MOUNTAIN	846	58	4	-	3,305	4,398	1,526	201	165	14	34	4
Mont.	10	-	-	-	38	20	11	8	2	-	13	-
Idaho	15	1	-	-	28	65	130	33	39	1	-	1
Wyo.	10	-	-	-	33	30	8	7	54	-	2	-
Colo.	362	10	1	-	977	1,456	115	10	14	4	2	-
N. Mex.	59	7	-	-	404	372	447	85	32	5	1	3
Ariz.	208	25	-	-	1,087	1,556	561	20	6	3	1	-
Utah	52	4	-	-	126	139	173	16	14	-	3	-
Nev.	130	11	3	-	612	760	81	22	4	1	12	-
PACIFIC	5,279	430	46	5	10,412	14,519	2,598	872	223	60	32	24
Wash.	324	-	-	-	1,152	1,533	147	31	28	-	5	-
Oreg.	225	-	-	-	354	546	140	18	2	1	-	-
Calif.	4,636	355	45	4	8,334	12,042	2,209	797	188	57	24	24
Alaska	15	12	1	-	313	189	82	6	-	-	-	-
Hawaii	79	63	-	1	259	209	20	20	5	2	3	-
Guam	1	6	-	-	50	47	3	-	-	4	2	-
P.R.	719	15	-	-	198	211	30	115	34	3	-	-
V.I.	7	-	-	-	9	43	-	1	-	-	-	-
Amer. Samoa	-	-	-	-	14	10	4	-	-	-	-	-
C.N.M.I.	1	-	-	-	21	32	2	-	-	-	-	-

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

*Updated monthly; last update April 26, 1994.

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending May 21, 1994, and May 22, 1993 (20th Week)

Reporting Area	Malaria	Measles (Rubeola)					Menin-gococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported*		Total									
	Cum. 1994	1994	Cum. 1994	1994	Cum. 1994	Cum. 1993	Cum. 1994	1994	Cum. 1994	1994	Cum. 1994	Cum. 1993	1994	Cum. 1994	Cum. 1993
UNITED STATES	327	27	307	5	210	116	1,255	33	541	34	1,146	1,098	6	145	87
NEW ENGLAND	26	1	7	3	10	53	68	-	10	3	104	226	6	100	1
Maine	1	1	1	1†	3	-	12	-	3	-	2	6	-	-	1
N.H.	3	-	-	-	-	-	4	-	4	2	32	63	-	-	-
Vt.	1	-	-	-	1	30	1	-	-	-	10	42	-	-	-
Mass.	9	-	-	2†	4	14	28	-	-	1	51	96	6	100	-
R.I.	4	-	3	-	2	1	-	-	1	-	2	3	-	-	-
Conn.	8	-	3	-	-	8	23	-	2	-	7	16	-	-	-
MID. ATLANTIC	42	5	108	-	9	11	111	4	48	5	273	170	-	8	27
Upstate N.Y.	14	2	13	-	-	1	40	-	11	4	96	59	-	8	4
N.Y. City	6	1	3	-	-	2	8	-	-	-	62	7	-	-	15
N.J.	15	-	88	-	9	8	29	-	4	-	6	33	-	-	7
Pa.	7	2	4	-	-	-	34	4	33	1	109	71	-	-	1
E.N. CENTRAL	38	5	17	-	39	5	191	1	92	1	159	242	-	8	2
Ohio	5	-	6	-	-	-	48	-	22	-	64	73	-	-	1
Ind.	10	-	-	-	1	-	37	-	6	-	31	20	-	-	-
Ill.	11	5	5	-	38	5	66	-	37	-	23	43	-	3	-
Mich.	11	-	3	-	-	-	22	1	24	1	23	16	-	5	-
Wis.	1	-	3	-	-	-	18	-	3	-	18	90	-	-	1
W.N. CENTRAL	17	-	-	-	138	3	85	2	28	5	48	59	-	-	1
Minn.	5	-	-	-	-	-	8	-	4	4	20	22	-	-	-
Iowa	3	-	-	-	-	-	10	-	7	-	4	1	-	-	-
Mo.	7	-	-	-	137	1	39	2	14	1	13	18	-	-	1
N. Dak.	-	-	-	-	-	-	-	-	1	-	2	3	-	-	-
S. Dak.	-	-	-	-	-	-	6	-	-	-	-	1	-	-	-
Nebr.	1	U	-	U	1	-	8	U	2	U	3	4	U	-	-
Kans.	1	-	-	-	-	2	14	-	-	-	6	10	-	-	-
S. ATLANTIC	75	-	6	-	1	21	218	1	88	3	149	96	-	5	6
Del.	3	-	-	-	-	-	-	-	-	-	-	1	-	-	2
Md.	32	-	1	-	1	4	15	1	20	-	50	33	-	-	1
D.C.	7	-	-	-	-	-	2	-	-	-	3	1	-	-	-
Va.	9	-	1	-	-	1	30	-	23	-	15	7	-	-	-
W. Va.	-	-	-	-	-	-	9	-	3	-	2	3	-	-	-
N.C.	2	-	-	-	-	-	37	-	26	3	44	14	-	-	-
S.C.	2	-	-	-	-	-	6	-	5	-	8	5	-	-	-
Ga.	8	-	1	-	-	-	48	-	6	-	10	10	-	-	-
Fla.	12	-	3	-	-	16	71	-	5	-	17	22	-	5	3
E.S. CENTRAL	8	-	28	-	-	-	85	3	10	4	78	46	-	-	-
Ky.	2	-	-	-	-	-	22	-	-	-	52	9	-	-	-
Tenn.	4	-	28	-	-	-	21	3	4	-	13	22	-	-	-
Ala.	1	-	-	-	-	-	36	-	-	4	12	11	-	-	-
Miss.	1	-	-	-	-	-	6	-	6	-	1	4	-	-	-
W.S. CENTRAL	7	-	7	1	5	1	154	13	138	-	36	30	-	7	12
Ark.	-	-	-	1†	1	-	23	-	-	-	4	2	-	-	-
La.	-	-	-	-	1	1	20	1	12	-	5	4	-	-	1
Okla.	2	-	-	-	-	-	13	-	21	-	20	11	-	4	1
Tex.	5	-	7	-	3	-	98	12	105	-	7	13	-	3	10
MOUNTAIN	13	9	105	-	1	2	89	6	22	11	75	60	-	3	5
Mont.	-	-	-	-	-	-	2	-	-	-	3	-	-	-	-
Idaho	2	-	-	-	-	-	12	1	4	2	26	7	-	1	1
Wyo.	-	-	-	-	-	-	5	1	1	-	-	1	-	-	-
Colo.	3	-	12	-	1	2	10	-	1	1	17	22	-	-	-
N. Mex.	2	-	-	-	-	-	10	N	N	-	7	15	-	-	-
Ariz.	1	-	-	-	-	-	35	2	5	3	13	8	-	-	1
Utah	4	9	93	-	-	-	11	2	6	5	9	7	-	2	2
Nev.	1	U	-	U	-	-	4	U	4	U	-	-	U	-	1
PACIFIC	101	7	29	1	7	20	254	3	105	2	224	169	-	14	33
Wash.	3	-	-	-	-	-	17	-	3	-	12	17	-	-	-
Oreg.	7	-	-	-	-	-	39	N	N	-	22	-	-	-	1
Calif.	81	7	29	-	5	5	192	3	92	2	186	143	-	12	16
Alaska	-	-	-	-	-	-	1	-	2	-	-	2	-	1	1
Hawaii	10	-	-	1†	2	15	5	-	8	-	4	7	-	1	15
Guam	-	U	171	U	-	2	-	U	2	U	-	-	U	1	-
P.R.	-	-	13	-	-	205	6	-	2	-	1	-	-	-	-
V.I.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amer. Samoa	-	U	-	U	-	1	-	U	1	U	1	2	U	-	-
C.N.M.I.	1	U	26	U	-	1	-	U	-	U	-	-	U	-	-

