

## July 2018 Update from the Field: ATV Safety

**All-Terrain Vehicle Safety Knowledge, Riding Behaviors, and Crash Experience of Farm Progress Show Attendees.** Jennissen CA, Harland KK, Wetjen K, Hoogerwerf P, O'Donnell L, Denning GM. *Journal of Safety Research.* 2017;60:71-78.

**Introduction:** Although all-terrain vehicles (ATVs) are very popular in rural areas for both recreation and work purposes, the epidemiology of agricultural ATV use remains largely unknown. **Methods:** Farm Progress Show attendees in 2012 (Boone, Iowa) and 2013 (Decatur, Illinois) were surveyed about ATVs, including riding behaviors, crash history, and safety knowledge. Descriptive and comparative analyses were performed (N = 635 surveys). **Results:** Over half of those surveyed lived on a farm and more than 90% had ridden on an ATV. Sixty-one percent rode at least once a week and 39% reported riding almost daily. Males and respondents who lived on farms were significantly more likely to be ATV riders. Regarding unsafe behaviors, 80% of ATV users had ridden with a passenger, 66% had ridden on a public road, and nearly one-half never or almost never wore a helmet. Nearly 40% reported having been in a crash. Multivariable logistic regression analysis of adult respondent's data showed males and younger adults were both more likely to report having crashed. In addition, those reporting riding on public roads (but not having ridden with passengers) were nearly five times more likely and respondents who reported both riding on public roads and having ridden with passengers were approximately eight times more likely to have been in a crash as compared to those not reporting these unsafe behaviors. Safety knowledge did not necessarily correspond with safer behaviors; 80% who knew there should be no passengers on an ATV still had ridden with extra riders. **Conclusion:** ATV use is prevalent in rural populations and most riders report engaging in unsafe riding behaviors. **Practical applications:** These findings may be used to inform ATV safety education and training programs targeted toward agricultural communities, with the goal of reducing occupational ATV-related deaths and injuries and their substantial economic costs.

**Pediatric All-Terrain Vehicle (ATV) Injuries: An Epidemic of Cost and Grief.** Strohecker KA, Gaffney CJ, Graham J, Kaan I, Smith WR, Bowen TR. *Acta Orthopaedica et Traumatologica Turcica.* 2017;51:416-419.

**Objective:** Evaluate cost of care of all-terrain vehicle (ATV) related injuries sustained by riders 16 years and younger in Pennsylvania. **Methods:** Population-based retrospective cohort design reviewing costs of care of 78 patients ( $\leq 16$  years), admitted (01/01/2007-12/31/2009) to our institution for injuries sustained during an ATV accident. **Results:** Cost of care varied from \$322 to \$310,435. Mean and median costs for all patients were \$25,760 and \$8,066, respectively. Average costs increased with increasing age. Patients wearing helmets or driving the ATV had lower mean costs, but these trends were not statistically significant. Crashes with stationary objects not involving rollover or ejection had significantly lower mean costs than other crash types ( $p = 0.01$ ). Patients involved in rollover accidents were significantly more likely to require an overnight hospital stay (OR = 3.45,  $p = 0.02$ ). Patients wearing helmets were marginally less likely to require an overnight admission (OR = 0.34,  $p = 0.07$ ). **Conclusion:** ATV crashes involving unhelmeted riders and rollover accidents result in significant medical costs. Interventions to increase helmet use and measures to improve stability are likely to reduce these costs and shorten hospital stays.

**Age Legislation and Off-Road Vehicle Injuries in Children.** Flaherty MR, Raybould T, Kelleher CM, Seethala R, Lee J, Kaafarani H, Masiakos PT. *Pediatrics.* 2017;140(4).

**Background and Objectives:** In 2010, the Massachusetts Legislature passed a comprehensive law that restricted off-road vehicle (ORV) use by children  $<14$  years old and regulated ORV use by children up to the age of 18 years. We aimed to examine the impact of the 2010 Massachusetts law on the rates of ORV-related injuries. **Methods:** A retrospective analysis was performed of Massachusetts emergency department (ED) and inpatient discharges between 2002 and 2013 as found in the Center for Health

Information and Analysis database by using external causes of injury codes specific to ORV-related injuries. Yearly population-based rates were compared before and after the implementation of the law (2002–2010 vs 2011–2013) by using Poisson regression analysis and segmented regression. **Results:** There were 3638 ED discharges and 481 inpatient discharges for ORV-related injuries in children across the 12-year study period. After the implementation of the law, the rate of ED discharges declined by 33% in 0- to 9-year-olds, 50% in 10- to 13-year-olds, and 39% in 14 to 17-year-olds ( $P < .0001$ ). There was no significant decline in ED discharges for 25- to 34-year-olds. Inpatient hospital discharges were also reduced by 41% in 0- to 17-year-olds after implementation ( $P < .001$ ). **Conclusions:** As compared with adults (ages 25–34 years), the population-based ORV-related injury rate of residents <18 years old significantly declined after the passage of legislation that imposed age restrictions and other safeguards for youth riders.