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MORBIDITY AND MORTALITY WEEKLY REPORT

Alcohol and Other Drug-Related Birth Defects Awareness Week —- May 11–17, 1997

The National Council on Alcoholism and Drug Dependence (NCADD) has designated May 11–17, 1997, as Alcohol and Other Drug-Related Birth Defects Awareness Week. During this week, CDC, in collaboration with NCADD, will highlight the harmful effects of prenatal alcohol exposure on a fetus.

From 1991 to 1995, rates of alcohol use during pregnancy increased, especially for frequent drinking, underscoring the need for renewed attention to advising pregnant women to abstain from alcohol use. Associations between adverse pregnancy outcomes and moderate to heavy alcohol use during pregnancy continue to be reported. Health-care providers should educate women about the recommendations of the Surgeon General (*1*) and the Secretary of Health and Human Services (*2*) regarding the need for women who are pregnant or are planning a pregnancy to abstain from alcohol use.

State health departments can use state-based rates of reported frequent alcohol use by women of childbearing age to develop messages aimed at preventing alcohol use among pregnant women. In conjunction with a report in this issue of *MMWR* about alcohol use among childbearing-aged and pregnant women, the Council of State and Territorial Epidemiologists is providing state health departments and Behavioral Risk Factor Surveillance System coordinators with information focusing on fetal alcohol syndrome (FAS) and state-specific rates of self-reported alcohol use among women of childbearing age.

Additional information about Alcohol and Other Drug-Related Birth Defects Awareness Week is available from NCADD, telephone (212) 206-6770; World-Wide Web, http://www.ncadd.org; and from the National March of Dimes, telephone (888) 663-4637, http://www.modimes.org. Additional information about FAS and other alcohol-related birth defects and developmental disabilities is available from CDC, telephone (770) 488-7268, http://www.cdc.gov/nceh/programs/programs.htm; and from the National Institute on Alcohol Abuse and Alcoholism, telephone (301) 443-3860, http://www.niaaa.nih.gov.

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Alcohol Consumption Among Pregnant and Childbearing-Aged Women — United States, 1991 and 1995

Moderate to heavy alcohol use by women during pregnancy has been associated with many severe adverse effects in their children, including fetal alcohol syndrome (FAS)—with facial dysmorphology, growth retardation, and central nervous system deficits—and other neurodevelopmental effects (*1*). Early prenatal alcohol exposure can occur unintentionally (i.e., before a woman knows she is pregnant); in addition, women who drink at high levels before pregnancy are at increased risk for drinking during pregnancy (*2*). Ongoing surveillance for alcohol consumption among pregnant and childbearing-aged women is important for monitoring the impact of efforts to prevent this risk behavior. This report analyzes and compares data from the 1995 Behavioral Risk Factor Surveillance System (BRFSS) and previously reported 1991 BRFSS data for women aged 18–44 years (*3*), and presents the prevalence of alcohol consumption among pregnant women and overall and state-specific prevalence rates among women of childbearing age. The findings indicate a substantial increase in alcohol use among pregnant women from 1991 to 1995.

BRFSS is an ongoing, state-based, random-digit–dialed telephone survey of the U.S. civilian, noninstitutionalized population aged ≥18 years. In 1995, all 50 states* participated in the BRFSS.† A total of 33,585 women aged 18–44 years were interviewed about their amount and frequency of alcohol consumption during the month preceding the survey. Based on their responses, drinking patterns were categorized as "any drinking" (consumption of at least one drink of alcohol during the preceding month)§ and as "frequent drinking" (consumption of an average of seven or more drinks per week or five or more drinks on at least one occasion). Data were weighted to reflect the probability of selection and state-specific postcensus population estimates by age, sex, and race, and standard errors were calculated by using SUDAAN. The small numbers of pregnant women sampled in each state preclude accurate state-specific prevalence rates for alcohol consumption among pregnant women.

In 1995, 4.7% of women aged 18–44 years reported being pregnant at the time of the interview. Of these, 16.3% reported any drinking during the preceding month, compared with 12.4% in 1991 ($p=0.07$) (Table 1). The rate of frequent drinking among pregnant women was approximately four times higher in 1995 than in 1991 (3.5% in 1995 and 0.8% in 1991, $p<0.01$). This difference persisted after controlling for selected sociodemographic characteristics (i.e., age, household income, marital status, employment status, education level, smoking status, and race). Among all childbearing-aged women in 1995, 50.6% reported any drinking, and 12.6% reported frequent

*For consistency over time, national analyses were restricted to the 47 states that participated in the BRFSS in both 1991 and 1995. State-specific analyses for 1995 included all 50 states.

†In analyzing the BRFSS, CDC used two methods of calculating response rates. The "upper bound" response rate is the ratio of completed interviews to the sum of all completed, refused, and terminated interviews. The Council of American Survey Research Organizations (CASRO) rate is more conservative, and follows a method developed by CASRO. This method factors in unanswered attempts and thus provides a measure of both telephone sampling efficiency and willingness to participate. For 1995, the median participant "upper bound" response rate was 80%, and the median CASRO response rate was 68%.

§In 1991, women were asked, "Have you had any beer, wine, wine coolers, cocktails, or liquor in the past month?" In 1995, women were asked, "During the past month, have you had at least one drink of any alcoholic beverages such as beer, wine, wine coolers, or liquor?" Other alcohol consumption questions did not change from 1991 to 1995.

TABLE 1. Prevalence of reported alcohol consumption among pregnant and childbearing-aged women (18–44 years) — United States, Behavioral Risk Factor Surveillance System, 1991 and 1995*

Reported consumption level	Pregnant women					All women				
	1991 (n=1,053)	(95% CI†)	1995 (n=1,313)	(95% CI)	p value	1991 (n=26,105)	(95% CI)	1995 (n=30,415)	(95% CI)	p value
Any drinking§	12.4	(9.5–15.2)	16.3	(13.1–19.4)	0.07	49.4	(48.4–50.3)	50.6	(49.7–51.6)	0.02
<7 Drinks per week	12.2	(9.4–15.0)	14.6	(11.5–17.6)	0.27	43.9	(43.0–44.9)	45.7	(44.8–46.5)	0.01
7–14 Drinks per week	—¶		0.9	(0.0– 1.8)	—	3.4	(3.1– 3.8)	3.0	(2.6– 3.3)	0.04
>14 Drinks per week	0.1	(0.0– 0.3)	0.3	(0.0– 0.7)	0.28	1.4	(1.2– 1.6)	1.1	(0.9– 1.3)	0.04
≥5 Drinks on occasion**	0.7	(0.2– 1.2)	2.9	(1.5– 4.3)	0.003	10.5	(10.0–11.1)	10.5	(9.9–11.1)	0.96
Frequent drinking††	0.8	(0.3– 1.4)	3.5	(1.9– 5.1)	0.002	12.4	(11.8–13.1)	12.6	(12.0–13.3)	0.67

* Because weighted data are used in this analysis, results for 1991 may be slightly different from those reported previously. For consistency, national analyses were restricted to the 47 states that participated in the BRFSS in both 1991 and 1995.
† Confidence interval.
§ Levels of any drinking may not add to the total prevalence of any drinking because some women did not respond to questions about consumption frequency and amount. One additional state was eliminated from the breakdown of any drinking because questions regarding consumption frequency and amount were not asked in that state in 1995.
¶ Too few observations to calculate a reliable estimate.
** Five or more drinks on at least one occasion during the preceding month.
†† Consumption of an average of seven or more drinks per week or five or more drinks on at least one occasion during the preceding month.

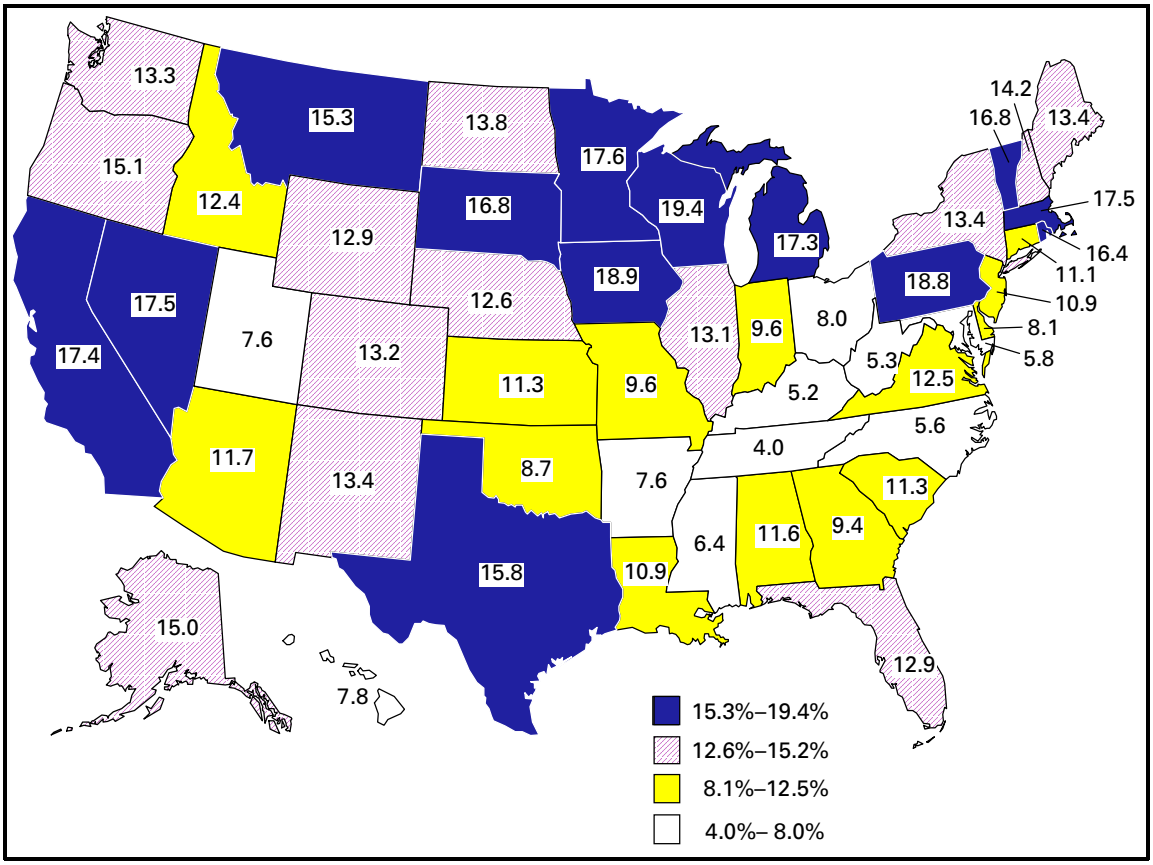
Alcohol Consumption — Continued

drinking—prevalences similar to those in 1991 (49.4% reported any drinking, and 12.4% reported frequent drinking).