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

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending May 21, 1994, and May 22, 1993 (20th Week)

Reporting Area	Syphilis (Primary & Secondary)		Toxic-Shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1994	Cum. 1993	Cum. 1994	Cum. 1994	Cum. 1993	Cum. 1994	Cum. 1994	Cum. 1994	Cum. 1994
UNITED STATES	8,189	10,664	91	7,343	7,940	7	131	53	2,265
NEW ENGLAND	83	176	2	135	139	-	11	4	718
Maine	4	2	-	-	7	-	-	-	-
N.H.	-	17	-	7	7	-	-	-	81
Vt.	-	-	-	1	3	-	-	-	61
Mass.	30	75	2	63	61	-	7	4	275
R.I.	6	6	-	11	26	-	1	-	5
Conn.	43	76	-	53	35	-	3	-	296
MID. ATLANTIC	481	1,105	16	1,280	1,625	-	38	-	281
Upstate N.Y.	63	88	7	85	233	-	6	-	79
N.Y. City	237	571	-	834	967	-	23	-	-
N.J.	86	167	-	257	168	-	9	-	125
Pa.	95	279	9	104	257	-	-	-	77
E.N. CENTRAL	1,028	1,770	20	738	798	-	23	8	14
Ohio	431	484	8	93	112	-	2	3	-
Ind.	96	153	2	65	76	-	1	1	2
Ill.	267	688	4	390	412	-	11	2	3
Mich.	124	259	6	171	168	-	3	2	5
Wis.	110	186	-	19	30	-	6	-	4
W.N. CENTRAL	474	684	12	199	154	4	-	3	71
Minn.	20	38	1	44	20	-	-	-	8
Iowa	20	34	6	15	14	-	-	1	29
Mo.	404	535	3	92	79	4	-	-	7
N. Dak.	-	2	-	2	4	-	-	-	2
S. Dak.	-	-	-	9	6	-	-	2	9
Nebr.	-	10	1	9	8	-	-	-	-
Kans.	30	65	1	28	23	-	-	-	16
S. ATLANTIC	2,345	2,796	5	1,524	1,797	-	21	29	741
Del.	11	58	-	-	16	-	1	-	11
Md.	92	152	-	128	152	-	5	-	235
D.C.	102	160	-	40	69	-	1	-	2
Va.	288	245	-	132	176	-	1	-	161
W. Va.	8	1	-	35	29	-	-	-	32
N.C.	707	759	1	166	175	-	-	10	74
S.C.	280	440	-	154	142	-	-	-	69
Ga.	502	500	-	343	316	-	1	19	149
Fla.	355	481	4	526	722	-	12	-	8
E.S. CENTRAL	1,481	1,297	1	351	524	-	1	4	49
Ky.	90	114	-	122	137	-	1	-	3
Tenn.	387	291	1	1	114	-	-	3	-
Ala.	283	333	-	161	182	-	-	-	46
Miss.	721	559	-	67	91	-	-	1	-
W.S. CENTRAL	1,926	2,161	-	814	689	1	6	5	262
Ark.	212	260	-	90	60	1	-	2	14
La.	728	962	-	-	-	-	2	-	41
Okla.	15	136	-	85	62	-	1	2	17
Tex.	971	803	-	639	567	-	3	1	190
MOUNTAIN	115	89	4	165	192	1	6	-	28
Mont.	1	1	-	9	5	-	-	-	-
Idaho	1	-	1	6	5	-	-	-	-
Wyo.	-	2	-	2	1	-	-	-	9
Colo.	54	28	1	1	28	-	2	-	-
N. Mex.	5	14	-	26	18	1	-	-	-
Ariz.	26	37	-	88	90	-	1	-	18
Utah	5	2	2	-	9	-	1	-	-
Nev.	23	5	-	33	36	-	2	-	1
PACIFIC	256	586	31	2,137	2,022	1	25	-	101
Wash.	16	23	-	96	104	-	1	-	-
Oreg.	15	27	-	45	35	1	-	-	-
Calif.	223	532	28	1,875	1,748	-	23	-	73
Alaska	1	2	-	27	22	-	-	-	28
Hawaii	1	2	3	94	113	-	1	-	-
Guam	1	1	-	18	25	-	-	-	-
P.R.	111	224	-	33	82	-	-	-	34
V.I.	19	20	-	-	2	-	-	-	-
Amer. Samoa	-	-	-	2	1	-	1	-	-
C.N.M.I.	1	2	-	14	13	-	1	-	-

