

April 2010

ALL-TERRAIN VEHICLES

How They Are Used, Crashes, and Sales of Adult-Sized Vehicles for Children's Use



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Highlights

Highlights of [GAO-10-418](#), a report to congressional committees

Why GAO Did This Study

All-terrain vehicles (ATV), which are off-road motorized vehicles, usually with four tires, a straddle seat for the operator, and handlebars for steering control, have become increasingly popular. However, ATV fatalities and injuries have increased over the last decade and are a matter of concern to the Consumer Product Safety Commission (Commission), which oversees ATV safety, and to others. Many ATV crashes involving children occur when they are riding adult-sized ATVs. Manufacturers and distributors have agreed to use their best efforts to prevent their dealers from selling adult-sized ATVs for use by children under the age of 16.

The Consumer Product Safety Improvement Act requires GAO to report on (1) how ATVs are used and the advantages of their use and (2) the nature, extent, and costs of ATV crashes. GAO addressed these topics by reviewing ATV use and crash data and by discussing these issues with Commission staff, industry officials, user groups, and safety stakeholders.

What GAO Recommends

Among other things, GAO recommends that Commission staff resume undercover checks of dealers to check their willingness to sell adult-sized ATVs to children and consider how to enhance the agency's ability to prevent the sale of adult-sized ATVs for use by children. The Commission agreed with these recommendations.

View [GAO-10-418](#) or [key components](#). For more information, contact Susan Fleming at (202) 512-2834 or flemings@gao.gov.

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What GAO Found

ATVs are mainly used for recreation, but are also used in occupations such as farming and policing. According to a 2008 industry survey of ATV owners, 79 percent use them for recreation and 21 percent use them for work or chores. ATVs are also used as primary transportation in some remote communities, such as in parts of Alaska. GAO found little information that quantified the advantages of ATV use. However, users surveyed in 2008 said that riding provides them with personal enjoyment, allowing them, for example, to view nature and spend time with their families. In addition, trail managers and local business officials in areas of the country where trails have been established, such as West Virginia, said the surrounding communities have benefited economically from spending by ATV riders.

Injuries and fatalities increased substantially during the last decade, but not as rapidly as the number of ATVs in use, which nearly tripled. According to Commission staff, an estimated 816 fatalities occurred in 2007—the agency's most recent annual estimate—compared with 534 in 1999, a 53 percent increase. However, from 1999 through 2005—the most recent period for which fatality estimates are complete—the risk decreased from 1.4 deaths per 10,000 four-wheeled ATVs in use to 1.1 deaths per 10,000 ATVs in use, or 21 percent. Regarding injuries, an estimated 134,900 people were treated in emergency rooms for ATV-related injuries in 2008, compared with about 81,800 in 1999, a 65 percent increase. However, the estimated risk of an emergency room-treated injury per 10,000 four-wheeled ATVs in use decreased from 193 injuries per 10,000 four-wheeled ATVs in use to 129.7 injuries in 2008, or 33 percent. About one-fifth of the deaths and about one-third of the injuries involved children. Crashes involving children frequently occurred when they rode adult-sized ATVs, which are more difficult for them to handle. Manufacturers and distributors have agreed to use their best efforts to prevent their dealers from selling adult-sized ATVs for use by children, but recent GAO undercover checks of selected dealers in four states indicated that 7 of 10 were willing to sell an adult-sized ATV for use by children. Commission staff suspended similar checks in early 2008 because of higher priorities. Commission staff have estimated that the costs of ATV injuries and fatalities more than doubled during the last decade from about \$10.7 billion in 1999 to \$22.3 billion in 2007 (in 2009 dollars). Safety stakeholders, including industry officials, said that ATV injuries could be reduced through training and wearing proper equipment such as helmets.

ATVs Being Used for Recreation, for Medical Transportation, and Farming



Source: GAO; Southeast Region Emergency Services Council, Inc.; (reprinted with permission); National Institute for Occupational Safety and Health.