The estimated state-specific prevalence of alcohol consumption among women aged 18–44 years varied substantially by state for both any drinking (from 26.1% in Utah to 68.2% in Wisconsin) and for frequent drinking (from 4.0% in Tennessee to 19.4% in Wisconsin) (Figure 1). For any drinking, rates were highest in Wisconsin, Massachusetts, Vermont, Rhode Island, and Connecticut. For frequent drinking, rates were highest in Wisconsin, Iowa, Pennsylvania, Minnesota, and Nevada. In general, in 1991 and 1995, prevalence rates of any and frequent drinking were highest in the northern regions.

Reported by the following BRFSS coordinators: J Durham, MPA, Alabama; P Owen, Alaska; B Bender, Arizona; J Senner, PhD, Arkansas; B Davis, PhD, California; M Leff, MSPH, Colorado; M Adams, MPH, Connecticut; F Breukelman, Delaware; C Mitchell, District of Columbia; D McTague, MS, Florida; E Pledger, MPA, Georgia; J Cooper, MA, Hawaii; C Johnson, MPH, Idaho; B Steiner, MS, Illinois; N Costello, MPA, Indiana; P Busick, Iowa; M Perry, Kansas; K Asher, Kentucky; R Meriwether, MD, Louisiana; D Maines, Maine; A Weinstein, MA, Maryland; D Brooks, MPH, Massachusetts; H McGee, MPH, Michigan; N Salem, PhD, Minnesota; P Arbuthnot, Mississippi; T Murayi, PhD, Missouri; P Smith, Montana; S Huffman, Nebraska; E DeJan, MPH, Nevada; K Zaso, MPH, New Hampshire; G Boeselager, MS, New Jersey; W Honey, MPH, New Mexico; T Melnik, DrPH, New York; K Passaro, PhD, North Carolina; J Kaske, MPH, North

FIGURE 1. Prevalence of reported frequent alcohol consumption* among childbearing-aged women (18–44 years) — United States, Behavioral Risk Factor Surveillance System, 1995



*Consumption of an average of seven or more drinks per week or five or more drinks on at least one occasion during the preceding month.

Alcohol Consumption — Continued

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Editorial Note: Official advisories warning against the use of alcohol by both pregnant women and women considering pregnancy were first released in 1981 (*4*) and again in 1990 (*5*) and 1995 (*6*). Although no safe level of alcohol consumption among pregnant women has been established, frequent consumption is associated with a greater risk for FAS and other neurodevelopmental effects (*7,8*). Despite the established health risk, substantial numbers of women continue to drink during pregnancy, and some at frequent levels. The BRFSS findings indicate that from 1991 to 1995, the prevalences of both any and frequent alcohol consumption by pregnant women increased substantially, even though the prevalences of these behaviors remained stable among all women aged 18–44 years. Alcohol consumption patterns in childbearing-aged women varied by geographic location; reasons for this variation may include age and sociocultural differences.

The findings in this report are subject to at least four limitations. First, the percentage of women responding to BRFSS who reported they were pregnant was lower than other estimates (*9*) because BRFSS rates are point prevalence estimates, reflecting the status at the time of the interview rather than over an entire year. Second, BRFSS data were self-reported and may be subject to both recall and reporting biases. For example, because of the social stigmatization associated with heavy alcohol consumption, some women may underreport alcohol use. Third, because the question used to measure drinking status was modified from 1991 to 1995, the number of women with alcohol consumption categorized as any drinking possibly decreased in 1995 (women consuming less than one drink would have answered "yes" to the question in 1991 [any alcohol] but not in 1995 [at least one drink]). Finally, because the number of pregnant women in this sample who were drinkers was relatively small, the estimated prevalence rates are subject to both systematic biases and random variability. Despite these limitations, BRFSS is the largest ongoing population-based data source in the United States to include a representative sample of adult women and information on both alcohol consumption and pregnancy status.

CDC will continue to use BRFSS to track alcohol-use patterns in pregnant women to assess public health efforts to reduce this risk behavior. Additional analyses of BRFSS data will include examining data from multiple years to further characterize trends and geographic differences in the drinking patterns of pregnant women and to identify risk factors associated with frequent alcohol use. Health-care professionals who provide care to women of childbearing age should inform their patients about the advisory on alcohol consumption, which recommends abstinence for women who are pregnant or planning to become pregnant. Because approximately half of the pregnancies in the United States are unintended (*10*), information about the effects of alcohol on the fetus should be provided to all childbearing-aged women who report frequent drinking.

Alcohol Consumption — Continued

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Rubella and Congenital Rubella Syndrome — United States, 1994–1997

Indigenous rubella and congenital rubella syndrome (CRS) have been targeted for elimination in the United States by the year 2000 (*1*). Progress toward reaching this goal is monitored through the National Notifiable Diseases Surveillance System and the National Congenital Rubella Syndrome Registry. From 1969 through 1989, the numbers of annual reported cases decreased 99.6% for rubella and 97.4% for CRS (Figure 1). Following a slight resurgence during 1990–1991, the number of reported rubella cases reached record lows during 1992–1996 (annual average: 183 reported cases). This report summarizes the characteristics of rubella and CRS cases and outbreaks reported in the United States from 1994 through 1996* and provisional data as of April 18, 1997. The findings indicate sustained low incidence of rubella and CRS since 1992 and possible interruption of transmission of rubella virus in late 1996.

Rubella

During 1994–1996, a total of 32 states, the District of Columbia, and New York City reported 567 rubella cases; 22 sites reported one to five cases, seven reported six to 19 cases, and five reported ≥20 cases; these five sites accounted for 75% of all rubella cases (Figure 2). Symptom onset for reported confirmed cases peaked during February 1994, June 1995, and April 1996, reflecting large outbreaks in Massachusetts, Connecticut, and North Carolina (range: 36–128 cases). Based on provisional data as of

*Reports for 1996 are provisional.

Rubella — Continued

FIGURE 1. Number of reported rubella and congenital rubella syndrome (CRS) cases, by year — United States, 1980–1996

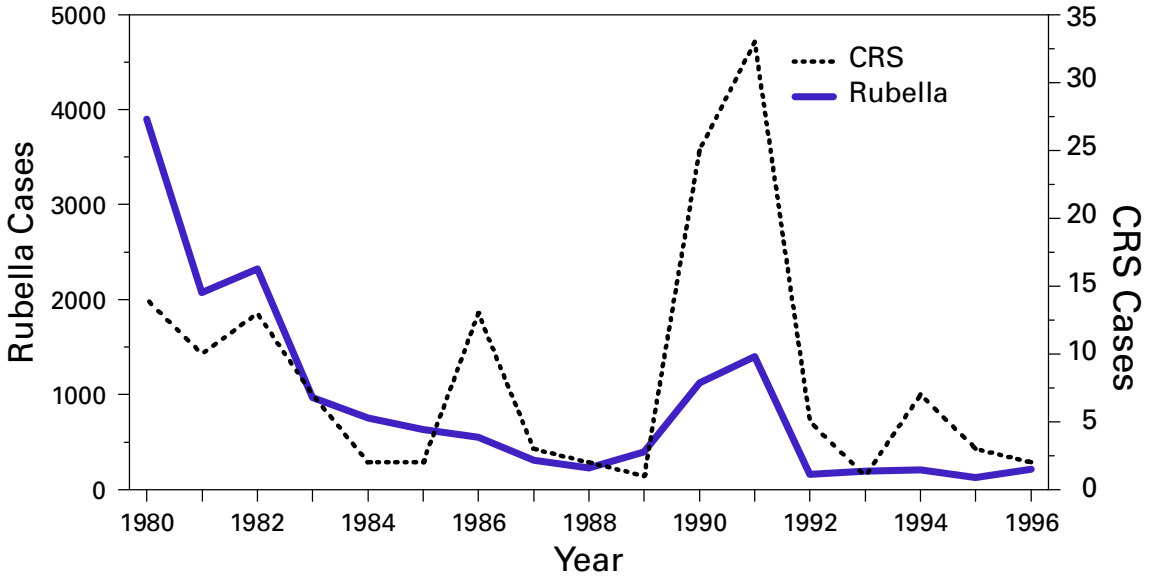
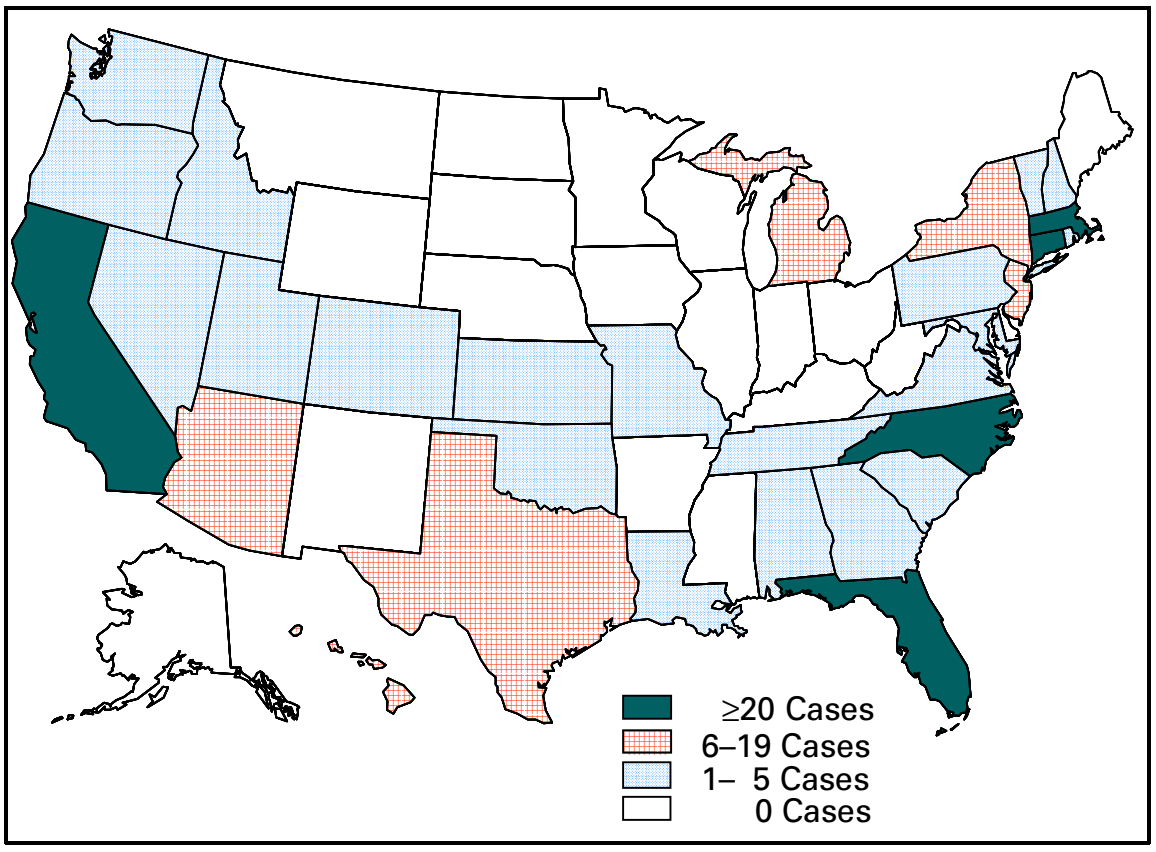


