

Common Messages for ATV Safety

A Guide for Injury Prevention Stakeholders

Prepared by:

Alberta All-Terrain Vehicle [ATV] Working Group, 2009

In response to requests for evidence-based and consistent messaging from stakeholders throughout the province, the Alberta Centre for Injury Control & Research (ACICR) established a working group in January, 2009. The working group was composed of diverse representatives from all over the province including injury prevention specialists from former Regional Health Authorities (Aspen, Calgary, Chinook, David Thompson, East Central, Kidsafe Connection, and Peace Country) and community coalitions (Lakeland P.A.R.T.Y. Program, Grande Prairie and Area Safe Communities, and Safe Community Wood Buffalo), Regional Traffic Safety Coordinators in addition to representatives from the Alberta Off-Highway Vehicle Association, the RCMP, Alberta Tourism, Parks, and Recreation, Lac Ste. Anne County, as well as ATV instructors. The diversity within the working group facilitated a thorough review of the available research in order to produce this document which reflects the Alberta context where ATVs are used widely for farming and recreational purposes.

The content of this document may be used by injury prevention stakeholders as a guide to direct and support work around ATV safety promotion. It is intended that the wording and order of the key messages may be modified to fit pre-existing organizational document designs and/or specific audience needs.

This document features four levels of messaging. The first level presents the introduction message with the five key, evidence-based action messages. This level provides the condensed, essential messages for the general public. The second level enhances the first level by including brief evidence of need with additional related action messages. The third level provides additional details to further explain and support the messages presented in the first and second levels. Stakeholders might use the third-level information when developing articles and presentations, for example. Finally, the fourth level presents referenced messages with the evidence used in the development of this document.



Level 1: Introduction statement with five key, action messages.

This information applies to the general population and may not apply to professional ATV operators or to individuals with specific health conditions.

All-terrain vehicles (ATVs) can cause serious injury or death.
ATV injuries can be reduced by following these safety practices:

- **No child/youth under 16 years of age should operate an adult ATV. Ensure your child/youth only rides an ATV that is appropriate for their age, weight, and maturity. Follow manufacturers' recommendations.**
- **Wear an approved helmet with face and eye protection.**
- **Drive Sober – Alcohol, drugs and ATVs don't mix.**
- **Refuse to carry or be a passenger on an ATV built for one person.**
- **Take an ATV operator training course.**



All-Terrain Vehicles (ATVs) can cause serious injury or death.

- Follow all ATV manufacturers' guidelines.
- Children under 16 years of age have an increased risk of injury and death on ATVs.
- ATVs weigh hundreds of kilograms and are harder to control than they appear.
- ATV rollover events are the most common cause of serious injury and can happen even on flat ground.
- ATVs cause more injuries than any other consumer product.

No child/youth under 16 years of age should operate an adult ATV. Ensure your child/youth only rides an ATV that is appropriate for their age, weight, and maturity.

Follow manufacturers' recommendations.

- Children and adolescents are injured as drivers of and passengers on ATVs.
- In Alberta, children and adolescents accounted for 15% of all ATV-related deaths.
- Children and youth are at particular risk as they do not have the physical strength, control, coordination or judgment of an adult.
- Youth-size ATVs might reduce the risk of injury.
- Use questions from The North American Guidelines for Children's Agricultural Tasks (www.nagcat.org) to find out if your child or youth is ready to ride a youth-size ATV for chores.
- Anyone under 16 years of age operating a youth-size ATV should have constant, close, visual supervision by an adult.

Wear an approved helmet with face and eye protection.

- Head injuries are the leading cause of serious injury and death in ATV-related injury events.
- Facial injuries frequently happen to ATV operators.
- Wear over-the-ankle boots with heels, sturdy gloves, long-sleeved shirts, and long pants.

Drive Sober – Alcohol, drugs and ATVs don't mix.

- The consumption of alcohol and/or drugs (medication or illicit) is a major factor in ATV injuries and deaths.
- Even a couple of drinks will impair the ability to operate an ATV.
- Drinking alcohol and operating an ATV could result in an impaired driving charge.

Refuse to carry or be a passenger on ATVs built for one person.

