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MORBIDITY AND MORTALITY WEEKLY REPORT

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National Farm Safety and Health Week — September 20–26, 1998

September 20–26 is National Farm Safety and Health Week. Agriculture is one of the most dangerous industries in the United States; in 1997, an estimated 150,000 workers suffered disabling injuries and approximately 700 workers were killed in agricultural work-related activities. Safety and health education plays an important role in reducing fatalities and injuries on the farm.

This year is the 55th anniversary of National Farm Safety and Health Week, and the theme is "Precision Farming Includes Safety and Health." National Farm Safety and Health Week is an annual activity of the National Safety Council's (NSC) Agricultural Division. During this week and throughout the year, the NSC encourages all U.S. residents to emphasize farm safety and health by using and promoting safe work practices on farms. Additional information about National Farm Safety and Health Week is available from NSC, telephone (800) 621-7615, ext. 2379, or World-Wide Web site, <http://www.nsc.org/farmsafe.htm>.

Youth Agricultural Work-Related Injuries Treated in Emergency Departments — United States, October 1995–September 1997

National estimates and descriptions of agricultural injuries occurring to youths are limited (1,2). In 1996, the National Committee for Childhood Agricultural Injury Prevention recommended establishing and maintaining a comprehensive national surveillance system of fatal and nonfatal childhood agricultural injuries (2). In response to these recommendations, CDC's National Institute for Occupational Safety and Health (NIOSH) began analyzing existing surveillance data while exploring new data collection strategies. The goals of these efforts are to add to knowledge about the incidence and circumstances of childhood agricultural injuries and to improve collection and analysis of data regarding childhood agricultural injuries (3). This report presents an analysis of data from the National Electronic Injury Surveillance System (NEISS)* during October 1995–September 1997 for youths aged <20 years, which in-

*The Consumer Product Safety Commission (CPSC) developed NEISS to monitor injuries involving consumer products and to serve as a source for follow-up investigation of selected product-related injuries. CPSC collects all work-related injuries for NIOSH regardless of consumer product involvement.

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dicates that youths in this age group are at increased risk for agricultural work-related injuries.

NEISS collects data on all work-related injury cases from a probability sample of 65 U.S. hospitals with emergency departments (4). A work-related case is defined as any injury sustained during performance of 1) work for compensation, 2) volunteer work for an organized group, or 3) a work task on a farm. Estimates of agricultural work-related injuries are rounded to the nearest 100.

NEISS data were analyzed for agricultural work-related injuries that occurred to youths aged <20 years during October 1, 1995–September 30, 1997. To identify agricultural injuries, keyword searches of narrative information were conducted.[†] Incidents identified were reviewed on a case-by-case basis to determine which injuries to include in the analyses. Injuries associated with crop production, livestock production, and agricultural services were included in the analyses.

Injury rates were calculated using employment data from the Current Population Survey (CPS) of the Bureau of Labor Statistics, a monthly, national population-based household survey that includes approximately 60,000 households (5). Rates are presented per 100 full-time equivalents (FTE)[§]; injury rates per FTE are preferred to rates per worker when analyzing occupational injury data for youths, who typically work part-time, because hours of work are a proxy measure for exposure (4,6).

During October 1, 1995–September 30, 1997, 1208 agricultural work-related injuries among persons of all ages were reported to NEISS, corresponding to a national estimate of 117,700 injuries (95% confidence interval [CI]=79,600–155,800) that were treated in emergency departments in the United States. Of the 1208 cases, 104 (9%) were among youths aged <20 years, corresponding to a national estimate of approximately 10,700 injuries (95% CI=6,500–14,900)—an average of approximately 5400 youth injuries each year. Of the injured youths aged <20 years, 96% were treated and released from the emergency departments; no fatal agricultural injuries among youths aged <20 years were reported in the NEISS data. The highest rates for injury were among workers aged 18–19 years and 20–24 years (2.7 injuries per 100 FTE), which differed significantly from injury rates for workers aged 45–64 years (Table 1). Injury rates for 15–17-year-olds (1.8 per 100 FTE) were similar to those for workers aged 25–34 years (1.9 per 100 FTE) and 35–44 years (1.7 per 100 FTE) and were higher than, but not significantly different from, workers aged ≥45 years. An estimated 1600 youths aged <15 years were injured while working in agriculture, representing 15% of the cases among youths aged <20 years; the rate of injury for this age group was not calculated because employment data are not collected for youths aged <15 years.