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Abbreviations

ATV	all-terrain vehicle
Commission	Consumer Product Safety Commission
Hatfield-McCoy	Hatfield-McCoy Trails

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United States Government Accountability Office
Washington, DC 20548

April 8, 2010

The Honorable John D. Rockefeller IV
Chairman
The Honorable Kay Bailey Hutchison
Ranking Member
Committee on Commerce, Science, and Transportation
United States Senate

The Honorable Henry A. Waxman
Chairman
The Honorable Joe Barton
Ranking Member
Committee on Energy and Commerce
House of Representatives

All-terrain vehicles (ATV) have become increasingly popular over the last decade, with more than 10 million currently in use. ATVs, which are off-road motorized vehicles, usually with four tires, a straddle seat for the operator, and handlebars for steering control, are primarily used as recreational vehicles, but are also used for occupations such as police work and farming. Unfortunately, the numbers of ATV-related fatalities and injuries have increased with ATV use. According to estimates for the most recent 4 years available, more than 800 fatalities and about 400,000 injuries have occurred annually. ATV fatalities and injuries, particularly those involving children,¹ have been a long-standing concern of consumer safety advocates and the Consumer Product Safety Commission (Commission), which regulates the vehicles' safety. In 2008, Congress enacted the Consumer Product Safety Improvement Act of 2008,² which imposed additional safety requirements on ATV manufacturers and distributors and enhanced the Commission's authority to regulate ATV safety.

¹Regarding ATVs, the Consumer Product Safety Commission (Commission) and the ATV industry consider children to be under 16 years of age. Commission staff data since 1999 show ATV fatalities involving children who were as young as 1 year old.

²Pub. L. No. 110-314, § 232, which amended the Consumer Product Safety Act, Pub. L. No. 92-573, as amended (codified at 15 U.S.C. ch. 47).

The act also directed us to report on the advantages of ATV use and the incidence of fatalities and injuries. In response, we examined what is known about (1) how ATVs are used and the advantages of their use and (2) the nature, extent, and costs of ATV fatalities and injuries. To identify uses and advantages, we reviewed studies on the uses of these vehicles and advantages derived from them and interviewed user groups and industry officials. To research the incidence of fatalities and injuries, we reviewed ATV fatality and injury data compiled by Commission staff for 1999 through 2008 and interviewed safety stakeholders about the causes of ATV fatalities and injuries. Because 2005 is the most recent year for which Commission staff have completed data collection on ATV fatalities and injuries and because the staff have not yet received complete data on fatalities for 2006, 2007, and 2008, this report contains the results of certain analyses of fatalities both for 1999 through 2005 and, when available, for 2006 through 2008. Based on our discussions with Commission staff knowledgeable about the data contained in this report, we determined that the data are sufficiently reliable for the types of analyses that we performed of trends in ATV fatalities. In addition, to better understand ATV uses, fatalities, and injuries, we visited areas of the country where ATVs are widely used (Alaska and West Virginia). Furthermore, we conducted undercover visits of selected dealers to test whether they were willing to sell adult-sized ATVs for use by children—a practice that manufacturers and distributors have agreed they would use their best efforts to prevent.

During our review, we found that significantly less information was available on the uses of ATVs and the resulting advantages than on ATV fatalities and injuries and their associated costs. Therefore, we note that our report contains more information on the latter. We do not intend for this to suggest that ATVs' utility to users is outweighed by costs to individuals and society arising from that use. Furthermore, because the Consumer Product Safety Improvement Act did not direct us to, we generally did not evaluate the Commission's ATV safety oversight. However, in examining the incidence of fatalities and injuries involving children, we reviewed the Commission's efforts to prevent the sale of adult-sized ATVs for use by children.

We conducted this performance audit from July 2009 through April 2010 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions

based on our audit objectives. We conducted our related investigative work in accordance with standards prescribed by the Council of the Inspectors General on Integrity and Efficiency. Additional information about our scope and methodology is contained in appendix I.

Background

ATVs are intended for use on various types of unpaved terrain. They have large, low-pressure tires; straddle seats; and handlebars for steering control.³ ATVs generally are intended for use by a single operator; however, some models have a seat for an additional passenger. ATVs are considered to be “rider-active” vehicles—that is, when the operator shifts his or her body weight, the operation of the vehicle is affected, including the turning and stability of the vehicle. Although three-wheeled ATVs originally were produced, nearly all ATVs in use today are four-wheeled vehicles.

ATVs are available in a number of different models. For example, sport ATVs are designed for recreational trail riding. Utility ATVs are also recreational vehicles, but have cargo racks and can be fitted with attachments, including trailers, and have utility purposes such as doing chores and for farming. Additionally, ATVs are available in youth-sized and adult-sized models. (See fig. 1.) Youth-sized models typically have engine sizes that are typically 90 cubic centimeters or less and weigh less than 300 pounds, while adult-sized models have engine sizes that range from 90 cubic centimeters to 1,000 cubic centimeters and weigh between 300 and 700 pounds. A new “transition” model, which is designed for children who are 14 years old or older and are under adult supervision, has an engine size of about 150 cubic centimeters and weighs around 350 pounds.