FIGURE 2. Number of reported rubella cases — United States, 1994–1996



Rubella — Continued

April 18, 1997, symptom onset for the last case in 1996 was November 6 and for the first case in 1997 was January 5, representing approximately three incubation periods with no reported rubella cases.

Of the 561 (98.9%) case-patients for whom age was known, 474 (84.5%) were aged ≥15 years, and 422 (75.2%) were aged 15–44 years. Of the 563 (99.3%) case-patients for whom sex was reported, 313 (55.6%) were male. Of the 560 case-patients for whom both age and sex were known, 171 (30.5%) were women of childbearing age (15–44 years); of these, five were pregnant at the time of rash onset.

Race was known for 477 (84.1%) case-patients; of these, 379 (79.4%) were white, 30 (6.3%) were Asian/Pacific Islander, and 20 (4.2%) were black. Of the 492 (86.8%) case-patients for whom ethnicity was known, 266 (54.1%) were Hispanic; the percentage of cases among Hispanics increased from 19.0% in 1991 to 68.1% in 1996 (*2*).

Since 1994, six outbreaks have involved five or more cases. The three largest outbreaks (Massachusetts, Connecticut, and North Carolina) accounted for 249 (44.1%) of the cases reported during 1994–1996; most cases occurred among adults for whom history of vaccination was unavailable. In each of these outbreaks, transmission occurred in multiple settings (e.g., workplaces, homeless shelters, a substance-abuse treatment center, a publicly supported hospital, and a county jail). In smaller outbreaks, reported cases occurred primarily among adults in a workplace, a county jail, and a college.

Of the the 500 (88.2%) reported cases for which adequate information was available, 481 (96.2%) were confirmed, 17 (3.4%) were probable, and two (0.4%) were suspected. For the 169 (35.1%) confirmed cases for which method of confirmation was reported, 142 (84.0%) were laboratory confirmed, and 27 (16.0%) were confirmed by epidemiologic linkage to a laboratory-confirmed case. Of the 505 (89.1%) cases with known importation status, 471 (93.3%) were indigenously acquired, 32 (6.3%) were internationally imported, and two (0.4%) were imported from another state. Of the internationally imported cases, country of exposure was reported for 15 (46.9%) and included Mexico (five cases); Japan (three); Kenya (two); and Colombia, England, Germany, Korea, and Switzerland (one each).

Congenital Rubella Syndrome

A total of 12 infants with laboratory-confirmed CRS were born during 1994–1996. Nine states reported seven indigenously acquired cases, four imported cases, and one case with unknown importation status. The maternal exposures for the four imported cases occurred in Mexico (two cases), Sri Lanka (one), and Dominican Republic (one)— countries that do not routinely provide rubella vaccination. Of the seven infants with indigenously acquired cases, four were born to women of Hispanic ethnicity; of the three with documented sources of exposure, two were outbreak-related and one had contact with an infected relative. Of 10 mothers for whom information was available, seven had one or more missed opportunities for vaccination.

Reported by: State and territorial epidemiologists. Child Vaccine Preventable Diseases Br, Epidemiology and Surveillance Div, National Immunization Program, CDC.

Editorial Note: Since 1994, incidences of rubella and CRS have been sustained at record low levels. Indigenous transmission of rubella appears to have been interrupted in the United States at least once; however, infection can be reintroduced through importation from neighboring countries that do not routinely promote rubella

Rubella — Continued

vaccination. Since 1994, most rubella and CRS cases have been associated with outbreaks among unvaccinated adults, and three fourths of reported rubella cases occurred among persons aged 15–44 years, a substantial increase from 1966–1968, when only 23% of reported rubella infections occurred among persons aged ≥15 years (*3*). In recent years, outbreaks of rubella have occurred primarily in settings where young adults congregate, and the risk has been highest among persons in specific racial/ ethnic groups (e.g., Hispanics) who often are unvaccinated and who may be exposed to persons traveling from areas where rubella vaccination is not routine.

The increasing proportion of cases accounted for by persons of Hispanic ethnicity suggests a potentially susceptible group of persons to whom vaccination efforts should be directed. In two of the larger outbreaks, 98% of cases occurred among persons of Hispanic ethnicity. Hispanics and persons who are natives of countries without rubella vaccination programs should be considered susceptible to rubella unless they have documentation of vaccination or serologic evidence of immunity.

The changing epidemiologic pattern of rubella underscores the importance of ongoing collection and analysis of information on reported rubella and CRS cases, including demographics, vaccination history, source of exposure (i.e., indigenous or imported), relation to outbreaks, and mode of transmission. Such analysis is important for effectively targeting vaccination activities, evaluating the effectiveness of rubella and CRS prevention programs, and designing more efficient prevention strategies.

The effectiveness of efforts to control and prevent rubella in the United States is reflected by possible interruption of transmission of rubella during November–December 1996, the dramatic decline in reported cases when compared with the prevaccine era, and the low annual average number of cases since 1991. However, elimination of indigenously acquired rubella and CRS in the United States will require 1) maintenance of high vaccination levels in preschool- and school-aged children and young adults, 2) intensification of diagnosis of and surveillance for rubella and CRS, and 3) prompt control of outbreaks (*4–6*). The shift in the increasing proportion of cases accounted for by persons aged 15–44 years indicates that vaccination programs targeting school-aged children have been successful in preventing rubella in that age group but that vaccination activities also should include adolescents and adults. Because more than half of CRS cases in recent years have resulted from missed opportunities for vaccination (*7*), health-care providers should screen reproductive-aged women for rubella immunity (e.g., during prenatal screenings and premarital health-care visits) and vaccinate when appropriate (e.g., postpartum). Elimination of indigenous transmission of rubella in the United States also will require collaboration with other countries to develop and implement national rubella vaccination policies.

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Rubella — Continued

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Outbreaks of Pseudo-Infection with *Cyclospora* and *Cryptosporidium* — Florida and New York City, 1995

Efforts to expand the scope of surveillance and diagnostic testing for emerging infectious diseases (*1*) also may increase the potential for identifying pseudo-outbreaks (*2,3*) (i.e., increases in incidence that may result from enhanced surveillance) and outbreaks of pseudo-infection (i.e., clusters of false-positives for infection). This report describes the investigations of outbreaks of pseudo-infection with *Cyclospora* in Florida and *Cryptosporidium* in New York City in 1995 after health departments in those jurisdictions had initiated surveillance for these emerging organisms. These investigations emphasize 1) the need for laboratory training in the identification of emerging pathogens and 2) the importance of confirmation by reference laboratories as an early step in the investigation of any apparent outbreak caused by an emerging pathogen.

Cyclosporiasis in Florida

Cyclosporiasis is caused by infection with *Cyclospora cayetanensis*, a recently identified coccidian parasite (*4*) that can cause prolonged, relapsing diarrhea; treatment with trimethoprim-sulfamethoxazole relieves symptoms and accelerates clearance of the parasite (*5*). Until 1996, most cases of cyclosporiasis in the United States occurred among international travelers (*6*), and information about modes of transmission of *C. cayetanensis* was limited. Waterborne transmission had been documented, but direct person-to-person transmission was considered unlikely (*4*).

During the summer of 1995, in response to an outbreak of *Cyclospora* infection among Florida residents with no history of international travel (*7*), the state health department initiated surveillance for the organism. All state laboratories began routine testing with a modified acid-fast stain for *C. cayetanensis* in stool specimens submitted for parasitologic examination (*8*). On July 25, 1995, the Florida Department of Health (FDH) designated cyclosporiasis a reportable disease.