U: Unavailable

TABLE III. Deaths in 121 U.S. cities,* week ending May 21, 1994 (20th Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	578	404	97	48	15	14	46
Boston, Mass.	163	99	32	16	10	6	14
Bridgeport, Conn.	28	18	5	3	1	1	1
Cambridge, Mass.	24	20	3	1	-	-	2
Fall River, Mass.	32	26	3	3	-	-	3
Hartford, Conn.	56	35	11	4	3	3	1
Lowell, Mass.	24	20	3	1	-	-	3
Lynn, Mass.	16	12	2	2	-	-	3
New Bedford, Mass.	19	15	2	1	-	1	1
New Haven, Conn.	35	23	8	2	-	2	-
Providence, R.I.	39	26	10	2	1	-	1
Somerville, Mass.	4	4	-	-	-	-	-
Springfield, Mass.	43	36	2	5	-	-	4
Waterbury, Conn.	29	22	5	2	-	-	4
Worcester, Mass.	66	48	11	6	-	1	9
MID. ATLANTIC	2,672	1,783	506	277	50	56	136
Albany, N.Y.	42	32	3	5	1	1	2
Allentown, Pa.	21	20	1	-	-	-	-
Buffalo, N.Y.	102	75	17	6	2	2	2
Camden, N.J.	27	16	5	3	1	2	3
Elizabeth, N.J.	22	13	4	4	1	-	-
Erie, Pa.§	48	36	8	3	-	1	1
Jersey City, N.J.	46	35	6	3	1	1	-
New York City, N.Y.	1,324	847	268	165	20	24	54
Newark, N.J.	U	U	U	U	U	U	U
Paterson, N.J.	26	14	6	3	2	1	2
Philadelphia, Pa.	608	402	120	59	16	11	42
Pittsburgh, Pa.§	70	48	12	5	2	3	6
Reading, Pa.	13	9	2	1	-	1	1
Rochester, N.Y.	99	73	12	6	2	6	13
Schenectady, N.Y.	37	33	4	-	-	-	-
Scranton, Pa.§	20	15	5	-	-	-	-
Syracuse, N.Y.	117	82	20	10	2	3	9
Trenton, N.J.	29	17	9	3	-	-	1
Utica, N.Y.	U	U	U	U	U	U	U
Yonkers, N.Y.	21	16	4	1	-	-	-
E.N. CENTRAL	2,406	1,473	477	247	152	57	133
Akron, Ohio	57	40	11	3	1	2	-
Canton, Ohio	41	30	7	3	-	1	8
Chicago, Ill.	605	239	136	126	91	13	20
Cincinnati, Ohio	173	125	36	4	5	3	9
Cleveland, Ohio	143	94	28	11	7	3	6
Columbus, Ohio	160	94	41	13	6	6	10
Dayton, Ohio	106	85	11	6	2	2	5
Detroit, Mich.	240	138	55	26	13	8	6
Evansville, Ind.	54	46	6	2	-	-	2
Fort Wayne, Ind.	70	40	20	6	3	1	3
Gary, Ind.	17	9	4	4	-	-	-
Grand Rapids, Mich.	34	23	5	3	3	-	9
Indianapolis, Ind.	218	146	42	18	4	8	16
Madison, Wis.	38	28	7	1	2	-	6
Milwaukee, Wis.	124	80	28	10	3	3	8
Peoria, Ill.	50	32	8	2	5	3	5
Rockford, Ill.	48	41	4	2	1	-	4
South Bend, Ind.	42	34	3	2	2	1	6
Toledo, Ohio	107	91	9	5	1	1	7
Youngstown, Ohio	79	58	16	-	3	2	3
W.N. CENTRAL	758	561	123	38	21	15	27
Des Moines, Iowa	78	62	14	2	-	-	2
Duluth, Minn.	24	22	2	-	-	-	1
Kansas City, Kans.	27	23	3	1	-	-	-
Kansas City, Mo.	107	84	16	6	-	1	1
Lincoln, Nebr.	27	19	8	-	-	-	3
Minneapolis, Minn.	185	131	30	9	10	5	12
Omaha, Nebr.	87	63	8	10	3	3	2
St. Louis, Mo.	126	82	31	5	6	2	-
St. Paul, Minn.	41	32	6	2	-	1	3
Wichita, Kans.	56	43	5	3	2	3	3