³The Commission staff’s definition of ATVs does not include off-road motor vehicles having steering wheels and either bench or bucket seats (e.g., golf carts, dune buggies, recreational off-road vehicles, and certain types of utility vehicles).

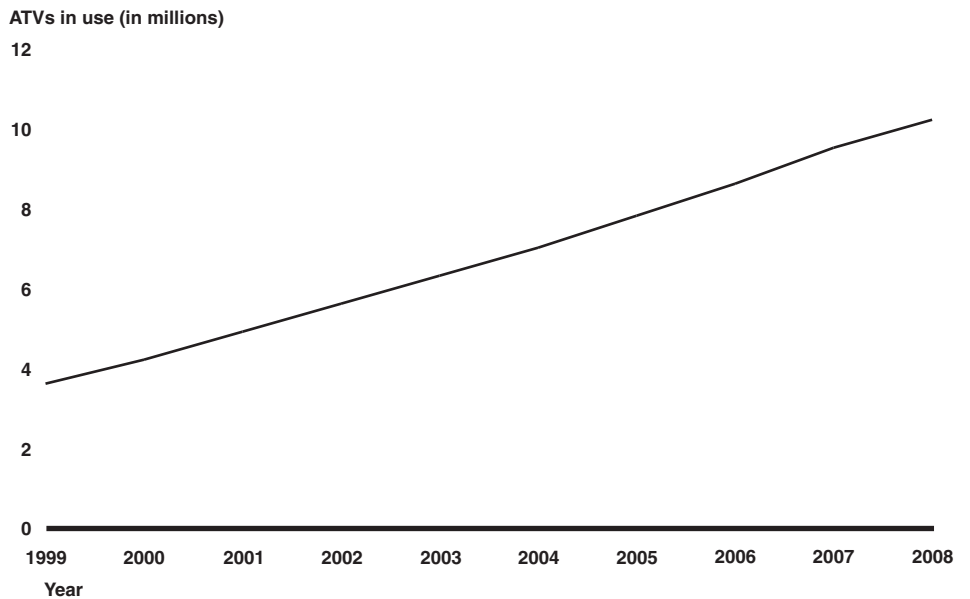
Figure 1: Youth-Sized, Adult-Sized, and Sport Model ATVs



Source: Specialty Vehicle Institute of America.

ATVs were first introduced in the 1970s. Sales of the vehicles increased substantially in the 1980s and more than tripled from 1980 to 1985. Moreover, according to Commission staff estimates, the number of four-wheeled ATVs in use nearly tripled during the last decade, from about 3.6 million in 1999 to about 10.2 million in 2008, an increase of 183 percent. (See fig. 2.) However, Commission staff estimates of the number of ATVs in use do not include information on how often the vehicles are used or how many miles they are ridden.

Figure 2: Estimated Number of Four-Wheeled ATVs in Use, 1999 through 2008



Source: Consumer Product Safety Commission staff.

According to a 2008 survey of ATV owners conducted by the Motorcycle Industry Council, a trade association that represents motorcycle manufacturers and distributors and works with the Specialty Vehicle Institute of America,⁴ which represents ATV manufacturers and distributors, nearly 40 percent of ATV riders are younger than 30 years of age. Although the survey also found that the majority of ATV riders—81 percent—are male, it indicated that the number of female riders had increased 138 percent since 2000.

The ATV market in the United States has changed in recent years as new entrants, mainly from China and Taiwan, have gained market share from the traditional manufacturers in the United States (e.g., Honda, Polaris, and Yamaha). According to a market research firm⁵ that collects data on U.S. ATV sales, the market share represented by new entrants increased

⁴The Specialty Vehicle Institute of America is an industry group that is open to ATV manufacturers and distributors that have been in business for at least 2 years (not necessarily in the United States). The group has 11 company members.

