

ATV Safety for Children and Youth

Purpose

The intent of this paper is to provide an overview of the evidence regarding all-terrain vehicle usage by children and youth and provide best practice prevention recommendations. It is not meant to be distributed to parents and caregivers.

Introduction

All-terrain vehicles (ATVs) are defined as a small motor vehicle with three or four wheels that is designed for use on various types of terrain¹. ATVs are often used in agricultural industries but they are also commonly used for recreation and transportation. Child Safety Link has significant concerns regarding the use of ATVs by children and youth due to the high risk of serious injury and death². There has also been increased rates of ridership over the past 20 years, further exacerbating this issue³. This backgrounder provides an overview of ATV-related injuries and deaths across Canada, a review of provincial ATV safety legislation, recommendations to help reduce incidents and injuries as well as a summary of key messages for parents and caregivers.

Why Focus on Young Children

ATV incidents occur among all ages but are over-represented in children and youth ages 15 and younger^{4,5}. This is due to numerous factors such as the capacity for ATVs to reach high speeds and the instability of the machines which can cause tipping and rollovers^{6,7}. Safety concerns specific to children are based upon the understanding that children and youth under 16 years of age do not have the physical or cognitive maturity to safely drive ATVs. They lack the physical strength required to manage these heavy vehicles, many of which weigh upwards of 300kg (661 lbs.)^{8,9}. Children's motor skills are also underdeveloped, making them much less likely to be able to navigate through dangerous terrain and react appropriately if an incident were to occur^{8,9}.

Another concern specific to children is the marketing of child-sized ATVs in an effort to make these vehicles appear safe. The Canadian ATV industry recommends a range of ATV sizes depending on the age of the rider. While these recommendations are in place and used by ATV manufacturers and ATV clubs, there is little evidence to prove that the use of a child-sized ATV can reduce the risk of incidents and injuries^{10,11}.

Children and youth are especially vulnerable to the dangers of ATVs, therefore, it is important to ensure that appropriate measures are in place to mitigate the risk of injury and/or death.

Magnitude of the Problem

Canada

ATV-related injuries and deaths are a serious public health concern¹². In Canada, 25% of all ATV-related deaths occur in children and youth ages 15 and younger⁸. Children and youth (19 and younger) also account for 34% of all ATV-related hospitalizations¹¹. Injuries that result from ATV incidents are often severe, with 20% involving some form of head trauma¹³. Another significant safety issue is the instability of ATVs, causing them to tip and rollover. Incidents involving rollovers account for 51% of ATV-related deaths¹⁴, highlighting a need for significant improvements in this aspect of ATV design and manufacturing.

Atlantic Canada

Over the 10-year period from 2004-2013, the overall rate of ATV-related hospitalizations for those age 0 – 14 increased an average of 1.8% annually, with an average of 35 hospital admissions per year¹⁵. Furthermore, Atlantic Canada experienced 9.6 ATV-related hospitalizations out of every 100,000 people versus the national average of 6.8 per 100,000¹⁵.

All provinces within Atlantic Canada have some semblance of ATV safety legislation. The existing legislation differs between provinces and there is no province in which legislation meets all criteria recommended by national groups such as Parachute and the Canadian Paediatric Society^{5,8}. A summary of each provinces legislation is listed below¹⁶.

ATV Legislation Component	NB	NL	NS	PEI
Registration	Yes	Yes	Yes	Yes
Insurance	Yes	Yes*	Yes	No
Age Requirements	6 – 16+	14+	6 – 16+	14+
License	Unclear	Yes	No	Yes
Size Restrictions	Yes	Yes	Yes	Unclear
Safety Training	Yes*	Unclear	Yes*	Yes*
Safety Equipment/Gear	Yes	Yes	Yes	Yes
Passengers	Unclear	Yes	No	Unclear
Location/Time of Use	Yes*	Yes*	Yes*	Yes*
Substance Use	Yes	Yes	Yes	Yes

Yes – Legislation exists No – Legislation does not exist

* - exemptions to the regulations and/or only required for those at a younger age (14-16 years old and younger)

Nova Scotia

ATV usage is very popular in Nova Scotia, buoyed by a rural population who use ATVs mainly for recreation, transportation and agriculture. Nova Scotia has the third largest ATV federation in Canada (ATVANS) with over 40 different clubs and 4500 registered members¹⁷. Overall, Nova Scotia has 34,576 registered 4-wheel ATVs¹⁸. In 2019, there were approximately 2230 new ATVs sold in the province, accounting for 5.13% of all new ATV sales in Canada¹⁹. This rate of new sales has remained relatively steady over the past five years¹⁹. It is unclear how many of the ATVs sold were advertised as child-sized.