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	≥65	45-64	25-44	1-24	<1	
S. ATLANTIC	1,084	690	206	121	39	28	71
Atlanta, Ga.	193	117	35	26	7	8	7
Baltimore, Md.	164	96	33	24	5	6	14
Charlotte, N.C.	84	52	15	12	3	2	9
Jacksonville, Fla.	115	73	24	11	6	1	9
Miami, Fla.	110	69	23	12	5	1	2
Norfolk, Va.	51	30	11	6	2	2	5
Richmond, Va.	78	51	20	3	3	1	3
Savannah, Ga.	50	31	10	7	1	1	4
St. Petersburg, Fla.	61	49	4	2	2	4	1
Tampa, Fla.	169	115	31	16	5	2	17
Washington, D.C.	U	U	U	U	U	U	U
Wilmington, Del.	9	7	-	2	-	-	-
E.S. CENTRAL	793	508	168	73	24	18	61
Birmingham, Ala.	105	69	23	8	4	1	3
Chattanooga, Tenn.	76	51	21	2	-	2	9
Knoxville, Tenn.	86	51	16	13	3	3	6
Lexington, Ky.	90	68	17	5	-	-	10
Memphis, Tenn.	160	99	25	20	7	9	16
Mobile, Ala.	81	48	21	4	3	3	5
Montgomery, Ala.	48	31	9	6	2	-	1
Nashville, Tenn.	147	91	36	15	5	-	11
W.S. CENTRAL	1,469	899	278	174	82	36	86
Austin, Tex.	68	39	12	10	4	3	8
Baton Rouge, La.	10	6	1	2	1	-	-
Corpus Christi, Tex.	48	33	12	2	1	-	3
Dallas, Tex.	207	123	42	27	9	6	4
El Paso, Tex.	76	56	12	6	-	2	2
Ft. Worth, Tex.	110	67	23	15	4	1	7
Houston, Tex.	420	227	95	68	23	7	23
Little Rock, Ark.	75	50	11	7	2	5	7
New Orleans, La.	97	52	10	9	23	3	-
San Antonio, Tex.	198	142	35	16	3	2	17
Shreveport, La.	28	17	4	3	2	2	-
Tulsa, Okla.	132	87	21	9	10	5	15
MOUNTAIN	838	550	169	77	25	17	60
Albuquerque, N.M.	96	68	15	10	1	2	3
Colo. Springs, Colo.	56	32	16	7	1	-	5
Denver, Colo.	107	56	25	20	-	6	9
Las Vegas, Nev.	141	105	24	8	3	1	9
Ogden, Utah	21	15	5	1	-	-	2
Phoenix, Ariz.	166	98	40	16	6	6	11
Pueblo, Colo.	19	12	4	3	-	-	1
Salt Lake City, Utah	106	78	14	7	6	1	5
Tucson, Ariz.	126	86	26	5	8	1	15
PACIFIC	2,009	1,295	363	232	70	37	129
Berkeley, Calif.	15	15	-	-	-	-	2
Fresno, Calif.	91	63	13	8	3	4	6
Glendale, Calif.	37	31	5	1	-	-	3
Honolulu, Hawaii	82	55	15	7	3	2	6
Long Beach, Calif.	88	52	17	10	7	2	12
Los Angeles, Calif.	716	433	129	105	33	5	21
Pasadena, Calif.	37	28	5	3	1	-	8
Portland, Oreg.	139	90	29	13	2	5	4
Sacramento, Calif.	U	U	U	U	U	U	U
San Diego, Calif.	165	103	35	14	5	7	12
San Francisco, Calif.	137	83	26	20	4	4	16
San Jose, Calif.	190	132	30	22	3	3	22
Santa Cruz, Calif.	30	26	2	2	-	-	2
Seattle, Wash.	148	93	27	20	5	3	4
Spokane, Wash.	51	40	8	1	2	-	5
Tacoma, Wash.	83	51	22	6	2	2	6
TOTAL	12,607¶	8,163	2,387	1,287	478	278	749

*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.

