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Current Trends

Health Risk Behaviors Among Adolescents Who Do and Do Not Attend School — United States, 1992

High proportions of U.S. high school students engage in behaviors that place them at increased risk for the leading causes of death and morbidity (e.g., motor-vehicle crashes and other unintentional injuries, homicide, suicide, heart disease, and cancer [*1*]), unintended pregnancy, and infection with human immunodeficiency virus (HIV) and other sexually transmitted diseases (*2*). Because efforts to measure health-risk behaviors among adolescents throughout the United States have not included those who do not attend school, the prevalences of those behaviors are probably underestimated for the total adolescent population. To characterize more accurately the prevalence of selected health-risk behaviors among adolescents aged 12–19 years who do and do not attend school, CDC analyzed self-reported national data from the Youth Risk Behavior Survey (YRBS), conducted as part of the 1992 National Health Interview Survey (NHIS). This report summarizes the results of the analysis.

The 1992 NHIS was conducted among a representative sample of the civilian noninstitutionalized U.S. population using a multistage cluster-area probability design of approximately 120,000 persons representing approximately 49,000 households. The YRBS was conducted as a followback survey to the NHIS among a representative sample of adolescents in the sampled households. In each household with at least one person aged 12–21 years, the current school enrollment status of each adolescent was determined as either "in-school" (i.e., attending school or on vacation from school at the time of the interview) or "out-of-school" (i.e., not attending school and had not graduated from high school or attained General Educational Development credentials at the time of the interview). Out-of-school adolescents were over-sampled. During April 1992–March 1993, adolescent respondents listened to a tape recording of the questionnaire and recorded their responses on a standardized answer sheet. Questionnaires were completed by 10,645 (77.2%) eligible adolescents. Information was analyzed for the 6969 respondents who were aged 12–19 years and had not completed high school. Among these respondents, 91% were classified as in-school and 9% as out-of-school. Results were standardized by age by using the age distribution of the total population participating in the YRBS. SUDAAN was used to compute all standard errors for the estimates and for differences between the estimates (*3*). All estimates were based on weighted data.

In-school adolescents were significantly more likely than out-of-school adolescents to have reported "always" using safety belts when riding in a car or truck as a passenger (33.2% versus 23.2%) and were significantly less likely to have reported riding during the 30 days preceding the survey with a driver who had been drinking alcohol (18.9% versus 28.4%), having been involved in a physical fight during the 12 months preceding the survey (44.2% versus 51.0%), and having carried a weapon (e.g., gun, knife, or club) during the 30 days preceding the survey (15.5% versus 22.9%) (Table 1). Use of motorcycle helmets did not vary by school enrollment status.

Out-of-school adolescents were significantly more likely than in-school adolescents to have reported smoking cigarettes during the 30 days preceding the survey (33.7% versus 20.4%) and to have reported ever having smoked cigarettes (57.7% versus 50.9%) or used alcohol (62.9% versus 55.2%), marijuana (31.4% versus 15.9%), or cocaine (7.1% versus 2.1%) (Table 1). Use of chewing tobacco or snuff during the 30 days preceding the survey, episodic heavy drinking*, and injecting-drug use did not vary by school enrollment status.

Out-of-school adolescents aged 14–19 years were significantly more likely than in-school adolescents to have reported ever having had sexual intercourse (70.1% versus 45.4%) and to have had four or more sexual partners (36.4% versus 14.0%) (Table 1)[†]. Among adolescents who reported having had sexual intercourse during the 3 months preceding the survey, use of condoms at last sexual intercourse did not vary by school enrollment status.

In-school adolescents were significantly more likely than out-of-school adolescents to have reported eating five or more servings of fruits and vegetables during the day preceding the survey (14.5% versus 10.1%) (Table 1). Eating foods typically high in fat content and participating in moderate physical activity did not vary by school enrollment status.

Reported by: Div of Adolescent and School Health, National Center for Chronic Disease Prevention and Health Promotion; Div of Health Interview Statistics, National Center for Health Statistics, CDC.

Editorial Note: The findings in this report indicate that out-of-school adolescents were more likely to engage in behaviors (e.g., sexual intercourse and cigarette smoking) with potentially severe adverse health outcomes than were adolescents in school. In 1991, 13% of all persons aged 16–24 years in the United States were high school dropouts (*4*). Some health-risk behaviors (e.g., alcohol use and other drug use and sexual intercourse resulting in unintended pregnancy) may have preceded and contributed to the decision of some adolescents to quit school, and these risk behaviors may increase after adolescents quit school (*5*).

Because health education can assist adolescents who remain in school to develop skills to avoid or modify health-risk behaviors, two national goals (National Education Goal 2 [*4*] and year 2000 national health objective 8.2 [*5*]) are to increase the high school graduation rate to at least 90% by the year 2000. In addition, health objective 8.4 is to increase to at least 75% the proportion of elementary and secondary schools

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*Drinking five or more drinks of alcohol on at least one occasion during the 30 days preceding the survey.

†12–13-year-olds were not asked the sexual behavior questions.

Risk Behaviors Among Adolescents — Continued

TABLE 1. Percentage of adolescents aged 12–19 years* who engaged in selected health-risk behaviors, by school enrollment status† — United States, Youth Risk Behavior Survey, National Health Interview Survey, 1992

	School enrollment status		Standard error of the	
Behavior	In-school	Out-of-school	difference	Total
Used safety belts§	33.2	23.2	2.7¶	**32.5**
Used motorcycle helmets**	43.7	45.6	6.7	**43.6**
Rode with a drinking driver††	18.9	28.4	2.8¶	**19.6**
Participated in a physical fight§§	44.2	51.0	3.2¶	**44.6**
Carried a weapon¶¶	15.5	22.9	2.9¶	**15.7**
Lifetime cigarette use***	50.9	57.7	3.2¶	**51.5**
Current cigarette use†††	20.4	33.7	2.9¶	**21.7**
Current smokeless tobacco use§§§	6.8	8.4	1.7	**6.9**
Lifetime alcohol use¶¶¶	55.2	62.9	3.3¶	**55.6**
Current episodic heavy drinking****	17.1	21.8	2.6	**17.5**
Lifetime marijuana use††††	15.9	31.4	2.9¶	**17.2**
Lifetime cocaine use§§§§	2.1	7.1	1.4¶	**2.6**
Ever injected drugs¶¶¶¶	0.8	3.9	1.6	**1.0**
Ever had sexual intercourse (14–19-year-olds)	45.4	70.1	4.1¶	**47.5**
Sexual intercourse with four or more sex partners (14–19-year-olds)	14.0	36.4	4.6¶	**15.9**
Condom used during most recent sexual intercourse (14–19-year-olds)*****	59.8	50.2	6.1	**58.3**
Ate fruits and vegetables†††††	14.5	10.1	2.0¶	**14.1**
Ate foods typically high in fat content§§§§§	65.7	70.0	3.3	**66.2**
Engaged in moderate physical activity¶¶¶¶¶	29.2	31.1	3.5	**29.0**

* Standardized by age by using the age distribution of the total population participating in the Youth Risk Behavior Survey.

† In-school=adolescents who were going to school or were on vacation from school at the time of the interview. Out-of-school=adolescents who were not presently attending school and had not graduated from high school or attained General Educational Development credentials at the time of the interview.

§ Safety belts used “always” when riding in a car or truck as a passenger.

¶ $p<0.05$

** Helmets used “always” among respondents who rode motorcycles.

†† Rode at least once during the 30 days preceding the survey in a car or other vehicle driven by someone who had been drinking alcohol.

§§ Fought at least once during the 12 months preceding the survey.

¶¶ Carried a gun, knife, or club at least 1 day during the 30 days preceding the survey.

*** Ever tried cigarette smoking, even one or two puffs.

††† Smoked cigarettes on one or more of the 30 days preceding the survey.

§§§ Used chewing tobacco or snuff on one or more of the 30 days preceding the survey.

¶¶¶ Ever drank alcohol.

**** Drank five or more drinks of alcohol on at least one occasion during the 30 days preceding the survey.

†††† Ever used marijuana.

§§§§ Ever used cocaine.

¶¶¶¶ Respondents were classified as injecting-drug users only if they 1) reported injecting-drug use not prescribed by a physician and 2) answered one or more to any of these questions: “During your life, how many times have you used any form of cocaine including powder, crack, or freebase?”; “During your life, how many times have you used any other type of illegal drug such as LSD, PCP, ecstacy, mushrooms, speed, ice, heroin, or pills without a doctor’s prescription?”; or “During your life, how many times have you taken steroid pills or shots without a doctor’s prescription?”

***** Among respondents who had had sexual intercourse during the 3 months preceding the survey.

††††† Ate five or more servings of fruits and vegetables (e.g., fruit, fruit juice, green salad, and cooked vegetables) the day preceding the survey.

§§§§§ Ate no more than two servings of foods typically high in fat content (hamburger, hot dogs, or sausage; french fries or potato chips; and cookies, doughnuts, pie, or cake) the day preceding the survey.

¶¶¶¶¶ Walked or rode a bicycle at least 30 minutes at a time during 5 or more of the 7 days preceding the survey.

Risk Behaviors Among Adolescents — Continued

that provide planned and sequential school health education from kindergarten through 12th grade (*5*).

The findings in this report are being used by public health and education officials to highlight the special needs of out-of-school adolescents and to develop innovative approaches to provide accessible prevention services to adolescents who are not in school. Such approaches may include partnerships among or between schools, health departments, voluntary health organizations, community organizations, religious organizations, families, and adolescents. In 1991, CDC expanded efforts to intensify public health and education programs among out-of-school adolescents and others in high-risk situations (e.g., runaways, homeless adolescents, juvenile offenders, and migrant youth). This initiative is assisting local health departments in Chicago, the District of Columbia, Los Angeles, and New York City to strengthen their capacity to prevent HIV infection and other health problems and to establish or strengthen existing coalitions of community-based organizations that serve youth. By providing training, improving agency referral systems, and sharing resources, these coalitions will help participating agencies increase their capacity to reach youth so that all adolescents will have better access to an integrated service-delivery system that may better meet their needs.