- A passenger on a single rider ATV reduces the driver's ability to stop, turn or shift their weight. A passenger will make the ATV unbalanced.
- Only carry one passenger on a tandem ATV in the designated passenger seat.
- Never carry a passenger under 12 years of age or too small to grab the hand rails or plant their feet on the footrests of a tandem ATV.

Take an ATV operator training course.

- Formal hands-on training is needed to understand how to avoid ATV risks.
- Look for an ATV training course offered through reputable organizations such as the Alberta Safety Council.

All-Terrain Vehicles (ATVs) can cause serious injury or death:

- Follow all ATV manufacturers' guidelines.
- Children under 16 years of age have an increased risk of injury and death on ATVs.
- ATVs weigh hundreds of kilograms and are harder to control than they appear.
- ATV rollover events are the most common cause of serious injury and can happen even on flat ground.
- ATVs cause more injuries than any other consumer product.
- The consumption of alcohol and/or drugs (medication or illicit) is a major factor in ATV injuries and deaths.

Four-wheel all-terrain vehicles [ATVs] are very popular in Alberta. In 2008, Alberta captured about 22% (17,935 units) of all new ATV sales in Canada making Alberta the number two province for new ATV sales (Quebec had the highest). With this popularity, Alberta has seen an increase in the number of ATV related deaths, hospitalizations and emergency department visits.

There were 11 ATV deaths in Alberta in 2002; however, there were 22 in 2006 and 17 in 2007 and 15 in 2008 and 2009. From April 1, 2000 to March 31, 2006 there has been over a 100% increase in the number of ATV-related major trauma patients in Alberta. From 2002 to 2009, children/youth less than 16 years of age accounted for 15% (n = 17) of all the ATV-related deaths that occurred in the province of Alberta. Children are especially at risk for ATV-related injuries and death because they do not have the physical strength, control, coordination or judgment of an adult.

It is very important to read your ATV owner's manual and follow manufacturers' guidelines and warning labels. ATVs are heavy, complex, high speed vehicles with very special characteristics that make operating them different than operating any other type of motorized vehicle. ATVs have little protection and a high centre of gravity which can lead to the ATV being unstable contributing to rollover events. In Alberta the leading cause of ATV deaths was rolls/flips most of them happening on flat terrain.



No child/youth under 16 years of age should operate an adult ATV. Ensure your child/youth only rides an ATV that is appropriate for their age, weight, and maturity. Follow manufacturers' recommendations.

- Children and adolescents are injured as drivers of and passengers on ATVs.
- In Alberta, children and adolescents accounted for 15% of all ATV-related deaths.
- Children and youth are at particular risk as they do not have the physical strength, control, coordination or judgment of an adult.
- Youth-size ATVs might reduce the risk of injury.
- Use questions from The North American Guidelines for Children's Agricultural Tasks (www.nagcat.org) to find out if your child or youth is ready to ride a youth-size ATV for chores.
- Anyone under 16 years of age operating a youth-size ATV should have constant, close, visual supervision by an adult.

The injury risk to children less than 16 years of age on an ATV is substantially greater than the risk of injury to someone who is over 16 years of age. The rate of injuries to children less than 16 years of age has seen a very large increase since 1997. From 2002 to 2009, children/youth accounted for 15% (n = 17) of all the ATV related deaths in the province of Alberta. Children are especially at risk for ATV-related injuries and death because they do not have the physical strength, control, coordination or judgment of an adult.

A U.S. study showed that in most cases, injured ATV operators under sixteen years of age were operating adult-size ATVs. The United States Consumer Product Safety Commission (CPSC) analysis indicates that the injury rate for children/youth under 16 years of age operating adult-size ATVs is about twice the rate for those who are driving youth-size ATVs. Youth-size ATVs reflect recommendations found in the Age Determination Guidelines which indicate that "9 – 12-year-olds are generally 'aware of traffic laws, but they are very likely to engage in high-risk behaviors like riding in traffic and stunt riding.'" Consequently, when your child/youth is operating a youth-size ATV, there should be constant, close, visual supervision by an adult.