Among youths aged <20 years, 89 injuries were to males, corresponding to a national estimate of 9300 injuries (95% CI=5,600–12,900). Injuries to males accounted for 86% of all injuries to youths. The overall injury rate for 15–19-year-olds was 2.3 per 100 FTE (95% CI=1.5–3.1); the rate for males was 2.4 per 100 FTE (95% CI=1.7–3.2), and the rate for females was 1.5 per 100 FTE (95% CI=0.4–2.2).

[†]Keyword searches were conducted on the following narrative fields: business type, business name, occupation type, and injury description fields. Examples of keywords in each field include: business type—farm, orchard, fruit, and grain; business name—farm, nursery, landscape, and veterinary; occupation type—farm; and comment fields—farm, tractor, cattle, cow, livestock, tobacco, and landscape.

[§]An FTE is defined as 2000 hours of work during a calendar year and was calculated from the CPS microdata files because published estimates were not available.

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TABLE 1. Estimated number* and rate† of agricultural-related injuries among workers treated in hospital emergency departments, by age group — United States, October 1995–September 1997

Age group (yrs)	Incidence		Rate	
	Estimated no.	(95% CI [§])	Injuries	(95% CI)
<15	1,600	(300– 2,900)	NA [¶]	
15–17	3,300	(2,000– 4,600)	1.8	(1.1–2.6)
18–19	5,800	(3,500– 8,100)	2.7	(1.6–3.9)**
20–24	16,700	(11,500– 21,900)	2.7	(1.8–3.6)**
25–34	30,600	(20,400– 40,800)	1.9	(0.7–3.1)
35–44	30,400	(19,700– 41,200)	1.7	(1.1–2.3)
45–54	13,800	(8,100– 19,500)	1.1	(0.6–1.6)
55–64	9,100	(5,800– 12,300)	1.1	(0.7–1.5)
≥65	6,400	(3,100– 9,600)	1.2	(0.6–1.8)
Total	117,700	(79,600–155,800)	1.6	(1.1–2.1)

*Estimates of agricultural work-related injuries are rounded to the nearest 100.

†Per 100 full-time equivalents.

§Confidence interval.

¶Not available. Employment data are not collected for this age group.

**CI does not overlap with the CIs for workers aged 45–54 and 55–64 years.

Contusions and/or abrasions were the most common types of injury among youths aged <20 years, accounting for 24.0% of the injuries; lacerations accounted for 23.3%. The body parts most commonly injured by persons in this age group were the fingers or hands (23.5%) and the knee, ankle, or foot (23.0%).

The events most likely to result in injuries to youths were contact with objects or equipment (e.g., struck by a falling object, struck by a slipping object, and caught in equipment or between objects), accounting for approximately 55.4% of the injuries, and falls (both to a lower level and on the same level), accounting for 14.7% of injuries. The sources of injury varied: persons, plants, animals, and minerals contributed to 17.4% of the injuries; tools (primarily nonpowered hand tools), 15.2%; machinery (primarily agricultural and garden), 15.2%; structures and surfaces (e.g., floors, walkways, and ground surfaces), 14.9%; and parts and materials (primarily materials used in the construction of buildings and other structures, such as bricks and lumber), 14.7%.

Reported by: *Div of Safety Research, National Institute for Occupational Safety and Health, CDC.*

Editorial Note: Information about the incidence and circumstances of agricultural work-related injuries among youths is needed to target and develop effective injury-prevention efforts. This report estimates that each year approximately 5400 youths aged <20 years working on farms or in agricultural service jobs sustain occupational injuries that are treated in hospital emergency departments and indicates that youths are among the age groups at greatest risk for such injuries.

In this report, work-related data were collected using an existing emergency department surveillance system. Emergency department visits represent only a fraction (approximately 36%) (4) of the work injuries that occur to agricultural workers, and surveillance limited to this setting does not include injuries treated on site, at private physicians' offices or clinics, or in other medical treatment facilities. Further research is needed to clarify the treatment patterns of agricultural work-related injuries; to determine the proportion and characteristics of injuries that can be expected to be cap-

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tured by emergency department surveillance; and to assess whether any differences in treatment patterns by demographic characteristics (e.g., age, sex, race/ethnicity) or relationship of the worker to the farm owner (e.g., family member or employee) exist. Such information would guide assessments about using emergency departments for routine and ongoing collection of data on childhood agricultural injuries and whether special surveys are needed to provide supplementary data about groups not well represented in emergency department data.