References:
1. Kann L, Warren W, Collins JL, Ross J, Collins B, Kolbe LJ. Results from the national school-based 1991 Youth Risk Behavior Survey and progress toward achieving related health objectives for the nation. Public Health Rep 1993;108(suppl):47–55.
2. Morris L, Warren CW, Aral SO. Measuring adolescent sexual behaviors and related health outcomes. Public Health Rep 1993;108(suppl):31–6.
3. Shah BV, Barnwell BG, Hunt PN, LaVange LM. SUDAAN user's manual, release 5.50. Research Triangle Park, North Carolina: Research Triangle Institute, 1991.
4. National Education Goals Panel. The national education goals report. Washington, DC: National Education Goals Panel, 1991.
5. Public Health Service. Healthy people 2000: national health promotion and disease prevention objectives—full report, with commentary. Washington, DC: US Department of Health and Human Services, Public Health Service, 1991; DHHS publication no. (PHS)91-50212.

Current Trends

Physical Violence During the 12 Months Preceding Childbirth — Alaska, Maine, Oklahoma, and West Virginia, 1990–1991

In addition to clearly defined health risks that develop during pregnancy (e.g., toxemia and diabetes), pregnant women are at risk for physical violence inflicted by intimate partners (*1*). Although estimates in public and private health-care settings indicate that 4%–17% of women experience violence during pregnancy (*2–5*), population-based prevalence estimates of this problem have not been available. This report uses 1990 and 1991 data from the Pregnancy Risk Assessment Monitoring System (PRAMS) in Alaska, Maine, Oklahoma, and West Virginia to assess the prevalence of physical violence against women during the 12 months preceding childbirth* and its relation to maternal characteristics.

*The 3 months before and 9 months during pregnancy.

Violence Preceding Childbirth — Continued

PRAMS is a population-based surveillance system used in 13 states[†] and the District of Columbia to supplement data from birth certificates with self-reported behavioral information obtained from mothers (*6*). A stratified systematic sample of 100–200 new mothers in each state is selected monthly from birth certificates. Sampled women are mailed a 14-page questionnaire 3–6 months after delivery. This report includes an analysis of responses from women in the four states[§] that have both data available for 1990 and 1991 and questionnaire response rates of at least 70% (range: 71%–84%). Data were weighted to account for survey design and nonresponse. Standard errors (SEs) were estimated using SUDAAN (*7*). Weighted percentages and SEs represent accurate state-based population estimates.

Respondents were asked if their "husband or partner physically hurt [them]" during the 12 months preceding childbirth. In addition, the PRAMS questionnaire elicited information about household crowding[¶]; participation in the Special Supplemental Food Program for Women, Infants, and Children (WIC) during pregnancy; initiation of prenatal care; and planning status (i.e., intended or unintended**) of the pregnancy. Data on maternal education, race, age, and marital status were obtained from birth certificates.

In each state, most respondents had completed at least 12 years of education, were white, were aged ≥25 years, were married, were not living in crowded conditions, had not participated in WIC during pregnancy, had initiated prenatal care during the first trimester, and had had an intended pregnancy (Table 1). The percentage of women who reported having been physically hurt by their husband or partner during the 12 months preceding childbirth varied among the four states, from 3.8% in Maine to 6.9% in Oklahoma (Table 2). In general, in each state, rates of physical violence were higher for women who had completed fewer than 12 years of education, were of races other than white, were aged ≤19 years, were unmarried, were living in crowded conditions, had participated in WIC during pregnancy, had had delayed or no prenatal care, and had had an unintended pregnancy.

Reported by: M VandeCastle, Alaska Dept of Health and Social Svcs. J Danna, MPH, Maine Dept of Human Svcs. E DeCoster, Oklahoma State Dept of Health. T Thomas, MPA, West Virginia Dept of Health and Human Resources. Div of Reproductive Health, National Center for Chronic Disease Prevention and Health Promotion; Div of Violence Prevention, National Center for Injury Prevention and Control, CDC.

Editorial Note: Each year, approximately 1.8 million (3.4%) women in the United States are physically assaulted by their partners (*8*). Similar proportions were indicated in the findings in this report for new mothers who had experienced violence during the 12 months preceding childbirth in Alaska, Maine, Oklahoma, and West Virginia. Although this analysis indicates that certain subgroups are at increased risk for physical violence during pregnancy, health-care providers should be aware of this risk among all pregnant women. In addition, efforts are needed to determine how health-care providers can more effectively identify women at risk for physical violence

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[†]Alabama, Alaska, California, Florida, Georgia, Indiana, Maine, Michigan, New York, Oklahoma, South Carolina, Washington, and West Virginia.

[§]For Alaska, the sample size was 2975; for Maine, 2500; for Oklahoma, 3505; and for West Virginia, 3632.

[¶]Determined by dividing the total number of persons living in the household by the total number of rooms in the house. Women were classified as living in crowded conditions if the calculation was more than one person per room.

**A pregnancy that, at the time of conception, the woman never wanted or did not want until later in life.

Violence Preceding Childbirth — Continued

TABLE 1. Characteristics of new mothers, by state — Alaska, Maine, Oklahoma, and West Virginia, Pregnancy Risk Assessment Monitoring System, 1990–1991*

Characteristic	Alaska (n=2975) %	Alaska (SE†)	Maine (n=2500) %	Maine (SE)	Oklahoma (n=3505) %	Oklahoma (SE)	West Virginia (n=3632) %	West Virginia (SE)
Education (yrs)								
<12	14.6	(±0.7)	14.4	(±0.9)	23.8	(±1.3)	27.4	(±1.0)
12	44.0	(±1.1)	42.8	(±1.2)	38.5	(±1.4)	45.2	(±1.2)
>12	41.4	(±1.1)	42.8	(±1.2)	37.7	(±1.4)	27.4	(±1.0)
Race								
White	68.5	(±0.7)	98.2	(±0.3)	80.1	(±1.2)	96.3	(±0.4)
Black	3.4	(±0.4)	0.6	(±0.2)	10.1	(±1.0)	3.4	(±0.4)
Other§	28.1	(±0.5)	1.2	(±0.3)	9.8	(±0.8)	0.3	(±0.1)
Age group (yrs)								
≤19	11.0	(±0.7)	10.8	(±0.8)	14.4	(±1.1)	18.3	(±0.9)
20–24	26.0	(±0.9)	27.8	(±1.1)	28.8	(±1.3)	33.1	(±1.1)
≥25	63.0	(±1.0)	61.4	(±1.2)	56.8	(±1.5)	48.6	(±1.1)
Marital status								
Married	72.4	(±0.9)	75.7	(±1.1)	74.7	(±1.3)	73.1	(±1.0)
Unmarried	27.6	(±0.9)	24.3	(±1.1)	25.3	(±1.3)	26.9	(±1.0)
Household crowding¶								
Yes	19.2	(±0.7)	8.8	(±0.7)	15.8	(±1.1)	11.5	(±0.7)
No	80.8	(±0.7)	91.2	(±0.7)	84.2	(±1.1)	88.5	(±0.7)
Participation in WIC during pregnancy**								
Yes	28.4	(±0.9)	28.9	(±1.1)	40.7	(±1.4)	48.7	(±1.1)
No	71.6	(±0.9)	71.1	(±1.1)	59.3	(±1.4)	51.3	(±1.1)
Initiation of prenatal care								
First trimester	65.2	(±0.9)	71.5	(±1.1)	65.2	(±1.4)	63.2	(±1.0)
Delayed/None††	34.8	(±0.9)	28.5	(±1.1)	34.8	(±1.4)	36.8	(±1.0)
Planning status of pregnancy								
Intended	57.4	(±1.1)	63.1	(±1.2)	53.7	(±1.5)	60.3	(±1.2)
Unintended§§	42.6	(±1.1)	36.9	(±1.2)	46.3	(±1.5)	39.7	(±1.2)

*Percentages are weighted to account for survey design and nonresponse and reflect state-based population estimates. The weighted sample size for Alaska was 19,012; for Maine, 31,123; for Oklahoma, 88,215; and for West Virginia, 40,560.

†Standard error.

§In Alaska, 93% of mothers categorized as "other" were Alaskan Native; in Oklahoma, 86% of mothers categorized as "other" were American Indian.

¶Determined by dividing the total number of persons living in the household by the total number of rooms in the house. Women were classified as living in crowded conditions if the calculation was more than one person per room.

**Special Supplemental Food Program for Women, Infants, and Children.

††Comprises women who initiated prenatal care during the second or third trimester or who did not receive any prenatal care.

§§A pregnancy that, at the time of conception, the woman never wanted or did not want until later in life.

Violence Preceding Childbirth — Continued

TABLE 2. Percentage* of women who reported having been physically hurt by their husband or partner during the 12 months preceding childbirth†, by state and selected characteristics of the mother — Alaska, Maine, Oklahoma, and West Virginia, Pregnancy Risk Assessment Monitoring System, 1990–1991

	Alaska (n=2975)		Maine (n=2500)		Oklahoma (n=3505)		West Virginia (n=3632)	
Characteristic	**%**	**(SE§)**	**%**	**(SE)**	**%**	**(SE)**	**%**	**(SE)**
Education (yrs)								
<12	11.1	(±1.7)	6.5	(±1.7)	12.9	(±2.3)	7.5	(±1.2)
12	7.8	(±0.8)	4.2	(±0.7)	6.0	(±1.1)	5.4	(±0.8)
>12	2.4	(±0.5)	2.3	(±0.5)	4.3	(±1.0)	2.3	(±0.6)
Race								
White	4.6	(±0.6)	3.7	(±0.5)	5.7	(±0.8)	5.1	(±0.5)
Black	¶	—	¶	—	9.0	(±3.1)	6.8	(±2.8)
Other**	9.7	(±0.7)	¶	—	14.6	(±3.6)	¶	—
Age group (yrs)								
≤19	10.2	(±1.9)	7.5	(±2.0)	10.7	(±2.6)	7.6	(±1.5)
20–24	8.2	(±1.1)	5.8	(±1.1)	9.2	(±1.8)	7.6	(±1.1)
≥25	4.5	(±0.5)	2.2	(±0.5)	3.6	(±0.7)	2.4	(±0.5)
Marital status								
Married	3.8	(±0.5)	2.3	(±0.4)	4.3	(±0.7)	2.8	(±0.4)
Unmarried	12.0	(±1.2)	8.3	(±1.4)	14.7	(±2.2)	11.3	(±1.4)
Household crowding††								
Yes	7.4	(±0.9)	6.4	(±2.1)	10.6	(±2.5)	6.4	(±1.6)
No	5.8	(±0.6)	3.6	(±0.5)	6.2	(±0.8)	4.8	(±0.5)
Participation in WIC§§ during pregnancy								
Yes	9.7	(±1.0)	6.9	(±1.2)	11.1	(±1.5)	8.0	(±0.9)
No	4.7	(±0.5)	2.5	(±0.5)	3.8	(±0.7)	2.3	(±0.5)
Initiation of prenatal care								
First trimester	4.9	(±0.6)	3.5	(±0.5)	5.7	(±0.9)	4.1	(±0.6)
Delayed/None¶¶	8.3	(±0.9)	4.3	(±0.9)	9.1	(±1.5)	6.6	(±0.9)
Planning status of pregnancy								
Intended	4.0	(±0.5)	2.5	(±0.5)	3.3	(±0.7)	3.5	(±0.6)
Unintended***	9.3	(±1.0)	5.6	(±1.0)	10.7	(±1.4)	7.6	(±1.0)
Total	**6.1**	**(±0.5)**	**3.8**	**(±0.5)**	**6.9**	**(±0.8)**	**5.1**	**(±0.5)**

*Percentages are weighted to account for survey design and nonresponse and reflect state-based population estimates. The weighted sample size for Alaska was 19,012; for Maine, 31,123; for Oklahoma, 88,215; and for West Virginia, 40,560.