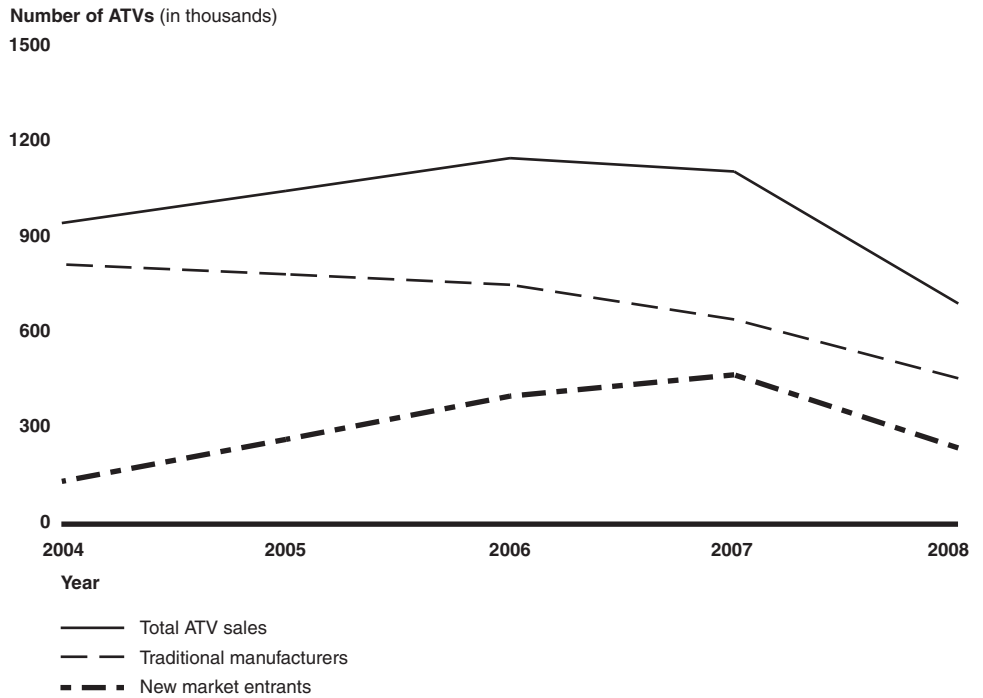
⁵Power Products Marketing of Minneapolis, Minnesota.

from 14 percent in 2004 to 42 percent in 2007 before declining to 34 percent in 2008.⁶ As shown in figure 3, total U.S. sales of ATVs declined from about 1.1 million units in 2007 to 689,000 units in 2008, a decrease of about 400,000 vehicles, which industry officials attributed to the economic recession. The market research firm also estimated that youth-sized models represented about 39 percent of all U.S. ATV sales in 2008 and that the new entrants sold about 83 percent of youth-sized models. According to the Specialty Vehicle Institute of America, youth-sized models typically cost between \$1,600 and \$3,400 and adult-sized models typically cost between \$2,300 and \$13,700. A transition model costs between \$3,200 and \$3,350.⁷ However, we also found some youth-sized ATVs being sold via the Internet that were priced at less than \$500.

⁶An official from Power Products Marketing told us these estimates are based on data collected from ATV manufacturers, dealers, distributors, and component manufacturers.

⁷The Specialty Vehicle Institute of America provided these prices, which are based on voluntary financial reports made yearly by ATV manufacturers to the Motorcycle Industry Council. An official from the Specialty Vehicle Institute of America told us that not all manufacturers, such as those from China and Taiwan, report their prices to the Motorcycle Industry Council. The official also told us he was aware of only one transition model ATV.

Figure 3: U.S. ATV Sales by Traditional Manufacturers and New Market Entrants, 2004 through 2008



Source: Power Products Marketing.

The Commission is an independent federal agency charged with protecting the public from unreasonable risks of serious injury or death from thousands of types of consumer products,⁸ including ATVs. As part of its safety oversight responsibilities, the Commission regulates ATV performance to promote safe design practices and produces an annual report on fatalities and injuries.⁹ Commission staff told us they collect data on fatalities by reviewing death certificates collected from states, news reports, and other sources, and investigate, or attempt to investigate, every ATV fatality by examining official reports. In addition to counting the

⁸The Consumer Product Safety Act and the Consumer Product Safety Improvement Act address the safety of products. Products that do not meet safety standards or present substantial product hazards may be seized or recalled.

⁹The Commission staff's most recent annual report on ATV fatalities and injuries, for 2008, was released on January 21, 2010.

number of documented fatalities, because some ATV fatalities are not reported,¹⁰ Commission staff also estimate the number of fatalities. Moreover, because ATV fatalities may not be reported immediately, it normally takes 3 years for Commission staff to receive data on fatalities for a given year.

