



Children's Rural Safety

Injuries are the number one cause of death and disability among children and youth in Canada.



Farming is one of Canada's most dangerous occupations, governed almost entirely by voluntary workplace standards. Children living on farms face unique injury risks as they live and play in an environment often characterized by heavy equipment, huge vehicles and large animals. Their parents often face unpredictable work demands, making supervision a key issue in child safety.

Statistics tell the story

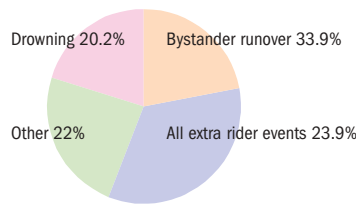
According to the Canadian Agricultural Injury Surveillance Program (CAISP), between 1990 and 2000, 171 children aged 0-14 years were killed in agricultural incidents in Canada. Another 1,964 children were hospitalized due to traumatic injury.

Overall, children aged 0-14 years accounted for 13.6 percent of all agricultural injury fatalities experienced in Canada and 12.6 percent of the identified hospitalized cases. Toddlers and preschool-aged children are at especially high risk for fatal injury.

Leading causes of death to children on farms

Children 0-6: 109 fatalities	Children 7-14: 62 fatalities
Bystander runover 37 (33.9%)	Rollover 16 (25.8%)
Extra rider fell from machine, fell then runover, or involved in a rollover 26 (23.9%)	Extra-rider fell from machine or fell then runover 9 (14.5%)
Drowning 22 (20.2%)	Drowning 5 (8.1%) Animal related 5 (8.1%)

In children aged 0-6 years, 78 percent of the deaths can be attributed to three major causes:



According to CAISP, 61.6 percent of the bystander runover victims were under five years old, 15.1 percent were toddlers or infants less than two years old.

In bystander runovers, the two machine types most frequently involved were tractors

(46.3%) and motor vehicles, which were mainly pick up trucks (29.3%).

Recently, an increase in deaths related to all terrain vehicles (ATVs) among older children has raised this issue. From 1990-2000, ten children aged 8-14 years were killed while operating ATVs - 70 percent were due to rollovers and 30 percent were due to collisions.

In addition to the risks identified specific to children living on farms, these children are also exposed to injuries related to their home, play, and transportation, just as other children are. It is estimated that farm children under 6 years old are one and a half times as likely as urban children to be fatally injured.

Top causes of non-fatal injury to children on farms

Children 0-6: 746 hospitalized injuries	Children 7-14: 1,218 hospitalized injuries
Falls from height (location other than farm house) 144 (19.3%)	Animal trauma 262 (21.5%)
Animal trauma 131 (17.6%)	Falls from height (location other than farm house) 215 (17.7%)
Extra rider fell from machine, fell then runover, or involved in a rollover 106 (14.2%)	Machinery entanglement* 171 (14.0%)
Machinery entanglement* 101 (13.5%)	Extra-rider fell from machine or fell then runover 83 (6.8%)

*Many of the entanglement injuries are permanently disabling amputations.

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For those children who are involved with farm work, there are a number of promising interventions

What can be done

Primary prevention is the key

A recent study also shows that the problem is not that trauma response is slower in rural areas. A retrospective review of farm fatalities and found that, in 95 percent of cases, more timely trauma care would not have improved outcomes for these children.ⁱ Their injuries were too severe for them to have survived.

It has been shown that a comprehensive approach that incorporates a number of intervention strategies over time is effective in raising awareness and impacting knowledge and behaviours. In addition, effectiveness is increased by aiming rural safety programs at leading injury problems, targeting the responsible authority and implementing programs that are supported by high standards of evidence.

It is important to understand the cultural and geographic issues, include communities in the planning and development of any strategy, understand beliefs, knowledge, attitudes and behaviours and adopt a comprehensive approach.

Most young children are injured when they are brought into the farm work area while someone else is engaged in farm work, or entered the work place alone or with a slightly older child, pointing to the need to separate young children from work areas. Unfortunately, in most farm parents have poor or no access to subsidized, affordable, seasonally available child care options. A recent study suggests the following five prevention interventions for non-work related injuries:ⁱⁱ

Top causes of non-work injuries to children on farms

Priority	Targeted Injury Pattern
1. Prohibiting access to the farm worksite	
Toddlers while adults engaged in farm work	Runovers, drownings
Passengers ('extra riders') on farm vehicles	Passenger fatalities and injuries
2. Installing passive physical barriers	
Fencing to promote safe play spaces	All injuries
Fencing for water/drowning hazards	Drowning
Fall protection in haylofts	Falls from heights
Fencing of animal enclosures	Animal trauma
Barriers around machinery and vehicle compounds	Bystander runovers, machinery entanglements
3. Instituting safe storage practices	
Large objects in worksite	Crush injuries
Tools and sharps	Lacerations
4. Identifying child care alternatives	
All play activities on farms	All injuries
Daycare options	All injuries
5. Developing guidelines for common recreational activities	
All-terrain vehicle use	Recreational vehicle rollovers and crashes
Horse related and riding activities	Animal trauma

Reproduced from Pediatric farm injuries involving non-working children injured by a farm work hazard: five priorities for primary prevention.

i Brison RJ. Fatal Farm Injuries Among Canadian Children: There is No "Golden Hour" for Young Farm Children, unpublished.

ii Pickett W, Brison RJ, Berg RL, Zentner J, Linneman J, Marlenga B. Pediatric farm injuries involving non-working children injured by a farm work hazard: five priorities for primary prevention. *Injury Prevention* 2005; 11:6-11.

iii Pickett W, Hartling L, Crumley E, Klassen TP, Brison R. A Systematic Review of Prevention Strategies for Childhood Farm Injuries, 2003.

iv Howard Research. Alberta Safety Day Camp Evaluation, 2003.

1. North American Guidelines for Children's Agricultural Tasks (NAGCAT)

The basis for these guidelines was to provide parents with a tool to evaluate their child's ability in relation to farm work activities. They assess the child from a physical and cognitive perspective as well as provide recommendations for supervision required and safety tips.

Evidence surrounding the efficacy of the NAGCAT guidelines is promising. The guidelines appear to be accepted by members of the farm community and there appears to be substantial uptake of the guidelines among those who receive them, especially if the distribution effort is accompanied by additional information on child development principles.

2. Education/Training Programs

School-based programs/Curriculum The school-based programs that were evaluated appeared to be effective in increasing short-term knowledge acquisition.ⁱⁱⁱ

Safety Day Camps Safety day camps showed positive results in terms of knowledge acquisition among enrolled children.^{iv}

Skills Training Tractor training programs produced inconsistent results and ATV safety training hasn't yet been evaluated. However, there are some results from other skills training programs such as cycling to suggest that training received consistently and repeatedly has some positive effect.

3. Retrofitting Machinery

Rollover protection systems (ROPS), guards, and automatic off switches are passive measures that can be highly effective.

Where resources are available

Safe Kids Canada www.safekidsCanada.ca

National Children's Centre for Rural Safety

and Health www.marshfieldclinic.org/research/children/safePlay

for the Safe

Play Spaces book