Chlamydia — *Continued*

counseling of sex partners of infected persons. In San Diego County, only 18% of providers reported having a method to ensure treatment of sex partners; this finding underscores the need for facilities that provide health care for women to offer examination and treatment services or arrange for appropriate referral for their clients' male sex partners, and establish procedures for follow-up of the status of referrals. Public health agencies may assist health-care providers in developing such referral and follow-up procedures.

References

1. Washington A, Johnson RE, Sanders L Jr. *Chlamydia trachomatis* infections in the United States: what are they costing us? JAMA 1987;257:2070–2.
2. Cates W, Wasserheit JN. Genital chlamydial infections: epidemiology and reproductive sequelae. Am J Obstet Gynecol 1991;164:1771–81.
3. Lycke E, Lowhagen GB, Hallhagen G, Johannison G, Ramstedt K. The risk of transmission of genital *Chlamydia trachomatis* infection is less than that of *Neisseria gonorrhoeae* infection. Sex Transm Dis 1980;7:8–10.
4. CDC. Recommendations for the prevention and management of *Chlamydia trachomatis* infections, 1993. MMWR 1993;42(no. RR-12):7–8.
5. DeLisle S, Fine D, Kaetz S, et al. A multi-state model for the prevention and control of sexually transmitted chlamydia infections [Abstract]. Sex Transm Dis 1994;21(suppl):S149.
6. Addiss DG, Vaughn ML, Ludka D, Pfister J, Davis JP. Decreased prevalence of *Chlamydia trachomatis* infection associated with a selective screening program in family-planning clinics in Wisconsin. Sex Transm Dis 1993;20:28–35.

Current Trends

Quality of Life as a New Public Health Measure — Behavioral Risk Factor Surveillance System, 1993

A fundamental goal of the year 2000 national health objectives is to increase the span of healthy life for all persons in the United States (*1*). Public health programs, improved social conditions, and private medical care have contributed to the prolongation of life expectancy of U.S. residents at birth from 47 years in 1900 to 75 years in 1989. However, for some persons, increased life expectancy includes periods of diminished health and function (i.e., lowered health-related quality of life [HR-QOL]). Because population-based surveillance of good health has been limited, questions to assess HR-QOL were added to the 1993 Behavioral Risk Factor Surveillance System (BRFSS). This report summarizes the preliminary findings about HR-QOL from the 1993 BRFSS and describes an index used to identify population subgroups with high and low HR-QOL.

The BRFSS is a continuous, state-based, random-digit–dialed telephone survey of the U.S. adult noninstitutionalized population. Data were analyzed from 44,978 persons aged ≥18 years who resided in states in which 1993 data were available for analysis in early March 1994 (i.e., 21 of 49 participating states and the District of Columbia*). Although data were included for states from each region of the United States, southern border and Gulf states were underrepresented.

* Alaska, Arkansas, Colorado, Delaware, District of Columbia, Georgia, Idaho, Illinois, Kentucky, Massachusetts, Minnesota, Montana, Nebraska, Oklahoma, Pennsylvania, South Carolina, Tennessee, Utah, Vermont, Virginia, Washington, and West Virginia.

Quality of Life — Continued

HR-QOL data were based on participants' responses to four questions: respondents were asked 1) "Would you say that in general your health is excellent, very good, good, fair, or poor?"; 2) "Now thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good?"; 3) "Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?"; and 4) "During the past 30 days, for about how many days did poor physical or mental health keep you from doing your usual activities, such as self-care, work, or recreation?" Response rates for these questions ranged from 98.3% to 99.8%. The questions assessed self-rated health (a previously validated item [*2*]), recent activity limitation, recent physical health, and recent mental health. The latter two items also were used to calculate a "good health days" (GHDs) index† to estimate the number of days during the 30 days preceding the survey that respondents' overall health was good. GHDs are obtained by subtracting the sum of "not good" physical health days and "not good" mental health days from 30 days, with the restriction that the number of GHDs cannot be less than zero.

Overall, in the 21 states, substantial limitations were reported in 1993 for each of the four measures of HR-QOL. Fifteen percent of respondents reported "fair" or "poor" health; 32%, recent physical health limitations; 31%, recent mental health limitations; and 19%, recent activity limitations (Table 1).

Of the characteristics studied, the mean number of GHDs during the 30 days preceding the survey was highest for persons with annual household incomes of more than $50,000 (26.4 days), college graduates (26.2), and Asians/Pacific Islanders (26.2) (Table 2). The mean number of GHDs was lowest for persons who were aged ≥75 years (23.0), who smoked 20 or more cigarettes per day (22.9), who were told by a health professional more than once they have high blood pressure (22.1), who were unemployed (22.0), who were separated from their spouses (22.0), who had less than a high school education (21.9), who had annual household incomes of less than $10,000 (21.1), who were told by a physician they have diabetes (19.9), and who were unable to work (10.7).

