

All-Terrain Vehicles in Mississippi: Policy Options for Saving Lives

September 2010

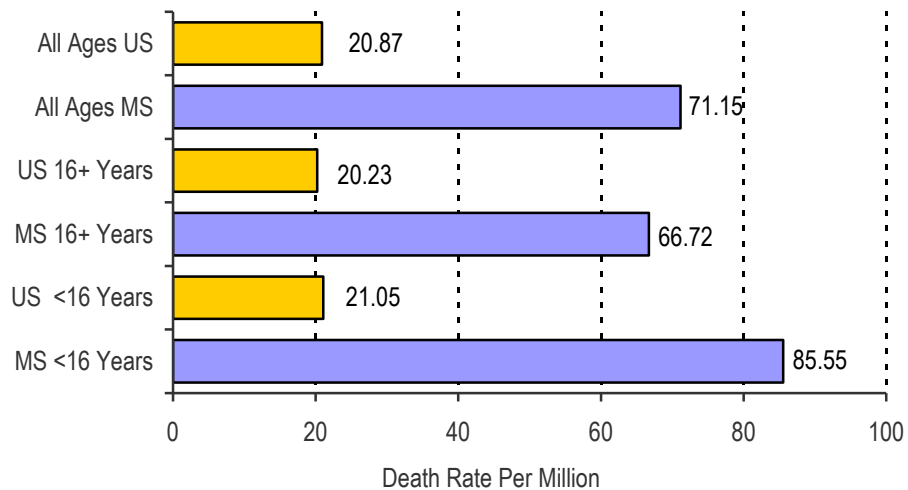
Background

Introduced to the United States in 1970, all-terrain vehicles (ATVs) were designed as off-road alternatives to motorcycles and quickly grew in popularity for family recreation, hunting, racing, agriculture, and ranching use.¹ While useful, ATVs have contributed to significant risks for fatality and injury.²⁻³ Research indicates ATV safety legislation effectively reduces these trends.⁴

ATV Fatalities

With the state ranking thirteenth highest in the nation for the number of deaths from ATV injuries, Mississippians of all ages are 3.5 times more likely to die from an ATV accident when compared with national ATV death rates.⁵ Mississippi children less than sixteen years of age have 28% higher rates of death from ATV injuries than people sixteen years and older⁶ as shown in Figure 1 below. This difference is statistically significant.

Figure 1. All-Terrain Vehicle Average Death Rates per Million by Age Group, Mississippi vs. United States, 1999-2008



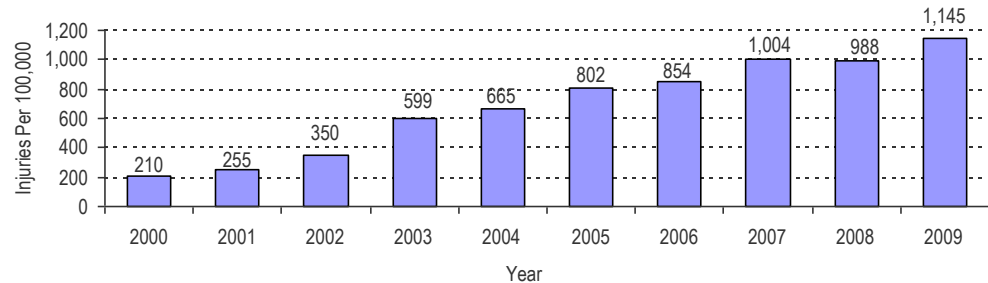
Source: Mississippi State Department of Health, *Vital Statistics, 1999-2008* and Consumer Reports Product Safety Commission, *2008 Annual Report of All-Terrain Vehicle (ATV)-Related Deaths and Injuries*, January 2010.

