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Anticholinergic Poisoning Associated with an Herbal Tea — New York City, 1994

Inadvertent anticholinergic poisoning can result from consumption of foods contaminated with plants that contain belladonna alkaloids. During March 1994, the New York City Department of Health (NYCDOH) investigated seven cases of anticholinergic poisoning in members of three families; three of the seven ill persons required emergency treatment for characteristic manifestations. For all cases, manifestations occurred within 2 hours after drinking tea made from leaves purchased commercially and labeled as Paraguay tea—an herbal tea derived from the plant *Ilex paraguariensis*, which is native to South America. This report summarizes the investigation of these cases.

On March 20, a 39-year-old man and his 38-year-old wife shared a pot of Paraguay tea. Within 30 minutes after drinking the tea, both developed acute symptoms (including agitation and flushed skin). They were transported by ambulance to a local hospital. In the emergency department, the man was disoriented and agitated. Findings on examination included fever (101.2 F [38.4 C]), dilated and nonreactive pupils, and dry skin and oral mucous membranes; bowel sounds were absent. Anticholinergic poisoning was diagnosed based on clinical findings, and the New York City Poison Center (NYCPC) was notified. After treatment with two doses of intravenous physostigmine (2 mg each over 5 minutes), signs and symptoms completely resolved. Findings on examination of the woman included fever (100.8 F [38.2 C]), dilated and nonreactive pupils, and dry skin and oral mucosa. Her symptoms resolved without treatment.

On March 21, a 20-year-old woman drank approximately 1 cup of Paraquay tea; approximately 1 hour later, she presented to a local emergency department with agitation, disorientation, and aphasia that progressed to stupor. Findings on examination included increased pulse (120 beats per minute), oral temperature of 98.2 F (36.8 C), dilated pupils, dry skin, and absent bowel sounds. Anticholinergic syndrome was diagnosed, and the NYCPC was notified. She received gastric lavage, activated charcoal, and a cathartic. Her mental status gradually improved, and she was discharged after 10 hours of observation.

On March 23, four family members shared a pot of tea. Approximately 1 hour later, the 10-year-old son was transported by his parents to a local emergency department because of agitation and restlessness. Findings on examination included increased

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pulse (120 beats per minute), dilated and nonreactive pupils, flushed skin, dry mucous membranes, and hypoactive bowel sounds. Anticholinergic syndrome was diagnosed, and the NYCPC was notified. After treatment with two doses of intravenous physostigmine (0.5 mg each over 5 minutes), his manifestations resolved. Because the boy's 35-year-old mother and 40-year-old father reported symptoms, including dry mouth, the emergency department physician presumptively diagnosed anticholinergic syndrome in both parents. Their symptoms resolved without treatment. The boy's 18-year-old brother had left home for school immediately after drinking the tea. On returning home during the evening of March 23, he reported confusion and no knowledge of his whereabouts during the day.

At the request of the NYCPC, the emergency department physicians obtained samples of tea from each family for analysis. Samples consisted of packages of dried and chopped leaves and stems wrapped in clear cellophane; the package label identified a New York City distributor of South American foods. Analysis involved soaking 5 g of tea in 50 mL of methanol for 4 hours. From 1 μL of the liquid extract, the belladonna alkaloids atropine, scopolamine, and hyoscyamine were identified by gas chromatography/mass spectrometry. Quantitative analysis was not performed.

Investigations by the NYCDOH, the NYCPC, and the Food and Drug Administration (FDA) indicated that the distributor had purchased the tea directly from farmers and had shipped it in bulk to New York City for packaging. Five cases of 24 packs had been delivered to one grocery store specializing in South American foods. Only one case had been sold; the remaining four cases were subsequently quarantined in accordance with New York City health statutes. The grocery store had no record of persons who had purchased the tea. On March 24, the NYCDOH issued a news release to educate the public about the hazards of drinking the contaminated Paraguay tea. No additional cases of anticholinergic poisoning associated with Paraguay tea were reported.

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Editorial Note: Paraguay tea is made from the leaves of *I. paraguariensis*, a 20-foot-tall holly tree indigenous to Argentina, Brazil, and Paraguay. Common names for the plant include maté, yerba maté, and South American holly. The leaves contain caffeine, theophylline, and a nontoxic volatile oil but do not contain belladonna alkaloids.

The dominant clinical features of the cases described in this report (i.e., tachycardia, fever, dilated pupils, and flushed skin) are characteristic of the anticholinergic effects associated with poisoning by belladonna alkaloids (*1*). In addition, patients responded to physostigmine, the treatment of choice for anticholinergic poisoning. The most likely explanation for the cases in this report is contamination of the Paraguay tea with leaves from a plant containing belladonna alkaloids. Previous reports of inadvertent anticholinergic poisoning resulting from contamination of foods with plants containing belladonna alkaloids have included consumption of hamburger seasoned with seeds from Angels' trumpet (*Brugmansia X candida*) (*2*) and consumption of contaminated honey (*3*), Chinese herbs (*4*), or porridge (*5*).

Anticholinergic Poisoning — Continued

This report underscores the need for persons who use herbal products to report any adverse reactions immediately to health authorities. In 1993, a total of 959 incidents of anticholinergic poisoning associated with consumption of plants containing belladonna alkaloids were reported to poison-control centers in the United States (*6*); 15 persons had symptoms requiring hospitalization. Because a large number of plants throughout the United States contain belladonna alkaloids, plants harvested for human consumption must be correctly identified. The public should be aware that all herbal products have the potential to be misidentified when collected, mislabeled, contaminated, or adulterated. Physicians and the public should report adverse reactions to herbal products to FDA's MedWatch Program, telephone (800) 332-1088 ([301] 738-7553).

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Health-Related Quality-of-Life Measures — United States, 1993

Measures of health-related quality of life (HR-QOL) are used to evaluate the outcomes of interventions and the need for health services (*1,2*). HR-QOL includes how persons perceive their own health—which reliably predicts loss of function, morbidity, and mortality (*3–5*)—and how well they function physically, psychologically, and socially during usual daily activities. Measures of HR-QOL are important because they assess dysfunction and disability not reflected by standard measures of morbidity and mortality. Since January 1993, the Behavioral Risk Factor Surveillance System (BRFSS) has included four HR-QOL questions regarding overall self-rated health and recent physical health, mental health, and activity limitation (*6*). This report describes 1993 BRFSS results for state-specific differences in these measures of HR-QOL.

The BRFSS is a continuous, random-digit–dialed telephone survey of the U.S. noninstitutionalized population aged ≥18 years. In 1993, a total of 102,263 respondents living in the District of Columbia and all states except Wyoming participated in the survey. Participants were asked 1) whether their health was generally excellent, very good, good, fair, or poor; 2) how many days during the previous 30 days their physical health was not good because of injury or illness; 3) how many days during the previous 30 days their mental health was not good because of stress, depression, or "problems with emotions"; and 4) how many days during the previous 30 days their physical or mental health prevented them from performing usual activities, such as self-care, work, or recreation. Response rates for these questions ranged from 98.3% to 99.8%.

Quality of Life — Continued

Responses were analyzed to estimate state-specific percentages and means. A state-specific index of "good health days" (GHDs) was calculated by subtracting the sum of a respondent's "not good" physical health days and "not good" mental health days from 30 days, provided the number of GHDs was not less than zero (*6*).* GHDs represented the days during the previous 30 days for which a respondent did not report any physical or psychological dysfunction. Because these measures are associated with age and sex, the crude estimates were adjusted by 5-year age group and by sex to the July 1, 1990, U.S. population (*7*). However, only the crude measures are presented because adjustment did not substantially affect the geographic patterns for any of the HR-QOL measures. All percentage or mean estimates and their 95% confidence intervals (CIs) were calculated using SUDAAN (*8*). Spearman rank correlations (r_s) were calculated between pairs of estimates of the measures for each state (*9*).

Overall, 86.6% (95% CI=86.3%–86.9%) of respondents reported good to excellent self-rated health. Percentages ranged from 76.6% (West Virginia) to 91.6% (Alaska) (Table 1) and were highest in New Hampshire, Vermont, Massachusetts, Connecticut, New Jersey, the District of Columbia, Iowa, Minnesota, Washington, and Alaska (Figure 1).

The overall mean number of days of good physical health during the previous 30 days was 27.0 (95% CI=27.0–27.1) (range: 25.9 days [West Virginia] to 28.4 days [District of Columbia]) (Table 1), and numbers were highest in Connecticut, the District of Columbia, Iowa, Kansas, South Dakota, Alaska, and Hawaii. Reported good to excellent self-rated health was correlated with good physical health (r_s=0.57; p<0.01).

The overall mean number of days of good mental health during the previous 30 days was 27.1 (95% CI=27.1–27.2) (range: 26.0 days [Nevada] to 28.6 days [District of Columbia]) (Table 1); numbers were highest in Maine, Connecticut, New Jersey, the District of Columbia, Alabama, Illinois, Iowa, South Dakota, New Mexico, and Hawaii. The mean number of days of good mental health was correlated with good physical health days (r_s=0.66; p<0.01) but not with good to excellent self-rated health (r_s=0.10; p=0.47).

The overall mean number of days without activity limitations during the previous 30 days was 28.3 (95% CI=28.2–28.4) (range: 27.3 days [Kentucky and West Virginia] to 29.3 days [District of Columbia]) (Table 1). The highest numbers were reported in Maine, New Hampshire, Connecticut, Maryland, the District of Columbia, Iowa, North Dakota, South Dakota, Kansas, and Hawaii. The mean number of days without activity limitations was correlated with the other three HR-QOL measures and most strongly with the mean number of days of good physical health (r_s=0.80; p<0.01).

The mean number of GHDs in the entire sample was 24.8 (95% CI=24.7–24.9) (range: 23.2 days [Nevada] to 27.3 days [District of Columbia]) (Table 1). The geographic pattern of GHDs was a composite reflecting the patterns for good physical and mental health days (Figure 2). The GHD pattern differed from the pattern of good to excellent self-rated health (Figure 1) because the latter was more strongly correlated with good physical health days than with good mental health days. These patterns persisted when the maximal overlap GHD index was used.

*Although computation of GHDs assumes a minimal overlap of "not good" health days reported, an alternative index that assumed maximal overlap added only 0.4 mean days to the 24.8 overall mean number of days of the minimal overlap of GHDs.

Quality of Life — Continued

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

State	Mean % repondents with good to excellent self-rated health†	Mean no. days of good physical health§	Mean no. days of good mental health§	Mean no. days without activity limitations¶	Mean no. good health days**
Alabama	85.3	27.4	28.2	28.5	26.2
Alaska	91.6	27.7	27.3	28.6	25.3
Arizona	87.5	27.1	27.0	28.3	25.0
Arkansas	80.3	26.5	27.4	27.7	24.5
California	87.0	26.8	26.5	28.0	24.1
Colorado	88.9	27.0	26.6	28.5	24.1
Connecticut	90.0	27.7	27.8	28.8	25.8
Delaware	87.2	26.7	26.8	28.3	24.1
District of Columbia	89.9	28.4	28.6	29.3	27.3
Florida	84.6	26.8	26.8	28.2	24.4
Georgia	86.3	27.4	27.4	28.5	25.3
Hawaii	86.2	27.8	27.9	28.9	26.1
Idaho	88.1	26.7	26.8	28.5	24.1
Illinois	87.4	27.3	27.8	28.6	25.6
Indiana	85.3	26.5	27.0	28.3	24.2
Iowa	90.7	27.6	27.7	28.9	26.0
Kansas	88.0	27.8	27.6	28.9	25.8
Kentucky	79.9	26.2	27.4	27.3	24.5
Louisiana	83.9	27.2	27.4	28.4	25.2
Maine	87.4	27.4	27.8	28.7	25.7
Maryland	89.2	27.3	27.4	28.7	25.2
Massachusetts	89.6	26.9	26.8	28.2	24.3
Michigan	87.0	27.1	26.9	28.5	24.4
Minnesota	89.6	27.1	26.8	28.4	24.5
Mississippi	78.4	26.7	27.0	27.9	24.5
Missouri	83.8	26.8	27.0	28.3	24.5
Montana	86.5	26.5	27.0	28.2	24.0
Nebraska	88.0	27.2	27.4	28.6	25.1
Nevada	87.0	26.5	26.0	28.1	23.2
New Hampshire	90.8	27.4	26.9	28.7	25.0
New Jersey	90.8	27.4	27.7	28.5	25.5
New Mexico	87.4	27.3	27.7	28.5	25.3
New York	87.6	26.9	26.9	28.3	24.4
North Carolina	82.8	26.8	27.6	28.3	25.0
North Dakota	86.4	27.0	26.9	28.7	24.4
Ohio	86.3	27.0	27.3	28.5	25.0
Oklahoma	82.9	26.9	27.2	28.4	24.8
Oregon	88.0	27.0	27.0	28.1	24.5
Pennsylvania	87.2	27.0	27.2	28.2	24.7
Rhode Island	85.2	26.5	26.8	28.4	24.0
South Carolina	82.7	27.2	27.3	28.3	24.9
South Dakota	89.4	27.5	28.1	28.7	26.1
Tennessee	81.5	26.9	27.3	28.4	25.1
Texas	86.0	27.2	27.1	27.6	24.9
Utah	88.4	27.0	27.2	28.2	24.7
Vermont	89.5	27.2	27.2	28.6	25.0
Virginia	89.0	27.4	27.3	28.5	25.1
Washington	90.5	27.1	27.0	28.5	24.8
West Virginia	76.6	25.9	27.0	27.3	24.0
Wisconsin	89.0	27.0	27.3	28.4	24.8
Total	**86.6**	**27.0**	**27.1**	**28.3**	**24.8**

*Excludes Wyoming.
†Standard error ±1.2%.
§Standard error ±0.3 days.
¶Standard error ±0.2 days.
**Standard error ±0.4 days.

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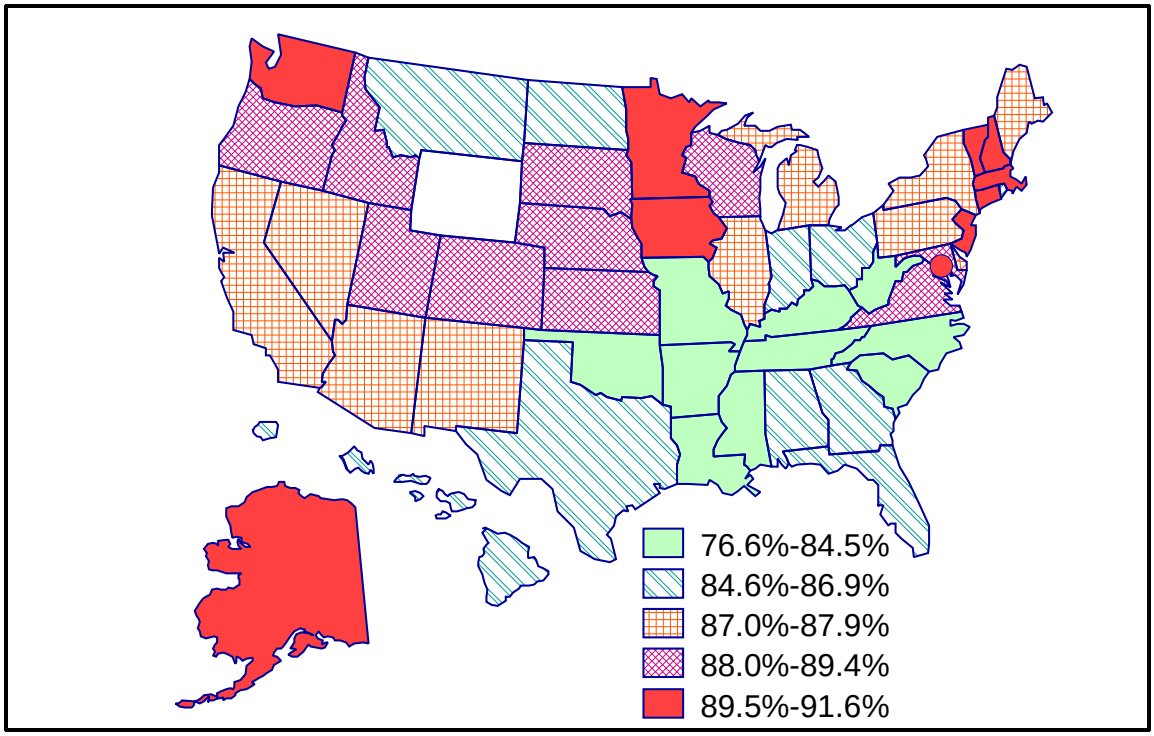
FIGURE 1. Percentage of good to excellent self-rated health, by quintile — Behavioral Risk Factor Surveillance System, United States,* 1993



*Excludes Wyoming.