†The 3 months before and 9 months during pregnancy.

§Standard error.

¶Sample size was too small for meaningful analysis.

**In Alaska, 93% of mothers categorized as "other" were Alaskan Native; in Oklahoma, 86% of mothers characterized as "other" were American Indian.

††Determined by dividing the total number of persons living in the household by the total number of rooms in the house. Women were classified as living in crowded conditions if the calculation was more than one person per room.

§§Special Supplemental Food Program for Women, Infants, and Children.

¶¶Comprises women who initiated prenatal care during the second or third trimester or who did not receive any prenatal care.

***A pregnancy that, at the time of conception, the woman never wanted or did not want until later in life.

Violence Preceding Childbirth — Continued

and to evaluate intervention programs and examine further the patterns of violence during pregnancy.

Although this analysis provides state-based population estimates, the findings are subject to at least five limitations. First, because respondents were asked to report violent incidents that occurred during the 12 months preceding childbirth, the precise timing of the incidents could not be determined; for example, it could not be determined whether reported violence began during pregnancy in what were previously nonviolent relationships. Second, respondents may have had different interpretations of what constituted being physically hurt. Third, many factors that may be associated with violence during pregnancy were either not available (e.g., characteristics of the perpetrator of the violence) or not readily ascertainable from this analysis. For example, women of races other than white were at increased risk for physical violence during the 12 months preceding childbirth; however, race is most likely a proxy for other risk factors (e.g., poverty) that increase the risk for violence during pregnancy among these women. Fourth, PRAMS does not include women who had spontaneous or induced abortions or fetal deaths; the effect of including these women on the estimated frequency of violence during pregnancy is unknown. Finally, violence during the 12 months preceding childbirth may have been underreported by some women because of the social stigma associated with violence.

Because some women receive health care only during pregnancy, interviews and physical examinations conducted during routine prenatal-care visits may assist in identifying some women who are experiencing violence (*5*). In addition, because other women who are experiencing violence may seek care at emergency departments, these facilities should establish strategies for identifying these women. The Joint Commission on Accreditation of Healthcare Organizations recommends that accredited emergency departments establish policies, procedures, and education programs to guide staff in the treatment of battered adults (*9*). Furthermore, all health-care providers should establish relations with organizations that can provide battered women with referral services such as emergency housing, court accompaniment, legal aid, health care, and support groups (*10*).

References

1. Newberger EH, Barken SE, Lieberman ES, et al. Abuse of pregnant women and adverse birth outcome: current knowledge and implications for practice. JAMA 1992;267:2370–2.
2. Hillard PJ. Physical abuse in pregnancy. Obstet Gynecol 1985;66:185–90.
3. Stewart DE, Cecutti A. Physical abuse in pregnancy. Can Med Assoc J 1993;149:1257–63.
4. Helton AS, McFarlane J, Anderson ET. Battered and pregnant: a prevalence study. Am J Public Health 1987;77:1337–9.
5. McFarlane J, Parker B, Soeken K, Bullock L. Assessing for abuse during pregnancy: severity and frequency of injuries and associated entry into prenatal care. JAMA 1992;267:3176–8.
6. Adams MM, Shulman HB, Bruce C, Hogue C, Brogan D, The PRAMS Working Group. The Pregnancy Risk Assessment Monitoring System: design, questionnaire, data collection and response rates. Paediatr Perinat Epidemiol 1991;5:333–46.
7. Shah BV, Barnwell BG, Hunt PN, LaVange LM. SUDAAN user's manual, release 5.50. Research Triangle Park, North Carolina: Research Triangle Institute, 1991.
8. Straus MA, Gelles RJ. How violent are American families? In: Straus MA, Gelles RJ, eds. Physical violence in American families: risk factors and adaptations to violence in 8,145 families. New Brunswick, New Jersey: Transaction Publishers, 1990:95–112.
9. Joint Commission on Accreditation of Healthcare Organizations. Accreditation manual for hospitals. Vol 1—standards. Oakbrook Terrace, Illinois: Joint Commission on Accreditation of Healthcare Organizations, 1992:21–2.

Violence Preceding Childbirth — Continued

10. Morey MA, Beleiter ML, Harris DJ. Profile of a battered fetus. Lancet 1981;2:1294–5.

Epidemiologic Notes and Reports

Clostridium perfringens Gastroenteritis Associated with Corned Beef Served at St. Patrick's Day Meals — Ohio and Virginia, 1993

Clostridium perfringens is a common infectious cause of outbreaks of foodborne illness in the United States, especially outbreaks in which cooked beef is the implicated source (*1,2*). This report describes two outbreaks of *C. perfringens* gastroenteritis following St. Patrick's Day meals in Ohio and Virginia during 1993.

Ohio

On March 18, 1993, the Cleveland City Health Department (CCHD) received telephone calls from 15 persons who became ill after eating corned beef purchased from one delicatessen. After a local newspaper article publicized this problem, 156 persons contacted CCHD to report onset of diarrheal illness within 48 hours of eating food from the delicatessen on March 16 or March 17. Symptoms included abdominal cramps (88%) and vomiting (13%); no persons were hospitalized. The median incubation period was 12 hours (range: 2–48 hours). Of the 156 persons reporting illness, 144 (92%) reported having eaten corned beef; 20 (13%), pickles; 12 (8%), potato salad; and 11 (7%), roast beef.

In anticipation of a large demand for corned beef on St. Patrick's Day (March 17), the delicatessen had purchased 1400 pounds of raw, salt-cured product. Beginning March 12, portions of the corned beef were boiled for 3 hours at the delicatessen, allowed to cool at room temperature, and refrigerated. On March 16 and 17, the portions were removed from the refrigerator, held in a warmer at 120 F (48.8 C), and sliced and served. Corned beef sandwiches also were made for catering to several groups on March 17; these sandwiches were held at room temperature from 11 a.m. until they were eaten throughout the afternoon.

Cultures of two of three samples of leftover corned beef obtained from the delicatessen yielded $\geq 10^5$ colonies of *C. perfringens* per gram.

Following the outbreak, CCHD recommended to the delicatessen that meat not served immediately after cooking be divided into small pieces, placed in shallow pans, and chilled rapidly on ice before refrigerating and that cooked meat be reheated immediately before serving to an internal temperature of ≥165 F (≥74 C).

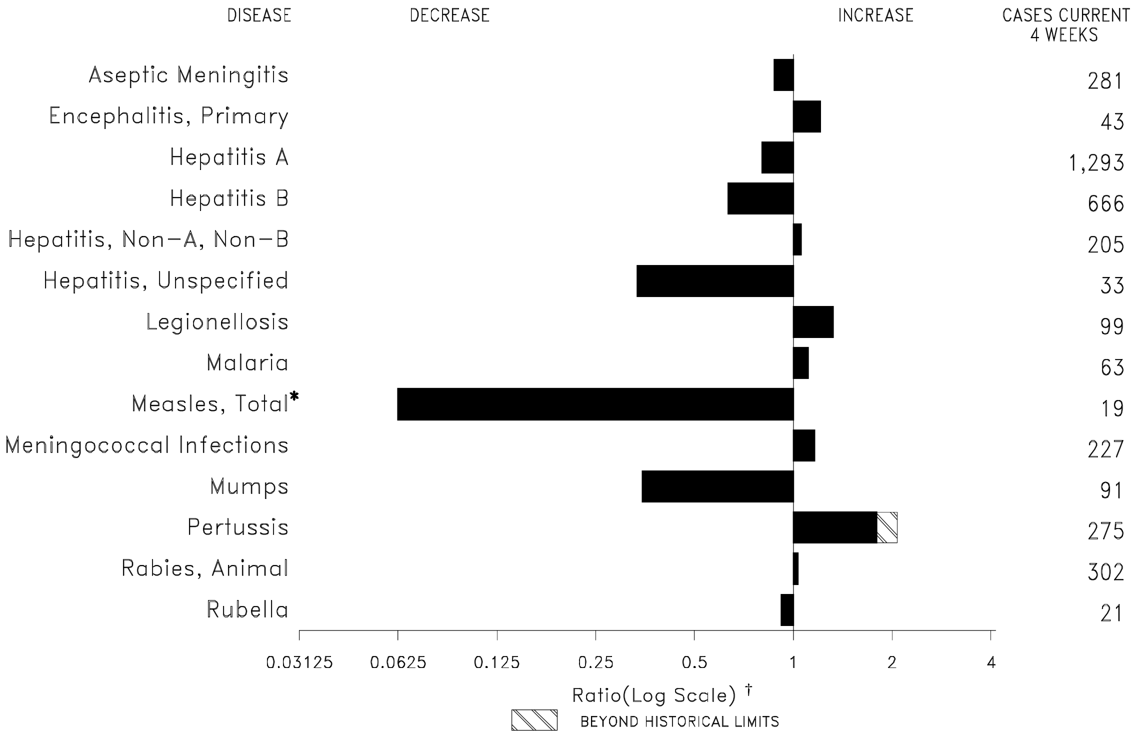
Virginia

On March 28, 1993, 115 persons attended a traditional St. Patrick's Day dinner of corned beef and cabbage, potatoes, vegetables, and ice cream. Following the dinner, 86 (76%) of 113 persons interviewed reported onset of illness characterized by diarrhea (98%), abdominal cramps (71%), and vomiting (5%). The median incubation period was 9.5 hours (range: 2–18.5 hours). Duration of illness ranged from 1 hour to 4.5 days; one person was hospitalized.