Four out of every five ATV deaths were males. More than three out of four (78%) ATV deaths occurred in whites.⁷ These patterns are reflected nationally: youth and white males in rural areas such as Mississippi are at increased risk of ATV-associated death.⁸

■ ATV Injuries

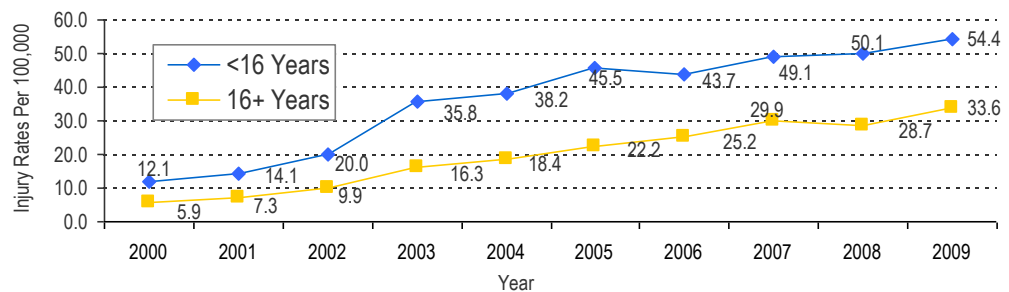
Over the last nine years, injuries associated with ATV accidents statewide have soared five-fold⁹ as displayed below in Figure 2. ATV injuries treated in emergency rooms nationally have increased over time by 84% from 82,000 to 150,900.¹⁰ For Mississippians, ATV injury rates are rising at a significantly higher rate in children less than sixteen years of age than for older persons, resulting in a widening gap between the age groups (Figure 3). In 2009, the ATV injury rate of 54.4 per 100,000 in youth under sixteen years of age was nearly double the injury rates of 33.6 per 100,000 for those sixteen and over. The most frequent site of body injury was on the head at 43% (Figure 4) in 2009, significantly ($p < .01$) higher than all other injuries on the body.¹¹ Nationwide, youth aged under sixteen treated in emergency rooms for ATV injuries rose 44% from 1999 to 2007.¹²

Figure 2. Trends of Injuries Associated with All-Terrain Vehicles in Mississippi, 2000-2009



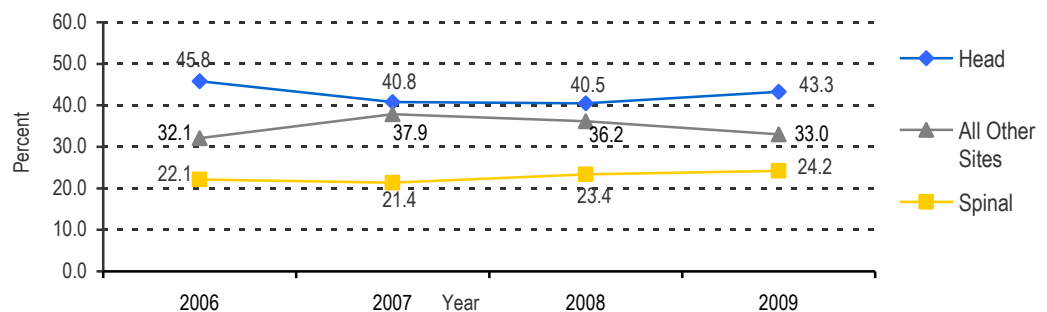
Source: Mississippi State Department of Health, Trauma Registry 2000- 2009. [Note: Only hospitals participating in the formal statewide trauma system reported to the trauma registry until 2009.]

Figure 3. Trends of Injury Rates per 100,000 Associated with All-Terrain Vehicles in Mississippi by Age Group, 2000-2009



Source: Mississippi State Department of Health, Trauma Registry 2000- 2009. [Note: Only hospitals participating in the formal statewide trauma system reported to the trauma registry until 2009.]

Figure 4. Trends of Percent Injury Associated with All-Terrain Vehicles in Mississippi by Site of Injury on the Body, 2006-2009



Source: Mississippi State Department of Health, Trauma Registry 2000- 2009. [Note: Only hospitals participating in the formal statewide trauma system reported to the trauma registry until 2009.]

Risk Factors

Research indicates the following are risk factors for ATV injuries: ¹³⁻¹⁶

- lack of helmet use;
- age less than 16 years;
- carriage of passenger(s) when not specifically designed for extra passenger(s);
- excessive speed and/or use on paved roads;
- use of drugs or alcohol;
- use after dark; and
- inexperienced operators.