Mean numbers of GHDs varied substantially when respondents were grouped by annual household income, education, age group, and sex (Table 3). The mean number of GHDs was lowest (17.5 days) for men aged 35–49 years who had annual household incomes of less than $10,000 and a high school education or less (n=167). Each of the five groups with the lowest mean number of GHDs (less than 20 days) comprised persons aged 35–64 years who had an annual household income of less than $10,000 (combined n=362 men, 1140 women). The mean number of GHDs was highest (27.9 days) for men aged 50–64 years who had annual household incomes of more than $50,000 and at least some college education (n=646). Each of the five groups with the highest mean number of GHDs (27 or more days) comprised men aged ≥35 years who had annual household incomes of more than $50,000 (combined n=2842).

Reported by the following BRFSS coordinators: P Owen, Alaska; J Senner, PhD, Arkansas; M Leff, MSPH, Colorado; F Breukelman, PhD, Delaware; C Mitchell, District of Columbia;

†Computation of this index assumed minimal overlap of reported "not good" health days (e.g., a respondent reporting five physical and three mental not good health days would have 30-(5+3)=22 GHDs). An alternative index that assumed maximal overlap (i.e., 30-5=25 GHDs for the same respondent) added only 0.4 mean days to the 24.8 overall mean days of the minimal overlap index.

Quality of Life — Continued

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Editorial Note: The need to address and characterize HR-QOL has been reflected by the national year 2000 objectives and the National Institutes of Health (*3*). Health analysts have addressed key aspects of a definition of HR-QOL (which includes functional status and individual health perceptions) and approaches for distinguishing HR-QOL from overall quality of life (which includes HR-QOL and satisfaction with one's life and circumstances) (*3–5*). Because individual health perceptions reliably predict loss of function, morbidity, and mortality (*2,6,7*), health agencies are developing valid measures of such perceptions for use in surveys (*8,9*). Comprehensive, yet brief, measures, such as those described in this report, may be feasible for use in local surveys (*10*).

The BRFSS findings suggest that a GHDs index can identify differences in reported good health among population subgroups and in relation to other key factors (e.g., annual household income and education). For some groups, the calculation of fewer GHDs primarily was attributable to recent physical health limitations (e.g., among persons with diabetes), to recent mental health limitations (e.g., among cigarette

TABLE 1. Responses* to health-related quality-of-life questions — Behavioral Risk Factor Surveillance System, 1993†

		Respondents§ (n=44,978)	
Question	**Response**	**No.**	**(%)**
Self-rated health			
	Excellent	10,764	(24.0)
	Very good	15,328	(34.2)
	Good	12,162	(27.1)
	Fair	4,654	(10.4)
	Poor	1,961	(4.4)
Recent physical health			
(No. days when physical	0 days	29,914	(67.6)
health was not good during	1–2 days	5,010	(11.3)
the 30 days preceding the survey.)	3–7 days	4,402	(9.9)
	≥8 days	4,919	(11.1)
Recent mental health			
(No. days when mental	0 days	30,308	(68.5)
health was not good during	1–2 days	4,373	(9.9)
the 30 days preceding the survey.)	3–7 days	4,708	(10.6)
	≥8 days	4,833	(10.9)
Recent activity limitation			
(No. days when poor physical	0 days	36,130	(81.1)
or mental health kept you from doing	1–2 days	3,081	(6.9)
your usual activities during the 30	3–7 days	2,472	(5.5)
days preceding the survey.)	≥8 days	2,886	(6.5)

*Responses to the last three questions were recorded in actual number of days but are summarized in this table in four response groupings.

†Unweighted data from Alaska, Arkansas, Colorado, Delaware, District of Columbia, Georgia, Idaho, Illinois, Kentucky, Massachusetts, Minnesota, Montana, Nebraska, Oklahoma, Pennsylvania, South Carolina, Tennessee, Utah, Vermont, Virginia, Washington, and West Virginia.

§Numbers may not add to sample size because persons with missing values were excluded from this analysis.

TABLE 2. Mean number of "good health days" (GHDs)* and "not good" physical and mental health days during the 30 days preceding the survey, by selected respondent characteristics — Behavioral Risk Factor Surveillance System, 1993†