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Editorial Note: As life expectancy increases, the prevalence of impaired health and function also may increase. The 1993 BRFSS findings indicate substantial state-specific variation in HR-QOL; some states ranked consistently high for all four measures, while others ranked consistently low. Of the four measures, the percentage of respondents with good to excellent self-rated health varied the most, and the mean number of days without activity limitation varied the least; the former, therefore, may be a more sensitive indicator of differences in factors that affect HR-QOL or of differences in attitudes toward health. The percentage of respondents with good to

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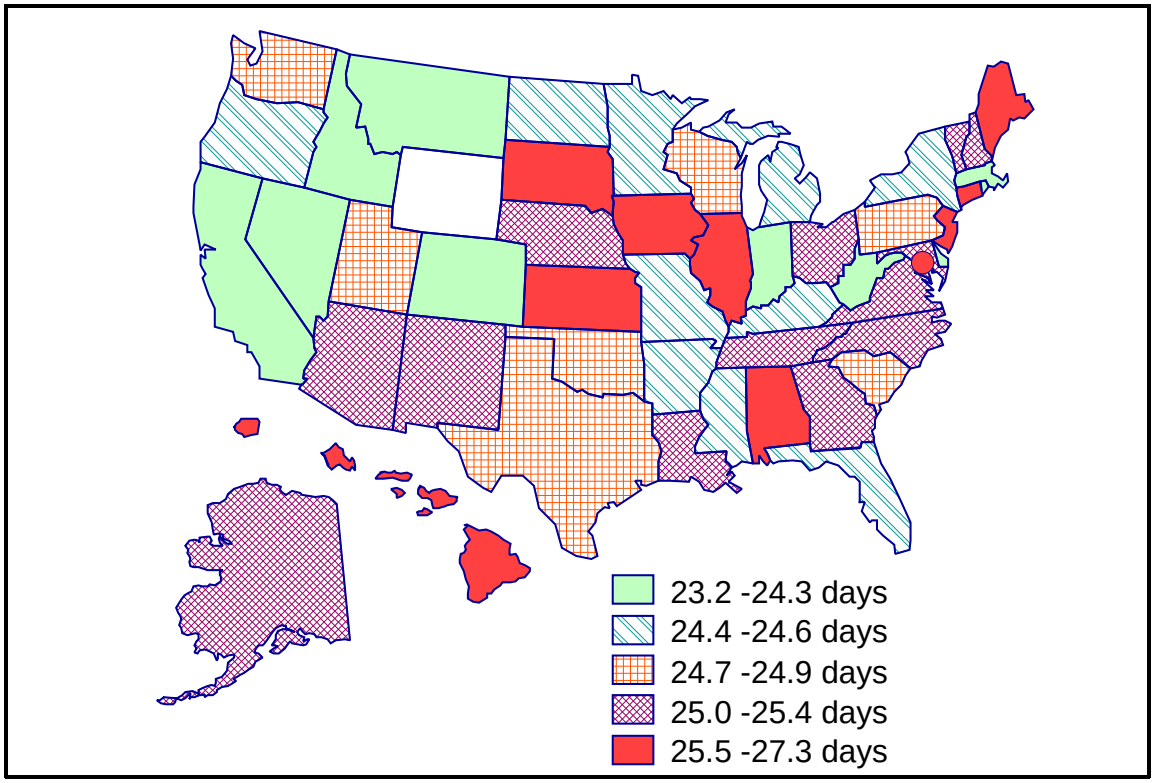
FIGURE 2. Average number of self-reported "good health days," by quintile — Behavioral Risk Factor Surveillance System, United States,* 1993



*Excludes Wyoming.

excellent self-rated health is more consistently related to the mean numbers of days of good physical health and of days without activity limitation than to the mean number of days of good mental health. Evaluation of mental health, therefore, complements the evaluation of physical health and self-rated health in the assessment of HR-QOL (*1,6*).

Although age and sex are strongly correlated with the four measures used in this report (*6*), they did not fully account for state-to-state variation. Other unassessed factors that may have accounted for this variation include education level, income, employment status, marital status, health-care coverage, cigarette smoking, and contextual influences (including culture, social support, perceived neighborhood safety, and environmental hazards). For example, because of cultural influences, some respondents may have been less willing to acknowledge or report health problems to strangers. In addition, these findings may have overestimated the prevalence of HR-QOL because BRFSS did not include some groups (e.g., institutionalized persons, homeless persons, and other persons without telephones). Finally, this analysis did not differentiate variations within states or within groups.

The BRFSS supplies timely information for monitoring health status at the state level. Measuring HR-QOL assists in monitoring progress toward the overall goal of the national health objectives for the year 2000 to increase the span of healthy life (*10*) and may enable states to identify persons with low perceived HR-QOL. Refinement of

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HR-QOL measures will require validation of these measures and clarification of their relation to risk factors.

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Foodborne Botulism — Oklahoma, 1994

On July 2, 1994, the Arkansas Department of Health and the Oklahoma State Department of Health were notified about a possible case of foodborne botulism. This report summarizes the investigation, which implicated consumption of improperly stored beef stew.

On June 30, 1994, a 47-year-old resident of Oklahoma was admitted to an Arkansas hospital with subacute onset of progressive dizziness, blurred vision, slurred speech, difficulty swallowing, and nausea. Findings on examination included ptosis, extraocular palsies, facial paralysis, palatal weakness, and impaired gag reflex. The patient also had partially healed superficial knee wounds incurred while laying cement. He developed respiratory compromise and required mechanical ventilation.

Differential diagnoses included wound and foodborne botulism, and botulism antitoxin was administered intravenously. Electromyography demonstrated an incremental response to rapid repetitive stimulation consistent with botulism. Anaerobic culture of the wounds were negative for *Clostridium*. However, analysis of a stool sample obtained on July 5 detected type A toxin, and culture of stool yielded *C. botulinum*. The patient was hospitalized for 49 days, including 42 days on mechanical ventilation, before being discharged.

The patient had reported that, during the 24 hours before onset of symptoms, he had eaten home-canned green beans and a stew containing roast beef and potatoes.

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Although analysis of the leftover green beans was negative for botulism toxin, type A toxin was detected in the stew. The stew had been cooked, covered with a heavy lid, and left on the stove for 3 days before being eaten without reheating. No other persons had eaten the stew.

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Editorial Note: Botulism is a paralytic illness resulting from a potent toxin produced under anaerobic conditions by *C. botulinum*. Although foodborne botulism is rare in the United States (34 cases reported in 1994 [CDC, unpublished data, 1995]), manifestations can be severe and can progress rapidly. Because of the potential severity of disease and the possibility for exposure of many persons to contaminated products, foodborne botulism is a public health emergency requiring rapid investigation.

When botulism is suggested by clinical manifestations, (e.g., descending neuroparalysis, ptosis, and extraocular palsies), physicians should obtain a thorough food history to assist in the diagnosis and in identifying and obtaining potentially contaminated leftover food. In the case described in this report, heat-resistant *C. botulinum* spores either survived the initial cooking or were introduced afterwards; the spores subsequently germinated and produced toxin. The lid of the pot or the gravy of the stew most likely provided the anaerobic environment necessary for toxin production. Previous cases with similar features have resulted from consumption of commercial pot pies (*1*) and onions sautéed in margarine (*2*), both of which were left at room temperature for >4 hours after cooking.

Most outbreaks of foodborne botulism in the United States result from eating improperly preserved home-canned foods (*3*); vegetables (especially asparagus, green beans, and peppers) account for most outbreaks caused by home-canning (CDC, unpublished data, 1995). A pressure cooker must be used to home-can vegetables safely because it can reach temperatures necessary to kill botulism spores (substantially >212 F [>100 C] for 10 minutes); however, specific times and pressures needed vary for different foods (*4*). Jams and jellies can be safely home-canned without a pressure cooker because their high sugar content will not support the growth of *C. botulinum*. Instructions for home-canning are available from county extension offices. Cooked foods should not be held at temperatures 40 F–140 F (4 C–60 C) for >4 hours (*5*). Boiling food for 10 minutes before eating destroys any toxin present.

CDC provides epidemiologic consultation and laboratory diagnostic services for suspected botulism cases and authorizes release of botulism antitoxin to state health departments and physicians in the United States. These services are available 24 hours a day from CDC through state health departments.

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Notification of Syringe-Sharing and Sex Partners of HIV-Infected Persons — Pennsylvania, 1993–1994

In April 1993, a man incarcerated in a prison in Berks County in eastern Pennsylvania voluntarily requested testing for human immunodeficiency virus (HIV) antibody and was diagnosed with HIV infection. Following an interview and counseling by Pennsylvania Department of Health HIV Prevention Program (HIVPP) staff (*1*), he provided contact information about four persons with whom he had shared syringes to inject drugs before incarceration. As a result of follow-up investigation, HIV infection was diagnosed in two of these four persons. One of these two persons provided contact information about 47 partners, including 41 partners with whom he had shared syringes only and six with whom he had had sex and shared syringes. By May 1994, partner notification follow-up of the four partners of the index patient and all subsequently identified partners of HIV-infected persons identified a social network of 124 persons linked by syringe-sharing and/or sex. This report describes the findings of the investigation of this network during April 1993–May 1994 and limited additional information from June–September 1994.

Of the 124 persons in the network, 113 were residents of a single community or its surrounding county. Of 121 persons contacted by HIVPP staff during the investigation, 68 (56%) were incarcerated in either the same prison as the index patient, a county prison in one of two adjacent counties, or one of two state prisons in other neighboring counties; 53 (44%) were residing in the community. HIVPP staff informed each of the 121 persons of their possible exposure to HIV (without disclosing the name of the HIV-infected person who had named them as a partner), offered HIV-antibody testing, and advised them about HIV-prevention measures (*2*). During posttest counseling, 21 HIV-infected persons gave information about their partners (range: one to four; 29 total). After those persons verified that their names had not been disclosed to these partners, the HIV-infected persons supplied information about 58 additional partners

TABLE 1. Characteristics of persons in a syringe- and sex-linked social network* — Pennsylvania, May 1994

	Men (n=78)		Women (n=43)		Total (n=121)	
Characteristic	**No.**	**(%)**	**No.**	**(%)**	**No.**	**(%)**
Reported sex with partners of the same sex	11	(14.1)	4	(9.3)	**15**	**(12.4)**
Had history of injecting-drug use	76	(97.4)	32	(74.4)	**108**	**(89.3)**
Had exchanged sex for money	4	(5.1)	25	(58.1)	**29**	**(24.0)**
Had two or more HIV-infected partners within the network	43	(55.1)	14	(32.6)	**57**	**(47.1)**
Had history of incarceration	63	(80.8)	28	(65.1)	**91**	**(75.2)**
Contacted in prison	51	(65.4)	17	(39.5)	**68**	**(56.2)**
Accepted HIV-antibody testing	75	(96.2)	43	(100.0)	**118**	**(97.5)**
Had HIV infection	33	(42.3)	11	(25.6)	**44**	**(36.4)**

*Of 124 persons identified in the network, one man and two women were not located.

Partner Notification — Continued

(*3*). Although HIVPP staff contacted partners in prisons, bars, and locations where illegal drugs were injected, at no time was staff safety threatened.

Of the 121 persons interviewed, 108 (89%) were injecting-drug users (Table 1), and 91 (75%) had a history of previous and/or current incarceration. None of the injecting-drug users in the network reported drug use while in prison. Nearly all of the persons interviewed (118 [98%]) accepted HIV-antibody testing; of these, 44 (36%) were HIV-positive, including 33 (44%) of 75 males and 11 (26%) of 43 females. HIV antibody was detected in 18 (42%) of the 43 men with two or more HIV-infected partners and six (43%) of the 14 women with two or more HIV-infected partners.

Sharing of syringes was the most common connection (98%) HIV-infected persons had with others in the network. A history of syringe-sharing (syringe-sharing only or both sex and syringe-sharing) was reported by 56 (76%) of 74 HIV-negative persons and all 44 HIV-positive persons. Nine (20%) persons chose to personally notify some of their partners and contacted 16 persons, all of whom requested HIV-antibody testing. The initial follow-up of the index patient and his contacts identified 21 persons (19 men and two women) who did not know they were HIV-infected.

Further partner-notification activities during June–September 1994 identified 18 additional persons in the network, six of whom had HIV infection diagnosed; three were previously unaware of their infection. All persons who agreed to be tested for HIV antibody were counseled to adopt and maintain risk-reduction behavioral changes. Persons who tested HIV-positive were referred to medical, psychosocial, and substance-abuse treatment services (*4*).

Through September 1994, HIVPP staff spent 2½ to 10 hours locating and interviewing each contact. The estimated cost (hourly wage multiplied by staff time plus mileage) for partner notification of this network was $13,969. The average cost was $94 for each contact located and $583 for each of the 24 previously unknown cases of HIV infection identified.

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Editorial Note: The partner-notification process identifies persons who are sex and/or syringe-sharing partners of HIV-infected persons, enables those persons to be informed of their possible exposure, and counsels them about the benefits of learning their serostatus. Identification of persons who are unaware of their HIV infection is important for interrupting HIV transmission: HIV-infected partners who previously were unaware of their infection can be counseled to adopt and maintain behavioral changes to prevent further transmission of HIV, and can be referred for psychosocial, substance-abuse, and medical treatment (including prevention of opportunistic infections) (*4*). Counseling and testing also can assist exposed but uninfected partners to recognize their risks for HIV infection and to initiate and sustain behavioral changes to reduce their risks. The findings in this report indicate that the partner notification method can be successful with persons who are incarcerated and persons who inject drugs.

Other important elements of partner notification reflected in this investigation were that first, HIV-infected persons were counseled on risk reduction and health

Partner Notification — Continued

maintenance and referred to medical and other services; HIV-infected inmates also had access to the prison's drug- and alcohol-treatment program and prerelease planning for continuity of care. Second, health department notification services did not give the name of HIV-infected persons when they informed partners of their possible exposure. Third, a large proportion of the identified partners were located and accepted HIV-antibody testing. Fourth, the cost for locating HIV-infected persons was relatively low (*5*). Fifth, most HIV-infected persons asked health department staff to notify their partners. Finally, although HIVPP staff located many partners in areas associated with risk to personal safety, they were able to interview and provide HIV-antibody testing without incident.