The North American Guidelines for Children's Agricultural Tasks developed guidelines for parents to match their child's growth, development and personality with the requirements needed to do farm work with an ATV. Go to www.nagcat.org enter search word, ATV. You can use this tool to assess your child's abilities (physical, cognitive, and judgmental) to see if they're ready to operate a youth-size ATV for chores. It also provides guidelines for training and supervision. Finally, it explains ATV operation hazards and necessary safety equipment.



Wear an approved helmet with face and eye protection.

- **Head injuries are the leading cause of serious injury and death in ATV-related injury events.**
- **Facial injuries frequently happen to ATV operators.**
- **Wear over-the-ankle boots with heels, sturdy gloves, long-sleeved shirts, and long pants.**

The leading cause of death in ATV-related events is head injury. Much evidence has been collected over time showing that helmets do save lives and it is recommended that you wear a helmet designed for an ATV or motorcycle, not a bicycle. You should always wear an approved helmet along with eye and face protection. Additional clothing such as over-the-ankle boots with heels to prevent slipping off the foot rests, sturdy gloves, long-sleeved shirts and long pants should be worn to protect you from objects on the trail or in the event of a spill.

Drive Sober – Alcohol, drugs and ATVs don't mix.

- **The consumption of alcohol and/or drugs (medication or illicit) is a major factor in ATV injuries and deaths.**
- **Even a couple of drinks will impair the ability to operate an ATV.**
- **Drinking alcohol and operating an ATV could result in an impaired driving charge.**

The skills and judgment you need to operate an ATV safely are impaired by alcohol and drugs (medication and illicit). Be aware that it is a criminal offence in Canada to operate or assist in the operation of any motor vehicle with a blood alcohol level (BAC) over 0.08%.

Refuse to carry or be a passenger on ATVs built for one person.

- **A passenger on a single rider ATV reduces the driver's ability to stop, turn or shift their weight. A passenger will make the ATV unbalanced.**
- **Only carry one passenger on a tandem ATV in the designated passenger seat.**
- **Never carry a passenger under 12 years of age or too small to grab the hand rails or plant their feet on the footrests of a tandem ATV.**

Your ATV may look like it's built to carry an operator and a passenger because of its long seat; however, the ATV seat is long so that you can shift your weight in order to keep the ATV balanced. A large number of ATV related deaths are due to passengers being present on ATVs. Furthermore, children are frequently the ones to suffer injury when they are riding in front or behind the ATV operator. Passengers on an ATV built for one rider can affect your ATV's balance and steering, increasing the likelihood that you will lose control of your ATV. If you want to carry a passenger, you must have an ATV that has been designed to do so. For ATVs designed to carry an operator and a passenger, the passenger must be at least 12 years of age and must be able to reach their own handles and foot rests.

Take an ATV operator training course.

- **Formal hands-on training is needed to understand how to avoid ATV risks.**
- **Look for an ATV training course offered through reputable organizations such as the Alberta Safety Council.**

Taking an ATV training course is very important because while your new ATV may look very easy to operate, it is really a complex vehicle that requires specialized skill and repeated practice to drive safely. A training course can provide you with a solid foundation on which to develop your driving skills.

All-Terrain Vehicles (ATVs) injuries can cause serious injury or death.

- Follow all ATV manufacturers' guidelines.(5,6)
- Children under 16 years of age have an increased risk of injury and death on ATVs.(11-15)
- ATVs weigh hundreds of kilograms and are harder to control than they appear.(7,13,15,16)
- ATV rollover events are the most common cause of serious injury and can happen even on flat ground.(2,9,10)
- ATVs cause more injuries than any other consumer product.(17)

Albertans made up 10.5% of the Canadian population in 2007; however, they purchased 24.98% (n = 22,100) of new ATVs sold in Canada and 22.15% (n = 17,935) in 2008.(18) In 2008, Alberta had the second highest sales in Canada next to Quebec (23.71%). In 2008, there were 28 ATV-related deaths in Quebec and 15 in Alberta.(2,3)