In addition to collecting data on fatalities, Commission staff collect data on injuries from the agency's National Electronic Injury Surveillance System, which is a national probability sample of hospitals in the United States and its territories. According to Commission staff, the agency's estimated ATV injury data are current for that reporting year.

The Commission's work on ATVs began in the mid-1980s in response to reports of rapidly growing numbers of fatalities and injuries, especially of those involving children. In 1987, the Commission filed a lawsuit against five companies that were the major sources of ATVs in the United States at the time, seeking to end the marketing and sale of three-wheeled ATVs, among other actions.¹¹ In its lawsuit, the Commission alleged that ATVs were an "imminently hazardous consumer product." In 1988, the Commission and the ATV manufacturers and distributors¹² settled the lawsuit through a consent decree that was effective for 10 years. The decree required manufacturers and distributors to (1) stop selling new three-wheeled ATVs and repurchase unsold stock from dealer inventory;¹³ (2) promote and sell four-wheeled adult-sized ATVs (i.e., those with engines of more than 90 cubic centimeters) only for the use of riders age 16 and over; (3) promote and sell youth-sized ATVs (i.e., four-wheeled machines with engines of between 70 and 90 cubic centimeters) only for

¹⁰Some ATV fatalities are never reported. Therefore, as seen in table 6 in appendix II, the estimated number of fatalities contained in this report during each year from 1999 through 2007 is higher than the number of documented cases.

¹¹Most ATVs produced at that time were three-wheeled vehicles.

¹²The defendants to the lawsuit brought by the Commission did not include firms that actually manufactured ATVs but did include their affiliates who, among other things, imported ATVs. For consistency we refer to these firms as "manufacturers" because that term, as used in federal law in defining the Commission's jurisdiction and powers, includes, as a "manufacturer," any person who manufactures *or imports* a consumer product. 15 U.S.C. § 2052(a)(11). A "distributor" is defined as any person to whom a consumer product is delivered or sold for purposes of distribution in commerce, except that such term does not include a manufacturer or retailer of such product. 15 U.S.C. § 2052(a)(8).

¹³Although the decree stopped the production of three-wheeled ATVs, they were not recalled from the market.

the use of riders age 12 and older; (4) provide free training to all ATV purchasers and their immediate families; (5) conduct a nationwide safety public awareness media campaign; (6) adhere to guidelines for advertising and promotional materials; (7) include specified warnings on labels and in owners' manuals; and (8) to develop a voluntary ATV industry standard.¹⁴ The manufacturers and distributors committed themselves to use their best efforts to accomplish these undertakings through their retail dealers, agents, or representatives who sell ATVs. To carry out this commitment, the manufacturers and distributors subsequently agreed with the Commission to monitor their dealers, particularly with regard to the age recommendations, among other things.

After the consent decree expired in 1998, the five ATV manufacturers and distributors that were part of the settlement and three companies that had entered the market later agreed to submit voluntary safety action plans to the Commission describing how they would continue to follow the safety measures contained in the decree. The consent decree also required the companies to develop a voluntary industry standard, which would address the design, configuration, and performance of ATVs.¹⁵ In 2008, Congress reauthorized the Commission, enacting the Consumer Product Safety Improvement Act. Among other things, the act (1) required the Commission to adopt the industry standard, ANSI/SVIA-1-2007, making it a mandatory consumer product safety standard;¹⁶ (2) effectively banned the importation and distribution of three-wheeled ATVs; and (3) required manufacturers and distributors to file action plans with the Commission, which the agency must approve before those companies' products may be sold in the United States. As of March 2010, the Commission had approved 29 of 71 submitted action plans¹⁷ in addition to eight plans of the original

¹⁴The voluntary standard included vehicle performance issues such as configuration requirements for service and parking brakes, mechanical suspension, stability, and maximum speed capabilities for youth-sized models. Operator age restrictions were presented only as recommendations. Under the consent decree, ATVs were required to be placarded and tagged, placing potential buyers on notice of a number of safety related matters, including the hazards presented when they are operated by children.

¹⁵The first iteration of the voluntary standard was completed in 1990.

¹⁶On November 14, 2008, the Commission published a final rule adopting the ATV industry standard, ANSI/SVIA -1-2007, as a mandatory consumer product safety standard, effective April 13, 2009. 73 Fed. Reg. 67385. Commission staff said they are considering issuing additional regulations on ATV safety.

¹⁷Commission staff said that some action plans were still being reviewed and that some companies did not resubmit their plans after Commission staff initially rejected them.