To ensure the effectiveness of partner notification, health departments should follow four principles. First, health department staff should be nonjudgmental, maintain confidentiality, offer voluntary testing, and reassure incarcerated contacts that those who are HIV-positive will not be housed separately and will be able to decide to whom their HIV test results will be disclosed. Second, the search for partners should be extended to a broad range of settings, including residences, workplaces, bars, settings where illegal drugs are injected, and prisons. Third, health department staff should help persons recognize and accept their HIV risk and explain the public health importance of reducing HIV transmission. Fourth, partners should be visited multiple times to underscore the urgency of the information, counsel them about the benefits of learning their serostatus, and reinforce the commitment of the health department to the process. The care the health department takes in not revealing the name and other information about HIV-infected persons is critical in ensuring that these persons provide reliable information to enable location of their sex and/or syringe-sharing partners.

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Self-Treatment with Herbal and Other Plant-Derived Remedies — Rural Mississippi, 1993

Herbal and other plant-derived remedies have been estimated by the World Health Organization (WHO) to be the most frequently used therapies worldwide (*1*). Therapeutic agents derived from plants include pure chemical entities available as prescription drugs (e.g., digitoxin, morphine, and taxol), standardized extracts, herbal teas, and food plants; plant-derived remedies can contain chemicals with potent pharmacologic and toxicologic properties (*2,3*). Although precise levels of use of these remedies in the United States are unknown, in 1991, herbal products accounted

Plant-Derived Remedies — Continued

for sales of approximately $1 billion (*4*). Previous reports about herbal remedies in the rural South have described the use and biologic activities of locally gathered plant species (*5,6*) and details of preparation and dosage, but have not determined the prevalence of use of plant-derived remedies in the study population and the prevalence of use of specific remedies. To assess the prevalence of use of plant-derived remedies (excluding prescription drugs) and the prevalence of use of specific remedies in rural central Mississippi, The University of Mississippi conducted a survey during March–June 1993. This report describes two case reports of use of these remedies and summarizes the findings of the survey.

Case Reports

Case 1. A 55-year-old man who had completed 11 years of education reported using turpentine during the year preceding the survey to rid himself of "seed ticks." The man purchased turpentine at a local drug store and, based on the advice of a friend, poured approximately 4 oz of turpentine onto a sponge and applied the sponge over all surfaces of his body below the neck. He then bathed in a tub of hot water and had onset of a severe burning sensation. To alleviate the burning, he soaked in a tub of cold water. The man subsequently developed blistering on all body surfaces to which he had applied turpentine. He also reported having used aloe as a topical remedy during the preceding year and reported previous use of briar root, castor, garlic, lemon, and sassafras.

Case 2. A 46-year-old woman who had completed 7 years of education reported using castor oil routinely as a laxative and to treat "colds." She purchased castor oil at a discount department store, kept it readily available in her home, and had used castor oil and acetaminophen to treat a cold in her 18-month-old grandchild. She fed the child 1 teaspoon of castor oil mixed with one half of a baby bottle of orange juice. The symptoms resolved. She also reported using aloe, asafetida, catnip, garlic, lemon, and turpentine as remedies during the preceding year and recalled previous use of briar root, chinaberry, corn shucks, and pine as remedies.

Survey

A 2% random cluster sample of households (n=11,671) was selected from detailed transportation maps for two geographic areas in rural central Mississippi (1990 rural central Mississippi population: 33,992). Of the 223 occupied households contacted, one or more adults (persons aged ≥18 years) in 210 (94%) households participated; 251 adults were included in the survey. The survey collected information on demographic, socioeconomic, and health variables; medicinal use and knowledge of 25 specific plants or plant-derived substances*; and diseases or symptoms treated with these plants. The 25 plants were selected based on ethnobotanical research conducted in this geographic area. In addition, respondents were asked about their knowledge or use of any other plant- derived remedies to treat specific diseases or symptoms.

Of the 251 respondents, 178 (71% [95% confidence interval (CI)=65%–77%]) reported using at least one plant-derived remedy during the year preceding the survey. The prevalence of reported use varied among age groups and was significantly higher

* Aloe vera, asafetida, briar root/blackberry, castor/castor oil, catnip, chinaberry, corn shucks/corn silks, dock/yellow dock, garlic, American ginseng, Jimson weed, lemon, life everlasting/rabbit tobacco/rabbit grass, mayapple/bitter apple, milkweed, mistletoe, nutmeg, oak, peach/peach seed/peach pit, pine/pinetop, poke/poke salad, sassafras, sage/horsemint, tobacco, and turpentine.

Plant-Derived Remedies — Continued

among persons aged 45–64 years (81% [95% CI=72%–90%]) than among those aged 18–44 years (75% [95% CI=65%–85%]) and among those aged ≥65 years (62% [95% CI=53%–71%]) ($p<0.05$). Of respondents who had used plants during the preceding year, 31% (95% CI=25%–37%) had used one plant-derived remedy; 20% (95% CI=15%–25%), two; and 20% (95% CI=15%–25%), three or more.

The most frequently used (i.e., used by at least 10% of respondents) plant-derived remedies during the preceding year were lemon (47% [95% CI=41%–53%]), aloe (27% [95% CI=22%–32%]), castor oil (14% [95% CI=10%–18%]), turpentine (12% [95% CI=8%–16%]), tobacco (12% [95% CI=8%–16%]), and garlic (10% [95% CI=6%–14%]). Other plants used for self-treatment included poke and sassafras.

The most common self-reported reasons for using plant-derived remedies during the preceding year included treatment of diseases or symptoms[†] associated with the respiratory system (43% [95% CI=38%–48%]), the skin (20% [95% CI=16%–24%), insect bites or parasite infestations (11% [95% CI=8%–14%]), the cardiovascular system (9% [95% CI=6%–12%]), and the gastrointestinal system (6% [95% CI=4%–8%]).

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Editorial Note: In this survey of adults residing in rural areas of Mississippi, nearly three fourths of respondents reported having used plant-derived remedies during the preceding year. These data also indicate that plant-derived remedy use was widely distributed among all age groups and was not limited only to older persons in the population. In comparison, in a previous study of herbal remedy use among a national sample of U.S. residents, only 3% of respondents indicated that they had used such remedies during the preceding year (*7*). The substantially higher use reported in the population surveyed in Mississippi may reflect methodological differences in the two studies. Specifically, the definition of plant-derived remedies used in this report was more inclusive than the definition of herbal remedies used in the national survey. In addition, higher use in the population surveyed in Mississippi may be associated with socioeconomic and cultural influences in this population. For example, in rural central Mississippi, only 51% of persons aged ≥25 years had a high school diploma or higher education compared with 64% for the state (*8*). Although utilization rates of the health-care system in the survey area are similar to national rates, self-treatment is an important adjunct to receiving formal care in this area (*9*).

Some plant-derived remedies reported in rural central Mississippi (e.g., poke and sassafras) contain pharmacologically active and potentially toxic compounds (*2*). For example, both turpentine and castor oil can produce adverse effects if used inappropriately. Use of externally applied turpentine oil for treatment of parasites has been reported previously (*6*). Although turpentine oil is a nontoxic and effective counterirritant when applied to a small area of the skin, cutaneous application of larger amounts has been associated with vesicular eruptions, urticaria, and vomiting (*10*). Castor oil is a stimulant laxative that may cause thorough evacuation of the bowels within 2–6 hours of ingestion (*10*); the strong purgative action of castor oil also can

[†]The reported diseases or symptoms treated with plant-derived remedies were categorized by organ system. For the respiratory system, the diseases or symptoms reported included "colds," sore throat, and cough; for the skin, rashes and burns; for the cardiovascular system, hypertension and diabetes; and for the gastrointestinal system, "stomach aches," constipation, and diarrhea.

Plant-Derived Remedies — Continued

cause dehydration and electrolyte imbalance, and long-term use may reduce the absorption of nutrients. Because the stimulant effects of castor oil may cause uterine contraction, some authorities have recommended that it not be used during pregnancy; use also is not recommended in infants and young children (*11*).

The survey findings in this report document the popularity of self-treatment with plant-derived therapies among persons in rural central Mississippi. Increased interest by health agencies in plant-derived therapies is reflected through the efforts of both the National Institutes of Health (which established the Office of Alternative Medicine) and the Food and Drug Administration (which has issued regulations addressing health claims for foods and dietary supplements). The survey findings also underscore the need for physicians, pharmacists, and other health-care providers to consider the possibility of plant-derived self-treatments among their patients and to actively elicit this information when taking a clinical history. In addition, health-care providers should be aware of potential drug interactions, toxicity, and adverse reactions as well as possible treatment benefits that may be associated with plant-derived therapies.

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Emergence of Penicillin-Resistant *Streptococcus pneumoniae* — Southern Ontario, Canada, 1993–1994

Streptococcus pneumoniae is a leading cause of infectious disease-related illness and death in the United States, accounting for an estimated 3000 cases of meningitis, 50,000 cases of bacteremia, 500,000 cases of pneumonia, and 7 million cases of acute

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otitis media each year (*1*). Penicillin has been the antibiotic of choice for the treatment of infections caused by *S. pneumoniae*; since the mid-1980s, the prevalence of penicillin-resistant *S. pneumoniae* has increased substantially worldwide (*2–4*). In Canada, a strain of pneumococcus with reduced susceptibility to penicillin was first reported in 1974 (*5*); based on surveys during 1977–1990, rates of resistance to penicillin were 2.4%, 1.5%, and 1.3% in the provinces of Alberta, Ontario, and Quebec, respectively (*6–8*). To determine whether the prevalence of penicillin resistance had increased among pneumococcal isolates, investigators from the University of Toronto tested the susceptibility of strains collected from a Toronto hospital and from a surrounding region in southern Ontario during June–December 1993 and March–June 1994. This report summarizes the results of this investigation.

During the study period, all nonduplicate *S. pneumoniae* isolates were obtained from a private community-based laboratory providing services to physicians, clinics, and nursing homes in metropolitan Toronto, and from patients assessed in the emergency department of a tertiary-care teaching hospital in Toronto. In vitro susceptibility testing was conducted by a broth microdilution procedure in accordance with interpretive standards of the U.S. National Committee for Clinical Laboratory Standards (NCCLS) (*9*). An intermediate level of resistance to penicillin was defined as a minimal inhibitory concentration (MIC) of 0.1–1.0 μg/mL; high-level resistance was defined as an MIC ≥2.0 μg/mL.

A total of 202 isolates (196 from noninvasive sites [i.e., sputum]) of *S. pneumoniae* were tested, including 122 isolates obtained from the private laboratory and 80 from the hospital emergency department. Of the 202 isolates, 16 (7.9%) were penicillin-resistant—including four with high-level resistance; 11 had been obtained from eye, ear, or sputum samples from children (eight of 68 aged <5 years) in outpatient settings and five from sputum, blood, cerebrospinal fluid, and eye samples from adults in the emergency department.

Penicillin-susceptible strains generally were susceptible to other antimicrobial agents. However, high proportions of penicillin-resistant *S. pneumoniae* isolates were resistant to tetracycline (63%; MIC ≥8 μg/mL), trimethoprim/sulfamethoxazole (56%; MIC ≥4 μg/mL), erythromycin (50%; MIC ≥4 μg/mL), and cefuroxime (38%; MIC ≥2 μg/mL). High-level resistance to ceftriaxone (MIC ≥2 μg/mL) occurred in four (25%) of 16 penicillin-resistant isolates; high-level resistance to penicillin was present in three of the four isolates resistant to ceftriaxone. All isolates were susceptible to vancomycin and imipenem. Serotypes of the penicillin-resistant pneumococci tested in the Canadian Streptococcal Reference Laboratory (Edmonton, Alberta) were 19F (five isolates), 9V (two), 23F (two), and one each of 6A, 6B, and 19A; four were nontypeable.

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Editorial Note: The findings in this report suggest an increased prevalence of penicillin-resistant *S. pneumoniae* in metropolitan Toronto compared with that in a similar study in Toronto in 1988 (1.5% [*8*]). By selecting all pneumococcal isolates from a large outpatient reference laboratory and hospital emergency department in

Streptococcus pneumoniae — *Continued*

metropolitan Toronto (97% of which were obtained from noninvasive sites), the study provided an indication of the antimicrobial resistance patterns among pneumococci circulating in the community and reflects a trend of emerging pneumococcal drug resistance in North America and other countries (*2–4*). For example, in the United States during 1987–1992, the prevalence of high-level resistance to penicillin increased more than 60-fold, from 0.02% to 1.3% in pneumococcal isolates collected from sentinel sites (*3*). The proportion of pneumococcal isolates resistant to penicillin has ranged from 2% to 26% in selected communities in the United States, indicating substantial geographic variability in prevalence of penicillin resistance (*3,4;* CDC, unpublished data, 1995).

In communities where pneumococci resistant to extended-spectrum cephalosporins have been identified, antimicrobial regimens for treatment of life-threatening pneumococcal infection should initially include vancomycin until the results of susceptibility testing are available. Although the selection of anti-microbials should be guided by the region-specific prevalence of drug-resistant *S. pneumoniae* (DRSP), the incidence of this problem is unknown for most regions of the country, and community-specific surveillance is needed to determine the incidence of resistance to antimicrobial drugs (e.g., penicillin and extended-spectrum cephalosporins) and to inform clinicians to enable selection of optimal antimicrobials.

Appropriate interpretive standards for antimicrobial susceptibility testing of *S. pneumoniae* isolates have been updated by the NCCLS (*9,10*). All pneumococcal isolates from normally sterile sites should be screened for penicillin resistance using an NCCLS-approved method. Oxacillin disk diffusion is a cost-effective and sensitive method for screening; susceptible isolates have a zone size of ≥20 mm. Nonsusceptible isolates should have MICs determined for penicillin, an extended-spectrum cephalosporin, chloramphenicol, vancomycin, and other clinically indicated drugs. MICs should be determined using approved methods such as broth microdilution, agar disk diffusion, and antimicrobial gradient strips. Automated in vitro methods are not recommended for determining pneumococcal susceptibility.

The emergence of DRSP underscores the need for strategies to monitor, prevent, and control DRSP infections. Because inappropriate empiric or prophylactic therapy facilitates the occurrence of pneumococcal antimicrobial resistance, prevention and control of DRSP infections should include efforts to promote judicious antimicrobial prescribing practices among clinicians. In addition, these efforts should promote adherence to the recommendations of the Advisory Committee on Immunization Practices that the 23-valent pneumococcal polysaccharide capsular vaccine be administered to persons aged ≥2 years with medical conditions increasing their risk for serious pneumococcal infection and to all persons aged ≥65 years. Current pneumococcal vaccination levels are low; for example, in a 1993 survey, only 27% of persons aged ≥65 years reported having been vaccinated (CDC, unpublished data, 1995). There is no commercially available vaccine for children aged <2 years; however, clinical trials are in progress to assess immunogenicity and efficacy of protein conjugate pneumococcal polysaccharide vaccines in young children.