Corned beef was the only food item associated with illness; cases occurred in 85 (78%) of 109 persons who ate corned beef compared with one of four who did not

(Continued on page 143)

FIGURE I. Notifiable disease reports, comparison of 4-week totals ending February 26, 1994, with historical data — United States



*The large apparent decrease in 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 February 26, 1994 (8th Week)

	Cum. 1994		Cum. 1994
AIDS*	10,369	Measles: imported	4
Anthrax	-	indigenous	22
Botulism: Foodborne	6	Plague	-
Infant	12	Poliomyelitis, Paralytic§	-
Other	4	Psittacosis	3
Brucellosis	27	Rabies, human	-
Cholera	-	Syphilis, primary & secondary	2,671
Congenital rubella syndrome	2	Syphilis, congenital, age < 1 year	-
Diphtheria	-	Tetanus	3
Encephalitis, post-infectious	14	Toxic shock syndrome	34
Gonorrhea	49,179	Trichinosis	13
Haemophilus influenzae (invasive disease)†	160	Tuberculosis	1,924
Hansen Disease	15	Tularemia	1
Leptospirosis	5	Typhoid fever	35
Lyme Disease	335	Typhus fever, tickborne (RMSF)	13

*Updated monthly; last update February 22, 1994.
†Of 148 cases of known age, 48 (32%) were reported among children less than 5 years of age.
§No cases of suspected poliomyelitis have been reported in 1994; 3 cases of suspected poliomyelitis have been reported in 1993; 4 of the 5 suspected cases with onset in 1992 were confirmed; the confirmed cases were vaccine associated.

TABLE II. Cases of selected notifiable diseases, United States, weeks ending February 26, 1994, and February 25, 1993 (8th Week)

Reporting Area	AIDS*	Aseptic Menin-gitis	Encephalitis		Gonorrhea		Hepatitis (Viral), by type				Legionel-losis	Lyme Disease
			Primary	Post-in-fectious			A	B	NA,NB	Unspeci-fied		
	Cum. 1994	Cum. 1994	Cum. 1994	Cum. 1994	Cum. 1994	Cum. 1993	Cum. 1994	Cum. 1994	Cum. 1994	Cum. 1994	Cum. 1994	Cum. 1994
UNITED STATES	10,369	633	87	14	49,179	60,904	2,538	1,397	560	53	204	335
NEW ENGLAND	483	36	4	-	1,269	1,375	45	48	16	7	12	40
Maine	21	4	1	-	5	12	3	-	-	-	1	-
N.H.	18	-	-	-	-	10	2	2	3	-	-	3
Vt.	6	3	-	-	6	11	-	-	-	-	-	1
Mass.	246	12	2	-	465	503	23	44	7	7	9	29
R.I.	66	17	1	-	69	72	10	2	6	-	2	7
Conn.	126	-	-	-	724	767	7	-	-	-	-	-
MID. ATLANTIC	3,752	47	7	6	3,893	6,639	105	123	67	2	22	192
Upstate N.Y.	167	15	2	1	505	781	41	40	27	-	5	60
N.Y. City	2,881	-	-	-	1,189	2,602	-	-	-	-	-	-
N.J.	451	-	-	-	289	1,092	36	47	31	-	3	42
Pa.	253	32	5	5	1,910	2,164	28	36	9	2	14	90
E.N. CENTRAL	785	125	26	5	10,183	12,182	231	138	40	1	62	5
Ohio	137	39	9	-	4,490	4,156	86	35	1	-	35	5
Ind.	41	36	-	-	1,286	1,254	57	35	1	-	8	-
Ill.	490	11	5	-	1,549	3,591	27	2	-	-	4	-
Mich.	102	39	12	5	2,767	2,158	45	56	38	1	13	-
Wis.	15	-	-	-	91	1,023	16	10	-	-	2	-
W.N. CENTRAL	132	40	3	1	2,623	3,342	109	58	45	1	31	3
Minn.	27	-	1	-	551	440	9	6	1	-	-	1
Iowa	13	17	-	-	146	274	5	3	-	-	13	1
Mo.	36	12	-	-	1,250	1,810	65	44	42	1	11	-
N. Dak.	1	-	1	-	-	11	1	-	-	-	-	-
S. Dak.	3	-	-	-	22	28	4	-	-	-	-	-
Nebr.	12	1	1	1	-	153	17	2	-	-	6	-
Kans.	40	10	-	-	654	626	8	3	2	-	1	1
S. ATLANTIC	2,213	156	12	-	16,248	15,855	183	385	103	8	37	79
Del.	35	1	-	-	241	216	3	9	19	-	1	40
Md.	163	22	3	-	2,976	2,591	28	37	9	2	8	6
D.C.	166	5	-	-	1,355	895	6	10	-	-	-	-
Va.	94	14	5	-	2,245	1,017	18	15	6	2	2	8
W. Va.	4	4	-	-	106	107	2	4	2	-	1	3
N.C.	187	31	4	-	4,204	3,516	16	64	13	-	2	13
S.C.	90	5	-	-	1,855	1,554	6	7	-	-	1	-
Ga.	291	6	-	-	-	2,229	21	167	26	-	13	9
Fla.	1,183	68	-	-	3,266	3,730	83	72	28	4	9	-
E.S. CENTRAL	177	51	8	1	6,640	5,916	67	185	143	-	12	2
Ky.	44	24	3	1	692	716	30	3	2	-	1	1
Tenn.	53	14	5	-	1,688	1,144	17	169	140	-	7	-
Ala.	50	11	-	-	2,626	2,482	10	13	1	-	2	1
Miss.	30	2	-	-	1,634	1,574	10	-	-	-	2	-
W.S. CENTRAL	1,255	27	2	-	3,903	8,178	313	133	33	11	2	-
Ark.	23	3	-	-	1,117	1,489	8	4	1	-	1	-
La.	122	1	-	-	2,389	1,690	9	16	3	-	-	-
Okla.	19	-	-	-	397	406	36	46	28	-	1	-
Tex.	1,091	23	2	-	-	4,593	260	67	1	11	-	-
MOUNTAIN	184	13	2	-	1,141	1,818	506	68	51	4	14	4
Mont.	4	-	-	-	20	13	7	2	-	-	6	-
Idaho	1	-	-	-	11	17	47	9	17	1	-	1
Wyo.	-	-	-	-	20	8	3	3	12	-	-	-
Colo.	62	5	-	-	346	679	20	1	4	2	1	-
N. Mex.	21	1	-	-	155	166	148	34	4	1	1	3
Ariz.	45	5	-	-	267	544	196	9	4	-	1	-
Utah	11	2	-	-	49	47	54	4	6	-	-	-
Nev.	40	-	2	-	273	344	31	6	4	-	5	-
PACIFIC	1,388	138	23	1	3,279	5,599	979	259	62	19	12	10
Wash.	157	-	-	-	477	641	65	13	11	-	2	-
Oreg.	63	-	-	-	200	216	47	11	1	1	-	-
Calif.	1,111	109	22	-	2,442	4,604	822	222	46	17	9	10
Alaska	8	3	1	-	72	80	38	1	-	-	-	-
Hawaii	49	26	-	1	88	58	7	12	4	1	1	-
Guam	-	-	-	-	12	15	-	-	-	-	-	-
P.R.	209	2	-	-	92	73	-	22	6	2	-	-
V.I.	5	-	-	-	4	18	-	1	-	-	-	-
Amer. Samoa	-	-	-	-	4	5	2	-	-	-	-	-
C.N.M.I.	1	-	-	-	13	9	1	-	-	-	-	-

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

*Updated monthly; last update February 22, 1994.

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending February 26, 1994, and February 25, 1993 (8th Week)