Although NEISS surveillance of work injuries can provide information on the incidence of youth agricultural work-related injuries requiring emergency department treatment, the small number of cases each year—and the limited information available from the system—precludes analyses that can focus prevention efforts, such as estimates and rates by specific agricultural sectors or by particular machinery or circumstances. Furthermore, it is unknown how well NEISS captured agricultural work injury cases, given the difficulty in distinguishing work, chores, and exposure to agricultural production hazards in settings that serve as both a place of work and a residence for youths. Children can be exposed to and injured by agricultural production hazards without direct participation in farm work when they live on farms, visit farms, or accompany their working parents into the fields (2). However, NEISS can provide a valuable mechanism for gathering detailed information on the circumstances and associated risk factors for injuries through follow-back surveys. NIOSH will conduct follow-back interviews of youths identified through the NEISS as having sustained agricultural injuries, regardless of their work-relatedness. This study will assess the ability of the NEISS to characterize childhood agricultural injuries.

Although much remains to be learned about the incidence of, contributors to, and prevention of youth agricultural work injuries (2,3), there are numerous recommendations and programs aimed at preventing agricultural injuries, both in general and among children. To provide technical assistance, professional training, and consensus development for preventing childhood agricultural injuries, NIOSH helped establish the National Children's Center for Rural and Agricultural Health and Safety, telephone (888) 924-7233 or (715) 389-4999; or World-Wide Web, <http://www.marshmed.org/nfmc/children>. Additional information about prevention strategies is also available from county agricultural extension agents; the Wage and Hour Office of the U.S. Department of Labor World-Wide Web site, <http://www.dol.gov/dol/teensafety.htm>; the National Safety Council, telephone (800) 621-7615, ext. 2379 or (630) 285-1121, or World-Wide Web site, <http://www.nsc.org/farmsafe.htm>; Farm Safety 4 Just Kids, telephone (800) 423-5437 or (515) 758-2827, World-Wide Web site, <http://www.fs4jk.org>; and NIOSH, telephone (800) 356-4674 or (513) 533-8328.

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***Haemophilus influenzae* Invasive Disease Among Children Aged <5 Years — California, 1990–1996**

Haemophilus influenzae (Hi) causes a variety of severe clinical illnesses including meningitis, pneumonia, epiglottitis, and septic arthritis (1). In the prevaccine era (i.e., before 1988), *Haemophilus influenzae* type b (Hib) caused approximately 95% of the Hi invasive disease among children aged <5 years (1). In 1988, Hib conjugate vaccines were introduced for use among children aged 18 months–5 years; they were subsequently recommended for routine use in infants by the Advisory Committee on Immunization Practices (ACIP) in 1990 (2). During 1989–1995, Hib invasive disease among children aged <5 years declined 95% nationally (3). To document the decline of Hib invasive disease and to examine the epidemiology of reported nontype b Hi invasive disease among children aged <5 years, CDC, in collaboration with the California Department of Health Services, analyzed reported cases in California from 1990 to 1996. This report summarizes the results of the analysis and documents the decline of Hib without an increase of nontype b Hi invasive disease among children aged <5 years.

Hi invasive disease has been a reportable disease in California since 1989, and cases were collected passively from laboratories, clinics, and hospitals. In Los Angeles County, which accounts for 30% of the population in the state aged <5 years, active surveillance for Hi invasive disease was conducted during 1986–1992 (4) and 1995–1996 through monthly telephone calls to all local laboratories and periodic laboratory audits. In 1989, three counties in the San Francisco Bay area (Alameda, Contra Costa, and San Francisco), which account for 7% of the population aged <5 years, initiated active, laboratory-based surveillance. Laboratorians and infection-control practitioners were contacted biweekly, and laboratory audits were performed once in 1991, 1993, and 1994, and twice in 1995 and 1996. Cases were reported to CDC.

Data from these surveillance systems were combined (n=1090), and the 65 duplicate cases (i.e., cases with identical date of birth, onset, county of residence, and demographic data) and 11 reports that did not include age were eliminated. California census information for 1990 to 1996 was used to calculate race/ethnicity-, sex-, and county-specific incidence rates; county-specific incidence rates were mapped using the Atlas GIS mapping program. Census data from 1993 was used to calculate the average annual incidence of nontype b Hi invasive disease by race/ethnicity.

During 1990–1996 in California, 1014 cases of invasive Hi disease were reported among children aged <5 years: 591 (58%) cases of Hib, 160 (16%) cases of nontype b Hi, and 263 (26%) cases of unknown serotype; 71 (27%) of the 263 isolates with unknown serotype were from the three Bay area counties or Los Angeles County. From 1990 to 1996, the number of reported Hib cases decreased 99% (from 346 [13.9 per 100,000] to four [0.1 per 100,000]) (Table 1), and the number of reported Hi cases attributable to unknown serotype declined 93% (from 134 to 10). The proportion of isolates