To address the factors contributing to increased resistance and to identify methods for prevention and control of DRSP in the United States, in June 1994, CDC convened a working group comprising public health practitioners, clinical laboratory professionals, health-care providers, and representatives of professional societies. This group

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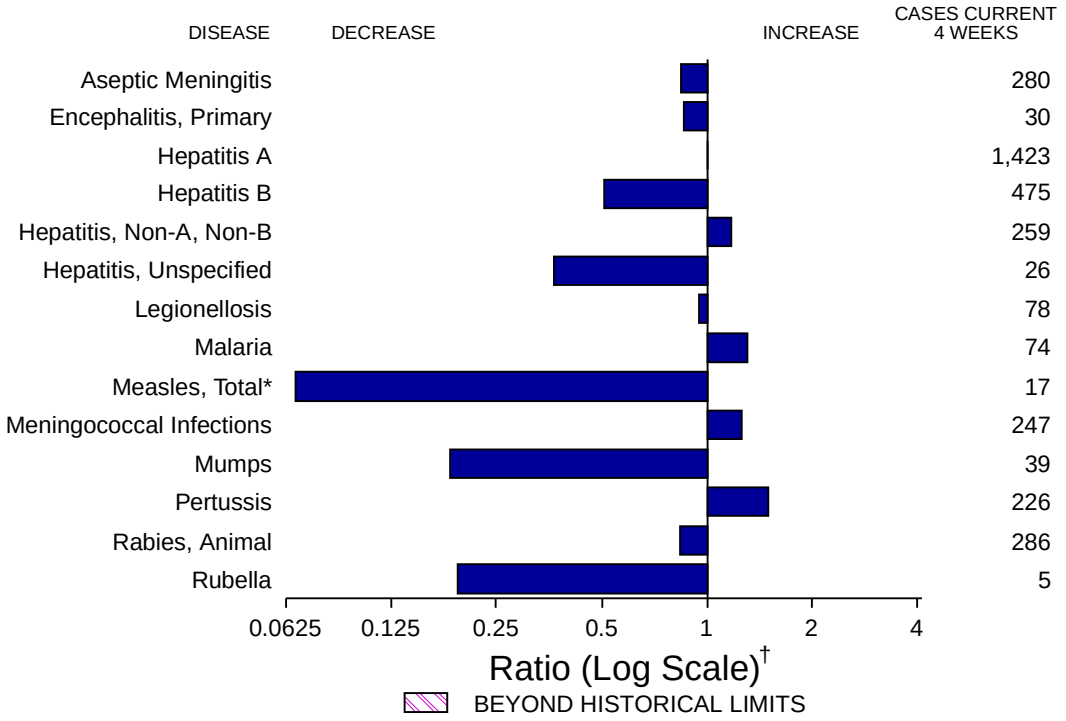
FIGURE I. Notifiable disease reports, comparison of 4-week totals ending March 18, 1995, with historical data — United States



*The large apparent decrease in the number of reported cases of measles (total) reflects dramatic fluctuations in the historical baseline.
†Ratio of current 4-week total to mean of 15 4-week totals (from previous, comparable, and subsequent 4-week periods for the past 5 years). The point where the hatched area begins is based on the mean and two standard deviations of these 4-week totals.

TABLE I. Summary — cases of specified notifiable diseases, United States, cumulative, week ending March 18, 1995 (11th Week)

	Cum. 1995		Cum. 1995
Anthrax	-	Plague	-
Aseptic Meningitis	857	Poliomyelitis, Paralytic	-
Brucellosis	13	Psittacosis	8
Cholera	-	Rabies, human	1
Congenital rubella syndrome	2	Rocky Mountain Spotted Fever	22
Diphtheria	-	Syphilis, congenital, age < 1 year†	-
Encephalitis, primary	91	Tetanus	4
Encephalitis, post-infectious	18	Toxic shock syndrome	41
*Haemophilus influenzae**	299	Trichinosis	5
Hansen Disease	21	Tularemia	3
Hepatitis, unspecified	89	Typhoid fever	55
Leptospirosis	12		

*Of 292 cases of known age, 63 (22%) were reported among children less than 5 years of age.
†Updated quarterly from reports to the Division of Sexually Transmitted Diseases and HIV Prevention, National Center for Prevention Services. First quarter data not yet available.
-: no reported cases

TABLE II. Cases of selected notifiable diseases, United States, weeks ending March 18, 1995, and March 19, 1994 (11th Week)

Reporting Area	AIDS*	Gonorrhea		Hepatitis (Viral), by type						Legionellosis	
				A		B		NA,NB			
	Cum. 1995	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994
UNITED STATES	11,161	73,196	78,874	4,564	4,255	1,462	2,454	627	898	224	315
NEW ENGLAND	521	1,160	1,759	31	57	43	69	18	26	4	4
Maine	15	12	11	6	8	2	2	-	-	-	-
N.H.	12	25	17	1	2	4	4	1	4	-	-
Vt.	2	6	6	-	-	1	3	-	4	-	-
Mass.	294	674	625	10	25	11	46	17	11	3	1
R.I.	31	116	90	7	11	6	2	-	7	1	3
Conn.	167	327	1,010	7	11	19	12	-	-	N	N
MID. ATLANTIC	2,980	7,517	9,118	217	305	147	282	72	113	24	35
Upstate N.Y.	249	1,131	1,868	59	72	55	66	31	48	6	9
N.Y. City	1,592	2,196	3,839	100	130	25	61	1	1	-	-
N.J.	690	763	1,026	26	65	36	81	32	52	6	6
Pa.	449	3,427	2,385	32	38	31	74	8	12	12	20
E.N. CENTRAL	1,138	16,419	14,893	648	445	157	306	48	88	66	121
Ohio	238	5,869	5,618	449	120	20	42	2	2	35	42
Ind.	80	1,308	1,633	28	77	32	53	1	3	11	42
Ill.	535	4,421	2,492	62	139	13	79	8	25	4	7
Mich.	222	4,027	3,697	80	61	89	79	37	58	10	21
Wis.	63	794	1,453	29	48	3	53	-	-	6	9
W.N. CENTRAL	242	4,131	4,520	188	190	99	123	17	10	24	23
Minn.	66	657	750	12	22	5	8	-	1	-	-
Iowa	14	310	267	10	7	12	7	2	2	4	14
Mo.	99	2,467	2,355	132	107	71	98	11	2	19	4
N. Dak.	-	3	5	3	1	1	-	-	-	-	2
S. Dak.	-	39	28	3	9	-	-	1	-	-	-
Nebr.	20	-	315	8	31	4	3	-	1	-	2
Kans.	43	655	800	20	13	6	7	3	4	1	1
S. ATLANTIC	2,676	22,988	21,592	229	261	236	568	65	183	42	66
Del.	69	451	360	3	6	1	3	1	1	-	-
Md.	357	2,753	3,958	44	42	48	69	3	12	10	14
D.C.	142	1,106	1,418	2	6	8	11	-	-	3	-
Va.	238	2,416	2,941	38	26	14	21	-	9	2	2
W. Va.	13	155	162	7	3	14	6	14	8	3	1
N.C.	161	5,499	5,342	24	23	71	74	16	15	7	6
S.C.	168	2,547	2,791	4	7	7	10	-	-	6	1
Ga.	361	3,585	U	33	17	19	280	9	114	5	30
Fla.	1,167	4,476	4,620	74	131	54	94	22	24	6	12
E.S. CENTRAL	393	8,290	7,012	104	94	108	281	91	195	5	16
Ky.	38	1,073	946	10	53	12	29	4	5	1	3
Tenn.	172	1,017	2,604	49	30	68	235	86	188	1	9
Ala.	104	4,310	3,462	34	11	28	17	1	2	2	4
Miss.	79	1,890	U	11	U	-	U	-	U	1	U
W.S. CENTRAL	919	6,958	8,460	384	504	158	215	94	55	3	8
Ark.	45	600	1,471	14	8	1	5	-	1	-	1
La.	170	2,658	3,001	11	17	13	25	13	15	1	-
Okla.	59	234	728	119	48	76	72	78	35	2	7
Tex.	645	3,466	3,260	240	431	68	113	3	4	-	-
MOUNTAIN	430	1,756	3,820	911	765	129	120	91	84	32	26
Mont.	7	24	27	13	8	4	5	4	-	2	9
Idaho	16	28	16	102	67	18	20	10	30	4	-
Wyo.	3	10	24	28	5	2	5	32	17	-	1
Colo.	187	659	723	130	96	22	23	19	20	13	4
N. Mex.	34	237	216	191	217	46	39	14	4	1	1
Ariz.	86	638	2,368	172	260	16	16	8	4	8	1
Utah	30	39	72	243	71	14	5	3	5	2	-
Nev.	67	121	374	32	41	7	7	1	4	2	10
PACIFIC	1,862	3,977	7,700	1,852	1,634	385	490	131	144	24	16
Wash.	148	581	680	96	213	29	49	35	51	-	4
Oreg.	74	18	253	330	80	21	15	4	2	-	-
Calif.	1,549	3,082	6,406	1,378	1,273	328	405	83	88	21	11
Alaska	29	197	187	14	58	2	5	1	-	-	-
Hawaii	62	99	174	34	10	5	16	8	3	3	1
Guam	-	8	34	-	1	-	-	-	-	-	-
P.R.	596	112	117	12	10	147	51	144	15	-	-
V.I.	-	3	8	-	-	1	1	-	-	-	-
Amer. Samoa	-	8	7	4	2	-	-	-	-	-	-
C.N.M.I.	-	2	14	1	1	-	-	-	-	-	-

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

*Updated monthly to the Division of HIV/AIDS, National Center for Infectious Diseases; last update February 23, 1995.

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending March 18, 1995, and March 19, 1994 (11th Week)

Reporting Area	Lyme Disease		Malaria		Measles (Rubeola)						Meningococcal Infections		Mumps	
					Indigenous		Imported*		Total					
	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	1995	Cum. 1995	1995	Cum. 1995	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994
UNITED STATES	607	747	181	219	5	41	1	2	43	74	716	749	160	290
NEW ENGLAND	28	77	9	20	-	2	-	1	3	4	50	37	3	9
Maine	1	-	-	1	-	-	-	-	-	-	3	6	2	3
N.H.	2	5	1	3	-	-	-	-	-	-	7	1	-	3
Vt.	1	1	-	1	-	-	-	-	-	-	5	1	-	-
Mass.	24	14	1	6	-	-	-	1	1	1	18	13	-	-
R.I.	-	13	2	4	-	2	-	-	2	3	-	-	-	1
Conn.	-	44	5	5	-	-	-	-	-	-	17	16	1	2
MID. ATLANTIC	444	549	41	34	-	1	-	-	1	14	70	63	20	28
Upstate N.Y.	213	437	8	10	-	-	-	-	-	2	28	28	7	3
N.Y. City	1	10	17	7	-	1	-	-	1	1	6	-	1	-
N.J.	34	80	12	13	-	-	-	-	-	10	21	16	-	4
Pa.	196	22	4	4	-	-	-	-	-	1	15	19	12	21
E.N. CENTRAL	13	6	16	28	-	-	-	-	-	14	93	116	26	76
Ohio	12	3	1	2	-	-	-	-	-	10	30	27	11	8
Ind.	1	-	1	8	U	-	U	-	-	1	12	20	2	2
Ill.	-	3	12	9	-	-	-	-	-	-	32	38	4	50
Mich.	-	-	2	8	-	-	-	-	-	-	17	12	9	14
Wis.	-	-	-	1	-	-	-	-	-	3	2	19	-	2
W.N. CENTRAL	12	10	5	10	-	-	-	-	-	1	36	61	8	10
Minn.	-	1	3	3	-	-	-	-	-	-	6	5	-	-
Iowa	-	1	-	1	-	-	-	-	-	-	7	5	1	3
Mo.	2	7	2	4	-	-	-	-	-	-	13	35	5	6
N. Dak.	-	-	-	-	-	-	-	-	-	-	-	-	-	1
S. Dak.	-	-	-	-	-	-	-	-	-	-	-	4	-	-
Nebr.	-	-	-	2	-	-	-	-	-	1	4	3	2	-
Kans.	10	1	-	-	-	-	-	-	-	-	6	9	-	-
S. ATLANTIC	78	77	48	53	-	-	-	-	-	4	136	123	24	50
Del.	1	8	1	2	-	-	-	-	-	-	1	-	-	-
Md.	59	11	15	18	-	-	-	-	-	-	4	7	-	11
D.C.	-	-	3	7	-	-	-	-	-	-	1	1	-	-
Va.	2	11	8	8	-	-	-	-	-	1	11	18	4	10
W. Va.	5	3	-	-	-	-	-	-	-	-	2	6	-	2
N.C.	7	17	4	1	-	-	-	-	-	-	23	23	14	15
S.C.	4	-	-	1	-	-	-	-	-	-	23	4	1	5
Ga.	-	26	7	8	-	-	-	-	-	-	39	18	-	3
Fla.	-	1	10	8	-	-	-	-	-	3	32	46	5	4
E.S. CENTRAL	3	7	2	5	-	-	-	-	-	23	38	47	3	-
Ky.	1	5	-	1	-	-	-	-	-	-	17	14	-	-
Tenn.	1	1	-	3	-	-	-	-	-	23	3	12	-	-
Ala.	-	1	2	1	-	-	-	-	-	-	13	21	2	-
Miss.	1	U	-	U	-	-	-	-	-	U	5	U	1	U
W.S. CENTRAL	9	2	3	5	2	2	-	-	2	6	78	86	9	56
Ark.	-	-	2	-	2	2	-	-	2	-	6	10	-	-
La.	-	-	-	-	-	-	-	-	-	-	10	10	2	4
Okla.	9	2	-	1	-	-	-	-	-	-	9	7	-	14
Tex.	-	-	1	4	-	-	-	-	-	6	53	59	7	38
MOUNTAIN	2	4	12	6	2	35	-	-	35	-	60	53	13	7
Mont.	-	-	1	-	-	-	-	-	-	-	2	2	-	-
Idaho	-	1	-	2	1	1	-	-	1	-	1	10	1	3
Wyo.	-	-	-	-	-	-	-	-	-	-	1	2	-	-
Colo.	1	-	6	2	-	-	-	-	-	-	13	4	1	-
N. Mex.	-	3	3	1	-	25	-	-	25	-	18	4	N	N
Ariz.	-	-	1	-	1	8	-	-	8	-	21	18	3	-
Utah	-	-	1	1	-	-	-	-	-	-	2	9	1	1
Nev.	1	-	-	-	-	1	-	-	1	-	2	4	6	3
PACIFIC	18	15	45	58	1	1	1	1	2	8	155	163	54	54
Wash.	1	-	5	4	-	-	-	-	-	-	19	27	3	4
Oreg.	1	-	4	2	1	1	-	-	1	-	33	29	N	N
Calif.	16	15	32	45	-	-	-	-	-	8	102	102	44	45
Alaska	-	-	1	-	-	-	-	-	-	-	-	1	6	2
Hawaii	-	-	3	7	-	-	1	1	1	-	1	4	1	3
Guam	-	-	-	-	U	-	U	-	-	1	-	-	-	2
P.R.	-	-	-	-	-	-	-	-	-	14	10	3	-	2
V.I.	-	-	-	-	U	-	U	-	-	-	-	-	1	-
Amer. Samoa	-	-	-	-	U	-	U	-	-	-	-	-	-	1
C.N.M.I.	-	-	-	1	U	-	U	-	-	23	-	-	-	-

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

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending March 18, 1995, and March 19, 1994 (11th Week)