Characteristic	No. respondents§ (n=44,978)	Mean GHDs	Mean Not good physical health days	Mean Not good mental health days
Age group (yrs)				
18–24	4,279	25.1	1.8	3.4
25–44	19,756	25.2	2.1	3.1
45–64	11,445	24.6	3.5	2.8
65–74	4,975	24.2	4.7	1.9
≥75	3,064	23.0	6.2	1.9
Sex				
Male	18,383	25.7	2.6	2.2
Female	25,311	24.1	3.3	3.2
Race				
White	37,836	24.8	3.0	2.8
Black	4,198	24.9	2.9	2.8
Asian/Pacific Islander	474	26.2	1.8	2.3
American Indian/ Alaska Native	606	23.5	3.5	3.8
Hispanic origin				
Yes	1,207	24.2	3.1	3.4
No	42,358	24.8	3.0	2.8
Educational level				
Less than high school graduate	6,333	21.9	6.0	3.6
High school graduate	14,795	24.8	2.9	2.8
Some college	11,629	24.9	2.6	2.9
College graduate	10,858	26.2	1.9	2.2
Annual household income				
<$10,000	5,569	21.1	6.3	4.4
$10,000–$24,999	12,630	24.3	3.2	3.0
$25,000–$50,000	13,243	25.8	2.0	2.5
>$50,000	7,404	26.4	1.7	2.1
Employment status				
Employed	27,331	25.9	1.8	2.6
Unemployed	1,857	22.0	4.2	5.2
Homemaker	3,741	24.1	3.5	3.1
Student	1,578	24.6	2.2	3.5
Retired	8,042	23.8	5.1	1.9
Unable to work	1,099	10.7	16.3	8.9
Marital status				
Married	24,218	25.3	2.7	2.4
Divorced	5,254	23.4	3.6	3.9
Widowed	4,618	23.1	5.4	2.5
Separated	1,194	22.0	3.7	5.4
Never married	7,582	25.3	2.1	3.0
Unmarried couple	757	24.5	2.3	3.6
Told by a physician they have diabetes				
Yes	2,074	19.9	8.1	4.0
No	41,583	25.0	2.8	2.7
Told by a health professional they have high blood pressure				
Never told	33,683	25.4	2.4	2.6
Told once	2,274	24.6	2.9	3.1
Told more than once	7,527	22.1	5.7	3.6
Cigarette smoking				
Never smoked	22,505	25.5	2.6	2.3
Former smoker	10,904	24.6	3.5	2.5
Smokes <20 cigarettes per day	5,022	23.7	3.2	3.9
Smokes ≥20 cigarettes per day	5,189	22.9	3.7	4.4
Health-care coverage				
Yes	38,290	24.9	3.0	2.6
No	5,308	23.5	3.3	4.2
TOTAL	**43,694**	**24.8**	**3.0**	**2.8**

* GHDs are obtained by subtracting the sum of not good physical health days and not good mental health days from 30 days, with the restriction that the number of GHDs cannot be less than zero. In this analysis, the sum of GHDs and not good health days for each population subgroup exceeds 30 days because some persons reported a total of more than 30 not good physical and mental health days.

† Unweighted data from Alaska, Arkansas, Colorado, Delaware, District of Columbia, Georgia, Idaho, Illinois, Kentucky, Massachusetts, Minnesota, Montana, Nebraska, Oklahoma, Pennsylvania, South Carolina, Tennessee, Utah, Vermont, Virginia, Washington, and West Virginia.

§ Numbers may not add to sample size because persons with missing values were excluded from this analysis.

TABLE 3. Mean number of "good health days" (GHDs)* during the 30 days preceding the survey, by selected demographic characteristics — Behavioral Risk Factor Surveillance System, 1993†

Annual household income	Education	Age group (yrs) 18–34 Men	18–34 Women	35–49 Men	35–49 Women	50–64 Men	50–64 Women	≥65 Men	≥65 Women	Total Men	Total Women
<$10,000	≤ High school	23.2	22.5	17.5	18.9	17.9	17.9	20.7	21.5	**20.3**	**20.8**
	Any college	25.1	22.3	20.7	19.6	22.0	20.4	20.7	23.1	**23.4**	**21.7**
$10,000–$24,000	≤ High school	25.8	24.1	24.5	23.2	23.4	24.1	23.9	23.4	**24.6**	**23.7**
	Any college	26.2	24.1	25.1	23.6	23.8	24.5	25.2	24.2	**25.5**	**24.1**
$25,000–$50,000	≤ High school	26.3	24.2	26.3	25.0	25.8	25.0	26.3	26.2	**26.2**	**24.8**
	Any college	26.9	25.0	26.7	25.1	26.3	25.7	26.3	26.0	**26.7**	**25.2**
>$50,000	≤ High school	26.2	25.1	27.2	25.4	27.1	25.8	25.7	25.4	**26.8**	**25.4**
	Any college	26.6	25.7	27.4	25.6	27.9	26.0	27.0	26.3	**27.3**	**25.7**
Total		**26.1**	**24.3**	**26.1**	**24.2**	**25.2**	**23.9**	**24.3**	**23.3**	**25.7**	**24.0**

*GHDs are obtained by subtracting the sum of "not good" physical health days and "not good" mental health days from 30 days, with the restriction that the number of GHDs cannot be less than zero.
†n=44,978. Unweighted data from Alaska, Arkansas, Colorado, Delaware, District of Columbia, Georgia, Idaho, Illinois, Kentucky, Massachusetts, Minnesota, Montana, Nebraska, Oklahoma, Pennsylvania, South Carolina, Tennessee, Utah, Vermont, Virginia, Washington, and West Virginia.

Quality of Life — Continued

smokers), or to both recent physical and mental health limitations (e.g., among persons unable to work) (Table 2). Refinement of this index in relation to other variables, including location and season, may further differentiate subgroups.

The findings in this report are subject to at least five limitations. First, the data were not weighted to reflect the complex survey design of the BRFSS. Second, less than half the states participating in the BRFSS were included in this analysis, and some geographic regions were underrepresented. Third, the GHDs group means were not adjusted for all potential confounders (e.g., annual income adjusted for household size) (Tables 2 and 3). Fourth, differences by racial/ethnic groups may reflect cultural differences in how these measures are perceived (e.g., some groups may stoically deny health problems or be reluctant to report problems to strangers [*2*]). Finally, respondents were persons capable and willing to participate in the household telephone survey; therefore, some groups with lower levels of HR-QOL most likely were excluded.