ATV manufacturers that were submitted prior to August 14, 2008, and were grandfathered in, according to the statute, for a total of 37 “approved” plans. Commission staff told us they provide the U.S. Customs and Border Patrol with the names of manufacturers and distributors with approved action plans so that companies without approved plans can be barred from importing their products into the United States.

The mandatory standard defines youth-sized ATVs by their maximum speeds, rather than by engine size, as under the consent decree. Under the standard, maximum speed capabilities are provided for four types of youth-sized models. These capabilities depend on the rider’s age. In addition, the standard requires that all youth-sized models be equipped with a speed governor that limits the vehicle to a certain speed but can be adjusted or removed with the use of a tool or other specialized device so that vehicle can then go faster. The standard addresses two types of maximum speed capabilities: (1) when a required speed governor is in use and (2) when the speed governor is disabled or removed. (See table 1.) For example, youth models designed for children 6 years of age and older are limited to a maximum speed of 10 miles per hour when the speed governor is used and 15 miles per hour when the governor is disabled. The standard requires manufacturers to deliver ATVs with the speed-limiting devices adjusted for the respective youth categories.

Table 1: ATV Requirements for Speed Limits for Youth-Sized ATVs

Youth-sized age classification	Maximum limited speed capability— with a speed governor (mph)	Maximum unrestricted speed capability— without a speed governor (mph)
Y-6+: children 6 years old and older	10	15
Y-10+: children 10 years old and older	15	30
Y-12+: children 12 years old and older	15	30
Transition: children 14 years old and older	20 and 30	38

Source: American National Standard for Four Wheel All-Terrain Vehicles (ANSI/SVIA-1-2007).

While federal statutes and regulations primarily address manufacturing, importing, and design issues involving ATVs, state or local governments sometimes regulate their use. These regulations typically address issues such as registration, minimum operating ages, and helmet usage. More information about state laws on ATV use is provided in the section on fatalities and injuries of this report.

ATVs Have Recreational, Occupational, and Transportation Uses

ATVs are primarily used for recreational purposes; however, ATVs are used for occupations such as farming; for government functions, such as policing and patrolling public lands; and for transportation in remote areas. Although we found little information that quantified the uses of ATVs and the advantages of their use, a survey of owners conducted by the Motorcycle Industry Council in 2008—according to Commission staff, the only recent national survey of ATV owners—indicated that 79 percent use their ATVs recreationally and that the most common recreational activities were pleasure riding and trail riding. (See fig. 4.) Owners also reported using their ATVs for other recreational activities such as hunting, camping, fishing, and racing. (See table 2.) The two types of ATVs available—sport and utility models—are used for specific recreational purposes. For example, sport ATVs are used for recreational trail riding and racing, while utility ATVs are used for activities such as camping because they are designed with cargo racks and can be fitted with attachments. One dealer told us that outdoors enthusiasts, such as campers and hunters, use ATVs because some outdoor areas cannot be reached with other four-wheel-drive vehicles, such as jeeps. He also said that ATVs can be easily towed and that some are light enough to be placed on a truck bed, allowing them to be transported to a trail or park and be packed with gear that otherwise could not be carried.

Figure 4: Examples of Recreational ATV Riding



Sources: GAO; Max Reid (reprinted with permission).

Table 2: Reported ATV Use by Type of Recreational Activity, 2008

Recreational activity	Percentage of respondents reporting use
Pleasure riding	84
Trail riding	66
Exploring/sightseeing	46
Hunting	40
Camping	25
Fishing	21
Hiking/backpacking	8
Competition/racing	6
Other	7

Source: Motorcycle Industry Council.

In the owners' survey, owners were asked to rank possible reasons for riding on a scale from 1 to 10, with 1 being "not important" and 10 being "very important." Their top responses were having fun, enjoying the outdoors, and exploring hard to reach places. Owners also said that relaxation and family activity were important reasons for riding. (See table 3.) Other state-based surveys of ATV riders that we reviewed supported the results of the nationwide owners' survey. For example, a 2005 survey of registered owners in Minnesota found that relaxation, being in a natural area, and being with friends and family were the most important advantages of ATV riding. In addition, a 2005 survey of ATV club members in New York found that riding with family and friends, relaxation, and viewing the scenery were some of the highest-rated advantages of ATV riding.¹⁸ Two officials from user groups told us that riding is a family activity and that ATVs have enabled a broader cross-section of the population, including older riders, to experience and appreciate the outdoors. We spoke with the owner of an ATV touring business in Alaska who told us that the company receives much of their business from families and travelers arriving on cruise ships who are seeking an easy way to see the Alaskan countryside.