Reporting Area	Pertussis			Rubella			Syphilis (Primary & Secondary)		Tuberculosis		Rabies, Animal	
	1995	Cum. 1995	Cum. 1994	1995	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994
UNITED STATES	48	625	829	1	14	68	3,305	3,968	2,589	3,269	1,217	1,238
NEW ENGLAND	2	64	76	-	1	47	46	40	53	70	335	341
Maine	-	8	2	-	-	-	-	-	-	-	-	-
N.H.	-	4	19	-	-	-	1	-	1	2	48	44
Vt.	-	2	9	-	-	-	-	-	-	-	44	30
Mass.	1	46	40	-	1	47	16	11	23	30	154	135
R.I.	-	-	2	-	-	-	-	5	7	8	14	5
Conn.	1	4	4	-	-	-	29	24	22	30	75	127
MID. ATLANTIC	2	40	157	-	1	4	211	284	536	477	350	309
Upstate N.Y.	2	26	57	-	1	4	18	28	30	96	179	197
N.Y. City	-	8	16	-	-	-	117	153	315	238	-	-
N.J.	-	-	7	-	-	-	40	47	100	95	59	67
Pa.	-	6	77	-	-	-	36	56	91	48	112	45
E.N. CENTRAL	5	65	207	-	-	4	557	532	314	320	1	4
Ohio	3	30	53	-	-	-	185	226	41	48	1	-
Ind.	U	4	15	U	-	-	44	63	4	31	-	-
Ill.	-	4	82	-	-	4	228	109	183	188	-	1
Mich.	2	27	18	-	-	-	65	65	78	43	-	1
Wis.	-	-	39	-	-	-	35	69	8	10	-	2
W.N. CENTRAL	1	19	22	-	-	-	171	286	89	66	48	30
Minn.	-	-	8	-	-	-	13	11	16	8	2	-
Iowa	-	1	1	-	-	-	14	11	15	7	13	13
Mo.	-	1	6	-	-	-	144	245	37	38	8	4
N. Dak.	-	5	-	-	-	-	-	-	-	1	5	-
S. Dak.	-	4	-	-	-	-	-	-	-	6	11	2
Nebr.	-	1	1	-	-	-	-	3	6	-	-	-
Kans.	1	7	6	-	-	-	-	16	15	6	9	11
S. ATLANTIC	17	61	102	-	1	5	798	1,230	399	683	350	361
Del.	1	3	-	-	-	-	5	6	-	4	10	4
Md.	-	-	34	-	-	-	22	54	98	55	86	123
D.C.	-	1	2	-	-	-	34	55	20	27	1	1
Va.	-	-	12	-	-	-	137	150	6	71	58	75
W. Va.	-	-	1	-	-	-	1	5	18	16	20	13
N.C.	16	46	31	-	-	-	238	414	26	70	77	32
S.C.	-	7	7	-	-	-	160	143	62	97	24	31
Ga.	-	1	6	-	-	-	101	200	41	135	62	77
Fla.	-	3	9	-	1	5	100	203	128	208	12	5
E.S. CENTRAL	-	14	33	-	-	-	900	408	146	220	32	40
Ky.	-	-	14	-	-	-	56	60	37	58	5	-
Tenn.	-	2	13	-	-	-	101	200	-	77	11	16
Ala.	-	12	6	-	-	-	131	148	82	85	16	24
Miss.	-	-	U	-	-	U	612	U	27	U	-	U
W.S. CENTRAL	-	13	24	-	1	-	517	845	242	220	17	69
Ark.	-	-	-	-	-	-	138	117	32	30	3	5
La.	-	-	1	-	-	-	237	447	-	-	9	14
Okla.	-	-	20	-	-	-	20	29	1	19	5	13
Tex.	-	13	3	-	1	-	122	252	209	171	-	37
MOUNTAIN	10	252	50	-	2	-	52	110	122	94	11	17
Mont.	-	2	2	-	-	-	3	-	-	-	6	3
Idaho	1	24	15	-	-	-	-	1	3	4	-	-
Wyo.	-	-	-	-	-	-	2	-	-	1	-	4
Colo.	-	1	22	-	-	-	31	39	-	2	-	-
N. Mex.	-	5	3	-	-	-	1	1	18	15	-	-
Ariz.	9	216	5	-	2	-	11	58	56	50	5	10
Utah	-	2	3	-	-	-	4	5	7	-	-	-
Nev.	-	2	-	-	-	-	-	6	38	22	-	-
PACIFIC	11	97	158	1	8	8	53	233	688	1,119	73	67
Wash.	1	17	26	-	-	-	4	7	48	41	-	-
Oreg.	1	2	16	1	1	-	-	2	3	18	-	-
Calif.	9	75	112	-	7	8	49	223	590	995	72	49
Alaska	-	-	-	-	-	-	-	-	11	17	1	18
Hawaii	-	3	4	-	-	-	-	1	36	48	-	-
Guam	U	-	-	U	-	-	-	1	4	7	-	-
P.R.	-	3	-	-	-	-	54	73	-	29	9	17
V.I.	U	-	-	U	-	-	-	4	-	-	-	-
Amer. Samoa	U	-	1	U	-	-	-	-	2	-	-	-
C.N.M.I.	U	-	-	U	-	-	-	1	1	13	-	-

U: Unavailable -: no reported cases

TABLE III. Deaths in 121 U.S. cities,* week ending March 18, 1995 (11th Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	640	436	120	58	14	12	52
Boston, Mass.	180	107	35	24	7	7	14
Bridgeport, Conn.	29	18	9	2	-	-	3
Cambridge, Mass.	21	14	5	2	-	-	-
Fall River, Mass.	30	26	4	-	-	-	1
Hartford, Conn.	53	34	11	5	1	2	1
Lowell, Mass.	37	27	6	4	-	-	9
Lynn, Mass.	10	8	2	-	-	-	-
New Bedford, Mass.	26	21	3	2	-	-	4
New Haven, Conn.	45	23	12	6	3	1	2
Providence, R.I.	62	51	7	2	1	1	7
Somerville, Mass.	7	5	1	1	-	-	-
Springfield, Mass.	53	36	11	4	1	1	6
Waterbury, Conn.	28	23	2	2	1	-	1
Worcester, Mass.	59	43	12	4	-	-	4
MID. ATLANTIC	2,356	1,542	447	267	48	52	126
Albany, N.Y.	60	38	13	7	-	2	6
Allentown, Pa.	U	U	U	U	U	U	U
Buffalo, N.Y.	102	66	20	10	5	1	7
Camden, N.J.	40	29	7	2	1	1	1
Elizabeth, N.J.	19	15	2	2	-	-	3
Erie, Pa.§	49	36	11	1	1	-	5
Jersey City, N.J.	73	50	10	7	1	5	-
New York City, N.Y.	1,428	903	280	194	25	26	50
Newark, N.J.	64	22	29	10	2	1	3
Paterson, N.J.	24	12	7	3	1	1	-
Philadelphia, Pa.U	-UU	-	-	-			
Pittsburgh, Pa.§	111	75	20	6	4	6	5
Reading, Pa.	11	10	-	1	-	-	3
Rochester, N.Y.	151	113	22	10	4	2	20
Schenectady, N.Y.	30	27	-	1	-	2	1
Scranton, Pa.§	29	22	4	1	1	1	2
Syracuse, N.Y.	100	77	13	6	1	3	9
Trenton, N.J.	45	31	8	4	1	1	7
Utica, N.Y.	20	16	1	2	1	-	4
Yonkers, N.Y.	U	U	U	U	U	U	U
E.N. CENTRAL	2,449	1,592	456	212	116	73	150
Akron, Ohio	67	55	4	4	4	-	-
Canton, Ohio	54	40	12	-	-	2	9
Chicago, Ill.	554	251	119	94	79	11	35
Cincinnati, Ohio	67	56	7	1	1	2	6
Cleveland, Ohio	163	103	33	17	4	6	7
Columbus, Ohio	215	153	41	13	1	7	2
Dayton, Ohio	140	106	22	8	2	2	7
Detroit, Mich.	286	176	53	35	12	10	12
Evansville, Ind.	51	34	13	2	1	1	2
Fort Wayne, Ind.	64	49	11	1	1	2	6
Gary, Ind.	12	7	3	-	-	2	1
Grand Rapids, Mich.	92	63	19	4	3	3	13
Indianapolis, Ind.	181	114	42	13	3	9	12
Madison, Wis.	49	36	10	-	1	2	4
Milwaukee, Wis.	138	104	15	9	-	10	7
Peoria, Ill.	36	26	7	-	2	1	6
Rockford, Ill.	47	33	10	3	1	-	10
South Bend, Ind.	67	59	6	1	-	1	6
Toledo, Ohio	113	85	22	4	-	2	5
Youngstown, Ohio	53	42	7	3	1	-	-
W.N. CENTRAL	763	547	104	56	11	27	51
Des Moines, Iowa	U	U	U	U	U	U	U
Duluth, Minn.	29	21	3	5	-	-	4
Kansas City, Kans.	44	31	10	-	-	3	-
Kansas City, Mo.	133	88	10	9	3	5	5
Lincoln, Nebr.	37	32	3	2	-	-	4
Minneapolis, Minn.	158	123	16	11	3	5	15
Omaha, Nebr.	115	84	18	8	2	3	9
St. Louis, Mo.	115	79	21	6	3	6	8
St. Paul, Minn.	44	36	4	4	-	-	5
Wichita, Kans.	88	53	19	11	-	5	1

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	≥65	45-64	25-44	1-24	<1	
S. ATLANTIC	1,432	899	303	161	34	34	95
Atlanta, Ga.	189	116	43	20	5	5	4
Baltimore, Md.	302	177	63	50	9	3	35
Charlotte, N.C.	126	87	27	10	1	1	10
Jacksonville, Fla.	123	78	27	10	5	3	10
Miami, Fla.	113	67	26	17	1	2	3
Norfolk, Va.	62	42	10	2	3	5	4
Richmond, Va.	64	39	14	9	1	1	4
Savannah, Ga.	43	33	6	2	-	2	8
St. Petersburg, Fla.	67	57	7	2	-	1	3
Tampa, Fla.	188	130	31	22	3	2	12
Washington, D.C.	141	60	48	17	6	9	2
Wilmington, Del.	14	13	1	-	-	-	-
E.S. CENTRAL	795	532	172	71	18	2	87
Birmingham, Ala.	87	60	15	9	3	-	4
Chattanooga, Tenn.	90	69	19	2	-	-	3
Knoxville, Tenn.	93	64	23	5	1	-	18
Lexington, Ky.	76	50	20	4	2	-	11
Memphis, Tenn.	169	109	38	17	5	-	18
Mobile, Ala.	92	52	21	18	1	-	3
Montgomery, Ala.	48	33	10	3	2	-	9
Nashville, Tenn.	140	95	26	13	4	2	21
W.S. CENTRAL	1,638	1,055	330	161	54	38	105
Austin, Tex.	70	37	20	10	2	1	6
Baton Rouge, La.	88	57	17	12	1	1	4
Corpus Christi, Tex.	78	48	17	10	1	2	1
Dallas, Tex.	205	129	40	26	6	4	9
El Paso, Tex.	95	65	21	4	3	2	9
Ft. Worth, Tex.	88	54	21	9	1	3	-
Houston, Tex.	380	234	82	43	17	4	31
Little Rock, Ark.	74	48	16	5	1	4	6
New Orleans, La.	161	101	27	14	12	7	-
San Antonio, Tex.	200	141	33	20	2	4	15
Shreveport, La.	56	38	14	2	2	-	4
Tulsa, Okla.	143	103	22	6	6	6	20
MOUNTAIN	956	612	162	112	42	27	75
Albuquerque, N.M.	102	59	22	15	3	3	10
Colo. Springs, Colo.	63	50	6	7	-	-	10
Denver, Colo.	116	72	18	18	3	5	12
Las Vegas, Nev.	196	123	43	23	3	4	10
Ogden, Utah	20	16	1	-	-	3	2
Phoenix, Ariz.	168	97	28	24	15	3	17
Pueblo, Colo.	35	27	5	-	3	-	1
Salt Lake City, Utah	97	64	16	8	6	3	3
Tucson, Ariz.	159	104	23	17	9	6	10
PACIFIC	1,875	1,245	319	196	74	32	144
Berkeley, Calif.	27	22	4	1	-	-	7
Fresno, Calif.	91	61	13	8	3	6	7
Glendale, Calif.	34	25	5	3	1	-	3
Honolulu, Hawaii	76	56	12	5	2	1	5
Long Beach, Calif.	80	48	15	11	3	3	8
Los Angeles, Calif.	518	324	100	63	16	6	26
Pasadena, Calif.	U	U	U	U	U	U	U
Portland, Oreg.	192	124	45	16	4	3	9
Sacramento, Calif.	U	U	U	U	U	U	U
San Diego, Calif.	168	127	23	13	3	2	21
San Francisco, Calif.	190	113	19	28	28	2	19
San Jose, Calif.	141	93	28	11	4	5	17
Santa Cruz, Calif.	38	33	3	2	-	-	5
Seattle, Wash.	161	103	24	25	6	3	7
Spokane, Wash.	54	43	6	2	2	1	5
Tacoma, Wash.	105	73	22	8	2	-	5
TOTAL	12,904¶	8,460	2,413	1,294	411	297	885

*Mortality data in this table are voluntarily reported from 121 cities in the United States, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

†Pneumonia and influenza.

§Because of changes in reporting methods in these 3 Pennsylvania cities, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

¶Total includes unknown ages.

U: Unavailable -: no reported cases

Streptococcus pneumoniae — *Continued*

has developed a strategy with objectives to 1) establish DRSP as a nationally reportable condition, 2) promote appropriate NCCLS interpretive standards for pneumococcal antimicrobial susceptibility testing, 3) develop an electronic laboratory-based surveillance system to detect invasive DRSP infections and other laboratory-reportable conditions, 4) establish a group of clinicians and public-health officials to form consensus treatment recommendations for pneumococcal infections based on interpretations of antimicrobial resistance data, and 5) promote pneumococcal vaccination and judicious antimicrobial drug use. The goal of this strategy is to minimize complications of DRSP infection, including increased and prolonged illness, long-term sequelae of infection, health-care expenditures, and death. Information about activities of the DRSP Working Group can be obtained through the Childhood and Respiratory Diseases Branch, Division of Bacterial and Mycotic Diseases, National Center for Infectious Diseases, CDC, Mailstop C-09, Atlanta, GA 30333; Internet address drsp@ciddbd1.em.cdc.gov.

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Update: *Vibrio cholerae* O1 — Western Hemisphere, 1991–1994, and *V. cholerae* O139 — Asia, 1994

The cholera epidemic caused by *Vibrio cholerae* O1 that began in January 1991 has continued to spread in Central and South America (Figure 1). In southern Asia, the epidemic caused by the newly recognized strain *V. cholerae* O139 that began in late 1992 also has continued to spread (Figure 2). This report updates surveillance findings for both epidemics.