From 2002 to 2009, 113 Albertans (96 drivers; 11 passengers; 6 other (loading/unloading ATV and pedestrians struck by ATV)) died in ATV-related events with males accounting for 90% (n = 102) of the deceased and children/youth less than 16 years of age accounting for 15% (n = 17) of the deceased.(2) The leading cause of ATV deaths was rolls/flips of the ATV (n = 56) and the second leading cause of death was collisions with vehicles, ATVs and other (n = 25) followed by striking trees (n = 13).(2) Of the 56 rolls/flips, 39 (70%) occurred on flat terrain.(2) From April 1, 2000 to March 31, 2006 there was more than a 100% increase in the number of ATV-related major trauma patients in Alberta (from 33 in 2000/01 to 71 patients in 2005/06).(49)

In Alberta in 2008, there were 781 ATV-related hospital admissions and 5,834 emergency department visits.(2) Males from 15 to 24 years of age had the highest rates of hospital admissions and emergency department visits closely followed by rates in males from 10 to 14 years of age.(2)

No child/youth under 16 years of age should operate an adult ATV. Ensure your child/youth only rides an ATV that is appropriate for their age, weight, and maturity. Follow manufacturers' recommendations.

- **Children and adolescents are injured as drivers of and passengers on ATVs.(23)**
- **In Alberta, children and adolescents account for 15% of all ATV related-deaths.(2)**
- **Children and youth are at particular risk as they do not have the physical strength, control, coordination or judgment of an adult.(5,13)**
- **Youth-sized ATVs might reduce the risk of injury.(44)**
- **Use questions from The North American Guidelines for Children's Agricultural Tasks (www.nagcat.org) to find out if your child or youth is ready to ride a youth-size ATV for chores.(43)**
- **Anyone under 16 years of age operating a youth-sized ATV should have constant, close, visual supervision by an adult.(1,4,15,16)**

From 2002 to 2009, 113 Albertans died in ATV-related events with children/youth less than 16 years of age accounting for 15% (n = 17; 10 drivers; 7 passengers; 13 male; 4 female) of the deceased.(2) The leading cause of ATV deaths among children/youth was rolls/flips on flat terrain (n = 9 (2 rolls/flips occurred on hills)) and the second leading cause was collisions with vehicles: ATVs and other (n = 4).(2) Surveillance data from 2002 to 2007 in Alberta showed that 9 out of the 14 ATV-related fatalities in children/youth occurred on private land and the remaining 5 fatalities occurred on public lands.(1)

In Alberta, males from 15 to 24 years of age had the highest rates of hospital admissions and emergency department visits closely followed by rates in males from 10 to 14 years of age.(2)

The Canadian Paediatric Society's position statement is "children younger than 16 years of age should not operate all-terrain vehicles".(13) In the body of the position statement, smaller ATVs are mentioned, but no clear recommendation is made regarding their use. The Canadian Paediatric Society is currently revising their position statement.(13) The ACICR has requested that they communicate their position on youth-size ATVs in their revised position statement. The Canadian Association of Pediatric Surgeons' position is "Children younger than 16 years should not operate ATVs, anytime, anywhere, any size".(48) The American Academy of Pediatrics recommends that children younger than 16 years of age be restricted from operating any ATV regardless of size.(22) The American Academy of Orthopedic Surgeons recommends that youth under 16 years of age be restricted to operating youth-sized ATVs and that children under 12 years of age be restricted from driving any size ATV.(19) The United States Consumer Federation of America recommends that youth under 16 years of age be restricted to youth-sized ATVs.(7) The U.S. Consumer Product Safety Commission (CPSC) recommends youth under 16 years of age be restricted to youth-sized ATVs.(5)

ATV injury data from the United States reports that 89% of children less than 16 years of age injured in ATV crashes were injured while driving an adult-sized ATV.(17) CPSC analysis indicates that the injury rate for children/youth under 16 years of age operating adult-sized ATVs is about twice the expected rate of those who are driving youth-size ATVs.(5) CPSC's "Age Determination Guidelines: Relating Children's Ages to Toy Characteristics and Play Behavior" indicates that most children aged 6 to 8 years are able to understand and learn basic skills in operating an ATV providing that the controls are simple, the speed is low (slow enough for the parent to walk or jog beside the ATV) and there is constant parental