Reporting Area	Malaria	Measles (Rubeola)					Menin-gococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported*		Total									
	Cum. 1994	1994	Cum. 1994	1994	Cum. 1994	Cum. 1993	Cum. 1994	1994	Cum. 1994	1994	Cum. 1994	Cum. 1993	1994	Cum. 1994	Cum. 1993
UNITED STATES	119	-	22	-	4	52	495	24	165	67	480	468	16	33	21
NEW ENGLAND	12	-	1	-	-	37	32	2	6	9	30	121	13	23	1
Maine	1	-	-	-	-	-	5	-	3	-	2	3	-	-	1
N.H.	-	-	-	-	-	-	1	-	1	3	8	38	-	-	-
Vt.	-	-	-	-	-	19	1	-	-	-	7	19	-	-	-
Mass.	4	-	1	-	-	10	15	-	-	6	11	58	13	23	-
R.I.	4	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Conn.	3	-	-	-	-	8	10	2	2	-	2	2	-	-	-
MID. ATLANTIC	15	-	1	-	1	3	35	3	17	8	96	87	1	2	5
Upstate N.Y.	7	-	-	-	-	-	12	1	2	3	25	26	1	2	-
N.Y. City	-	-	1	-	-	1	-	-	-	1	8	-	-	-	-
N.J.	6	-	-	-	-	2	9	-	-	-	-	25	-	-	4
Pa.	2	-	-	-	1	-	14	2	15	4	63	36	-	-	1
E.N. CENTRAL	9	-	-	-	-	-	75	-	30	5	87	109	-	1	1
Ohio	2	-	-	-	-	-	21	-	8	2	51	39	-	-	-
Ind.	2	-	-	-	-	-	11	-	2	2	12	6	-	-	-
Ill.	2	-	-	-	-	-	24	-	10	-	8	11	-	1	-
Mich.	3	-	-	-	-	-	9	-	10	1	11	5	-	-	-
Wis.	-	-	-	-	-	-	10	-	-	-	5	48	-	-	1
W.N. CENTRAL	3	-	-	-	-	-	32	-	4	-	10	19	-	-	1
Minn.	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Iowa	1	-	-	-	-	-	3	-	1	-	-	-	-	-	-
Mo.	2	-	-	-	-	-	18	-	3	-	3	10	-	-	1
N. Dak.	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
S. Dak.	-	-	-	-	-	-	3	-	-	-	-	1	-	-	-
Nebr.	-	-	-	-	-	-	1	-	-	-	1	4	-	-	-
Kans.	-	-	-	-	-	-	6	-	-	-	6	3	-	-	-
S. ATLANTIC	31	-	3	-	-	4	96	1	34	6	81	20	2	3	2
Del.	2	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Md.	4	-	-	-	-	1	8	-	4	2	26	7	-	-	-
D.C.	5	-	-	-	-	-	1	-	-	1	1	-	-	-	-
Va.	5	-	1	-	-	1	11	-	4	-	9	1	-	-	-
W. Va.	-	-	-	-	-	-	6	-	2	-	1	1	-	-	-
N.C.	1	-	-	-	-	-	17	-	16	-	26	-	-	-	-
S.C.	1	-	-	-	-	-	4	-	4	-	5	2	-	-	-
Ga.	5	-	-	-	-	-	13	-	1	-	6	7	-	-	-
Fla.	8	-	2	-	-	2	36	1	3	3	7	2	2	3	1
E.S. CENTRAL	4	-	14	-	-	-	45	1	3	2	20	12	-	-	-
Ky.	-	-	-	-	-	-	11	-	-	-	1	6	-	-	-
Tenn.	2	-	14	-	-	-	11	-	-	-	13	1	-	-	-
Ala.	1	-	-	-	-	-	17	-	-	2	6	4	-	-	-
Miss.	1	-	-	-	-	-	6	1	3	-	-	1	-	-	-
W.S. CENTRAL	4	-	-	-	1	1	52	12	35	7	16	7	-	-	1
Ark.	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-
La.	-	-	-	-	-	1	2	-	1	-	1	-	-	-	-
Okla.	-	-	-	-	-	-	7	-	5	7	12	7	-	-	1
Tex.	4	-	-	-	1	-	39	12	29	-	3	-	-	-	-
MOUNTAIN	1	-	1	-	-	2	35	1	6	12	25	26	-	-	4
Mont.	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
Idaho	-	-	1	-	-	-	4	1	2	10	15	3	-	-	1
Wyo.	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-
Colo.	-	-	-	-	-	2	2	-	-	1	2	11	-	-	-
N. Mex.	-	-	-	-	-	-	4	N	N	-	2	9	-	-	-
Ariz.	-	-	-	-	-	-	12	-	-	-	5	2	-	-	-
Utah	1	-	-	-	-	-	8	-	1	1	1	-	-	-	2
Nev.	-	-	-	-	-	-	2	-	3	-	-	-	-	-	1
PACIFIC	40	-	2	-	2	5	93	4	30	18	115	67	-	4	6
Wash.	1	-	-	-	-	-	7	-	1	2	10	2	-	-	-
Oreg.	1	-	-	-	-	-	9	N	N	3	10	-	-	-	1
Calif.	33	-	2	-	2	1	73	4	26	13	90	60	-	4	3
Alaska	-	-	-	-	-	-	1	-	2	-	-	1	-	-	1
Hawaii	5	-	-	-	-	4	3	-	1	-	5	4	-	-	1
Guam	-	U	-	U	-	-	-	U	-	U	-	-	U	-	-
P.R.	-	3	5	-	-	63	2	-	-	-	-	-	-	-	-
V.I.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amer. Samoa	-	U	-	U	-	1	-	U	-	U	-	-	U	-	-
C.N.M.I.	1	1	22	-	-	-	-	-	-	-	-	-	-	-	-

*For measles only, imported cases include both out-of-state and international importations.

N: Not notifiable U: Unavailable † International § Out-of-state

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending February 26, 1994, and February 25, 1993 (8th Week)

Reporting Area	Syphilis (Primary & Secondary)		Toxic-Shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1994	Cum. 1993	Cum. 1994	Cum. 1994	Cum. 1993	Cum. 1994	Cum. 1994	Cum. 1994	Cum. 1994
UNITED STATES	2,671	4,422	34	1,924	2,089	1	35	13	598
NEW ENGLAND	28	78	1	35	21	-	8	-	194
Maine	-	2	-	-	3	-	-	-	-
N.H.	-	6	-	1	-	-	-	-	20
Vt.	-	-	-	-	-	-	-	-	11
Mass.	8	40	1	7	1	-	4	-	90
R.I.	4	2	-	6	-	-	1	-	-
Conn.	16	28	-	21	17	-	3	-	73
MID. ATLANTIC	219	330	6	208	399	-	4	-	74
Upstate N.Y.	12	26	3	10	55	-	2	-	-
N.Y. City	147	249	-	115	246	-	-	-	-
N.J.	17	39	-	54	46	-	2	-	43
Pa.	43	16	3	29	52	-	-	-	31
E.N. CENTRAL	339	708	10	205	261	-	3	2	2
Ohio	145	199	4	36	30	-	-	1	-
Ind.	53	48	1	18	17	-	1	-	-
Ill.	81	251	2	104	175	-	1	-	-
Mich.	55	122	3	39	27	-	1	1	-
Wis.	5	88	-	8	12	-	-	-	2
W.N. CENTRAL	178	282	6	45	35	1	-	-	17
Minn.	8	19	-	11	-	-	-	-	-
Iowa	9	15	5	4	5	-	-	-	10
Mo.	161	220	-	22	21	1	-	-	2
N. Dak.	-	-	-	1	1	-	-	-	-
S. Dak.	-	-	-	4	2	-	-	-	1
Nebr.	-	3	1	-	2	-	-	-	-
Kans.	-	25	-	3	4	-	-	-	4
S. ATLANTIC	876	1,219	1	314	290	-	7	8	230
Del.	2	21	-	-	6	-	-	-	2
Md.	38	65	-	39	52	-	2	-	76
D.C.	32	50	-	18	18	-	1	-	1
Va.	100	87	-	-	-	-	-	-	51
W. Va.	5	1	-	9	8	-	-	-	7
N.C.	309	337	-	14	51	-	-	4	17
S.C.	100	217	-	62	48	-	-	-	18
Ga.	141	217	-	150	107	-	-	4	50
Fla.	149	224	1	22	-	-	4	-	8
E.S. CENTRAL	601	495	1	106	126	-	-	1	26
Ky.	40	49	-	29	42	-	-	-	-
Tenn.	139	107	1	1	-	-	-	-	9
Ala.	108	132	-	54	57	-	-	-	17
Miss.	314	207	-	22	27	-	-	1	-
W.S. CENTRAL	400	1,068	-	148	103	-	1	1	10
Ark.	77	150	-	36	16	-	-	-	3
La.	318	375	-	-	-	-	-	-	-
Okla.	5	63	-	9	4	-	-	1	7
Tex.	-	480	-	103	83	-	1	-	-
MOUNTAIN	29	35	2	81	50	-	3	-	12
Mont.	-	-	-	-	-	-	-	-	-
Idaho	-	-	1	4	-	-	-	-	-
Wyo.	-	1	-	1	-	-	-	-	4
Colo.	15	10	1	1	-	-	2	-	-
N. Mex.	1	7	-	15	-	-	-	-	-
Ariz.	9	16	-	45	36	-	-	-	8
Utah	4	-	-	-	7	-	1	-	-
Nev.	-	1	-	15	7	-	-	-	-
PACIFIC	1	207	7	782	804	-	9	1	33
Wash.	1	10	-	34	36	-	1	-	-
Oreg.	-	8	-	15	8	-	-	-	-
Calif.	-	188	7	701	716	-	7	1	21
Alaska	-	-	-	5	4	-	-	-	12
Hawaii	-	1	-	27	40	-	1	-	-
Guam	-	-	-	5	9	-	-	-	-
P.R.	61	80	-	-	24	-	-	-	8
V.I.	1	11	-	-	1	-	-	-	-
Amer. Samoa	-	-	-	-	-	-	1	-	-
C.N.M.I.	-	-	-	12	1	-	-	-	-

U: Unavailable

TABLE III. Deaths in 121 U.S. cities,* week ending February 26, 1994 (8th Week)