Economic Impact

Economic costs associated with ATV deaths for children nationwide increased by \$300 million from 2000 to 2004. During the same time frame, economic costs from ATV-related fatalities increased by \$1,008 million for adults. ¹⁷

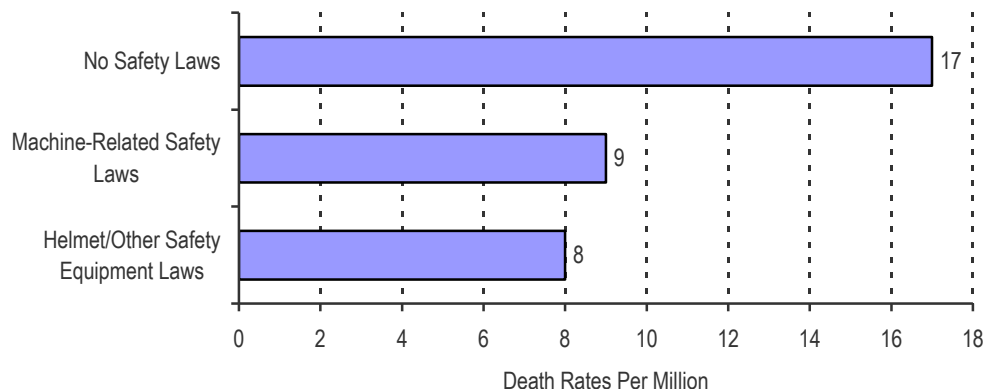
Policy Impact

High and increasing rates of injuries and deaths, particularly in young people, led to public concern over ATV safety by the early 1980's. In 1985, the United States Consumer Product Safety Commission undertook research to determine if regulatory action was essential. By 1988, major suppliers of ATVs agreed to take certain actions, in lieu of litigation, due to these safety concerns. ¹⁸ The agreement banned three-wheeled ATV production altogether, and introduced measures such as warning labels and safety education programs for the next ten years. In 1998, this formal agreement was replaced by a voluntary ATV Action Plan with similar provisions. ¹⁹

After ten years of required safety education at point of ATV purchase, ten years passed without requirements on the ATV industry. ²⁰ Research has shown the end of mandatory educational safety precautions for ATV users was related to increases in ATV injuries. ²¹

States without safety legislation have a collective death rate two times higher than states with ATV safety legislation, ²² seen below in Figure 5, a difference which is statistically significant. Helmet use alone by ATV riders has been found to reduce the risk of death by 42% and head injury by 64%. ²³

Figure 5. ATV Death Rates per Million: States with Safety Laws vs. States without Safety Laws



Source: Helmkamp, J.C. (2001). A Comparison of Site-Specific All-Terrain Vehicle-Related Death Rates, 1990-1999. *American Journal of Public Health*, 40:2, 725-732.

State Legislation

Mississippi is one of five states with no ATV safety legislation, with the exception of a statute limiting use of ATVs in state parks for designated areas. ATV use on public streets, highways, and paved roads is prohibited in thirty-seven states. Thirty-one states have legislation in place to restrict ATV use for those less than 18 years old. Helmets are required by twenty-five states for ATV riders, and eye protection is required by eight states. Safety certification must be completed for ATV riders in twenty states. Adult supervision is mandated by nineteen states. Fifteen states outlaw passengers the ability to ride with ATV drivers on public land, fifteen states require headlights be engaged before and after sunset, and one state limits youth riders to sunlight hours only.²⁴

Policy Options

Based on research indicating the greatest risk factors of ATV injury and death and evidence of the effectiveness of certain policies, the following policy options are generally considered by most states trying to reduce ATV related injuries and deaths:

- Mandate use of helmets and eye protection while riding;
- Prohibit use on public highways, streets, and paved roads except to cross;
- Require driver safety certification and supervision of youth by certified adults;
- Limit passengers to ATVs designed specifically for them;
- Stipulate ATVs be equipped with head and tail lamps for dark hour operation;
- Restrict youth to ride only during sunlight hours; and
- Ban use of adult-sized ATVs by youth.