¹⁸These survey results were published in a January 2006 report that examined ATV riding in the Tug Hill region of New York.

Table 3: Reported Reasons for Riding ATVs, 2008

Reason for riding	Average score
Fun/recreation	8.7
Enjoy outdoors/nature	8.5
Explore back country/hard-to-reach places	7.7
Relaxation/stress release	7.7
Sense of freedom	7.6
More versatile than other vehicles	7.2
Family activity	7.1
Physical challenge	5.5
Sense of accomplishment/good for self-image	5.4
Utility/business use/household chore	5.4
Fuel economy	4.9
Practical/economical form of transportation	4.8

Source: Motorcycle Industry Council.

Although the owners' survey indicated that most recreational riding occurs on private property, ATV trails and riding areas have been designated on federal, state, and private lands throughout the country. An official from the National Off-Highway Vehicle Conservation Council, an organization that promotes the availability of trails for off-highway vehicles, including ATVs, told us that there are a number of riding locations, especially areas on private lands that have designated difficulty levels, ranging from ones designed for beginners to others for riders with more advanced skills. Trail managers told us that some of these trails have become popular destinations for groups of riders, particularly for families. For example, a former Paiute Trail manager told us that the trail has gained popularity and the number of ATV riders accessing the Paiute Trail in south-central Utah increased from about 23,700 in 1995 to about 85,000 in 2009, a 259 percent increase. He told us the Paiute Trail provides access to over 700 miles of connected trails. These riding areas host ATV events that attract enthusiasts from all over the country. For example, the former Paiute trail manager told us that the number of participants in the Rocky Mountain Jamboree, an event that includes an ATV parade and guided tours, grew from 41 in 1993 to over 500 in 2009.

Some studies have shown that spending by ATV riders on items such as food, lodging, gasoline, and vehicle accessories has had a positive

economic impact on local communities and has increased state and local tax revenues.¹⁹ For example, a study on the economic impact of ATVs in West Virginia, conducted by researchers from Marshall University who were hired by the Hatfield-McCoy Trails (Hatfield-McCoy), a major trail system in southern West Virginia, found that the number of ATV-related businesses in the localities near the trail had increased, causing these businesses to hire additional employees.²⁰ In addition, in Minnesota, where many ATVs are ridden and manufactured, the University of Minnesota surveyed riders about their spending and asked retailers and manufacturers to determine the economic impact of all ATV-related activities. This study found that ATVs have had a positive economic impact on the state, in terms of both retail sales and job creation.²¹ However, these study findings cannot be generalized to all trails nationwide, and the studies did not report whether the spending would have occurred for other recreational activities, if not for ATV use.²²

We visited the Hatfield-McCoy Trails, which, according to officials at a regional transportation institute,²³ were created and are supported by the West Virginia state legislature to increase tourism in the state. Hatfield-

¹⁹These studies typically surveyed riders registered in a particular state or collected information on-site at trails on riders' personal characteristics, state of residence, typical number of days on an ATV-related trip, and estimated amount of money spent during the trip and on related expenses, such as vehicle accessories and storage. Researchers then used this information to estimate the total economic impact in the area.

²⁰The Center for Business and Economic Research at Marshall University surveyed Hatfield-McCoy trail users about their spending and using an economic modeling system estimated that in 2005 the trails contributed nearly \$8 million to the state and local economy and about \$623,000 in state tax revenues.

²¹The Minnesota Department of Natural Resources analyzed findings from a 2007 University of Minnesota's survey of ATV-related spending and found that riders contributed \$137.9 million in direct spending in 2007, which resulted in \$41.3 million in salaries and \$10.5 million in state and local revenues. In 2005, the University of Minnesota estimated the impact of ATV retail activity and manufacturers and found that they contributed \$39.2 million and \$165.6 million in salaries and \$6.9 million and \$30.4 million in state and local revenues, respectively. These salaries and state and local revenues include the economic impact that rider spending has on ATV-related businesses, suppliers to those businesses, and the impact of the spending by employees of ATV-related businesses locally.

²²We chose to discuss the economic impact of studies about trails in Minnesota and West Virginia in this report because they were done recently and because of the methodologies used. Several studies also have been conducted on trails in other states.

