Profiling and comparing hazardous agricultural exposures in farm and non-farm rural children in Saskatchewan

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Objectives

1. Describe hazardous exposures in agricultural environments which have the potential to lead to injury in farm and non-farm (NF) rural children in Saskatchewan
2. Compare and contrast these hazardous agricultural exposures among farm and NF rural children
3. Describe common circumstances under which injury occurs, illustrating these patterns with short vignettes (stories)

Background

• Children represent a significant portion of the agricultural workforce
• Approximately 30% of injuries to children are attributable to hazards in the farm work environment, unrelated to agricultural work
• Common injury mechanisms: runovers, falls, and machine entanglements
• Little is known about the exposures of non-farm rural children to agricultural injury risks

Data Source

• Phase 2. Farm Child and Young People’s Survey (Saskatchewan Farm Injury Project)
• Data on 2013
• 47 participating schools
• Parents provide data

Participants

- Data on 2328 children from 1094 households
- 588 Farm
- 1740 Non-Farm

Analysis by Objective

• Objective 1 – Medians and interquartile ranges
  - Frequencies and proportions
• Objective 2 – Mann-Whitney U Test to compare farm and NF rural children
  - Chi-square tests
  - Data adjusted for farm-level clustering effects
• Objective 3 – Categorized the case-series of 24 injury events by nature and circumstance; patterns identified and illustrated qualitatively using short vignettes (stories)

Results

Population Demographic Information

- Mean age in farm children = 10.0 years; NF rural = 9.2 years
- Statistically significant difference between populations
  - Farm = 54.7% female; NF rural = 50.2% female
- No significant difference between populations
  - 24 Total Injuries; 15 in farm children, 9 in NF rural children

Seasonal Exposures in Farm and Non-Farm Rural Children

- Median Hours in Farm Worksite
- Median Hours Performing Farm Work
- Median Hours Operating ATVs
- Median Hours Riding Horses

Analysis by Objective

- Objective 1 – Medians and interquartile ranges

Injury Stories

Pattern 1 – Falls from Horses
An 8 year old girl is riding a horse while visiting her grandparents’ farm. When the horse is spooked by a nearby dog, she loses control and is thrown from the horse. She lands on the left side of her body, sustaining a shoulder injury, bruises, scrapes and mild concussion symptoms. She is taken to the emergency room for evaluation.

Pattern 2 – Injuries from ATV Rollovers
A 7 year old boy is driving an ATV on a gravel road near his family’s farm. He comes up to a turn and fails to slow down enough to take the turn safely. As a result, he is driving too fast while attempting to turn, causing the ATV to roll on its side. The boy suffers a broken right arm and several scrapes and bruises on his arms and legs. He is rushed to the emergency room for assessment.

Pattern 3 – Falls from Heights
An 11 year old boy is playing on some hay bales in his family’s field. While playing, he has repeatedly climbed and jumped off the hay bales with little trouble. However, this time, his weight shifts and he ends up falling awkwardly, landing primarily on his hand and wrist. He is taken to the hospital, where he is diagnosed with a broken wrist.

Conclusions

- For most agricultural exposures, farm children had higher degrees of exposure than non-farm rural children, likely due to the fact that they live near the farm worksite
- Non-farm rural children are at risk of injury when visiting farms
  - Focused strategies should be developed to protect non-farm rural children from injury, starting with horses, ATVS and falls from heights
- Risks of agricultural injury are both recreational and work-related

Future research:
- Additional farm hazards in farm and non-farm rural children, comparing the likelihood of injury in each group

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