Endnotes

- ¹ Moore, M. J., & Magat, W. A. (1997). The Injury Risk Consequences of the All-Terrain Vehicle Consent Decrees. *International Review of Law and Economics*, 17, 379-393.
- ² Mississippi State Department of Health. (2009). *Vital Statistics, 1999-2008*.
- ³ Mississippi State Department of Health. (2008). *Statewide Trauma Registry, 2000-2008*.
- ⁴ Moore, M. J., & Magat, W. A. (1997). The Injury Risk Consequences of the All-Terrain Vehicle Consent Decrees. *International Review of Law and Economics*, 17, 379-393.
- ⁵ Garland, S. (2010). *2008 Annual Report of ATV-Related Deaths and Injuries*. Division of Hazard Analysis. Washington, D.C.: U.S. Consumer Product Safety Commission.
- ⁶ Mississippi State Department of Health. (2009). *Vital Statistics, 1999-2008*.
- ⁷ *Ibid*.
- ⁸ Rodgers, G. B. (2008). Factors Associated With the All-Terrain Vehicle Mortality Rate in the United States: An Analysis of State Level Data. *Accident Analysis and Prevention*, 40 (2), 725-732.
- ⁹ Mississippi State Department of Health. (2009). *Statewide Trauma Registry, 2000-2009*.
- ¹⁰ Garland, S. (2010). *2008 Annual Report of ATV-Related Deaths and Injuries*. Division of Hazard Analysis. Washington, D.C.: U.S. Consumer Product Safety Commission.
- ¹¹ Mississippi State Department of Health. (2009). *Statewide Trauma Registry, 2000-2009*.
- ¹² Garland, S. (2010). *2008 Annual Report of ATV-Related Deaths and Injuries*. Division of Hazard Analysis. Washington, D.C.: U.S. Consumer Product Safety Commission.
- ¹³ Hall, A. J., Bixler, D., Helmkamp, J. C., Kraner, J. C., & Kaplan, J. A. (2009). Fatal All-Terrain Vehicle Crashes: Injury Types and Alcohol Use. *American Journal of Preventive Medicine*, 36 (4), 311-316.
- ¹⁴ Keenan, H. T., & Bratton, S. L. (2004). All-Terrain Vehicle Legislation for Children: A Comparison of a State With and a State Without a Helmet Law. *Pediatrics*, 113 (4), e330-334.
- ¹⁵ Balthrop, P. M., Nyland, J., & Roberts, C. S. (2009). Risk Factors and Musculoskeletal Injuries Associated with All-Terrain Vehicle Accidents. *Journal of Emergency Medicine*, 36 (2), 121-131.
- ¹⁶ Sanfilippo, J. A., Winegar, C. D., Harrop, J. S., Albert, T. J., & Vaccaro, A. R. (2008). All-Terrain Vehicles and Associated Spinal Injuries. *Spine*, 33 (18), 1982-1985.
- ¹⁷ Helmkamp, J. C. (2007). Death & Injury Resulting from ATV & Bicycle Crashes: A 5-Year Comparison of National Prevalence and Cost Estimates Among Children and Adults.
- ¹⁸ Rodgers, G. B. (1993). All-Terrain Vehicle Injury Risks and the Effects of Regulation. *Accident Analysis and Prevention*, 25 (3), 335-346.
- ¹⁹ David, J. A. (1998). *All-Terrain Vehicle Exposure, Injury, Death, and Risk Studies*. Division of Hazard Analysis. Washington, D.C.: United States Consumer Product Safety Commission.
- ²⁰ Moore, M. J., & Magat, W. A. (1997). The Injury Risk Consequences of the All-Terrain Vehicle Consent Decrees. *International Review of Law and Economics*, 17, 379-393.
- ²¹ Bansal, V., Fortlage, D., Lee, J., Kuncir, E., Potenza, B., & Coimbra, R. (2008). A 21-Year History of All-Terrain Vehicle Injuries: Has Anything Changed? *The American Journal of Surgery*, 195, 789-792.
- ²² Helmkamp, J. C. (2001). A Comparison of Site-Specific All-Terrain Vehicle-Related Death Rates, 1990-1999. *American Journal of Public Health*, 91 (11), 1792-1795.
- ²³ Rodgers, G. B. (1990). The Effectiveness of Helmets in Reducing All-Terrain Vehicle Injuries and Deaths. *Accident Analysis and Prevention*, 22 (1), 47-58.
- ²⁴ Special Vehicle Institute of America. (2008). *State Laws/Requirements*. Special Vehicle Institute of America, Irvine, CA.

For additional information on ATV policy in Mississippi go to: <http://www.mshealthpolicy.com>

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