The popularity of ATV use is undeniable and this unfortunately reflects in the injury and death statistics for children within the province. The rate of ATV-related hospitalizations in Nova Scotia for children and youth aged 0 – 14 is 7.7 per 100,000¹⁵. This is the second highest rate in Atlantic Canada and well above the national average of 6.8 per 100,000¹⁵.

Between January 2018 and March 2020, there have been 36 children and youth ages 16 and younger who have presented to the IWK Health Centre Emergency Department with ATV related injuries, 17 of these children were admitted to hospital²⁰. Approximately 47% of those injured were driving the ATV at the time of the incident²⁰. This fact is especially concerning considering that the current ATV legislation in Nova Scotia does not allow anyone under 14 to drive an ATV unless they are being supervised on a closed course²¹. There are currently no closed courses in existence in Nova Scotia, and therefore, there should be no incidents involving children under 14 driving ATVs.

Emerging Issues in Canada

ATV Use

ATV use continues to increase, especially for recreational purposes²² with more than 100 ATV clubs across Canada²³. Many ATV clubs, as well as ATV manufacturers, encourage the use of ATVs from a young age as long as children ride a youth-sized ATV. This approach is not based on injury prevention best practices and can actually serve to increase the risk of injury and death. The Canadian Paediatric Society recommends a complete restriction of the use of ATVs by children and youth under 16¹¹. This restriction should be upheld until there are other measures that can be taken which are proven to significantly reduce the risk of serious injury and death for children using ATVs¹¹.

Recreational Off-Highway Vehicles (Side-by-Sides)

An emerging trend accompanying ATV use is the use of utility vehicles, more commonly referred to as a side-by-side (SBS). A SBS is similar to an ATV in that it is a four-wheel, off-road vehicle but a SBS is designed for two to six people to be riding at once²⁴. Passengers are seated next to each other in different arrangements, depending on the size of the vehicle, making it highly desirable for a family who now have the ability to ride together on the same vehicle.

Increased SBS usage is a concerning trend as these vehicles present themselves as a safer alternative to an ATV. A standard SBS is often equipped with a steering wheel, roll bars, three-point seat belts and headrests^{24, 25}, all of which provide the perception of safety and give the user a car-like feel. The reality of these machines is that they can be just as dangerous as their ATV counterparts and they still experience many of the same safety issues, such as instability, resulting in tipping and rollovers^{24, 25}. SBSs are also capable of reaching speeds of nearly 100 km/hour, further highlighting the safety concerns for children under 16. Children are not allowed to operate cars until they are 16 years of age and are properly licensed; SBSs have the ability to travel at similar speeds with few training or safety requirements for riders.

In the United States, there have been drastic increases in sales of SBSs; between the year 2000 and 2010 sales have more than doubled²⁵. We may begin to see similar trends in Canada, highlighting the need for proactive safety measures and strict regulation of these machines.

Best Practices

Preventing ATV-related injuries among children requires targeted interventions that include the 3 E's of injury prevention: Education, Engineering and Enforcement²⁶. Suggestions for each category are outlined below.

E: Education

Many ATV operators may not fully comprehend the risks associated with using these machines. Parents, as well as children and youth, should have a good understanding of the potential dangers as well as the safety protocols to follow if they do choose to use an ATV.

Provincially:

- For riders/passengers over the age of 16:

- Work collaboratively with stakeholders (such as ATV and off-highway vehicle associations) to promote and disseminate safety information to riders ²⁶
- Require public safety training for operating ATVs, ATV storage and ATV transport ³

Municipally:

- Conduct extensive public health campaigns and training ³
- Implement community-based education for children regarding the potential dangers of ATVs while also promoting safer riding behaviours. There should be a specific focus on remote and isolated communities ¹¹

Organizationally:

- Promote/conduct community-based education for children regarding the dangers of ATV use and promote safer riding behaviours for those over the age of 16. The focus should be on children and youth in remote and isolated communities ^{11, 13}

E: Engineering

As highlighted in previous sections of this document, there are many engineering faults associated with ATVs that increase the risk of child and youth users/passengers being injured or killed. ATVs should be designed and manufactured to ensure the utmost safety for the user.