On August 11, a 3-year-old boy at a children's shelter had onset of diarrhea and abdominal pain; *Giardia* cysts were identified in a stool specimen obtained from the child. Because of previous giardiasis outbreaks at the shelter, county public health officials recommended testing the 13 shelter residents who were preschool classmates or roommates of the index patient. State branch laboratory A reported that stool specimens from six children tested positive for *Giardia*, and six tested positive for *Cyclospora*. The high proportion of specimens positive for *Cyclospora* prompted testing of 81 persons, including all children residing at the shelter and the shelter's staff and volunteers. Overall, branch laboratory A identified *Cyclospora* oocysts in specimens from 31 (86%) of 36 staff, 16 (64%) of 25 children, and nine (45%) of 20 volunteers. In response to this apparent outbreak, the residence was closed to new

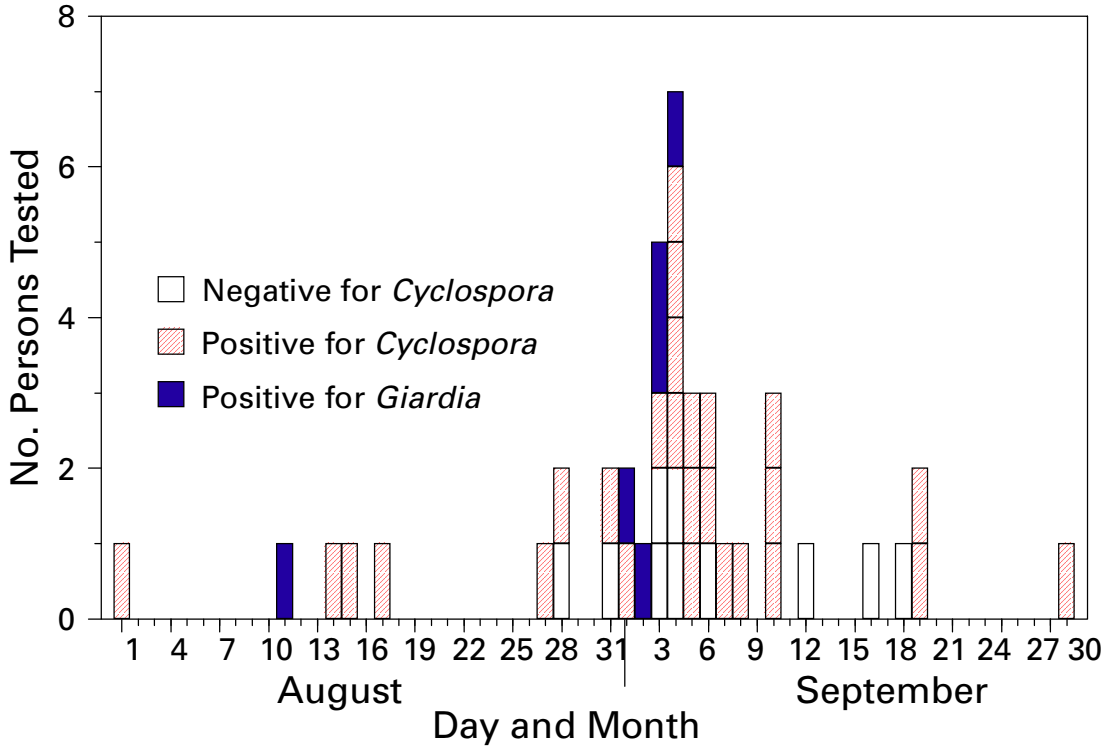
Outbreaks of Pseudo-Infection — Continued

admissions, the children's outside activities were restricted, and trimethoprim- sulfamethoxazole was prescribed for all 25 children.

On September 17, FDH was notified about the apparent outbreak and joined the investigation. The local community hospital, which had begun testing for *Cyclospora* in 1995, was contacted for information about laboratory-identified infections in the community during July–September. Questionnaires were administered to shelter staff, volunteers, the older children, and the infants' caretakers, and medical records for the children were reviewed. A case was defined as onset of nausea, vomiting, or diarrhea in a resident, employee, or volunteer at the shelter during August–September. Branch laboratory A sent portions of stool specimens from 23 shelter residents and staff to the reference laboratories at CDC and the University of Arizona for *Cyclospora* testing.

Questionnaires were completed for 79 of the 81 children and adults. Symptoms among the 56 persons whose stool specimens were positive for *Cyclospora* at branch laboratory A included abdominal pain (30%), nausea (26%), fatigue (22%), diarrhea (three or more loose or watery stools in 24 hours) with median duration of 2 days (20%), vomiting (19%), anorexia (15%), fever (10%), and weight loss (8%). The 23 persons with negative stool specimens had symptoms and onset dates similar to those of persons with positive specimens (Figure 1). In addition, the likelihood of being

FIGURE 1. Stool specimens evaluated by state branch laboratory A as positive or negative for *Cyclospora* and positive for *Giardia from children, staff, and volunteers at a children's shelter, by date of onset of gastrointestinal illness — Florida, August–September 1995†**



*Of the specimens identified as positive for either *Cyclospora* or *Giardia*, only two identified as *Cyclospora* were confirmed as positive by CDC.
†n=42.

Outbreaks of Pseudo-Infection — Continued

asymptomatic was similar among persons who were test-positive (35%) and test-negative (46%) (p=0.4). Potential risk factors (e.g., consumption of food or water at the shelter or participation in field trips) were not associated with the likelihood of being ill or testing positive. During the time of the apparent outbreak at the shelter, the local community hospital examined 357 stool specimens for ova and parasites and identified *Cyclospora* oocysts in specimens from two patients; neither person was associated with the shelter.

Of the 23 stool specimens submitted by branch laboratory A to the two reference laboratories, branch laboratory A reported that 17 (74%) specimens were positive for *Cyclospora*; in comparison, the reference laboratories at both CDC and the University of Arizona reported that all the specimens were negative for *Cyclospora*. The state central laboratory and the University of Arizona laboratory reviewed slides from branch laboratory A and identified pollen grains and other artifacts similar to *Cyclospora* oocysts in size and staining characteristics but lacking the appropriate internal morphology. CDC examined stool specimens obtained from 19 other persons at the shelter; rare *Cyclospora* oocysts were identified in specimens from two children: one child who had been asymptomatic, and one who had vomited.

Based on these findings, FDH asked all laboratories in the state that had reported detecting *Cyclospora* oocysts in specimens from symptomatic patients in 1995 to forward their positive slides to the state central laboratory or CDC for confirmation. Branch laboratory A submitted slides from 130 patients not associated with the shelter; of these, 38 (29%) were confirmed as *Cyclospora*, and 92 (71%) were considered to have been false positives.

In response to the investigation, FDH revised the case definition for cyclosporiasis to include confirmation of *Cyclospora* infection by a reference laboratory, and the state central laboratory initiated a proficiency training program at all state laboratories to teach laboratorians how to identify *Cyclospora* and *Cryptosporidium* spp. In 1996, in a subsequent outbreak of cyclosporiasis (*9*), Florida laboratories initially identified 188 specimens from patients as positive for *Cyclospora*; 32 (17%) were not confirmed by the state central laboratory.

Cryptosporidiosis in New York City

To improve disease reporting and identify exposures associated with infection, New York City designated cryptosporidiosis a reportable disease in January 1994, and the New York City Department of Health (NYCDOH) initiated active surveillance in November 1994. Each of the clinical laboratories are routinely contacted (usually monthly) for reports of new cases, and each case is investigated by telephone interview and/or chart review. Of the 289 cases of cryptosporidiosis reported in New York City during 1994, most (72%) occurred among men and among persons aged 20–44 years (63%).

Laboratory B, a commercial laboratory in New York City, examines approximately 400 stool specimens per month for ova and parasites. Although these examinations do not routinely include testing for *Cryptosporidium parvum*, requests for this test increased fourfold from 1993 (143 [3%] of 4344) to 1995 (587 [11%] of 5333). Before April 1995, laboratory B used a modified acid-fast technique to test for *Cryptosporidium* oocysts. From January 1994 through March 1995, laboratory B reported four cases of cryptosporidiosis.

Outbreaks of Pseudo-Infection — Continued

In April 1995, after switching to an enzyme-linked immunosorbent assay (ELISA) method to test for *Cryptosporidium* antigen (ProSpecT Cryptosporidium Microplate Assay 21/96, Alexon Incorporated, Sunnyvale, California*), laboratory B began reporting an increased number of positive tests: 24 in April and a mean of 52 per month from May through September, for a total of 281 in 6 months. Demographic characteristics of these 281 patients differed from those of patients reported to have been positive by other New York City laboratories; specifically, patients who were test-positive by laboratory B were more likely to be aged ≥60 years (36% versus 5%, $p<0.01$) and female (59% versus 25%, $p<0.01$).

Because of these findings, in August 1995 the NYCDOH initiated a validation study at laboratory B. Stool specimens submitted to laboratory B for *Cryptosporidium* testing were split and sent for parallel testing either to the New York City Bureau of Laboratories, which performed ELISA and acid-fast testing, or to the New York State Wadsworth Center, David Axelrod Institute for Public Health, which performed ELISA, direct immunofluorescence testing (MERIFLUOR Cryptosporidium/Giardia Direct Immunofluorescent Detection Procedure, Meridian Diagnostics Incorporated, Cincinnati, Ohio), and modified acid-fast testing. ELISA testing was performed with the same kit used by laboratory B. Of 84 split specimens, laboratory B reported 57 (68%) positive test results, and the two reference laboratories each reported one positive result. Based on these findings, all 280 unconfirmed positive ELISA results for *Cryptosporidium* identified at laboratory B from April through September were considered to have been false positives. Physicians for these patients were notified that previously reported positive results may have been the result of laboratory error.

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Editorial Note: Pseudo-outbreaks associated with increased surveillance for disease and outbreaks of pseudo-infection resulting from false-positive laboratory results may occur with increasing frequency because of changes in surveillance and rapid developments in the technologies and tests available to identify organisms—particularly new and emerging pathogens. Cyclosporiasis and cryptosporidiosis are emerging infectious diseases in the United States, and many health departments and laboratories are unfamiliar with the identification and diagnosis of these parasitic infections. The outbreaks described in this report resulted from a combination of laboratory error and enhanced surveillance—factors identified in previous pseudo-outbreaks (*2,10*). Consequences of such events include misdirection of resources; unnecessary treatment, anxiety, and disruption of patients' lives; and loss of confidence in laboratories and public health agencies (*3*).

To prevent the occurrence or minimize the impact of pseudo-outbreaks, the first steps in most outbreak investigations should be to confirm the diagnosis and the occurrence of the outbreak. Confirmation of the diagnosis entails validation of the laboratory findings and assessment of the concordance between the clinical features and

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

Outbreaks of Pseudo-Infection — Continued

test results. In the Florida investigation, an outbreak of pseudo-infection was suspected initially because of an inability to document an association between patients with specific clinical manifestations and positive findings for *Cyclospora* oocysts, while in New York City, the investigation was prompted, in part, by the atypical demographic characteristics of patients with cryptosporidiosis reported by one laboratory.