Vibrio cholerae — *Continued*

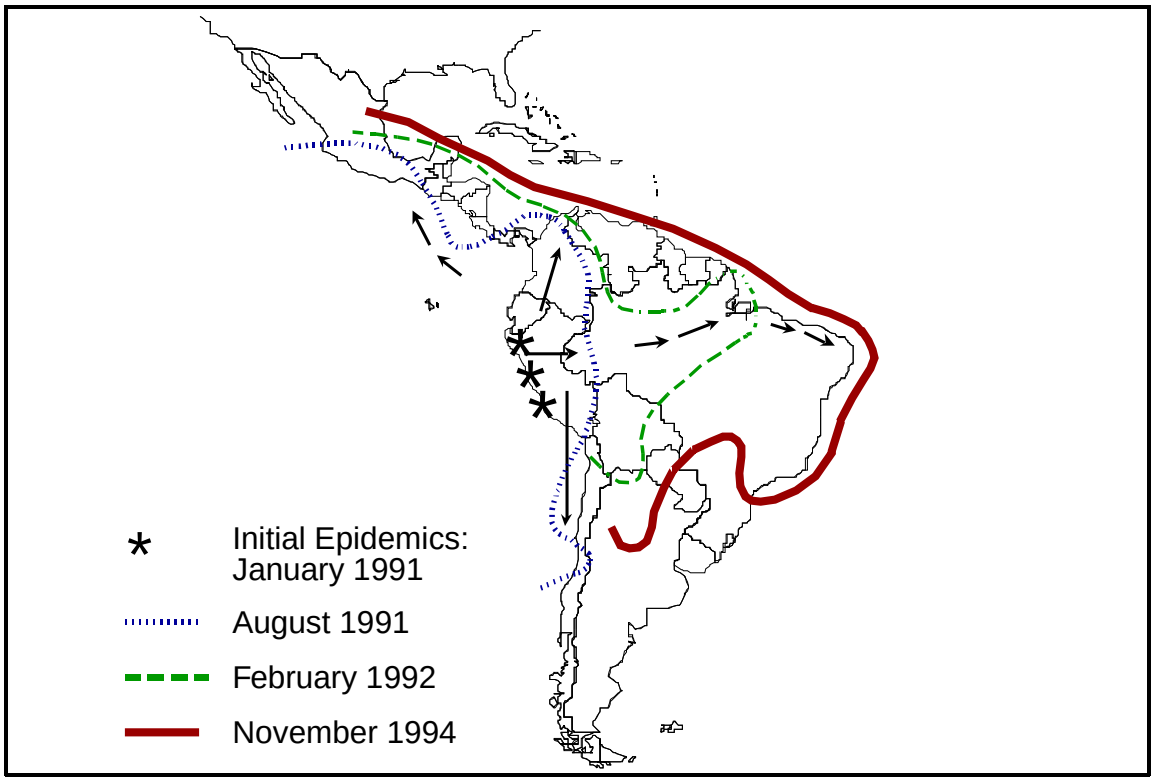
From the onset of the *V. cholerae* O1 epidemic in January 1991 through September 1, 1994, a total of 1,041,422 cases and 9642 deaths (overall case-fatality rate: 0.9%) were reported from countries in the Western Hemisphere to the Pan American Health Organization. In 1993, the numbers of reported cases and deaths were 204,543 and 2362, respectively (Table 1). From January 1 through September 1, 1994, a total of 92,845 cases and 882 deaths were reported. In 1993 and 1994, the number of reported cases decreased in some countries but continued to increase in several areas of Central America, Brazil, and Argentina (*1–3*).

The epidemic of cholera caused by *V. cholerae* O139 has affected at least 11 countries in southern Asia. *V. cholerae* O139 produces severe watery diarrhea and dehydration that is indistinguishable from the illness caused by *V. cholerae* O1 (*4*) and appears to be closely related to *V. cholerae* O1 biotype El Tor strains (*5*). Specific totals for numbers of *V. cholerae* O139 cases are unknown because affected countries do not report infections caused by O1 and O139 separately; however, >100,000 cases of cholera caused by *V. cholerae* O139 may have occurred (*6*).

In the United States during 1993 and 1994, 22 and 47 cholera cases were reported to CDC, respectively. Of these, 65 (94%) were associated with foreign travel. Three of these were culture-confirmed cases of *V. cholerae* O139 infection in travelers to Asia.

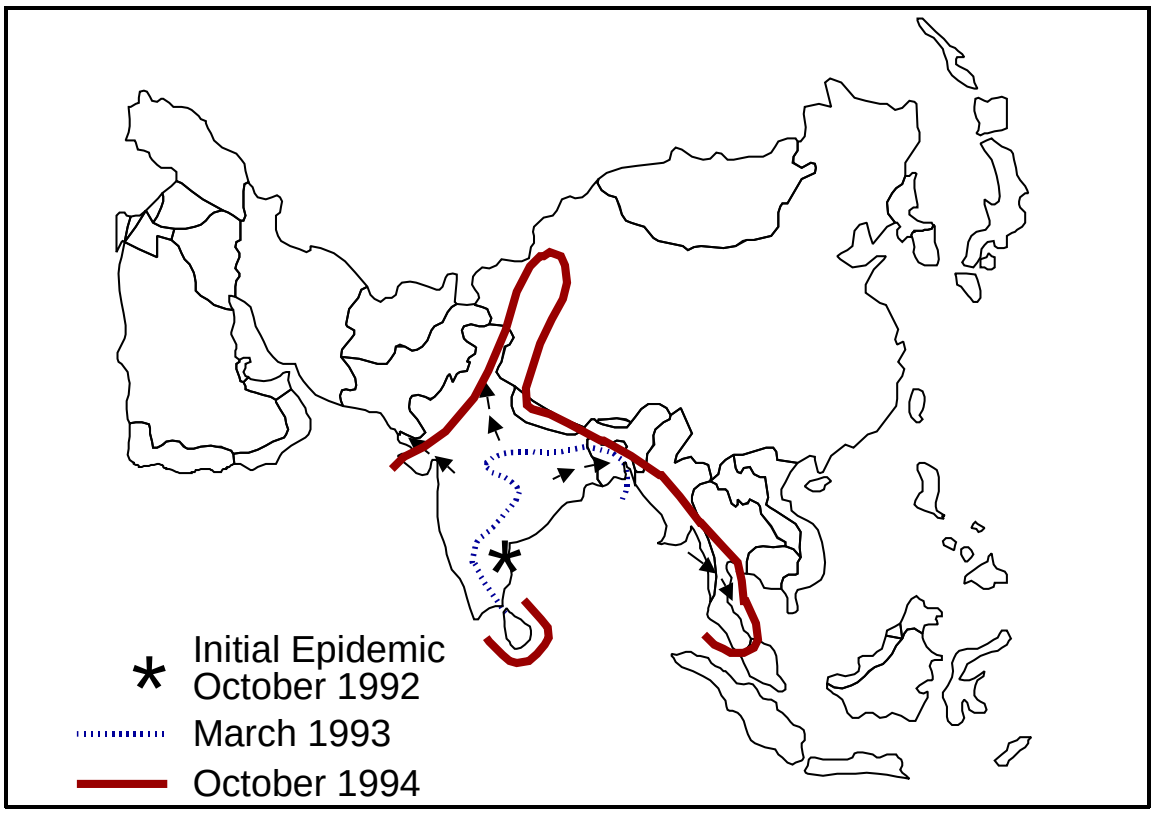
Reported by: Cholera Task Force, Diarrheal Disease Control Program, World Health Organization, Geneva. Expanded Program for the Control of Diarrheal Diseases, Special Program on Maternal and Child Health and Population, Pan American Health Organization, Washington, DC. Foodborne and Diarrheal Diseases Br, Div of Bacterial and Mycotic Diseases, National Center for Infectious Diseases, CDC.

FIGURE 1. Spread of *Vibrio cholerae* O1 — Central and South America, January 1991–November 1994



Vibrio cholerae — *Continued*

FIGURE 2. Spread of *Vibrio cholerae* O139 — Asia, 1992–1994



Editorial Note: Cholera is transmitted through ingestion of fecally contaminated food and beverages. Because cholera remains epidemic in many parts of Central and South America, Asia, and Africa, health-care providers should be aware of the risk for cholera in persons traveling in cholera-affected countries—particularly those persons who are visiting relatives or departing from the usual tourist routes because they may be more likely to consume unsafe foods and beverages.

Persons traveling in cholera-affected areas should not eat food that has not been cooked and is not hot (particularly fish and shellfish) and should drink only beverages that are carbonated or made from boiled or chlorinated water. The licensed parenteral cholera vaccine provides only limited and brief protection against *V. cholerae* O1, may not provide any protection against *V. cholerae* O139, and has a high cost-benefit ratio (*7*); therefore, the vaccine is not recommended for travelers (*8*). New oral cholera vaccines are being developed and provide more reliable protection, although still at a high cost per case averted. None of these vaccines have attained the combination of high efficacy, long duration of protection, simplicity of administration, and low cost necessary to make mass vaccination feasible in cholera-affected countries.

The diagnosis of cholera should be considered in patients with watery diarrhea who have recently (i.e., within 7 days) returned from cholera-affected countries (*9*). Patients with suspected cholera should be reported immediately to local and state health departments. Treatment of cholera includes rapid fluid and electrolyte replacement with adjunctive antibiotic therapy. Stool specimens should be cultured on

TABLE 1. Number of cholera cases and deaths reported to the Pan American Health Organization and case-fatality rate, by region — Western Hemisphere, January 1, 1991 –September 1, 1994

Region/Country	No. cases 1991	1992	1993	1994*	Total	Total deaths 1991–1994	Case-fatality rate† 1991–1994
South America							
Argentina	0	553	2,080	887	**3,520**	**64**	1.8%
Bolivia	206	22,260	10,134	2,603	**35,203**	**695**	2.0%
Brazil	2,101	30,054	56,286	45,984	**134,425**	**1,359**	1.0%
Chile	41	73	32	0	**146**	**3**	2.0%
Colombia	11,979	15,129	230	143	**27,481**	**370**	1.3%
Ecuador	46,320	31,870	6,833	1,406	**86,429**	**992**	1.1%
French Guyana	1	16	2	NR†	**19**	**0**	
Guyana	0	556	66	0	**622**	**10**	1.6%
Paraguay	0	0	3	0	**3**	**0**	
Peru	322,562	210,836	71,448	20,413	**625,259**	**4,396**	0.7%
Suriname	0	12	0	0	**12**	**1**	8.3%
Venezuela	13	2,842	409	0	**3,264**	**80**	2.4%
Central America							
Belize	0	159	135	2	**296**	**8**	2.7%
Costa Rica	0	12	14	5	**31**	**0**	
El Salvador	947	8,106	6,573	11,191	**26,817**	**125**	0.5%
Guatemala	3,652	15,686	30,605	3,047	**52,990**	**655**	1.2%
Honduras	17	388	2,290	842	**3,537**	**112**	3.1%
Mexico	2,690	8,162	10,712	2,383	**23,947**	**351**	1.5%
Nicaragua	1	3,067	6,631	3,928	**13,627**	**338**	2.5%
Panama	1,178	2,416	42	0	**3,636**	**82**	2.2%
North America							
United States	26	103	18§	11	**158**	**1**	0.6%
Total	**391,734**	**352,300**	**204,543**	**92,845**	**1,041,422**	**9,642**	**0.9%**

*Cases reported through September 1, 1994.
†Not reported.
§Four additional cases that occurred in 1993 were reported after September 1, 1994.

Vibrio cholerae — *Continued*

thiosulfate-citrate-bile salts-sucrose (TCBS) agar. Clinical isolates of non-O1 *V. cholerae* should be referred to a state public health laboratory for testing for O139 if the patient traveled in an O139-affected area, has life-threatening dehydration typical of severe cholera, or has been linked to an outbreak of diarrhea.

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Health Insurance Coverage and Receipt of Preventive Health Services — United States, 1993

In 1992, an estimated 38.5 million U.S. residents aged <65 years did not have health insurance (*1*). Efforts by states to expand health-care coverage will require surveillance for and state-specific information about coverage for acute care and the receipt of preventive services. This report summarizes state-specific and aggregated data from the 1993 Behavioral Risk Factor Surveillance System (BRFSS) regarding the status of health insurance coverage and the receipt of preventive health services among adults aged 18–64 years. In addition, findings from the analysis of supplemental questions added to the BRFSS in Minnesota are included that address health-care utilization, source of health-care coverage, and coverage of children.

In 1993, the District of Columbia and all states except Wyoming participated in the BRFSS, a population-based, random-digit–dialed telephone survey of adults aged ≥18 years (*2*). All persons responding to the BRFSS questionnaire were asked whether they had health-care coverage*, which of selected preventive health services they had received, if they had a usual place of medical care, and how they perceived their health status. This analysis specifically examined preventive health services targeted by the national health objectives for the year 2000 (i.e., cholesterol screening, breast and cervical cancer screening, and colorectal cancer screening) (*3*). The use of these services, the perception of health status, and absence of a usual place of medical care were compared between persons who were insured and uninsured by

*All respondents were asked, "Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs (health maintenance organizations), or government plans such as Medicare?" Persons who reported having no health-care coverage at the time of the interview were considered to be uninsured.

Insurance Coverage — Continued

calculating crude prevalence ratios and adjusted odds ratios (i.e., adjusted for age, race, education level, employment status, and income level). For this analysis, sample estimates were statistically weighted to reflect the noninstitutionalized civilian population in each state, and standard errors were calculated using SESUDAAN.

Health Insurance Coverage for Persons Aged 18–64 Years

Of the 102,263 persons who participated in the 1993 BRFSS, 81,794 persons aged 18–64 years responded to the question about health-care coverage. Of these respondents, 16% reported they were uninsured at the time of interview (Table 1). The percentages of persons who reported being uninsured ranged from 7% in Hawaii to 26% in Louisiana (Table 1). The prevalence of being uninsured was higher among persons in states in the West (20%; 95% confidence interval [CI]=19%–21%) and South (19%; 95% CI=18%–19%) than in the Northeast (14%; 95% CI=13%–15%) or Midwest (12%; 95% CI=11%–13%).[†]

The prevalence of being uninsured was highest among men (18%), persons aged 18–24 years (27%), those with less than a high school education (35%), those with an annual household income <$10,000 (39%), blacks (21%), Hispanics (34%), and persons who were unemployed (44%) (Table 2). Compared with women who were insured, women who were uninsured were twofold more likely to report having no usual place of medical care (10% versus 18%), at least 50% less likely to have had both a mammogram and a clinical breast examination during the previous 2 years (69% versus 35%), and less likely to report having had a digital rectal examination during the previous 2 years (51% versus 29%) or ever having had a proctoscopy examination (32% versus 22%) (Table 3). The prevalences of self-perceived health status were similar among women who were insured and uninsured.

When compared with men who were insured, uninsured men were two times more likely to report having no usual place of medical care (18% versus 41%) and half as likely to report having had their cholesterol checked (65% versus 36%) or having had a digital rectal (51% versus 27%) or a proctoscopy examination (38% versus 20%). The prevalences of self-perceived health status were similar among men who were insured and uninsured.

Minnesota-Specific Data for Persons Aged 18–64 Years

The Minnesota Department of Health asked all respondents 12 supplemental questions about health insurance coverage. Among the 2494 persons who were insured, 1852 (75%; 95% CI=73%–77%) reported their employer was their primary source of coverage for health insurance. Overall, 9% (95% CI=8%–10%) of employed persons were uninsured and 20% (95% CI=15%–25%) of those employed in service occupational groups were uninsured. In addition, 44% (95% CI=37%–50%) of uninsured persons and 21% (95% CI=19%–23%) of insured persons reported no visits to a physician during the previous year.

