

Fact Sheet



Rural Injury Prevention Resource Center

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Childhood Agricultural Injury

Population at Risk

The 1992 Census of Agriculture reported a total of 1.93 million farms in the United States.¹ In 1991, there were 923,000 children under 15 years of age and 346,000 children 15-19 years of age residing on U.S. farms and ranches.²

The National Agricultural Workers' Survey data of 1989 estimated there were 587,000 children of migrant workers age 21 or younger involved in seasonal agricultural services in the United States. Of these children, 65% travel with their parents but do not do farm work; 6% travel and participate in farm work; another 29% travel on their own to do farm work.³

Studies have shown that from one-third to one-half of nonfatal childhood agricultural injuries occur to children who do not live on farms.^{4,5}

Toll of Unintentional Injury

There are an estimated 300 deaths to children younger than 20 years of age on U.S. farms and ranches each year.⁶

An estimated 27,000 children under the age of 20 years who live on farms and ranches are injured each year.⁷ This figure does not include children who visit or work on non-family farms.

A study of agricultural injuries in children in central Wisconsin revealed an overall incidence rate of 18.3 injuries per 1,000 farm resident children. Injury rates were highest among males 14-17 years at 27.2/1,000 farm resident children.⁸

The annual societal cost of childhood deaths and injuries on farms and ranches is around 3 billion dollars. This total includes direct medical costs, value of lost future earnings, and quality of life.⁵

Characteristics of Injured Children

Data from the Traumatic Injury Surveillance of Farmers Survey revealed that of the 12,873 occupational injuries among farm workers ages 10 to 19 years, 89.2% were to males. Analysis by race revealed 92.2% were white, 6.3% were Hispanic, and 1.5% were American Indian. Further analysis showed that 3.2% of the injuries resulted in permanent disability.⁹

A review of childhood agricultural fatalities in Indiana and Wisconsin over a 21 year period revealed that 93.3% of victims were males.¹⁰

In both the United States and in Canada, children younger than 16 years of age comprise up to 20% of all farm fatalities. Peak ages for agricultural trauma include early toddler years through 4 years of age and middle adolescence. After the toddler age, males consistently experience a greater rate of injuries than females.¹¹

Causes of Agricultural Injury

A study of 460 Wisconsin and Indiana childhood farm fatalities found that 50% were associated with tractors.¹⁰

Among all working 16- and 17-year olds in the U.S. during the years 1980-1989, machine-related deaths were the second highest cause of occupational fatalities. Tractors alone accounted for 44% of these machine-related deaths.¹²

Nonfatal farm injuries are often associated with livestock, falls, small tools, building structures, and moving machinery parts.¹³

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Prevention Options

A multifaceted injury prevention approach, including stronger links between federal leadership and health care providers combined with legislation and education of farmers, is necessary to reduce agricultural disease and injury conditions.^{14,15}

Farm families are willing to allow their own children to engage in high-risk farming activities at an earlier age than they would recommend for other children.¹⁶

After reviewing 24 fatal and 259 (hospitalized) agricultural machinery injuries to children, researchers recommended four prevention measures:

1. Encourage and/or subsidize the construction of barriers on farms to prevent children from entering particularly hazardous areas.
2. Work with governments and farming organizations at all levels to develop programs which could provide adequate child care for rural residents.
3. Work with government and farming organizations to develop and enforce standards for the safeguarding of all agricultural equipment.
4. Lobby the government to prohibit children from operating any farm tractor before the age of 14 and to institute formal training requirements for their operation.”

The National Committee for Childhood Agricultural Injury Prevention released a national action plan in April, 1996. This plan describes 13 specific objectives and 43 recommended actions to be taken by the different stakeholder groups (e.g., parents, farm owners, agribusiness, researchers, educators). A systematic approach, including evaluation of interventions, is needed to make a significant impact on childhood agricultural injury reduction.**

References

1. Census of Agriculture. US Department of Commerce. Report No. AC92-A-51,1994:1.
2. Dacquel LT, Dahmann DC. Residents of farms and rural areas: 1991. Washington (DC): US Government Printing Office; 1993 US Bureau of Census, Current Population Reports, P20-472.
3. National Commission on Migrant Education. Invisible children: a portrait of migrant education in the United States. A final report of the National Commission on Migrant Education. Washington (DC): US Government Printing Office 1992.
4. Stueland D, Mickel SH, Cleveland DA, Rothfusz RR, Zoch T, Stamas P. The relationship of farm residency status to demographic and service characteristics of agricultural injury victims in central Wisconsin. *The Journal of Rural Health* 1995 Spring;11(2):98-105.
5. Miller T. Unpublished tabulation and analysis of 1987-1992 National Health Interview Survey data, Children's Safety Network Economics and Insurance Resource Center, Landover (MD): National Public Services Research Institute 1995.
6. Rivara FP. Fatal and nonfatal farm injuries to children and adolescents in the United States. *Pediatrics* 1985;76:567.
7. Gerberich SG, Gibson RW, Gunderson PD, French LR, Melton J, Erdman A, et al. The Olmsted agricultural trauma study (OATS): A population-based effort. A report to the Centers for Disease Control March 1991. The estimate was developed using data from pages 38-40 by staff at the National Farm Medicine Center, and uses common denominators constructed from baseline data compiled from US Department of Commerce and US Department of Agriculture, Rural and Rural Farm Population: 1988; August 1989,14.
8. Stueland DT, Lee BC, Nordstrom DL, Layde PM, Wittman, LM. A population-based case-control study of agricultural injuries in children. *Injury Prevention*. In press.
9. Myers JR. Special analysis of data from the National Institute for Occupational Safety and Health (NIOSH Traumatic Injury Surveillance of Farmers survey). Morgantown (WV): National Institute for Occupational Safety and Health 1995.
10. Sheldon EJ, Field WE. Fatal farm work-related injuries involving children and adolescents in Wisconsin and Indiana. In: McDuffie HH, Dosman JA, Semchuk KM, Olenchock SA, Senthilselvan A, editors. *Agricultural health and safety workplace, environment, sustainability*. Boca Raton (FL): Lewis Publishers, 1995:355-362.
11. Purschwitz MA. Fatal farm injuries to children. Marshfield (WI): Wisconsin Rural Health Research Center 1990 May.
12. Castillo DN, Landen DD, Layne LA. Occupational injury deaths of 16- and 17- year-olds in the United States. *American Journal of Public Health* 1994; 84:646-49.
13. Stueland D, Layde P, Lee B. Agricultural injuries in children in central Wisconsin. *The Journal of Trauma* 1991; 31(11).
14. Aherin R, Murphy D, Westaby J. Reducing farm injuries: Issues and methods [report]. St. Joseph (MI): American Society of Agricultural Engineers 1992.
15. Cordes DH, Foster Rea D. Preventive measures in agricultural settings. In: Cordes DH, Foster Rea D, editors. *Health hazards of farming*. Philadelphia: Hanley & Belfus, 1991:541-49.
16. Tevis C, Finck C. We kill too many farm kids. *Successful Farming* 1989;87(3):18D-18P.
17. Pickett W, Brison RJ, Hoey JR. Fatal and hospitalized agricultural machinery injuries to children in Ontario, Canada. *Injury Prevention* 1995;1(2):97-102.
18. National Committee for Childhood Agricultural Injury Prevention. Children and agriculture: Opportunities for safety and health. Marshfield (WI): Marshfield Clinic, 1996.