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supervision.(5,45) It also indicates that children 9 to 12 years-old can operate motorized vehicles with gear shifting at speeds up to 10 miles per hour.(5,45) “Age Determination Guidelines” indicate that “9- to 12-year-olds are generally ‘aware of traffic laws, but they are very likely to engage in high-risk behaviors like riding in traffic and stunt riding.’”(5) The “Age Determination Guidelines” do not go beyond the age of 12.(5) By the time a child reaches the age of 12 or 13 they may be able to handle an ATV reaching speeds between 10-25 mph, but should not be trusted at higher speeds as they lack the physical abilities to balance and steer a faster moving vehicle and still lack the judgmental abilities of an adult.(5,15,36)

Even once a child passes age 13 they still have difficulty making quick judgments and may push the limits of themselves and their ATVs.(36) Anecdotal evidence exists indicating that some children under 16 might be physically too large for the youth ATV models that were previously categorized by engine displacement size; therefore, new youth ATV guidelines were developed categorizing ATVs by speed limitations with parental controls corresponding to “Age Determination Guidelines”.(5,15,44,46) The Consumer Federation of America opposes the shift from defining ATV size based on engine size to speed, saying that speed definitions fail to consider the weight of the ATV and don’t address the common failure of speed limiting devices(7).

It is not known to what extent supervision reduces the risk of injury in children.(47) When deciding how much supervision would be adequate, factors such as characteristics of the child, potential hazards, and potential severity of injuries should be considered.(47) The highest level of supervision includes attention, proximity, and continuity.(47) Provincial regulations in Alberta only require supervision by an adult (≥ 18 years-old) when youth are driving an off-highway vehicle on public property.(1) This regulation may not be enough to reduce child mortality from ATVs as it does not specify an adequate level of supervision.(1) The majority of deaths in children less than 16 years of age appear to be occurring on private property, and helmets were confirmed to be worn by the deceased in only 3 out of 9 incidents on private property.(1) Adequate supervision may reduce the risk of death or injury by ensuring helmet and other protective equipment use, appropriate size ATV use, rider training, and speed control; however, injuries may still occur under adequate supervision considering the inherent dangers associated with ATVs.(1) ATVs need to be respected as motor vehicles not as simple, recreational toys.(1,11)

The North American Guidelines for Children’s Agricultural Tasks (NAGCAT) (www.nagcat.org) developed guidelines for parents to match their child's growth, development and personality with the requirements needed to do farm work with an ATV.(43) It provides specific questions for parents to assess their child’s abilities (physical, cognitive, and judgmental), training and supervision guidelines, as well as explanations of ATV operation hazards and necessary safety equipment.(43)



Wear an approved helmet with face and eye protection.

- Head injuries are the leading cause of serious injury and death in ATV-related injury events.(2,14,15,24,25)
- Facial injuries frequently happen to ATV operators.(14,26,27)
- Wear over-the-ankle boots with heels, sturdy gloves, long-sleeved shirts, and long pants.(2,8,16)

Head injuries account for 61% of ATV-related injuries and are the leading cause of death in ATV related events.(25) In Alberta, from 2002 to 2009 head injury caused 41%(n = 46) of ATV-related deaths to drivers and passengers.(2) Of the drivers and passengers who died of head injury 36 (78%) were not wearing a helmet.(2) A systematic review of the efficacy of motorcycle helmets to reduce morbidity and mortality from head injury found that helmets reduced risk of injury by approximately 69% and reduced the risk of death by approximately 42% among motorcycle riders. This review concluded that helmet use should be promoted globally for motorcycle rider safety.(21) No similar study exists regarding ATV use and helmets. A 5-year study done by Holmes, et al. (2004) found that maxillofacial injuries were also a common occurrence in ATV riders and occurred 24% more often in this population than they did in motorcycle riders and that individuals who sustain a maxillofacial injury are at an increased risk of neurologic impairment.(26) Organizations including the American Academy of Pediatrics recommend the use of motorcycle helmets at all times for all ATV riders as a means of reducing head injuries.(22)



Drive Sober – Alcohol, drugs and ATVs don't mix.