Although such patterns were important in the investigations described in this report, they typically are more reliable for well-characterized pathogens than for emerging pathogens, for which critical epidemiologic and clinical information may be limited. Because local laboratories may lack experience and optimal techniques for identifying emerging pathogens, these organisms may be more likely to be associated with outbreaks of pseudo-infection; therefore, confirmation of the diagnosis by an experienced reference laboratory may be critical in confirming outbreaks associated with these pathogens.

The outbreaks of pseudo-infection in Florida and New York City began after laboratory personnel implemented new testing procedures—in one instance, for a newly-identified pathogen and, in the other, with a different technique. The investigations of these incidents emphasize the potential for the occurrence of such outbreaks when efforts are made to enhance laboratory surveillance. In addition, these incidents indicate the needs for training and proficiency testing in conjunction with the introduction of new laboratory techniques and for reporting laboratories to submit a proportion of their positive and negative specimens for confirmation by a reference laboratory following the initiation of surveillance or testing for new pathogens.

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Adult Blood Lead Epidemiology and Surveillance — United States, Fourth Quarter, 1996

CDC's National Institute for Occupational Safety and Health Adult Blood Lead Epidemiology and Surveillance program (ABLES) monitors laboratory-reported

Adult Blood Lead Epidemiology and Surveillance — Continued

elevated blood lead levels (BLLs) among adults in 25 states.* This report presents ABLES data through the fourth quarter of 1996, compares these data with that from the same period in 1995, and describes cases of severe lead poisoning in adults in New York during 1996.

During October 1–December 31, 1996, the 6215 reports of BLLs ≥25 μg/dL represented an 11% decrease from the 7014 reported for the fourth quarter of 1995 (*1*), which now include previously unpublished data for Minnesota and Ohio. For the four quarters of 1996, the number of reports of BLLs ≥25 μg/dL decreased by 8%, compared with the number reported for the four quarters of 1995 (*2*), which also now include previously unpublished data for Minnesota and an estimate for Ohio (Table 1). The cumulative number of reports in 1996 decreased at each reporting blood lead level, compared with data for 1995. This overall trend of decreasing reports is consistent with the third quarter report for 1996 (*3*).

Since 1981, the New York State Department of Health has maintained a registry of poisonings associated with lead and other heavy metals. During 1982–1993, the number of cases of severe lead poisoning (defined as reported BLLs >100 μg/dL) ranged from one to 12 adults per year. Of the 64 cases reported during that period, 42 (66%)

*Alabama, Arizona, California, Connecticut, Illinois, Iowa, Maine, Maryland, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, New York, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, Texas, Utah, Vermont, Washington, and Wisconsin.

TABLE 1. Number of reports of elevated blood lead levels (BLLs) among adults, number of persons with elevated BLLs, and percentage change in number of reports — 25 states,* fourth quarter, 1996

Reported BLL (μg/dL)	Fourth quarter, 1996		Cumulative reports, 1995¶	Cumulative reports, 1996**	% Change from 1995 to 1996
	No. reports†	No. persons§			
25–39	4,894	3,507	21,813	20,715	– 5%
40–49	983	675	5,609	4,597	–18%
50–59	183	125	1,059	890	–16%
≥60	155	96	499	490	– 2%
Total	**6,215**	**4,403**	**28,980**	**26,692**	**– 8%**

*Alabama, Arizona, California, Connecticut, Illinois, Iowa, Maine, Maryland, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, New York, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, Texas, Utah, Vermont, Washington, and Wisconsin.

†Data for Alabama and Illinois were missing; fourth quarter 1995 data were used as an estimate for Illinois and first quarter 1995 data (the most recent reports available) were used for Alabama.

§Individual reports for persons are categorized according to the highest reported BLL for the person during the given quarter. Data for Alabama and Illinois were missing; fourth quarter 1995 data were used as an estimate for Illinois and first quarter 1995 data (the most recent reports available) were used for Alabama.

¶Data for Minnesota and Ohio are included for the first time in addition to previously published 1995 totals (*2*). For Minnesota, first through fourth quarter data for 1995 were used; for Ohio, first through fourth quarter data for 1996 were used as an estimate.

**The cumulative number of reports for all four quarters includes year-end adjustments and corrections made by the states and may not be derived by simply adding the number of reports in each of the four quarters.

Adult Blood Lead Epidemiology and Surveillance — Continued

were occupationally related; of these, a total of 22 (52%) occurred among manufacturing workers and 18 (43%) among construction workers. Structural steel workers accounted for most of the construction workers exposed to lead during the refurbishing or demolition of bridges.

In 1994, one case of nonoccupational severe lead poisoning was reported, and in 1995 no such cases were reported. However, during 1996, seven cases of severe lead poisoning were reported. Four (57%) were occupationally related, and all occurred among residential painters; the highest BLL for the most severe case was 256 μg/dL (the highest occupational BLL reported in New York since 1983). The follow-up investigation of this reported case suggested that the primary exposure occurred while the worker used a mechanical sander to remove paint from the exterior of a house. He did not wear a respirator during this activity and frequently smoked cigarettes while working, which probably pyrolized lead in the paint dust and increased his exposure.

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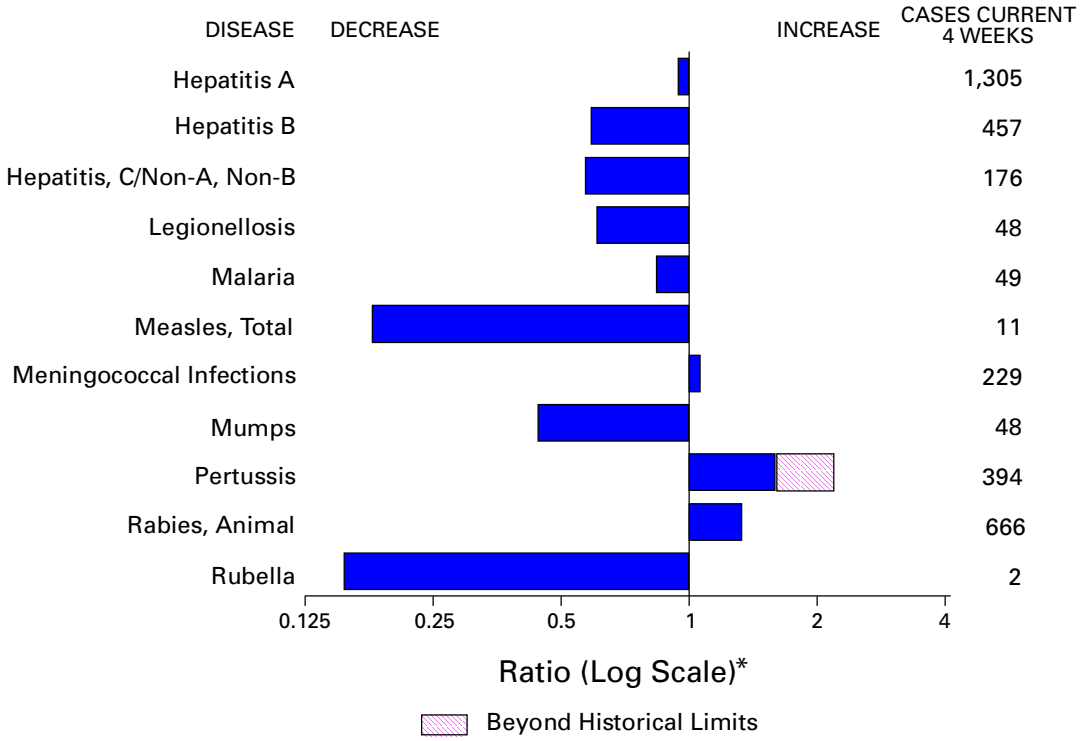
Editorial Note: The findings in this report for the fourth quarter of 1996 suggest a continued decline in the overall number of detected cases of elevated BLLs among adults, which is consistent with the overall decline reported during 1993–1995 (*3*). This decline may reflect decreased occupational exposures to lead, diminished compliance with Occupational Safety and Health Administration requirements regarding blood lead monitoring, and/or a reduction in the size of the workforce in lead-using industries. Variation in nationwide reporting totals also may result from 1) changes in the roster of participating states, 2) changes in staffing and funding in state-based surveillance programs, and 3) interstate differences in worker BLL testing by lead-using industries.

In recent years, increased control efforts have been directed toward the hazards of lead—particularly to the risks for children who may be exposed to lead-based painted surfaces in their homes, schools, and day-care settings. These efforts have included attempts to remove lead-based paint in many older buildings (built before 1978). The cases of severe lead poisoning reported from New York illustrate the risks to workers and to building occupants as the result of improper methods for paint removal. Health

(Continued on page 367)

FIGURE I. Selected notifiable disease reports, comparison of provisional 4-week totals ending April 19, 1997, with historical data — United States



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

TABLE I. Summary — provisional cases of selected notifiable diseases, United States, cumulative, week ending April 19, 1997 (16th Week)

	Cum. 1997		Cum. 1997
Anthrax	-	Plague	-
Brucellosis	12	Poliomyelitis, paralytic	-
Cholera	1	Psittacosis	14
Congenital rubella syndrome	2	Rabies, human	1
Cryptosporidiosis*	324	Rocky Mountain spotted fever (RMSF)	30
Diphtheria	2	Streptococcal disease, invasive Group A	394
Encephalitis: California*	4	Streptococcal toxic-shock syndrome*	9
eastern equine*	-	Syphilis, congenital¶	27
St. Louis*	-	Tetanus	10
western equine*	-	Toxic-shock syndrome	30
Hansen Disease	35	Trichinosis	5
Hantavirus pulmonary syndrome*†	1	Typhoid fever	82
Hemolytic uremic syndrome, post-diarrheal*	12	Yellow fever	-
HIV infection, pediatric*§	53		

-:no reported cases
*Not notifiable in all states.
†Updated weekly from reports to the Division of Viral and Rickettsial Diseases, National Center for Infectious Diseases (NCID).
§Updated monthly to the Division of HIV/AIDS Prevention–Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention (NCHSTP), last update March 25, 1997.
¶Updated from reports to the Division of STD Prevention, NCHSTP.

TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending April 19, 1997, and April 20, 1996 (16th Week)

Reporting Area	AIDS		Chlamydia		*Escherichia coli* O157:H7		Gonorrhea		Hepatitis C/NA,NB	
					NETSS†	PHLIS§				
	Cum. 1997*	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1997	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996
UNITED STATES	15,582	19,904	104,549	118,706	283	128	69,555	89,681	848	908
NEW ENGLAND	465	841	4,670	5,760	23	10	1,533	2,373	13	24
Maine	18	10	288	-	1	-	14	13	-	-
N.H.	4	25	163	212	-	-	40	37	2	3
Vt.	10	8	120	155	2	1	15	19	-	10
Mass.	220	486	2,231	1,991	16	9	726	660	9	8
R.I.	43	38	653	657	1	-	164	173	2	3
Conn.	170	274	1,215	2,745	3	-	574	1,471	-	-
MID. ATLANTIC	5,146	5,591	6,857	16,086	17	4	5,258	7,928	83	77
Upstate N.Y.	833	571	N	N	9	3	1,557	33	64	67
N.Y. City	2,649	3,283	U	7,225	5	-	U	3,955	-	1
N.J.	1,098	1,023	2,040	2,863	3	-	1,270	766	-	-
Pa.	566	714	4,817	5,998	N	1	2,431	3,174	19	9
E.N. CENTRAL	1,088	1,538	18,308	28,008	51	18	11,357	18,216	173	159
Ohio	216	401	4,294	6,408	17	9	2,779	4,629	5	4
Ind.	286	264	2,541	2,790	11	2	1,748	2,015	4	4
Ill.	372	527	3,444	8,174	10	-	1,739	5,301	15	31
Mich.	158	254	5,843	7,192	13	2	4,086	4,766	149	120
Wis.	56	92	2,186	3,444	N	5	1,005	1,505	-	-
W.N. CENTRAL	313	424	6,262	9,996	40	27	2,807	3,968	53	19
Minn.	55	84	U	1,369	23	17	U	-	-	-
Iowa	52	31	1,501	1,107	9	4	379	312	20	7
Mo.	135	173	3,291	4,547	3	3	1,943	2,688	22	7
N. Dak.	4	1	81	317	3	2	5	9	2	-
S. Dak.	2	7	339	424	-	-	38	65	-	-
Nebr.	28	32	259	757	1	-	89	152	-	2
Kans.	37	96	791	1,475	1	1	353	742	9	3
S. ATLANTIC	3,895	5,141	23,744	16,894	42	7	24,532	31,427	72	56
Del.	51	113	-	-	1	1	331	439	-	-
Md.	425	645	2,054	1,825	2	1	3,897	4,121	5	-
D.C.	182	243	N	N	-	-	1,319	1,339	-	-
Va.	323	266	3,470	3,688	N	2	2,599	3,006	6	4
W. Va.	21	32	-	-	N	-	206	99	3	4
N.C.	217	277	5,193	U	9	3	4,766	5,622	18	14
S.C.	213	276	3,535	U	-	-	3,106	3,526	14	11
Ga.	528	682	2,406	4,078	15	-	3,425	7,447	U	-
Fla.	1,935	2,607	7,086	7,303	15	-	4,883	5,828	26	23
E.S. CENTRAL	473	723	9,709	8,824	25	7	9,887	9,473	115	159
Ky.	48	118	1,833	2,228	7	-	1,160	1,252	6	10
Tenn.	203	244	3,774	3,678	13	7	3,238	3,242	62	148
Ala.	127	235	2,293	2,750	2	-	3,189	4,240	5	1
Miss.	95	126	1,809	168	3	-	2,300	739	42	-
W.S. CENTRAL	1,459	2,030	11,126	7,245	3	1	7,797	6,913	77	87
Ark.	59	96	373	456	2	-	755	1,223	2	1
La.	219	494	2,002	2,076	1	1	1,928	2,428	55	33
Okla.	86	66	2,304	2,280	-	-	1,491	1,434	4	26
Tex.	1,095	1,374	6,447	2,433	-	-	3,623	1,828	16	27
MOUNTAIN	441	632	6,305	4,268	30	21	2,223	2,400	112	195
Mont.	12	8	276	410	2	-	14	10	4	8
Idaho	8	10	469	507	4	-	33	29	15	40
Wyo.	9	2	151	213	2	-	18	10	44	62
Colo.	114	177	100	7	13	8	507	563	18	19
N. Mex.	34	43	1,148	1,188	4	3	435	285	16	28
Ariz.	122	191	2,884	592	N	8	934	1,162	10	24
Utah	30	73	467	476	2	-	53	90	2	7
Nev.	112	128	810	875	3	2	229	251	3	7
PACIFIC	2,302	2,984	17,568	21,625	52	31	4,161	6,983	150	132
Wash.	176	217	2,836	2,846	8	4	645	727	8	24
Oreg.	97	188	970	1,621	13	10	146	143	3	3
Calif.	2,002	2,523	12,843	16,353	28	15	3,084	5,789	92	44
Alaska	12	3	427	239	3	-	148	163	-	2
Hawaii	15	53	492	566	N	2	138	161	47	59
Guam	-	3	-	102	N	-	-	24	-	1
P.R.	420	418	N	N	21	U	175	60	21	13
V.I.	17	6	N	N	N	U	-	-	-	-
Amer. Samoa	-	-	-	-	N	U	-	-	-	-
C.N.M.I.	-	-	N	N	N	U	11	11	2	-

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

*Updated monthly to the Division of HIV/AIDS Prevention–Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention, last update March 25, 1997.

†National Electronic Telecommunications System for Surveillance.

§Public Health Laboratory Information System.

TABLE II. (Cont'd.) Provisional cases of selected notifiable diseases, United States, weeks ending April 19, 1997, and April 20, 1996 (16th Week)

Reporting Area	Legionellosis		Lyme Disease		Malaria		Syphilis (Primary & Secondary)		Tuberculosis		Rabies, Animal
	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997
UNITED STATES	247	233	744	1,271	334	304	2,286	3,640	3,875	4,854	2,013
NEW ENGLAND	19	9	140	98	7	8	43	60	93	164	311
Maine	1	1	2	-	-	2	-	-	-	7	72
N.H.	3	-	4	2	1	1	-	1	1	3	11
Vt.	3	-	2	-	1	1	-	-	-	-	50
Mass.	7	3	37	10	4	3	22	24	52	44	62
R.I.	1	5	29	21	1	1	-	-	7	18	4
Conn.	4	N	66	65	-	-	21	35	33	92	112
MID. ATLANTIC	40	51	481	1,034	70	79	79	90	812	830	435
Upstate N.Y.	9	9	48	376	9	15	12	12	85	92	304
N.Y. City	-	1	2	232	36	38	U	46	460	418	-
N.J.	5	7	114	94	17	21	39	-	176	176	42
Pa.	26	34	317	332	8	5	28	32	91	144	89
E.N. CENTRAL	95	89	14	7	26	37	220	597	459	563	20
Ohio	55	32	11	5	3	5	77	240	108	85	16
Ind.	10	21	3	2	3	2	49	80	40	49	2
Ill.	-	12	-	-	5	15	19	159	214	343	1
Mich.	28	16	-	-	13	8	35	50	69	70	1
Wis.	2	8	U	U	2	7	40	68	28	16	-
W.N. CENTRAL	20	13	10	27	9	4	41	167	125	137	125
Minn.	-	-	7	1	4	1	U	36	34	34	14
Iowa	3	1	1	3	2	1	3	6	15	15	50
Mo.	6	3	-	7	2	1	26	110	49	52	7
N. Dak.	1	-	-	-	-	-	-	-	2	1	16
S. Dak.	1	2	-	-	-	-	-	-	2	9	17
Nebr.	5	6	2	-	1	-	-	6	4	8	-
Kans.	4	1	-	16	-	1	12	9	19	18	21
S. ATLANTIC	37	26	63	62	87	53	955	1,221	794	675	912
Del.	3	1	-	20	2	2	8	12	7	14	12
Md.	14	5	45	28	24	15	208	189	78	77	165
D.C.	1	1	4	-	5	2	41	47	23	36	1
Va.	4	9	-	-	18	7	101	144	86	43	188
W. Va.	-	1	-	3	-	-	-	1	15	19	23
N.C.	5	3	2	6	5	7	239	325	109	100	294
S.C.	2	1	1	1	4	3	111	149	87	101	42
Ga.	-	-	1	-	11	7	165	259	133	163	88
Fla.	8	5	10	4	18	10	82	95	256	122	99
E.S. CENTRAL	7	17	18	19	7	8	565	896	292	400	86
Ky.	-	3	1	6	1	3	51	48	57	72	9
Tenn.	3	7	4	6	2	3	235	296	57	123	57
Ala.	1	1	2	-	1	1	140	177	119	133	20
Miss.	3	6	11	7	3	1	139	375	59	72	-
W.S. CENTRAL	-	1	4	5	4	10	273	392	92	539	48
Ark.	-	-	-	4	1	-	25	86	59	43	15
La.	-	-	1	-	3	-	126	180	-	-	-
Okla.	-	1	2	1	-	-	36	52	33	54	33
Tex.	-	-	1	-	-	10	86	74	-	442	-
MOUNTAIN	15	11	-	-	21	19	46	43	125	174	13
Mont.	1	-	-	-	2	1	-	-	2	-	2
Idaho	1	-	-	-	-	-	-	1	4	3	-
Wyo.	1	1	-	-	1	2	-	1	1	1	-
Colo.	3	5	-	-	10	11	1	14	27	32	-
N. Mex.	-	-	-	-	2	1	-	-	8	22	1
Ariz.	4	2	-	-	3	1	38	24	51	79	9
Utah	4	-	-	-	-	2	1	-	4	10	-
Nev.	1	3	-	-	3	1	6	3	28	27	1
PACIFIC	14	16	14	19	103	86	64	174	1,083	1,372	63
Wash.	3	1	-	-	3	5	5	1	62	79	-
Oreg.	-	-	7	5	7	7	3	3	43	54	1
Calif.	10	15	7	13	91	71	55	169	892	1,163	54
Alaska	-	-	-	-	2	-	-	-	31	24	8
Hawaii	1	-	-	1	-	3	1	1	55	52	-
Guam	-	-	-	-	-	-	-	2	-	35	-
P.R.	-	-	-	-	3	-	64	37	-	47	14
V.I.	-	-	-	-	-	-	-	-	-	-	-
Amer. Samoa	-	-	-	-	-	-	-	-	-	-	-
C.N.M.I.	-	-	-	-	-	-	3	1	-	-	-