Future analyses of the weighted 1993 BRFSS data from all 49 participating states will 1) refine and validate the GHDs index, 2) examine geographic and seasonal patterns of HR-QOL, and 3) assess the relation of these HR-QOL data to behavioral risk factors and to other HR-QOL data (e.g., National Health Interview Survey and other BRFSS data used to track "years of healthy life" for the year 2000 national health objectives). States can use their BRFSS data to identify population subgroups reporting low levels of HR-QOL that may require additional health services and to monitor temporal or secular changes in HR-QOL that may be associated with major social and health events (e.g., implementation of health-care reform).

References

1. Public Health Service. Healthy people 2000: national health promotion and disease prevention objectives—full report, with commentary. Washington, DC: US Department of Health and Human Services, Public Health Service, 1991; DHHS publication no. (PHS)91-50212.
2. Schechter S, ed. Proceedings of the 1993 NCHS Cognitive Aspects of Self-Reported Health Status Conference. Hyattsville, Maryland: US Department of Health and Human Services, Public Health Service, CDC, National Center for Health Statistics, 1994 (in press). (NCHS working paper; series no. 10).
3. National Institutes of Health. Quality of life assessment: practice, problems, and promise—proceedings of a workshop. Bethesda, Maryland: US Department of Health and Human Services, Public Health Service, National Institutes of Health, 1993.
4. Patrick DL, Bergner M. Measurement of health status in the 1990s. Annu Rev Public Health 1990;11:165–83.
5. CDC. Workshop on quality of life/health status surveillance for states and communities: meeting report. Atlanta: US Department of Health and Human Services, Public Health Service, CDC, National Center for Chronic Disease Prevention and Health Promotion, 1993.
6. Idler EE, Angel RJ. Self-rated health and mortality in the NHANES-I epidemiologic follow-up study. Am J Public Health 1990;80:446–52.
7. Segovia J, Bartlett RF, Edwards AC. The association between self-assessed health status and individual health practices. Can J Public Health 1989;80:32–7.
8. CDC. Consultation on functional status surveillance for states and communities: meeting report. Atlanta: US Department of Health and Human Services, Public Health Service, CDC, National Center for Chronic Disease Prevention and Health Promotion, 1993.
9. Hennessy CH, Moriarty DG, Zack MM, Scherr PA, Brackbill R. Measuring health-related quality of life for public health surveillance. Public Health Rep 1994 (in press).
10. Mosteller F. Implications of measures of quality of life for policy development. J Chronic Dis 1987;40:645–50.

Notice to Readers

Notice of Proposed Rulemaking for Respirator Certification Regulations

On May 24, 1994, CDC's National Institute for Occupational Safety and Health (NIOSH) published a Notice of Proposed Rulemaking in the *Federal Register* * to modify the certification regulations for respirators used in the workplace. The proposed changes would enable manufacturers to introduce improved respirators to protect workers exposed to hazardous airborne particulates including toxic dusts, mists, and fumes and airborne infectious contaminants such as *Mycobacterium tuberculosis*. A public meeting to discuss the proposed changes is scheduled for June 23–24, 1994, in Washington, D.C. Additional information or a copy of the proposed rule is available from the Chief, Certification and Quality Assurance Branch, Division of Safety Research, NIOSH, CDC, telephone (304) 284-5713.

*59 FR 26850.

Notice to Readers

Public Health Leadership Institute

The CDC/University of California's Public Health Leadership Institute (PHLI) is a 1-year scholars' program designed to strengthen the U.S. public health system by enhancing the leadership capacities of senior city, county, and state public health officials. The major themes of the program curriculum are: challenges—current and future issues confronting public health; leadership and vision; communication and information; and political and social change. The fourth year of the PHLI will begin October 30, 1994, and will include an intensive on-site session March 12–17, 1995. At least 50 officials will be selected to participate in the PHLI.

Senior state and local health officials, including state deputy directors nominated by health directors, are eligible to apply. Applications will be available in June 1994 and are due August 5. Scholars selected will be notified by September 15. Additional information and applications are available from the PHLI office, telephone (916) 448-7891, fax (916) 448-0753; or from CDC's Public Health Practice Program Office, telephone (404) 639-1945.

Notice to Readers

Publication of CDC Strategic Plan for Emerging Infectious Diseases

CDC has released *Addressing Emerging Infectious Disease Threats: A Prevention Strategy for the United States* (*1*); the Executive Summary of this plan was published as an *MMWR Recommendations and Reports* (*2*). The plan was developed in partnership with other federal agencies; state and local health departments; academic institutions; professional societies; international organizations; and experts in public health, infectious diseases, and medical microbiology. The plan contains four goals that emphasize surveillance, applied research, prevention and control, and public health infrastructure.

Single copies of the plan are available from CDC's National Center for Infectious Diseases, Office of Program Resources—EP, Mailstop C-14, 1600 Clifton Road, NE, Atlanta, GA 30333.

References

1. CDC. Addressing emerging infectious disease threats: a prevention strategy for the United States. Atlanta: US Department of Health and Human Services, Public Health Service, CDC, 1994.
2. CDC. Addressing emerging infectious disease threats: a prevention strategy for the United States: executive summary. MMWR 1994;43:(no. RR-5).

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