Reporting Area	All Causes, By Age (Years)						P&I[†] Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	648	440	111	64	16	17	71
Boston, Mass.	177	107	41	16	7	6	26
Bridgeport, Conn.	48	35	5	6	2	-	8
Cambridge, Mass.	15	13	1	1	-	-	3
Fall River, Mass.	28	23	3	2	-	-	2
Hartford, Conn.	79	47	14	13	3	2	4
Lowell, Mass.	33	29	3	1	-	-	4
Lynn, Mass.	11	8	2	1	-	-	2
New Bedford, Mass.	25	15	4	4	-	2	-
New Haven, Conn.	42	29	5	4	-	4	2
Providence, R.I.	37	20	12	1	4	-	4
Somerville, Mass.	14	9	4	1	-	-	2
Springfield, Mass.	42	33	4	4	-	1	5
Waterbury, Conn.	27	21	4	1	-	1	1
Worcester, Mass.	70	51	9	9	-	1	8
MID. ATLANTIC	2,878	1,967	525	277	57	52	166
Albany, N.Y.	68	52	12	1	2	1	8
Allentown, Pa.	39	34	5	-	-	-	-
Buffalo, N.Y.	110	70	31	3	5	1	3
Camden, N.J.	47	31	9	3	1	3	6
Elizabeth, N.J.	18	15	1	1	-	1	2
Erie, Pa.§	49	41	4	3	1	-	2
Jersey City, N.J.	46	32	5	9	-	-	-
New York City, N.Y.	1,544	1,003	298	180	35	28	55
Newark, N.J.	75	35	21	12	1	6	9
Paterson, N.J.	28	18	8	1	-	1	-
Philadelphia, Pa.	397	289	69	29	5	5	35
Pittsburgh, Pa.§	96	64	18	10	1	3	12
Reading, Pa.	13	9	1	3	-	-	2
Rochester, N.Y.	121	90	20	9	2	-	13
Schenectady, N.Y.	28	23	4	-	1	-	1
Scranton, Pa.§	29	26	2	-	1	-	1
Syracuse, N.Y.	96	76	12	4	2	2	11
Trenton, N.J.	29	21	2	5	-	1	-
Utica, N.Y.	20	18	2	-	-	-	2
Yonkers, N.Y.	25	20	1	4	-	-	4
E.N. CENTRAL	2,297	1,423	473	231	124	46	177
Akron, Ohio	40	25	8	4	2	1	-
Canton, Ohio	42	28	9	4	-	1	3
Chicago, Ill.	630	271	144	115	87	13	59
Cincinnati, Ohio	137	102	22	6	3	4	14
Cleveland, Ohio	161	103	41	12	2	3	3
Columbus, Ohio	199	148	31	14	5	1	10
Dayton, Ohio	90	68	15	6	1	-	5
Detroit, Mich.	207	120	39	36	6	6	6
Evansville, Ind.	47	32	15	-	-	-	2
Fort Wayne, Ind.	77	52	18	3	3	1	5
Gary, Ind.	20	10	5	4	1	-	1
Grand Rapids, Mich.	50	32	9	4	1	4	9
Indianapolis, Ind.	196	134	43	9	7	3	20
Madison, Wis.	45	30	9	4	2	-	3
Milwaukee, Wis.	121	87	27	2	-	5	13
Peoria, Ill.	40	30	9	-	-	1	1
Rockford, Ill.	46	33	9	2	1	1	6
South Bend, Ind.	48	37	8	2	1	-	7
Toledo, Ohio	101	81	12	4	2	2	10
Youngstown, Ohio	U	U	U	U	U	U	U
W.N. CENTRAL	742	548	112	48	19	14	45
Des Moines, Iowa	50	39	7	3	-	1	4
Duluth, Minn.	32	25	6	-	-	1	4
Kansas City, Kans.	27	16	8	2	-	1	-
Kansas City, Mo.	129	91	22	13	3	-	10
Lincoln, Nebr.	24	21	2	1	-	-	1
Minneapolis, Minn.	165	125	22	10	2	6	10
Omaha, Nebr.	77	63	7	5	2	-	4
St. Louis, Mo.	140	98	23	7	9	3	9
St. Paul, Minn.	53	40	7	3	2	1	2
Wichita, Kans.	45	30	8	4	1	1	1
S. ATLANTIC	1,427	904	263	170	52	36	76
Atlanta, Ga.	163	88	38	25	6	6	3
Baltimore, Md.	214	146	39	22	5	2	19
Charlotte, N.C.	83	56	13	6	5	3	6
Jacksonville, Fla.	108	73	18	10	3	4	7
Miami, Fla.	91	44	18	18	7	3	1
Norfolk, Va.	63	37	13	8	3	2	4
Richmond, Va.	73	48	13	5	1	6	5
Savannah, Ga.	54	39	9	4	2	-	5
St. Petersburg, Fla.	62	50	9	2	1	-	2
Tampa, Fla.	176	127	29	13	4	2	11
Washington, D.C.	304	173	56	52	15	8	13
Wilmington, Del.	36	23	8	5	-	-	-
E.S. CENTRAL	935	626	180	75	24	30	74
Birmingham, Ala.	147	91	31	11	8	6	5
Chattanooga, Tenn.	110	78	17	11	2	2	10
Knoxville, Tenn.	100	76	17	4	1	2	9
Lexington, Ky.	55	36	11	5	2	1	5
Memphis, Tenn.	236	152	49	22	4	9	17
Mobile, Ala.	76	43	16	12	2	3	7
Montgomery, Ala.	45	33	6	1	2	3	-
Nashville, Tenn.	166	117	33	9	3	4	21
W.S. CENTRAL	1,414	883	293	163	42	33	101
Austin, Tex.	70	41	12	15	2	-	12
Baton Rouge, La.	15	12	1	1	-	1	1
Corpus Christi, Tex.	43	30	7	4	2	-	2
Dallas, Tex.	220	133	35	36	8	8	7
El Paso, Tex.	111	69	31	5	2	4	14
Ft. Worth, Tex.	74	50	16	5	1	2	2
Houston, Tex.	264	130	75	41	9	9	19
Little Rock, Ark.	76	52	14	8	1	1	7
New Orleans, La.	148	94	23	20	8	3	-
San Antonio, Tex.	187	134	32	16	3	2	23
Shreveport, La.	85	55	20	5	4	1	5
Tulsa, Okla.	121	83	27	7	2	2	9
MOUNTAIN	934	640	153	88	22	30	88
Albuquerque, N.M.	93	64	16	8	2	3	4
Colo. Springs, Colo.	50	34	9	4	1	2	3
Denver, Colo.	106	67	20	10	3	6	10
Las Vegas, Nev.	165	117	27	16	1	3	11
Ogden, Utah	21	13	5	2	-	1	-
Phoenix, Ariz.	203	129	31	23	9	11	39
Pueblo, Colo.	33	24	7	2	-	-	1
Salt Lake City, Utah	111	73	21	10	4	3	7
Tucson, Ariz.	152	119	17	13	2	1	13
PACIFIC	1,460	1,009	229	152	41	24	100
Berkeley, Calif.	18	13	4	1	-	-	2
Fresno, Calif.	69	45	13	8	1	2	8
Glendale, Calif.	16	12	2	-	2	-	-
Honolulu, Hawaii	69	53	9	4	1	2	7
Long Beach, Calif.	86	58	15	7	4	2	8
Los Angeles, Calif.	458	310	57	69	12	5	27
Pasadena, Calif.	36	22	5	4	3	2	1
Portland, Oreg.	98	78	15	3	1	1	7
Sacramento, Calif.	U	U	U	U	U	U	U
San Diego, Calif.	116	72	22	14	6	2	16
San Francisco, Calif.	U	U	U	U	U	U	U
San Jose, Calif.	178	125	33	12	4	4	11
Santa Cruz, Calif.	35	30	4	-	1	-	3
Seattle, Wash.	129	86	23	18	1	1	1
Spokane, Wash.	58	37	10	6	3	2	4
Tacoma, Wash.	94	68	17	6	2	1	5
TOTAL	12,735[¶]	8,440	2,339	1,268	397	282	898

*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.

(relative risk=3.1; 95% confidence interval=0.6–17.1). Cultures of stool specimens from eight symptomatic persons all yielded ≥10^6 colonies of *C. perfringens* per gram. A refrigerated sample of leftover corned beef yielded ≥10^5 colonies of *C. perfringens* per gram.

The corned beef was a frozen, commercially prepared, brined product. Thirteen pieces, weighing approximately 10 pounds each, had been cooked in an oven in four batches during March 27–28. Cooked meat from the first three batches was stored in a home refrigerator; the last batch was taken directly to the event. Approximately 90 minutes before serving began, the meat was sliced and placed under heat lamps.

Following the outbreak, Virginia health officials issued a general recommendation that meat not served immediately after cooking be divided into small quantities and rapidly chilled to ≤40 F (≤4.4 C), and that precooked foods be reheated immediately before serving to an internal temperature of ≥165 F (≥74 C).

Follow-Up Investigation

The results of the epidemiologic and laboratory investigations suggest that the two outbreaks in this report were not related. Traceback of the corned beef in both of these outbreaks indicated that the meat had been produced by different companies and sold through different distributors. Serotyping was performed on *C. perfringens* isolates recovered from the stool samples in Virginia and on an isolate from a food sample obtained in Ohio. Six of the seven Virginia stool isolates were serotype PS86; however, the food isolate from Ohio could not be serotyped using available antisera.

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Editorial Note: *C. perfringens* is a ubiquitous, anaerobic, gram-positive, spore-forming bacillus and a frequent contaminant of meat and poultry (*3*). *C. perfringens* food poisoning is characterized by onset of abdominal cramps and diarrhea 8–16 hours after eating contaminated meat or poultry (*4*). By sporulating, this organism can survive high temperatures during initial cooking; the spores germinate during cooling of the food, and vegetative forms of the organism multiply if the food is subsequently held at temperatures of 60 F–125 F (16 C–52 C) (*3*). If served without adequate reheating, live vegetative forms of *C. perfringens* may be ingested. The bacteria then elaborate the enterotoxin that causes the characteristic symptoms of diarrhea and abdominal cramping (*4*).

Laboratory confirmation of *C. perfringens* foodborne outbreaks requires quantitative cultures of implicated food or stool from ill persons. Both outbreaks described in this report were confirmed by the recovery of ≥10^5 organisms per gram of epidemiologically implicated food (*5*). Cultures of stool samples from persons affected in Virginia also met the alternate criterion of a median of ≥10^6 colonies per gram (*6*). Serotyping is not useful for confirming *C. perfringens* outbreaks and, in general, is not available (*7*).

Clostridium perfringens — *Continued*

Corned beef is a popular ethnic dish that is commonly served to celebrate St. Patrick's Day. The errors in preparation of the corned beef in these outbreaks were typical of those associated with previously reported foodborne outbreaks of *C. perfringens* (*8*). Improper holding temperatures were a contributing factor in most (97%) *C. perfringens* outbreaks reported to CDC from 1973 through 1987 (*2*). To avoid illness caused by this organism, food should be eaten while still hot or reheated to an internal temperature of ≥165 F (≥74 C) before serving (*9*).

References

1. Shandera WX, Tacket CO, Blake PA. Food poisoning due to *Clostridium perfringens* in the United States. J Infect Dis 1983;147:167–70.
2. Bean NH, Griffin PM. Foodborne disease outbreaks in the United States, 1973–1987: pathogens, vehicles, and trends. Journal of Food Protection 1990;53:804–17.
3. Hall HE, Angelotti R. *Clostridium perfringens* in meat and meat products. Appl Microbiol 1965;13:352–7.
4. Hughes JM, Tauxe RV. Food-borne disease. In: Mandell GL, Douglas RG Jr, Bennett JE, eds. Principles and practice of infectious diseases. 3rd ed. New York: Churchill Livingstone Inc, 1990;893–905.
5. Hauschild WAH. Criteria and procedures for implicating *Clostridium perfringens* in food-borne outbreaks. Can J Public Health 1975;66:388–92.
6. Hauschild WAH, Desmarchelier P, Gilbert RJ, Harmon SM, Vahlefeld R. ICMSF methods studies: XII. Comparative study for the enumeration of *Clostridium perfringens* in feces. Can J Microbiol 1979;25:953–63.
7. Hatheway CL, Whaley DN, Dowell VR Jr. Epidemiological aspects of *Clostridium perfringens* foodborne illness. Food Technology 1980;34:77–9.
8. Loewenstein MS. Epidemiology of *Clostridium perfringens* food poisoning. N Engl J Med 1972;286:1026–8.
9. Bryan FL. What the sanitarian should know about *Clostridium perfringens* foodborne illness. Journal of Milk and Food Technology 1969;32:381–9.