N: Not notifiable U: Unavailable -: no reported cases

TABLE III. Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending April 19, 1997, and April 20, 1996 (16th Week)

Reporting Area	*H. influenzae*, invasive		Hepatitis (Viral), by type				Measles (Rubeola)					
			A		B		Indigenous		Imported†		Total	
	Cum. 1997*	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	1997	Cum. 1997	1997	Cum. 1997	Cum. 1997	Cum. 1996
UNITED STATES	354	372	7,592	8,186	2,389	2,734	2	19	3	11	30	93
NEW ENGLAND	20	9	154	93	60	61	-	-	-	-	-	6
Maine	2	-	18	9	4	2	-	-	-	-	-	-
N.H.	2	7	9	3	5	3	-	-	-	-	-	-
Vt.	-	-	5	1	1	2	-	-	-	-	-	1
Mass.	14	2	66	45	33	13	-	-	-	-	-	4
R.I.	1	-	11	3	6	4	-	-	-	-	-	-
Conn.	1	-	45	32	11	37	-	-	-	-	-	1
MID. ATLANTIC	40	58	521	609	325	465	-	6	-	3	9	5
Upstate N.Y.	2	5	51	108	60	91	-	1	-	3	4	2
N.Y. City	15	9	199	272	103	205	-	4	-	-	4	3
N.J.	16	24	115	121	80	94	-	-	-	-	-	-
Pa.	7	20	156	108	82	75	-	1	-	-	1	-
E.N. CENTRAL	50	68	684	738	267	341	-	4	-	2	6	5
Ohio	28	40	145	302	32	39	-	-	-	-	-	2
Ind.	4	2	89	106	25	38	-	-	-	-	-	-
Ill.	11	18	163	166	51	104	-	4	-	1	5	-
Mich.	6	3	246	101	156	129	-	-	-	1	1	-
Wis.	1	5	41	63	3	31	U	-	U	-	-	3
W.N. CENTRAL	15	14	573	636	183	136	-	4	1	1	5	6
Minn.	7	7	35	23	5	3	-	-	1	1	1	5
Iowa	3	3	82	152	38	19	-	-	-	-	-	-
Mo.	1	3	306	308	118	91	-	4	-	-	4	1
N. Dak.	-	-	6	9	1	-	-	-	-	-	-	-
S. Dak.	2	1	6	29	-	-	-	-	-	-	-	-
Nebr.	1	-	42	71	7	8	U	-	U	-	-	-
Kans.	1	-	96	44	14	15	-	-	-	-	-	-
S. ATLANTIC	91	74	470	287	333	422	1	1	1	1	2	2
Del.	-	1	10	5	1	1	-	-	-	-	-	1
Md.	29	24	106	61	52	95	-	-	1	1	1	-
D.C.	2	-	11	9	18	11	-	-	-	-	-	-
Va.	5	3	54	47	35	46	-	-	-	-	-	-
W. Va.	2	3	5	6	6	9	-	-	-	-	-	-
N.C.	12	12	61	36	72	116	-	-	-	-	-	-
S.C.	4	3	35	29	28	28	U	-	U	-	-	-
Ga.	16	24	41	2	15	5	-	-	-	-	-	-
Fla.	21	4	147	92	106	111	1	1	-	-	1	1
E.S. CENTRAL	25	12	250	598	232	217	-	-	-	-	-	-
Ky.	4	3	24	9	10	27	-	-	-	-	-	-
Tenn.	15	4	158	439	142	173	-	-	-	-	-	-
Ala.	6	4	37	78	26	17	-	-	-	-	-	-
Miss.	-	1	31	72	54	U	-	-	-	-	-	-
W.S. CENTRAL	17	12	1,250	1,264	168	223	1	1	1	1	2	1
Ark.	1	-	100	153	19	29	-	-	-	-	-	-
La.	-	-	64	20	39	13	-	-	-	-	-	-
Okla.	13	11	543	565	8	16	-	-	-	-	-	-
Tex.	3	1	543	526	102	165	1	1	1	1	2	1
MOUNTAIN	35	23	1,311	1,243	285	329	-	-	-	-	-	5
Mont.	-	-	39	41	2	4	-	-	-	-	-	-
Idaho	-	1	57	109	10	35	-	-	-	-	-	-
Wyo.	-	-	14	10	11	8	-	-	-	-	-	-
Colo.	2	5	149	126	58	44	-	-	-	-	-	1
N. Mex.	2	7	82	169	97	123	-	-	-	-	-	-
Ariz.	12	6	611	390	58	56	-	-	-	-	-	-
Utah	3	4	254	300	32	42	-	-	-	-	-	-
Nev.	16	-	105	98	17	17	-	-	-	-	-	4
PACIFIC	61	102	2,379	2,718	536	540	-	3	-	3	6	63
Wash.	1	1	172	159	17	28	-	-	-	-	-	4
Oreg.	14	12	122	409	41	41	-	-	-	-	-	-
Calif.	43	87	2,023	2,101	464	468	-	-	-	3	3	-
Alaska	1	-	15	23	10	1	-	-	-	-	-	58
Hawaii	2	2	47	26	4	2	-	3	-	-	3	1
Guam	-	-	-	2	-	-	U	-	U	-	-	-
P.R.	-	-	104	21	382	54	-	-	-	-	-	1
V.I.	-	-	-	-	-	-	U	-	U	-	-	-
Amer. Samoa	-	-	-	-	-	-	U	-	U	-	-	-
C.N.M.I.	4	10	1	1	16	5	U	1	U	-	1	-

N: Not notifiable U: Unavailable -: no reported cases

*Of 72 cases among children aged <5 years, serotype was reported for 34 and of those, 16 were type b.

†For imported measles, cases include only those resulting from importation from other countries.

TABLE III. (Cont'd.) Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending April 19, 1997, and April 20, 1996 (16th Week)

Reporting Area	Meningococcal Disease		Mumps			Pertussis			Rubella		
	Cum. 1997	Cum. 1996	1997	Cum. 1997	Cum. 1996	1997	Cum. 1997	Cum. 1996	1997	Cum. 1997	Cum. 1996
UNITED STATES	1,276	1,196	12	181	194	134	1,397	858	1	12	63
NEW ENGLAND	81	49	-	6	-	6	345	185	-	-	7
Maine	9	6	-	-	-	-	6	8	-	-	-
N.H.	7	1	-	-	-	4	46	17	-	-	-
Vt.	2	2	-	-	-	2	133	7	-	-	1
Mass.	46	18	-	1	-	-	144	150	-	-	4
R.I.	4	5	-	4	-	-	11	-	-	-	-
Conn.	13	17	-	1	-	-	5	3	-	-	2
MID. ATLANTIC	109	113	4	20	23	5	95	75	-	2	5
Upstate N.Y.	26	28	-	3	7	-	42	41	-	1	3
N.Y. City	19	19	-	-	4	-	6	13	-	1	1
N.J.	26	25	-	-	2	-	-	3	-	-	1
Pa.	38	41	4	17	10	5	47	18	-	-	-
E.N. CENTRAL	163	170	-	23	54	5	127	158	-	2	3
Ohio	69	53	-	8	19	1	55	52	-	-	-
Ind.	17	18	-	4	5	2	13	9	-	-	-
Ill.	50	58	-	7	10	2	18	48	-	-	1
Mich.	14	20	-	4	19	-	23	10	-	-	2
Wis.	13	21	U	-	1	U	18	39	U	2	-
W.N. CENTRAL	100	97	-	8	2	15	95	37	-	-	-
Minn.	6	9	-	3	-	14	59	23	-	-	-
Iowa	24	17	-	3	-	-	14	2	-	-	-
Mo.	52	45	-	-	-	-	12	7	-	-	-
N. Dak.	-	2	-	-	2	1	2	-	-	-	-
S. Dak.	3	3	-	-	-	-	1	1	-	-	-
Nebr.	5	9	U	2	-	U	2	1	U	-	-
Kans.	10	12	-	-	-	-	5	3	-	-	-
S. ATLANTIC	232	172	1	26	19	22	146	72	-	2	10
Del.	4	2	-	-	-	-	-	9	-	-	-
Md.	26	20	-	4	9	1	53	30	-	-	-
D.C.	1	4	-	-	-	-	2	-	-	-	-
Va.	19	17	-	2	3	-	17	3	-	1	-
W. Va.	4	6	-	-	-	-	3	2	-	-	-
N.C.	39	27	-	6	-	-	28	9	-	-	-
S.C.	34	25	U	1	3	U	6	1	U	1	-
Ga.	41	61	-	2	1	-	2	2	-	-	-
Fla.	64	10	1	11	3	21	35	16	-	-	10
E.S. CENTRAL	100	101	-	12	9	2	31	34	-	-	-
Ky.	21	13	-	-	-	-	2	25	-	-	-
Tenn.	38	29	-	4	1	-	13	6	-	-	-
Ala.	26	31	-	4	3	1	8	1	-	-	-
Miss.	15	28	-	4	5	1	8	2	-	-	N
W.S. CENTRAL	116	133	2	22	16	1	21	28	1	1	6
Ark.	23	17	-	-	-	-	3	2	-	-	-
La.	22	25	1	6	7	-	7	2	-	-	-
Okla.	13	9	-	-	-	-	1	1	-	-	-
Tex.	58	82	1	16	9	1	10	23	1	1	6
MOUNTAIN	77	75	-	8	11	72	336	112	-	-	3
Mont.	4	1	-	-	-	-	2	4	-	-	-
Idaho	5	11	-	2	-	69	233	33	-	-	2
Wyo.	-	-	-	-	-	-	3	-	-	-	-
Colo.	22	12	-	2	-	3	75	21	-	-	-
N. Mex.	13	14	N	N	N	-	12	25	-	-	-
Ariz.	16	22	-	-	1	-	9	5	-	-	1
Utah	11	8	-	2	1	-	1	3	-	-	-
Nev.	6	7	-	2	9	-	1	21	-	-	-
PACIFIC	298	286	5	56	60	6	201	157	-	5	29
Wash.	33	35	1	4	6	6	104	64	-	-	1
Oreg.	64	53	-	-	-	-	7	21	-	-	-
Calif.	200	192	4	42	43	-	85	64	-	1	26
Alaska	-	4	-	1	2	-	1	-	-	-	-
Hawaii	1	2	-	9	9	-	4	8	-	4	2
Guam	-	1	U	-	3	U	-	-	U	-	-
P.R.	6	2	-	4	1	-	-	-	-	-	-
V.I.	-	-	U	-	-	U	-	-	U	-	-
Amer. Samoa	-	-	U	-	-	U	-	-	U	-	-
C.N.M.I.	-	-	U	-	-	U	-	-	U	-	-