Of the 253 persons who were uninsured, 178 (69%; 95% CI=63%–75%) reported the primary reason they lacked health insurance was cost. In addition, of the

[†]West=Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, and Washington; South=Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia; Northeast=Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont; and Midwest=Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

Insurance Coverage — Continued

TABLE 1. Weighted percentage of persons aged 18–64 years who were uninsured*, by state and sex — Behavioral Risk Factor Surveillance System, United States,† 1993

State	Total			Men		Women	
	Sample size§	%	(95% CI¶)	%	(95% CI)	%	(95% CI)
Alabama	1694	13.1	(±1.7%)	12.4	(±2.7%)	13.7	(±2.3%)
Alaska	1383	17.0	(±3.0%)	21.4	(±4.7%)	11.9	(±3.2%)
Arizona	1277	19.8	(±3.4%)	22.4	(±5.6%)	17.0	(±3.8%)
Arkansas	1327	19.9	(±2.6%)	22.1	(±4.1%)	17.8	(±2.9%)
California	3071	21.3	(±2.0%)	24.1	(±3.1%)	18.4	(±2.3%)
Colorado	1526	18.3	(±2.2%)	18.3	(±3.3%)	18.3	(±3.0%)
Connecticut	1425	11.5	(±2.0%)	14.4	(±3.3%)	8.7	(±2.1%)
Delaware	1707	15.0	(±2.0%)	16.7	(±3.1%)	13.3	(±2.3%)
District of Columbia	1249	10.1	(±1.9%)	8.4	(±2.5%)	11.5	(±2.8%)
Florida	2276	21.3	(±2.0%)	22.0	(±3.0%)	20.7	(±2.6%)
Georgia	1815	14.9	(±1.9%)	14.8	(±2.9%)	15.0	(±2.5%)
Hawaii	1830	6.9	(±1.4%)	8.1	(±2.3%)	5.7	(±1.6%)
Idaho	1444	17.9	(±2.6%)	19.6	(±4.3%)	16.1	(±2.8%)
Illinois	1720	11.6	(±1.8%)	11.6	(±2.7%)	11.6	(±2.2%)
Indiana	1633	14.1	(±1.9%)	14.7	(±3.0%)	13.5	(±2.5%)
Iowa	1359	11.1	(±1.9%)	10.6	(11.5%)	2.4	(±2.7%)
Kansas	1170	11.8	(±2.1%)	12.7	(±3.2%)	11.0	(±2.7%)
Kentucky	1822	19.9	(±2.2%)	19.5	(±3.1%)	20.3	(±2.8%)
Louisiana	1312	25.6	(±2.7%)	26.5	(±4.3%)	24.8	(±3.5%)
Maine	971	15.8	(±2.6%)	17.6	(±4.1%)	14.1	(±3.5%)
Maryland	3560	11.7	(±1.3%)	12.7	(±2.0%)	10.8	(±1.6%)
Massachusetts	1282	10.1	(±1.9%)	11.1	(±2.9%)	9.1	(±2.4%)
Michigan	1999	11.4	(±1.6%)	12.6	(±2.5%)	10.3	(±2.0%)
Minnesota	2747	9.0	(±1.2%)	10.2	(±1.8%)	7.9	(±1.5%)
Mississippi	1268	19.4	(±2.6%)	18.9	(±3.9%)	19.9	(±3.3%)
Missouri	1167	14.4	(±2.3%)	14.4	(±3.4%)	14.4	(±2.9%)
Montana	939	19.2	(±2.8%)	21.8	(±4.4%)	16.5	(±3.4%)
Nebraska	1365	11.4	(±1.9%)	12.0	(±2.9%)	10.9	(±2.4%)
Nevada	1507	21.7	(±2.4%)	22.2	(±3.7%)	21.1	(±3.1%)
New Hampshire	1234	12.6	(±2.1%)	13.5	(±3.1%)	11.7	(±2.8%)
New Jersey	1227	11.5	(±2.1%)	13.4	(±3.5%)	9.6	(±2.4%)
New Mexico	1059	23.8	(±3.1%)	26.7	(±4.7%)	20.8	(±3.7%)
New York	1922	16.5	(±2.0%)	18.8	(±3.1%)	14.4	(±2.5%)
North Carolina	1864	14.3	(±1.8%)	13.4	(±2.6%)	15.2	(±2.5%)
North Dakota	1378	12.8	(±1.9%)	15.2	(±3.0%)	10.4	(±2.4%)
Ohio	1065	11.7	(±2.3%)	13.5	(±3.7%)	9.9	(±2.7%)
Oklahoma	1148	21.8	(±2.7%)	22.8	(±4.4%)	20.8	(±3.5%)
Oregon	2362	19.2	(±1.8%)	19.4	(±2.5%)	18.9	(±2.4%)
Pennsylvania	1868	12.6	(±1.8%)	13.6	(±2.7%)	11.8	(±2.4%)
Rhode Island	1438	12.0	(±2.1%)	15.3	(±3.4%)	8.7	(±2.4%)
South Carolina	1679	18.7	(±2.7%)	20.2	(±4.3%)	17.3	(±3.0%)
South Dakota	1383	12.8	(±2.1%)	13.6	(±3.1%)	11.9	(±2.6%)
Tennessee	2447	15.1	(±1.6%)	16.0	(±2.4%)	14.4	(±2.0%)
Texas	2078	23.4	(±2.4%)	23.9	(±3.5%)	22.9	(±2.9%)
Utah	1507	15.6	(±2.0%)	17.9	(±3.3%)	13.2	(±2.4%)
Vermont	1550	16.4	(±2.2%)	18.1	(±3.4%)	14.7	(±2.7%)
Virginia	1480	13.7	(±2.0%)	11.8	(±2.8%)	15.7	(±2.8%)
Washington	2182	16.4	(±1.8%)	18.8	(±2.8%)	14.0	(±2.3%)
West Virginia	1819	19.5	(±2.1%)	20.3	(±3.3%)	18.7	(±2.6%)
Wisconsin	1259	12.4	(±2.1%)	13.3	(±3.2%)	11.5	(±2.8%)

* Persons who reported having no health-care coverage at the time of the interview were considered to be uninsured.
† Excludes Wyoming.
§ Excludes persons who said they did not know or refused to state whether they had health-care coverage.
¶ Confidence interval.

Insurance Coverage — Continued

102 uninsured persons with children, 53 (53%; 95% CI=35%–55%) reported that their children did not have health-care coverage.

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TABLE 2. Weighted percentage of persons aged 18–64 years who reported being uninsured*, by selected sociodemographic characteristics and by sex — Behavioral Risk Factor Surveillance System, United States,† 1993

	Women			Men		
Characteristic	**Sample size**	**%**	**(95% CI§)**	**Sample size**	**%**	**(95% CI)**
Age group (yrs)						
18–24	5,432	23.5	(±1.8%)	4,457	29.7	(±2.3%)
25–34	12,482	16.5	(±1.1%)	9,728	21.5	(±1.4%)
35–44	12,669	13.2	(±0.9%)	10,128	13.5	(±1.0%)
45–54	8,672	11.9	(±1.1%)	6,818	10.7	(±1.1%)
55–64	6,660	10.6	(±1.1%)	4,748	9.7	(±1.3%)
Education level¶						
Less than high school	4,906	33.1	(±2.1%)	3,591	37.2	(±2.8%)
High school	16,008	17.0	(±0.9%)	11,647	21.1	(±1.2%)
Some college	13,581	12.9	(±0.9%)	9,757	15.7	(±1.2%)
College graduate	11,378	6.8	(±0.8%)	10,845	7.7	(±0.8%)
Race/Ethnicity**						
Asian/Pacific Islander	1,189	16.6	(±4.1%)	974	17.2	(±4.1%)
Black, non-Hispanic	4,864	20.0	(±1.6%)	2,869	22.7	(±2.1%)
White, non-Hispanic	36,468	12.6	(±0.5%)	29,368	14.5	(±0.7%)
Hispanic††	2,549	31.3	(±2.8%)	1,944	36.5	(±3.6%)
Employment status¶						
Employed for wages	27,786	11.3	(±0.6%)	24,943	13.5	(±0.8%)
Self-employed	3,114	20.1	(±2.1%)	4,762	26.1	(±1.9%)
Unemployed	2,524	39.4	(±3.1%)	1,888	49.0	(±3.4%)
Other§§	12,454	17.0	(±1.0%)	4,256	16.8	(±3.0%)
Total annual household income¶						
<$10,000	5,456	36.8	(±2.1%)	2,475	43.8	(±3.1%)
$10,000–$19,999	8,252	29.3	(±1.6%)	5,483	38.2	(±2.2%)
$20,000–$34,999	11,835	12.4	(±1.0%)	9,723	16.5	(±1.3%)
≥$35,000	15,775	4.2	(±0.6%)	15,293	6.4	(±0.7%)
Total	**45,915**	**15.2**	**(±0.5%)**	**35,879**	**17.5**	**(±0.7%)**

*Persons who reported having no health-care coverage at the time of the interview were considered to be uninsured.
†Excludes Wyoming.
§Confidence interval.
¶Excludes unknowns.
**The number of persons in other racial/ethnic groups was too small to provide reliable estimates.
††Persons of Hispanic origin may be of any race.
§§Includes students, homemakers, persons unable to work, and retired persons.

TABLE 3. Weighted percentage of respondents who reported fair or poor health, having no usual place of medical care, and having obtained selected preventive health services related to year 2000 national health objectives, by sex and status of health insurance coverage at the time of interview — Behavioral Risk Factor Surveillance System, United States,* 1993

Characteristic	Women				Men			
	Insured	Uninsured	OR†	(95% CI§)	Insured	Uninsured	OR	(95% CI)
Self-perceived fair or poor health¶	9.5%	17.7%	1.1	(1.0–1.3)	8.1%	13.8%	1.2	(1.1–1.5)
Had no usual place for medical care¶	10.2%	26.2%	2.6	(2.3–2.9)	18.1%	40.5%	2.4	(2.2–2.7)
Had Papanicolaou smear during previous 3 years¶	86.9%	73.7%	0.5	(0.5–0.6)	—	—	—	—
Had cholesterol screening during previous 5 years¶	69.3%	43.9%	0.5	(0.5–0.6)	65.0%	35.5%	0.5	(0.5–0.6)
Had both a clinical breast examination and a mammogram during previous 2 years**	69.4%	34.6%	0.3	(0.3–0.4)	—	—	—	—
Had a digital rectal examination during previous 2 years**	51.2%	28.8%	0.5	(0.4–0.7)	50.5%	26.7%	0.5	(0.4–0.7)
Ever had proctoscopy**	32.0%	22.2%	0.7	(0.5–0.9)	37.9%	20.0%	0.5	(0.4–0.7)

* Excludes Wyoming.
† Odds ratio. The multivariate model is adjusted for age, race/ethnicity, education level, employment status, and income level.
§ Confidence interval.
¶ Persons aged 18–64 years.
** Persons aged 50–64 years.

Insurance Coverage — Continued

Carolina; D Young, MS, North Dakota; E Capwell, PhD, Ohio; N Hann, MPH, Oklahoma; J Grant-Worley, Oregon; J Romano, MPH, Pennsylvania; J Hesser, PhD, Rhode Island; M Lane, MPH, South Carolina; B Miller, South Dakota; D Ridings, Tennessee; R Diamond, MPH, Texas; R Giles, Utah; R McIntyre, PhD, Vermont; S Carswell, MA, Virginia; K Holm, MPH, Washington; F King, West Virginia; E Cautley, MS, Wisconsin. Behavioral Risk Factor Surveillance Br, Office of Surveillance and Analysis, National Center for Chronic Disease Prevention and Health Promotion, CDC.

Editorial Note: This report documents substantial variation in the state-specific prevalences of persons who report being uninsured. In addition, persons who were uninsured were less likely to have recently received preventive health services or have a regular place of medical care. The 1993 BRFSS findings are consistent with results from previous national studies indicating that uninsured persons are less likely to receive preventive health services (*4*). Lack of health-care coverage also has been associated with delayed medical care and use of fewer medical services (*5,6*).

The findings in this report indicate that uninsured persons are more likely to be younger, less educated, of races other than white, unemployed, and of low income. These persons are less likely to engage in preventive practices that can be effectively encouraged in the primary health-care setting. Because lack of insurance is associated with limited access to important preventive health-care services, improvements in health insurance coverage through health-care reform at the state level may improve access to preventive health services.

The state-added questions from Minnesota are assisting in identifying uninsured groups and estimating the percentage of children who are uninsured. These findings are critical for targeting specific populations that are uninsured and developing health-care reform and managed-care strategies.

The findings in this report are subject to at least three limitations. First, because the BRFSS includes only households with a telephone, these findings probably underestimate the prevalence of being uninsured among persons not residing in households with telephones (e.g., persons living below the poverty level, less educated persons, and unemployed persons). Second, nonrespondents or refusals in households with a telephone may be younger and less educated persons who are more likely to be uninsured. Third, because estimates are based on self-reported data, responses cannot be validated and are subject to recall bias.

The BRFSS can be used to provide routinely available, timely, state-specific data on health insurance coverage and receipt of preventive health services that may be used to monitor the progress of health-care reform efforts in each state. This information may assist state planners in evaluating progress toward the national health objectives for the year 2000 related to chronic diseases and disabling conditions. In addition, the BRFSS enables states to add specific questions, such as those included in Minnesota, to expand health-related information for use in planning and evaluating state-based strategies for all groups.

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Insurance Coverage — Continued

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Evaluation of Congenital Syphilis Surveillance System — New Jersey, 1993

To monitor disease burden and trends associated with congenital syphilis (CS), effective prevention programs require a surveillance system that identifies CS cases in an accurate and timely manner. Before 1988, comprehensive CS surveillance was difficult for health departments to conduct because documentation of infection in infants required complex and costly long-term follow-up for up to 1 year after delivery; follow-up often was incomplete, and many infected infants were not identified. To estimate the public health burden of CS more accurately and eliminate long-term follow-up of infants by health department personnel, in 1988 CDC implemented a new CS case definition (*1*). Rather than relying on documentation of infection in the infant, the new case definition presumes that an infant is infected if it cannot be proven that an infected mother was adequately treated for syphilis before or during pregnancy (*2*). During 1993–1994, the Sexually Transmitted Disease Prevention and Control Program of the New Jersey Department of Health (NJDOH) evaluated its CS surveillance system to assess the accuracy and completeness of reporting using the new case definition and to determine the personnel costs associated with identifying and classifying CS cases. This report summarizes the results of the evaluation.

New Jersey statutes mandate that all pregnant women receive a serologic test for syphilis (STS) during pregnancy or at delivery if no test was done during pregnancy. Newborns also routinely receive a STS at birth if born to a mother with a reactive STS. Laboratories are required to report all reactive STSs (including maternal, delivery, and newborn) to the NJDOH, and all such reports are investigated by NJDOH. Investigation activities include reviewing infant and maternal medical records to determine whether syphilis was previously diagnosed, reviewing laboratory results and health department records to determine the mother's treatment status, and verifying missing information by contacting the patient and/or provider by telephone or field visit.

For this analysis, reports of all reactive STSs for newborns received by NJDOH during January 1–December 31, 1993, were reviewed manually to assess the completeness and accuracy of case classification and reporting. Infants with reactive STSs had been classified using the four categories recommended by CDC: 1) not infected, 2) syphilitic stillbirth, 3) confirmed case of CS, and 4) presumptive case of CS (*1,2*). Costs associated with investigation and follow-up of reactive STSs for newborns were estimated by multiplying the average time spent at each task by the hourly

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wage (excluding benefits) of the person performing the task. Time spent on an investigation was determined by interviewing the persons who performed the tasks.

During 1993, a total of 497 reactive STSs for newborns were reported to NJDOH. Of these reports, 266 (53%) had been classified as not infected, but reactive secondary to passive transfer of maternal syphilis antibodies from a mother adequately treated for syphilis before or during pregnancy, and 143 (29%) as presumptive cases. In addition, a total of 10 (2%) reports initially classified as not infected were reclassified as presumptive cases, and 78 (16%) reports were still under investigation.