- **The consumption of alcohol and/or drugs (medication or illicit) is a major factor in ATV injuries and deaths.(2,24,25,29,30,31)**
- **Even a couple of drinks will impair the ability to operate an ATV.(8,20)**
- **Drinking alcohol and operating an ATV could result in an impaired driving charge.(28)**

Alcohol and drug intoxication has been implicated as possibly the most pervasive risk factor in ATV-related injuries.(31) It has been found that even small amounts of alcohol increase both the likelihood that the ATV user will be involved in an ATV collision and that the injuries sustained in the collision will be more severe.(31) The risk of sustaining a life threatening injury on an ATV after consuming alcohol is heightened by the impairment of the abilities needed to make quick physical adjustments and complex instant decisions.(20,32,33) In Canada, during 2004 and 2005, alcohol was a key factor in 38.7% of all severe ATV-related trauma.(24) A five-year review of ATV injuries in Nova Scotia revealed that alcohol contributed to 56% of ATV-related collisions.(34) Of Alberta's ATV fatalities from 2002 to 2009, 83/96 drivers were tested for alcohol, and it was found that 46/83(55%; 100% male) tested positive and of those testing positive for alcohol, 33/46(72%) were over the legal limit.(2) Organizations including the ATV Safety Institute, the United States Consumer Product Safety Commission, and Mothers Against Drunk Driving all recommend a zero tolerance for consumption of alcohol or drugs prior to or during operation of an ATV as the only course of action.(20,35,36) Also, organizations such as the ATV Safety Institute and manufacturers recommend that caution should be used when operating an ATV after taking prescription or over-the-counter drugs that can affect one's ability to properly operate a motor vehicle.(8,20)

Refuse to carry or be a passenger on ATVs built for one person.

- A passenger on a single rider ATV reduces the driver's ability to stop, turn or shift their weight. A passenger will make the ATV unbalanced.(15,37)
- Only carry one passenger on a tandem ATV in the designated passenger seat.(5)
- Never carry a passenger under 12 years of age or too small to grab the hand rails or plant their feet on the footrests of a tandem ATV.(5,37)

The majority of ATVs are designed to carry only one rider yet it is common to see ATVs carrying passengers.(13,15,25) The United States Consumer Product Safety Commission (2005) reports that ATV passengers represented 24% of all the ATV deaths and that 45% of the youth deaths they reviewed involved a multiple rider situation.(15) Furthermore, passengers were also frequently the ones who were injured.(15) A Canadian study found that ATV passengers were injured in 29% of ATV crashes.(38) Carrying a passenger on an ATV not engineered to do so, can affect the operator's steering, balance, stopping ability and a his/her ability to shift their weight when needed to maintain control of the vehicle. (5,13,15,39) The Canadian Paediatric Society strongly recommends that ATV operators never carry a passenger of any age on an ATV unless the manufacturer specifically states that a passenger is allowed. (13) For ATVs that are designed to carry a passenger, the passenger must be 12 years of age and large enough to be able to firmly place their foot on the footrests dedicated for the passenger and able to grab the passenger hand holds securely.(5,37) If not, they are too small to be a passenger.(5)

In Alberta from 2002 to 2009, 21/107 (20%) driver and passenger deaths involved multiple riders. Of the 17 deaths in drivers/passengers less than 16 years old, during the same time period, 10 (59%) involved multiple riders.(2)



Take an ATV operator training course.

- **Formal hands-on training is needed to understand how to avoid ATV risks.(5,9,16,40)**
- **Look for an ATV training course offered through reputable organizations such as the Alberta Safety Council.(41)**

The number of ATV operators with less than one year driving experience or who drive less than 25 hours per year has increased substantially, and it is this group that has “overwhelmingly” the greatest risk for injury.(42) An ATV driver training course may provide the experience necessary to reduce this risk.(5) ATV driver training can introduce a new ATV driver to common and dangerous situations that may occur during off-road situations and provide the necessary knowledge and skills with which to navigate those situations.(5) A recent study examining the effects of ATV safety education showed that ATV training significantly improved safety behaviors including helmet use, adhering to stated seating capacity, and never riding on paved roads. (47)



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