Current Trends

Progress Toward Elimination of *Haemophilus influenzae* type b Disease Among Infants and Children — United States, 1987–1993

Haemophilus influenzae (Hi) causes disease among persons in all age groups, and *Haemophilus influenzae* type b (Hib) was the most common cause of bacterial meningitis among children in the United States. Since the introduction of Hib conjugate vaccines in 1988, the incidence of invasive Hib infections in the United States has declined among infants and children (*1*). Hib disease among children aged <5 years is now included in the list of vaccine-preventable diseases targeted for elimination in the United States by 1996 (*2*). Because Hi disease rates are generally higher for blacks than for whites, incidence rates are race-adjusted; race most likely reflects differing distributions of socioeconomic risk factors for Hi disease (e.g., household crowding) that may account for the variance in incidence rates. This report summarizes race-adjusted provisional data about trends in invasive Hi disease from two separate surveillance systems and emphasizes the need for early identification, investigation, and reporting of Hi cases.

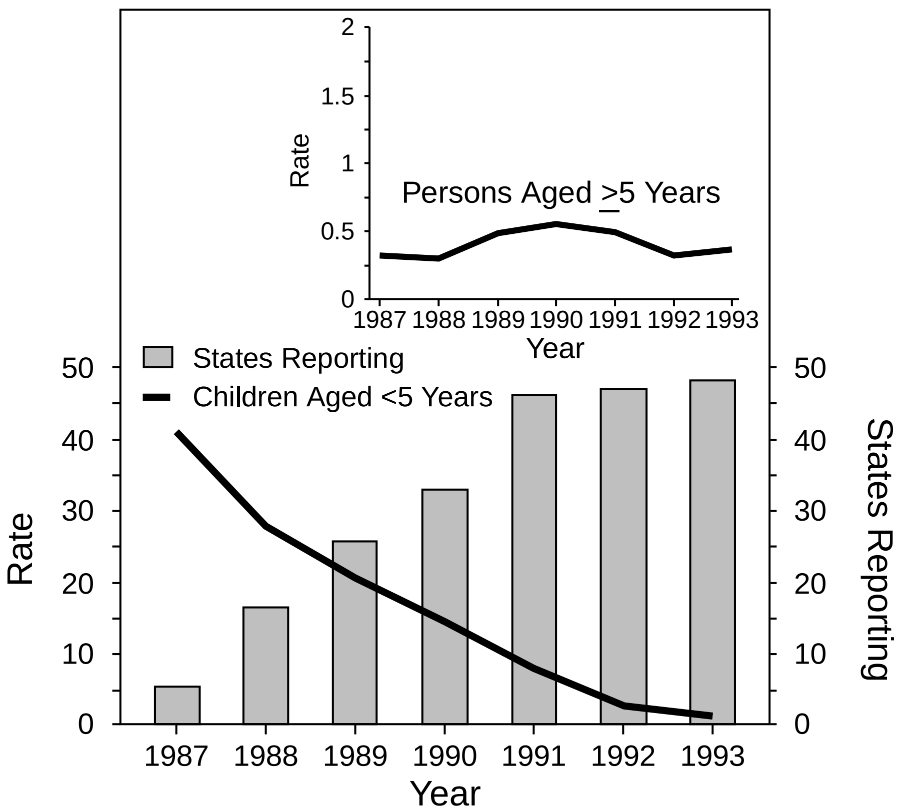
Haemophilus influenzae — *Continued*

National Surveillance

State health agencies report weekly provisional notifiable disease data to the National Notifiable Diseases Surveillance System (NNDSS) through the National Electronic Telecommunications System for Surveillance (NETSS) managed by CDC's Epidemiology Program Office (*3,4*). Although invasive Hi disease did not become nationally notifiable until 1991, an increasing number of states voluntarily participated in weekly reporting to NNDSS during 1987–1990. Because the primary purpose of NNDSS is timely surveillance of nationwide case information for many diseases, the information transmitted includes only basic demographic data on persons with invasive Hi disease. The capacity to electronically transmit supplemental information (e.g., the type of clinical illness, outcome, serotype causing disease, and Hib vaccination status) for cases of Hi disease is available through NETSS but is not widely used.

Among children aged <5 years, the race-adjusted incidence of Hi disease reported to NNDSS declined by 95%, from 41 cases per 100,000 in 1987 (seven states with 2.4 million children aged <5 years reported information) to two cases per 100,000 in 1993 (48 states with 18 million children aged <5 years reported information) (Figure 1). The incidence of Hi disease among persons aged ≥5 years remained stable during this period (Figure 1).

FIGURE 1. Race-adjusted incidence rate* of *Haemophilus influenzae* (Hi) disease among children aged <5 years, incidence rate† of Hi disease among persons aged ≥5 years, and number of states reporting Hi surveillance data — United States, National Notifiable Diseases Surveillance System, 1987–1993



*Per 100,000 children aged <5 years.
†Per 100,000 persons aged ≥5 years.

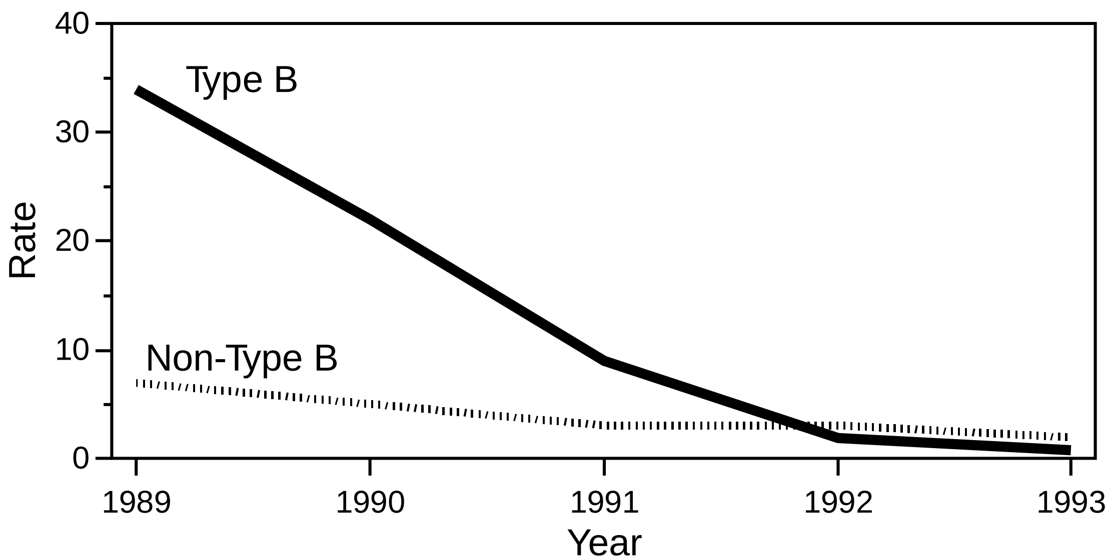
Haemophilus influenzae — *Continued*

Laboratory-Based Surveillance

A laboratory-based system coordinated by CDC's National Center for Infectious Diseases included surveillance projects in four areas of the United States that participated from 1989 through 1993. The surveillance area population was 10.4 million in four states (three counties in the San Francisco Bay area, eight counties in metropolitan Atlanta, four counties in Tennessee, and the state of Oklahoma). Detailed information is routinely obtained on all cases of invasive Hi disease and includes serotype, clinical syndrome, outcome, vaccination status, and demographic information.

From 1989 through 1993, the race-adjusted incidence of Hib disease among children aged <5 years decreased rapidly when compared with the decrease in incidence of non-type b Hi disease among children (Figure 2). During the same period, this surveillance system indicated a rapid decline (93%) in the race-adjusted rates of all invasive Hi disease (including serotypes b and non-b) among children (from 41 cases per 100,000 to three cases per 100,000). Among children aged <5 years, the number of Hib cases declined by 98% (from 281 cases in 1989 to seven cases in 1993); the number of cases of non-type b Hi declined by 63% (from 52 cases in 1989 to 19 cases in 1993). Of the four Hib cases among children for whom Hib vaccination status has been determined, one had received the complete primary series. If projected to the U.S. population, an estimated 150 cases of Hib disease occurred among children aged <5 years in 1993. This system also indicated a substantial (89%) decrease in the number of cases of Hib disease among persons aged ≥5 years (57 cases in 1989 compared with six in 1993).

FIGURE 2. Race-adjusted incidence rate* of *Haemophilus influenzae* type b and non-type b disease detected through laboratory-based surveillance† among children aged <5 years — United States, 1989–1993



*Per 100,000 children aged <5 years.

†The surveillance area population was 10.4 million in four states (three counties in the San Francisco Bay area, eight counties in metropolitan Atlanta, four counties in Tennessee, and the state of Oklahoma).

Haemophilus influenzae — *Continued*

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Editorial Note: This report documents the continued decline in the incidence of all Hi and Hib disease in children aged <5 years in the United States. National surveillance monitors the occurrence of Hi disease which, in the past, was primarily caused by Hib organisms; the decline in incidence monitored by national surveillance most likely reflects a decline in Hib disease associated with use of Hib conjugate vaccines. In addition, the laboratory-based surveillance system provided direct evidence of a decline in Hib disease, which coincided with introduction and use of Hib conjugate vaccines for children aged 18 months in 1988 and infants aged ≥2 months in 1990.

Based on findings from the National Health Interview Survey, in 1992, 67% of children aged 12–23 months had received at least one dose of Hib vaccine, and 36% had received three or more doses (CDC, unpublished data). Despite this incomplete level of vaccination coverage, surveillance indicates a decline of more than 90% in disease incidence, probably reflecting an unexpected additional benefit of conjugate vaccine use—elimination of carriage (*5*), resulting in reduced exposure to the pathogen and decrease in disease incidence even among unvaccinated persons. The decrease in incidence of Hib disease among persons aged ≥5 years in laboratory-based surveillance sites also is most likely a result of decreased carriage and transmission of the organism by infants and children. The availability of Hib conjugate vaccines, which are efficacious in children (*6,7*) and reduce carriage, make feasible the goal of elimination of Hib disease among children aged <5 years by 1996.