N: Not notifiable U: Unavailable -: no reported cases

TABLE IV. Deaths in 122 U.S. cities,* week ending April 19, 1997 (16th Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	>65	45-64	25-44	1-24	<1	
NEW ENGLAND	615	434	117	46	11	7	44
Boston, Mass.	151	105	21	19	4	2	13
Bridgeport, Conn.	44	28	10	6	-	-	2
Cambridge, Mass.	19	13	4	2	-	-	-
Fall River, Mass.	33	28	3	1	1	-	-
Hartford, Conn.	53	29	16	5	2	1	1
Lowell, Mass.	26	21	3	2	-	-	3
Lynn, Mass.	12	10	1	1	-	-	1
New Bedford, Mass.	25	17	8	-	-	-	1
New Haven, Conn.	42	32	6	1	1	2	1
Providence, R.I.	66	48	12	2	2	2	2
Somerville, Mass.	2	2	-	-	-	-	-
Springfield, Mass.	46	26	15	5	-	-	6
Waterbury, Conn.	34	26	6	1	1	-	4
Worcester, Mass.	62	49	12	1	-	-	10
MID. ATLANTIC	2,410	1,695	425	199	47	44	122
Albany, N.Y.	46	35	8	2	1	-	7
Allentown, Pa.	34	27	6	1	-	-	1
Buffalo, N.Y.	72	48	17	5	1	1	4
Camden, N.J.	57	40	9	6	1	1	1
Elizabeth, N.J.	22	11	4	4	1	2	-
Erie, Pa.	37	30	5	-	-	2	2
Jersey City, N.J.	41	27	6	6	-	2	-
New York City, N.Y.	1,212	820	230	120	23	19	43
Newark, N.J.	50	27	11	8	3	1	2
Paterson, N.J.	16	9	4	2	1	-	-
Philadelphia, Pa.	399	281	72	28	10	8	29
Pittsburgh, Pa.§	81	62	11	6	1	1	6
Reading, Pa.	12	6	4	1	-	1	-
Rochester, N.Y.	116	95	14	3	-	4	9
Schenectady, N.Y.	35	29	4	1	1	-	-
Scranton, Pa.	39	32	5	2	-	-	2
Syracuse, N.Y.	78	64	10	2	1	1	9
Trenton, N.J.	22	17	1	1	2	1	1
Utica, N.Y.	16	12	3	1	-	-	2
Yonkers, N.Y.	25	23	1	-	1	-	4
E.N. CENTRAL	2,235	1,538	453	159	45	38	175
Akron, Ohio	60	52	3	1	3	1	-
Canton, Ohio	44	28	11	3	-	2	6
Chicago, Ill.	439	275	106	37	14	7	44
Cincinnati, Ohio	70	49	15	5	-	1	8
Cleveland, Ohio	152	107	29	14	1	1	1
Columbus, Ohio	173	125	29	13	3	3	25
Dayton, Ohio	159	116	31	5	4	3	17
Detroit, Mich.	245	135	69	25	7	7	8
Evansville, Ind.	53	40	9	3	1	-	2
Fort Wayne, Ind.	69	54	11	2	-	2	3
Gary, Ind.	U	U	U	U	U	U	U
Grand Rapids, Mich.	44	35	6	1	-	2	2
Indianapolis, Ind.	227	151	50	19	3	4	18
Lansing, Mich.	43	31	3	4	3	2	2
Milwaukee, Wis.	134	88	33	11	1	1	12
Peoria, Ill.	39	30	7	2	-	-	5
Rockford, Ill.	45	34	6	3	1	1	4
South Bend, Ind.	50	43	7	-	-	-	7
Toledo, Ohio	118	90	18	6	4	-	10
Youngstown, Ohio	71	55	10	5	-	1	1
W.N. CENTRAL	707	509	103	45	20	16	48
Des Moines, Iowa	37	27	5	4	-	1	5
Duluth, Minn.	32	29	2	1	-	-	7
Kansas City, Kans.	22	13	4	4	1	-	-
Kansas City, Mo.	101	57	18	6	4	2	3
Lincoln, Nebr.	39	29	7	3	-	-	2
Minneapolis, Minn.	139	107	20	7	3	2	10
Omaha, Nebr.	90	65	13	7	3	2	7
St. Louis, Mo.	140	101	22	6	6	5	8
St. Paul, Minn.	50	38	8	2	1	1	2
Wichita, Kans.	57	43	4	5	2	3	4
S. ATLANTIC	1,175	756	259	107	30	22	60
Atlanta, Ga.	217	133	48	29	4	3	11
Baltimore, Md.	153	102	26	18	3	3	12
Charlotte, N.C.	48	31	11	4	-	2	4
Jacksonville, Fla.	139	94	31	6	6	2	2
Miami, Fla.	105	66	15	15	6	3	2
Norfolk, Va.	58	39	12	5	2	-	4
Richmond, Va.	U	U	U	U	U	U	U
Savannah, Ga.	44	30	11	1	1	1	3
St. Petersburg, Fla.	49	37	6	4	1	1	2
Tampa, Fla.	207	144	45	12	4	2	12
Washington, D.C.	137	72	44	13	3	5	8
Wilmington, Del.	18	8	10	-	-	-	-
E.S. CENTRAL	808	552	161	59	20	16	53
Birmingham, Ala.	U	U	U	U	U	U	U
Chattanooga, Tenn.	66	42	13	7	2	2	3
Knoxville, Tenn.	104	79	19	4	1	1	4
Lexington, Ky.	80	55	14	6	3	2	6
Memphis, Tenn.	291	199	60	23	7	2	21
Mobile, Ala.	69	47	16	4	-	2	1
Montgomery, Ala.	29	21	8	-	-	-	2
Nashville, Tenn.	169	109	31	15	7	7	16
W.S. CENTRAL	1,507	1,002	305	118	52	30	97
Austin, Tex.	84	57	16	7	3	1	8
Baton Rouge, La.	47	32	9	3	1	2	1
Corpus Christi, Tex.	47	35	7	3	2	-	3
Dallas, Tex.	176	113	37	17	4	5	5
El Paso, Tex.	111	83	19	5	3	1	16
Ft. Worth, Tex.	108	71	21	10	5	1	9
Houston, Tex.	355	228	83	27	14	3	22
Little Rock, Ark.	96	62	20	4	4	6	6
New Orleans, La.	101	58	20	13	6	4	-
San Antonio, Tex.	220	145	48	16	6	5	15
Shreveport, La.	57	49	6	2	-	-	3
Tulsa, Okla.	105	69	19	11	4	2	9
MOUNTAIN	811	570	147	65	15	13	65
Albuquerque, N.M.	85	61	16	6	2	-	3
Boise, Idaho	48	36	7	5	-	-	4
Colo. Springs, Colo.	53	43	8	1	-	1	3
Denver, Colo.	75	46	15	10	3	1	8
Las Vegas, Nev.	139	95	32	11	1	-	11
Ogden, Utah	15	12	1	1	1	-	1
Phoenix, Ariz.	146	95	21	18	4	7	15
Pueblo, Colo.	18	14	4	-	-	-	3
Salt Lake City, Utah	89	55	22	5	3	4	7
Tucson, Ariz.	143	113	21	8	1	-	10
PACIFIC	1,324	950	208	110	27	29	147
Berkeley, Calif.	21	17	4	-	-	-	2
Fresno, Calif.	63	41	12	7	3	-	4
Glendale, Calif.	U	U	U	U	U	U	U
Honolulu, Hawaii	67	51	11	5	-	-	6
Long Beach, Calif.	71	55	10	4	2	-	7
Los Angeles, Calif.	U	U	U	U	U	U	U
Pasadena, Calif.	16	11	4	1	-	-	2
Portland, Oreg.	121	93	17	8	2	1	11
Sacramento, Calif.	227	160	45	15	3	4	39
San Diego, Calif.	155	110	24	13	3	5	20
San Francisco, Calif.	151	103	25	16	2	5	18
San Jose, Calif.	209	151	26	19	5	8	27
Santa Cruz, Calif.	25	15	7	3	-	-	4
Seattle, Wash.	145	108	12	15	6	4	4
Spokane, Wash.	53	35	11	4	1	2	3
Tacoma, Wash.	U	U	U	U	U	U	U
TOTAL	11,592¶	8,006	2,178	908	267	215	811

U: Unavailable -: no reported cases

*Mortality data in this table are voluntarily reported from 122 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 this Pennsylvania city, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

¶Total includes unknown ages.

Adult Blood Lead Epidemiology and Surveillance — Continued

departments and medical practitioners in areas where there are substantial numbers of structures built before 1978 should be alert to these risks.

The findings in this report document the continuing hazard of lead exposures as an occupational health problem in the United States. ABLES enhances surveillance for this preventable condition by expanding the number of participating states, reducing variability in reporting, distinguishing between new and recurring elevated BLLs in adults and, as in the cases reported from New York, by facilitating the identification of possible new exposures.

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