For 1993, the estimated average cost of investigating one reactive STS for a newborn using routine surveillance methods was $183. Based on an average of 41 reactive STSs for newborns reported to NJDOH each month in 1993, the estimated costs for investigation and follow-up were $7500 per month or $90,000 per year.

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Editorial Note: CS is a serious and totally preventable disease that results from in utero infection of the fetus with *Treponema pallidum*, a thin, motile spirochete. Complications of CS include intrauterine growth retardation, bone abnormalities, and failure to thrive. Up to 40% of pregnancies in women with untreated syphilis result in fetal or perinatal death (*3,4*). CS can be prevented by screening and treating women for syphilis before or during early pregnancy (*1,5*). CDC recommends screening women at high risk for syphilis during the first and third trimesters of pregnancy (*1*). Screening for syphilis at delivery primarily ensures that infants born to women in whom syphilis previously was either unidentified or untreated are identified and treated.

The new CS case definition was implemented to provide a more accurate measure of the impact of CS by eliminating long-term follow-up of STSs and by including asymptomatic infants at risk for CS (i.e., who require treatment but who were not counted by the previous case definition). However, the existing reporting infrastructure in many health departments may need to be changed to allow full benefit from the new case definition (*6*). Despite use of the new case definition for CS, the findings in the NJDOH study indicate that the number of CS cases in New Jersey may still be underestimated because of inaccuracy and incompleteness of CS surveillance data. In this report, the presumptive cases incorrectly classified as not infected and the incomplete case reports accounted for nearly 20% of all reported STSs for newborns during 1993. Reasons for misclassification of cases and incomplete reporting may reflect a lack of understanding by health department staff of the epidemiology of CS, the new CS surveillance case definition, and CS reporting instructions (*2*).

In response to the findings of this study, NJDOH initiated an intervention trial in March 1994 to improve the timeliness, accuracy, and completeness of CS surveillance data. As part of the intervention, NJDOH collaborated with three local hospitals that provided delivery services to women at high risk for syphilis. These hospitals established a policy to notify NJDOH within 24 hours of admission of each pregnant woman with a positive STS who was admitted for delivery. On notification and before the patient was discharged from the hospital, NJDOH performed medical record reviews and patient/provider interviews. Using these procedures, the time required for

Congenital Syphilis — Continued

health department staff to complete investigations was reduced from an average of 10 hours to 3 hours per investigation. If this policy were expanded to most hospitals that deliver high-risk infants, NJDOH personnel costs associated with CS case investigations could be reduced substantially, and accuracy and timeliness of reporting could be improved.

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Co-incidence of HIV/AIDS and Tuberculosis — Chicago, 1982–1993

In 1985, the epidemic of human immunodeficiency virus (HIV) infection was recognized as an influence on the increasing occurrence of tuberculosis (TB) in the United States (*1*). Programs to control and prevent TB require information characterizing the interaction between HIV infection and TB, particularly in locally defined populations. This report describes the overall occurrence of TB in Chicago (1990 population: 2,783,726) during 1982–1993 and characterizes the co-incidence of TB and HIV/acquired immunodeficiency syndrome (AIDS) in Chicago during 1989–1993.

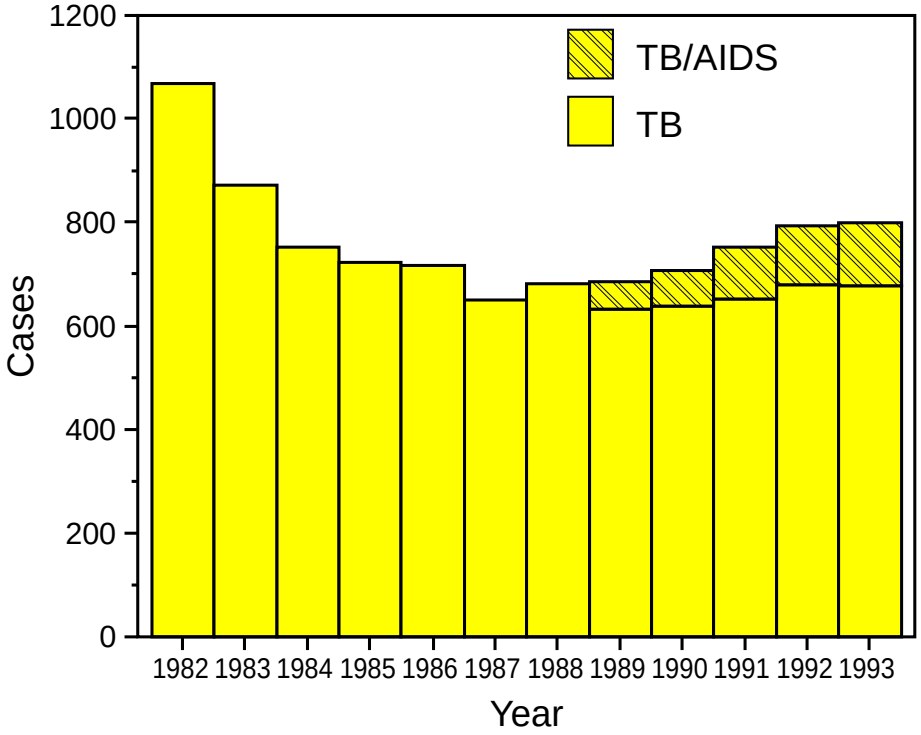
The Chicago Department of Public Health (CDPH) maintains computerized registries for all reported incident cases of TB and AIDS among city residents. This analysis compared the 3738 incident cases of TB registered from 1989 through 1993 with the 8207 cumulative cases of AIDS reported through March 1994. A match was defined as any person whose name appeared in both registries and was based on the patient's first name, last name, and date of birth. AIDS cases were reported based on the case definition in effect at the time of the report; for example, pulmonary TB in persons aged ≥13 years was added as one of the AIDS-defining conditions in 1993. Racial/ethnic groups included in this analysis were non-Hispanic blacks, non-Hispanic whites, and Hispanics. Numbers of persons in other racial/ethnic groups were too small for meaningful analysis.

From 1982 through 1987, cases of TB decreased by 39%, but from 1987 through 1993 cases increased 23% (Figure 1). The annual number of persons with TB but without AIDS reported during 1989–1993 increased from 633 to 677 (7%).

During 1989–1993, a total of 458 co-incident cases of AIDS and TB were identified in Chicago. The proportion of co-incident cases increased from 8% (52 of 685 cases of TB) in 1989 to 15% (122 of 799 cases of TB) in 1993 (Figure 1). Pulmonary TB was the sole AIDS-defining illness for 77 (17%) of the 458 co-incident cases; 381 (83%) had TB and other AIDS-defining illnesses.

HIV/AIDS and Tuberculosis — Continued

FIGURE 1. Total reported cases of tuberculosis (TB), 1982–1993, and cases of TB in persons with AIDS*, 1989–1993 — Chicago



*AIDS cases were reported based on the case definition in effect at the time of the report; for example, pulmonary TB in persons aged ≥13 years was added as one of the AIDS-defining conditions in 1993.

During 1989–1993, non-Hispanic blacks accounted for 50% of the cases of AIDS, 62% of the cases of TB, and 71% of the co-incident cases (Table 1). Non-Hispanic whites accounted for 36% of cases of AIDS but smaller proportions of cases of TB (15%) and co-incident cases (12%), and Hispanics accounted for 14%–17% of cases of TB, AIDS, and co-incident cases. Injecting-drug use accounted for the highest proportion of co-incident cases (52%). The rates for the 5-year period for co-incident cases were 6.0 per 100,000 population for non-Hispanic blacks, 1.0 for non-Hispanic whites, and 2.8 for Hispanics.

Among persons with co-incident cases, analysis of the year TB was reported in relation to the year AIDS with opportunistic illnesses other than pulmonary TB was diagnosed indicated that a small number (17 [4%]) of TB cases were reported >2 calendar years before the diagnosis of AIDS (Table 2).

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Editorial Note: During the mid-1980s, AIDS was identified among approximately 2% of TB cases in some areas (*2–5*). Although the proportion of TB cases attributed to HIV/AIDS has increased each year, the number of TB cases not co-incident with HIV/AIDS increased only slightly, suggesting that the increase in total TB cases would not have been as great in the absence of the HIV/AIDS epidemic.

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In Chicago, the percentage of cases varied by race/ethnicity; however, it is unclear whether these variations reflect differences in factors such as socioeconomic status, access to medical care, and prevalence of specific risks. Race is most likely a risk marker rather than a risk factor for TB and HIV infection; risk markers may be useful for identifying groups that should be targeted for prevention and education efforts.

TABLE 1. Number of cases of AIDS* and tuberculosis (TB) and co-incident cases of AIDS and TB, by race/ethnicity, sex, age, and mode of HIV transmission — Chicago, 1989–1993

	AIDS cases		TB cases		Co-incident cases	
Characteristic	**No.**	**(%)**	**No.**	**(%)**	**No.**	**(%)**
Race/Ethnicity						
Black, non-Hispanic	3014	(50)	2319	(62)	323	(71)
White, non-Hispanic	2176	(36)	570	(15)	53	(12)
Hispanic	835	(14)	530	(14)	76	(17)
Other†	35	(1)	319	(9)	6	(1)
Sex						
Male	5319	(88)	2485	(66)	395	(86)
Female	741	(12)	1253	(34)	63	(14)
Age group (yrs)§						
0–12	80	(1)	192	(5)	1	(<1)
13–19	16	(<1)	129	(3)	1	(<1)
20–29	1009	(17)	502	(13)	66	(14)
30–39	2769	(46)	902	(24)	200	(44)
40–49	1544	(25)	683	(18)	145	(32)
≥50	642	(11)	1330	(36)	45	(10)
HIV-transmission mode						
Homosexual/Bisexual male	3518	(58)	—	—	160	(35)
Injecting-drug use	1824	(30)	—	—	239	(52)
Heterosexual	470	(8)	—	—	45	(10)
Other	248	(4)	—	—	14	(3)
Total	**6060**	**(100)**	**3738**	**(100)**	**458**	**(100)**

*AIDS cases were reported based on the case definition in effect at the time of the report; for example, pulmonary TB in persons aged ≥13 years was added as one of the AIDS-defining conditions in 1993.
†Numbers for other racial groups were too small for meaningful analysis.
§Age at which TB was reported in AIDS patients or AIDS was diagnosed in TB patients.

TABLE 2. Year of AIDS diagnosis*, 1986–1993, and year of report of tuberculosis (TB), 1989–1993, for co-incident cases of AIDS and TB — Chicago

Year of AIDS diagnosis	Year of TB report					
	1989	**1990**	**1991**	**1992**	**1993**	**Total**
1986	0	0	0	1	0	**1**
1987	2	1	2	1	0	**6**
1988	8	3	2	2	0	**15**
1989	29	12	2	4	2	**49**
1990	6	42	17	5	2	**72**
1991	5	5	69	32	5	**116**
1992	1	2	4	68	30	**105**
1993	1	3	4	3	83	**94**
Total	**52**	**68**	**100**	**116**	**122**	**458**

*AIDS cases were reported based on the case definition in effect at the time of the report; for example, pulmonary TB in persons aged ≥13 years was added as one of the AIDS-defining conditions in 1993.

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The 1993 expansion of the AIDS case definition to include pulmonary TB increased the number of co-incident cases identified in Chicago and facilitated earlier recognition of co-incident cases. If the expanded AIDS definition had not included pulmonary TB, these co-incident cases probably would have been detected through matching when different AIDS-defining conditions were diagnosed (except for persons who died before such conditions were diagnosed). In addition, changes in the epidemiology of TB have promoted modification of the management of TB cases to include testing for HIV infection and expanded the ability to detect co-incident TB and HIV/AIDS cases.

Most TB cases that precede a diagnosis of AIDS by several years may not be attributable to the immunosuppression from HIV infection. However, the incubation of AIDS is long and variable. The finding that TB was rarely reported >2 calendar years before AIDS was diagnosed suggests that the occurrence of TB in co-incident cases is related temporally with HIV immunosuppression.

The findings in this report are subject to at least three limitations that probably undercounted the number of co-incident cases in Chicago. First, some matches between the two registries may have been missed because of discrepancies in the information used for matching (e.g., the transposition of first and last name between registries). Second, the lack of HIV testing data for all persons with TB limits analysis because some co-incident cases may be unrecognized. Third, because of reporting delays for AIDS cases, the final number of co-incident cases for the period covered by this report probably will increase (*6,7*).

The finding that more than 15% of persons with newly diagnosed TB in Chicago were HIV positive underscores the importance of assessing the HIV status of all persons with TB, the need for prompt contact investigation, and the appropriate use of isoniazid preventive therapy in contacts (*8*). In addition, these findings suggest the need for intensified monitoring of the co-incidence of these two epidemics. Although registry reviews can assist in this effort, the methods are complex.

Concerns about confidentiality limit the ability to conduct such TB and AIDS registry matches. Although in Chicago confidentiality precludes the direct reporting of persons with AIDS and TB directly to the TB-control program, CDPH recognizes the substantial impact of HIV/AIDS on the TB epidemic and the need for timely follow-up of contacts. Therefore, CDPH has instituted measures to both ensure and expedite TB case reporting among AIDS cases. TB-related AIDS case reports now must include the date of reporting to the TB-control program. AIDS case reports without this information are followed up by the AIDS surveillance program. Quarterly database reviews are conducted to ensure that all AIDS cases with possible TB have been reported to the TB-control program by the medical practitioner. This process has strengthened cooperation between the AIDS and TB programs to control these two epidemics in Chicago. Other state and local health departments should consider a similar process of matching TB and AIDS registries to better describe the comorbidity of TB and HIV.

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Notice to Readers

NIOSH Alert: *Request for Assistance in Preventing Injuries and Deaths of Fire Fighters*

CDC's National Institute for Occupational Safety and Health (NIOSH) periodically issues alerts on workplace hazards that have caused death, serious injury, or illness to workers. One such alert, Request for Assistance in Preventing Injuries and Deaths of Fire Fighters (1) was recently published and is available to the public.*

This alert warns fire departments to review their safety programs and emergency operating procedures because failures to establish and follow these programs and procedures are resulting in injuries and deaths of fire fighters. Based on reports to the National Fire Protection Association, 280 fire fighters died and approximately 100,000 were injured in the line of duty during 1990–1992, and based on reports to the NIOSH National Traumatic Occupational Fatalities Surveillance System, 278 fire fighters died from traumatic injuries during 1980–1989. The International Association of Fire Fighters reported that 1369 professional fire fighters died in the line of duty during 1970–1994.

NIOSH has identified four factors essential to protecting fire fighters from injury and death: 1) following established firefighting policies and procedures, 2) implementing an adequate respirator-maintenance program, 3) establishing firefighter accountability at the fire scene, and 4) using personal-alert safety-system devices at the fire scene. Deficiencies in any of these procedures can create a life-threatening situation for fire fighters. The publication describes a case report in which two fire fighters died during a fire in a high-rise apartment building because these procedures were not followed. Recommendations are provided for fire departments and fire fighters to prevent injury and death.

Reference

1. NIOSH. Request for assistance in preventing injuries and deaths of fire fighters. Cincinnati: US Department of Health and Human Services, Public Health Service, CDC, 1994; DHHS publication no. (NIOSH)94-125.

*Single copies of this document are available without charge from the Publications Office, Division of Standards Development and Technology Transfer, NIOSH, CDC, Mailstop C-13, 4676 Columbia Parkway, Cincinnati, OH 45226-1998; telephone (800) 356-4674 ([513] 533-8328 for persons outside the United States); fax (513) 533-8573.

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