Achievement of the 1996 goal to eliminate Hib disease requires participation by all levels of the health-care provider system in collection of surveillance data (i.e., rapid identification, assessment, and prompt reporting of all cases) and optimal use of this information to prevent increased disease incidence among poorly vaccinated populations. To optimize surveillance, case reports should ideally satisfy four criteria. First, because Hib vaccines protect against serotype b organisms only, serotype should be determined and reported for all invasive Hi isolates. Second, to identify persons and groups at risk for Hib disease, vaccination status of all children with invasive Hib disease should be assessed. Third, to evaluate the possible role of incomplete or ineffective vaccination in persons with Hib disease, the date, vaccine manufacturer, and lot number for each Hib vaccination should be determined. Fourth, important measures of morbidity and mortality associated with Hi infections should be reported and include information on the type of clinical syndrome, specimen source (e.g., cerebrospinal fluid, blood, or joint fluid), and the outcome from disease. CDC is working with state health departments to optimize collection, compilation, and analysis of Hi surveillance data.

References

1. Adams WG, Deaver KA, Cochi SL, et al. Decline of childhood *Haemophilus influenzae* type b (Hib) disease in the Hib vaccine era. JAMA 1993;269:221–6.
2. CDC. Reported vaccine-preventable diseases—United States, 1993, and the Childhood Immunization Initiative. MMWR 1994;43:57–60.
3. CDC. Mandatory reporting of infectious diseases by clinicians. MMWR 1990;39(no. RR-9).

Haemophilus influenzae — *Continued*

4. CDC. National Electronic Telecommunications System for Surveillance — United States, 1990–1991. MMWR 1991;40:502–3.
5. Takala AK, Eskola J, Leinonen M, et al. Reduction of oropharyngeal carriage of *Haemophilus influenzae* type b (Hib) in children immunized with an Hib conjugate vaccine. J Infect Dis 1991;164:982–6.
6. Black SB, Shinefield HR, Fireman B, et al. Efficacy in infancy of oligosaccharide conjugate *Haemophilus influenzae* type b (HbOC) vaccine in a United States population of 61,080 children. Pediatr Infect Dis J 1990;10:97–104.
7. Santosham M, Wolff M, Reid R, et al. The efficacy in Navajo infants of a conjugate vaccine consisting of *Haemophilus influenzae* type b polysaccharide and *Neisseria meningitidis* outer-membrane protein complex. N Engl J Med 1991;324:1767–72.

Notice to Readers

Epidemiology in Action Course

CDC and Emory University will cosponsor a course designed for practicing state and local health department professionals. This course, "Epidemiology in Action," will be held at CDC May 16–27, 1994. It emphasizes the practical application of epidemiology to public health problems and will consist of lectures, discussions, workshops, classroom exercises (including actual epidemiologic problems), and an on-site community survey. The topics covered will include descriptive epidemiology and biostatistics, analytic epidemiology, epidemic investigations, public health surveillance, surveys and sampling, computers and Epi Info software, and discussions of selected prevalent diseases. There is a tuition charge.

Applications must be received by March 15. Additional information and applications are available from Department PSB, Emory University, School of Public Health, 1599 Clifton Road, NE, Atlanta 30329; telephone (404) 727-3485 or 727-0199; fax (404) 727-4590.

Notice to Readers

NIOH and NIOSH Basis for an Occupational Health Standard: Chlorobenzene

As part of an agreement with the National Institute of Occupational Health (NIOH) in Solna, Sweden, CDC's National Institute for Occupational Safety and Health (NIOSH) develops documents to provide the scientific basis for establishing recommended occupational exposure limits. One such document, *NIOH and NIOSH Basis for an Occupational Health Standard: Chlorobenzene* (*1*), was recently released.*

Chlorobenzene is principally used as a chemical intermediate in the production of chemicals such as nitrochlorobenzenes and diphenyl oxide. It also is used as a solvent in degreasing processes (e.g., in metal cleaning operations), the dry cleaning industry, paints, adhesives, waxes, and polishes; it has also been used as a heat-transfer me-

*Single copies of this document are available without charge from the Publications Office, NIOSH, CDC, Mailstop C-13, 4676 Columbia Parkway, Cincinnati, OH 45226-1998; telephone (800) 356-4674; fax (513) 533-8573.

Notices to Readers — Continued

dium and in the manufacture of resins, dyes, perfumes, and pesticides. In 1984, 116,000 tons of chlorobenzene were produced in the United States. Consumption is increasing at an estimated average annual rate of 1%–2%.

This document summarizes and evaluates data relevant for establishing permissible levels of occupational exposure to chlorobenzene. Both central nervous system (prenarcotic) effects and hepatotoxic effects of chlorobenzene should be considered in setting occupational exposure limits. Limited evidence indicates that chlorobenzene is genotoxic and may induce hematopoietic toxicity at moderate doses. Information is not available to determine the potential carcinogenicity of chlorobenzene in humans.

Reference

1. NIOSH. NIOH and NIOSH basis for an occupational health standard: chlorobenzene. Cincinnati: US Department of Health and Human Services, Public Health Service, CDC, NIOSH, 1993; DHHS publication no. (NIOSH)93-102.

Notice to Readers

Clinical Laboratory Measurements Traceable to the National Reference System for Cholesterol

Accurate laboratory measurements of blood lipids and lipoproteins (including total cholesterol [TC], low-density lipoprotein cholesterol, high-density lipoprotein cholesterol, and triglycerides) are important for diagnosing and managing coronary heart disease. The medical decision points established by the National Cholesterol Education Program (NCEP) were determined from an epidemiologic database standardized by the CDC reference method (RM) (*1*). The NCEP recommends that TC measurements made by all clinical laboratories in the United States be traceable (i.e., have a documented relation) to this accuracy base. The NCEP established specific national performance goals for the precision and accuracy of TC measurements. The goal for intralaboratory precision is ≤3% coefficient of variation, and the goal for bias is ≤3% from the true value. Laboratories can achieve the precision guidelines by establishing an active internal quality-control program. They can achieve the accuracy guidelines by improving the calibration of analytical systems and by verifying traceability to the National Reference System for Cholesterol (NRS/CHOL), of which the CDC RM is an integral part.

To facilitate access to the NRS/CHOL and to provide an appropriate means for verifying traceability, in 1989, CDC established the Cholesterol Reference Method Laboratory Network (CRMLN). Clinical laboratories can evaluate their performance on fresh samples by completing a comparison with the reference method in a CRMLN laboratory. Participation is voluntary. The CRMLN documents successful comparisons with a "Certificate of Traceability," which is valid for 6 months.

A national health objective for the year 2000 is to increase to at least 90% the proportion of clinical laboratories that meet the recommended accuracy standard for TC measurement (objective 15.17) (*2*). To verify the accuracy of their TC measurements, laboratories should contact a CRMLN laboratory (Table 1). Information about how clinical laboratories can participate in the program and the list of laboratories that

Notices to Readers — Continued

TABLE 1. Laboratories participating in the Cholesterol Reference Method Laboratory Network — United States and international

UNITED STATES

State Laboratory of Hygiene
University of Wisconsin
Center for Health Sciences
465 Henry Mall
Madison, WI 53706
David Hassemer, M.S.
(608) 833-1770 (ext. 102) Phone
(608) 833-2803 Fax

Pennsylvania State Department of Health
Bureau of Laboratories
Division of Chemistry and Toxicology
P.O. Box 500
Exton, PA 19341-0500
Irene Daza
(215) 363-8500 Phone
(215) 436-3346 Fax

University of Minnesota
Department of Laboratory Medicine and Pathology
Box 198 UMHC
420 Delaware Street
Minneapolis, MN 55455-0392
John H. Eckfeldt, M.D.
(612) 626-3176 Phone
(612) 625-6994 Fax

Northwest Lipid Research Laboratories
Core Laboratory
2121 N. 35th Street
Seattle, WA 98103
Santica Marcovina, Ph.D.
(206) 685-3331 Phone
(206) 685-3279 Fax

The Cleveland Clinic Foundation
Department of Biochemistry, L-11
9500 Euclid Avenue
Cleveland, OH 44195
Joan A. Waletzky
(216) 444-8301 Phone
(216) 444-4414 Fax

Wadsworth Center for Laboratories and Research
New York State Department of Health
Empire State Plaza
Albany, NY 12201
Robert Rej, Ph.D.
(518) 473-0117 Phone
(518) 474-7992 Fax

Washington University School of Medicine
Lipid Research Center
4566 Scott Avenue
St. Louis, MO 63110
Thomas G. Cole, Ph.D.
(314) 362-3522 Phone
(314) 362-7657 Fax

USDA Human Nutrition Research Center on Aging
Tufts University
711 Washington Street, Room 501
Boston, MA 02111
Judith R. McNamara
(617) 556-3104 Phone
(617) 556-3103 Fax

Pacific Biometrics Research Foundation
1100 Eastlake Avenue
Seattle, WA 98109
G. Russell Warnick, M.S.
(206) 233-9151 Phone
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have received Certificates of Traceability will be available beginning March 18, 1994, through the CDC Voice Information System, telephone (404) 332-2592.

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References

1. National Heart, Lung, and Blood Institute. Recommendations for improving cholesterol measurement: a report from the Laboratory Standardization Panel of the National Cholesterol Education Program. Bethesda, Maryland: US Department of Health and Human Services, Public Health Service, National Institutes of Health, 1990; publication no. (NIH)90-2964:3–4.
2. Public Health Service. Healthy people 2000: national health promotion and disease prevention objectives—full report, with commentary. Washington, DC: US Department of Health and Human Services, Public Health Service, 1991; DHHS publication no. (PHS)91-50212:112–4.

Number of reported cases of diseases preventable by routine childhood vaccination — United States, January 1994 and 1993–1994*

Disease	No. cases, January 1994	Total cases 1993	Total cases 1994	No. cases among children aged <5 years† 1993	No. cases among children aged <5 years† 1994
Congenital rubella syndrome (CRS)	0	1	0	0	0
Diphtheria	0	0	0	0	0
Haemophilus influenzae§	73	95	73	39	26
Hepatitis B¶	636	733	636	6	19
Measles	4	14	4	7	1
Mumps	65	106	65	21	7
Pertussis	198	222	198	108	117
Poliomyelitis, paralytic**	—	—	—	—	—
Rubella	3	11	3	4	0
Tetanus	1	1	1	0	0

*Data for 1993 are final and for 1994, provisional.

†For 1993 and 1994, age data were available for 85% or more cases, except for 1994 age data for pertussis, which were available for 76%.

§Invasive disease; *H. influenzae*

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