Federally:

- Subject youth-model ATVs to children’s product safety regulations and monitoring ^{11, 27}
- Require roll protection devices on ATVs ^{14, 28}

Provincially:

- Require roll protection devices on ATVs ^{14, 28}

Municipally:

- Require roll protection devices on ATVs ^{14, 29}

Organizationally:

- Manufacture safer ATVs by improving vehicle design and operating standards. In doing so, a driver’s margin of error would be significantly reduced. Examples of improved design and standards include: seatbelts, roll-over bars, automatic headlights, speed governors, restricted passenger seating, and improved stability ¹⁵

E: Enforcement

The aforementioned changes to ATV design, standards, education, etc. can only be achieved through proper oversight and enforcement. Providing appropriate resources for adequate enforcement will increase the odds of success and the sustainability of any change.

Federally:

- Prohibit marketing of youth-model ATVs as a safe option for child operators ³⁰

Provincially:

- Increase resources and funding for enforcement of ATV regulations, especially in rural and remote areas that can be more difficult to police
- Prohibit ATV use by children and youth under the age of 16 ^{6, 8, 9, 11, 13, 24}
- Prohibit passengers under the age of 16 ³²
- For riders/passengers over the age of 16:
 - Require use of certified helmets for those operating ATVs as well as for passengers ^{9, 11, 14, 28}
 - Require the use of eye protection and safety clothing (protective equipment) ²⁹
 - Limit passengers to the number for which the vehicle was designed ^{11, 13, 28}
 - Require training and licensing for operating ATVs ^{11, 28, 29}
 - Prohibit operation of ATVs while under the influence of alcohol and/or other drugs ^{11, 14, 28}
 - Prohibit use of ATVs on public roads and highways ^{11, 28}
 - Prohibit use of ATVs between sunset and sunrise ^{11, 28}

Municipally:

- Prohibit use of ATVs on public roads and highways ^{11, 28}

Additional Gaps

Additional gaps to preventing ATV-related injuries in children and youth do exist, addressing these gaps would play a significant role in helping to reduce injury and death. Some of these gaps include:

1. Lack of formal accountability for ATV manufacturers to create a safe product for children and youth
2. Atlantic Region ATV legislation does not address child passengers
3. Multiple points of data collection and different standards for data collection makes it difficult to construct an accurate picture of ATV enforcement efforts as well as ATV-related injuries and deaths
4. Enforcement is the responsibility of different organizations depending on the location and details of the incident (trails versus public roads, amount of damage, etc.), this creates difficulties for data collection and compilation as mentioned in the previous point
5. Lack of safety information for side-by-sides as an emerging issue

Conclusion

Use of ATVs by children and youth under the age of 16 is dangerous and can lead to severe injury or death^{5, 8, 10, 11}. Children and youth do not have the physical maturity to control a large, heavy ATV and they do not have the cognitive abilities to always make safe decisions and avoid danger^{8, 9}. Even if a child is an exceptionally skilled ATV driver, there are still inherent risks associated with these machines. ATVs are designed in a way that creates instability, making them prone to tipping or rollovers, especially when driven on rough, hilly terrain or at high speeds^{6, 7}.

Prohibiting the use of ATVs by children and youth under 16 is the most significant, impactful action that can be taken to prevent these incidents from occurring. Many provincial and national medical and injury prevention organizations, such as Parachute and the Canadian Paediatric Society, have voiced their concerns regarding the safety of ATVs^{5, 8, 10, 11, 22}. In combination, these organizations support all of the recommendations highlighted in this document.

As ATV and other off-highway vehicle use continues to rise, we can only expect to see an increased number of injuries and deaths if changes are not made.

Key Messages for caregivers

- Do not allow a child under the age of 16 to operate or ride on an ATV^{5, 8, 10, 11}
- Child-sized ATVs do not provide any added level of safety^{10, 11}
- For children aged 16 or older:
 - Ensure they are wearing appropriate safety equipment (helmet, eye protection, safety clothing)^{9, 11, 14, 28}
 - Ensure they receive the appropriate safety training^{11, 28}
 - Ensure they are not under the influence of alcohol or other drugs while operating an ATV^{11, 14, 28}
 - Use of ATVs between dusk and dawn should be strongly discouraged due to reduced visibility^{11, 28}

About Child Safety Link

Child Safety Link (CSL) is an injury prevention program at the IWK Health Centre dedicated to reducing the incidence and severity of unintentional injury to children and youth in the Maritimes. CSL is committed to working with community organizations, governments and other partners to ensure children are as safe as necessary at home, on the road and at play. The team does this through capacity building & partnerships; communication and public relations; advocacy and healthy public policy; and research and evaluation.

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