²³The Nick J. Rahall III Appalachian Transportation Institute provides technical trail services to Hatfield-McCoy and served as the lead organization for the Marshall University economic impact study.

McCoy consists of six distinct trail loops, located in or close to cities in West Virginia, totaling more than 500 miles. According to the Hatfield-McCoy trail manager, the trail has become increasingly popular among ATV riders. He said that over 30,000 trail permits were sold in 2009, the majority of which were sold to people outside the state, compared with almost 4,000 permits sold in 2000. We spoke with hotel and restaurant owners in Gilbert, West Virginia, where one of the Hatfield-McCoy trailheads is located, who said that their businesses are directly supported by ATV riders visiting the trail. (See fig. 5.) The hotel owner told us that his hotel, which lodges up to 14 guests, is generally booked weeks in advance. He also said that finding a place to stay during the annual Trail Fest near Gilbert is particularly difficult and some of the event participants are forced to stay an hour outside of the city. The Hatfield-McCoy trail manager told us that the city of Gilbert supports the ATV trail, recognizing the importance of the trail to the city's businesses, and has passed an ordinance allowing ATV riders to use public roads to access trailheads.²⁴

Figure 5: Hatfield-McCoy Trailhead and Nearby Restaurant



Source: GAO.

²⁴The ATV industry recommends against riding these machines on paved roads.

ATVs Have Various Occupational Uses and Advantages

Owners and manufacturers report that ATVs have unique features that make them advantageous for completing certain work and chore activities. The owners survey found that ATVs are used for activities such as hauling or towing, doing yard work, maintaining property, and other tasks. (See table 4.) Officials from a manufacturer told us that utility ATVs are ideal for these types of tasks because they are able to maneuver in all types of terrain, be fitted with a number of different accessories such as snow plows and winches, and carry about six times more weight and travel more than eight times faster than a person. An official from the National Farmers Union, a national farming organization, told us that ATVs were used on her family’s farm for tasks such as carrying supplies around the farm, fixing fences, and herding cattle and livestock. One official from the National 4-H Council told us that 37 percent of their member families own ATVs for use on their farms. An official from another user group told us that ATVs can traverse areas such as irrigation ditches that are inaccessible to other vehicles. Some farmers purchase accessories to attach to ATVs, such as sprayers that are attached to the back of an ATV to spray pesticides. (See fig. 6.) Manufacturing officials told us that ATVs are useful for a number of other occupations. For example, ATVs are used in oil production, construction workers use them for large roofing jobs, utility companies use them to maintain power lines, and lifeguards use them to patrol beaches.

Table 4: Reported ATV Use for Work or Chores, 2008

Work/chore activity	Percentage of respondents reporting use
Hauling/towing	66
Landscaping/yard work/gardening	58
Property management/maintenance	44
General transportation	35
Farming/ranching	35
Snow plowing	19
Agricultural plowing or spraying	16
Construction/industrial	8
Other	6

Source: Motorcycle Industry Council.

Note: Reflects percentage of responses reporting use of ATVs for work or chores.

Figure 6: ATVs Used in Farming



Sources: Polaris (reprinted with permission); National Institute for Occupational Safety and Health.

In addition to private-sector users, government agencies, such as the Census Bureau, the military, land agencies, and police and search-and-rescue units use ATVs to carry out their functions. For example:

- A Census Bureau official said that some census workers use ATVs to deliver questionnaires to people living in remote areas in states such as Alaska and Maine.
- Officials from the U.S. Department of Defense told us that military personnel use ATVs for base maintenance, carrying heavy gear, and maneuvering through extreme terrain. (See fig. 7.)
- Officials at land management agencies, such as the Bureau of Land Management, U.S. Forest Service, and U.S. Fish and Wildlife told us they use ATVs to monitor and inspect public lands. For example, a Bureau of Land Management official in Alaska told us that between 30 and 40 ATVs are used for firefighting support, transporting employees and gear, accessing remote areas, and spraying pesticides.
- An officer from the San Antonio Police Department told us that the department uses 12 ATVs to patrol local nature parks. (See fig. 7.) Also, an Alaska Wildlife Trooper told us that the Alaska Department of Public Safety has a fleet of 45 ATVs to monitor its lands for illegal hunting and fishing.
- Additionally, search-and-rescue officials use ATVs for their missions. For example, an official from the Southeast Regional Emergency Services Council in Alaska told us that first responders cannot wait for ambulances

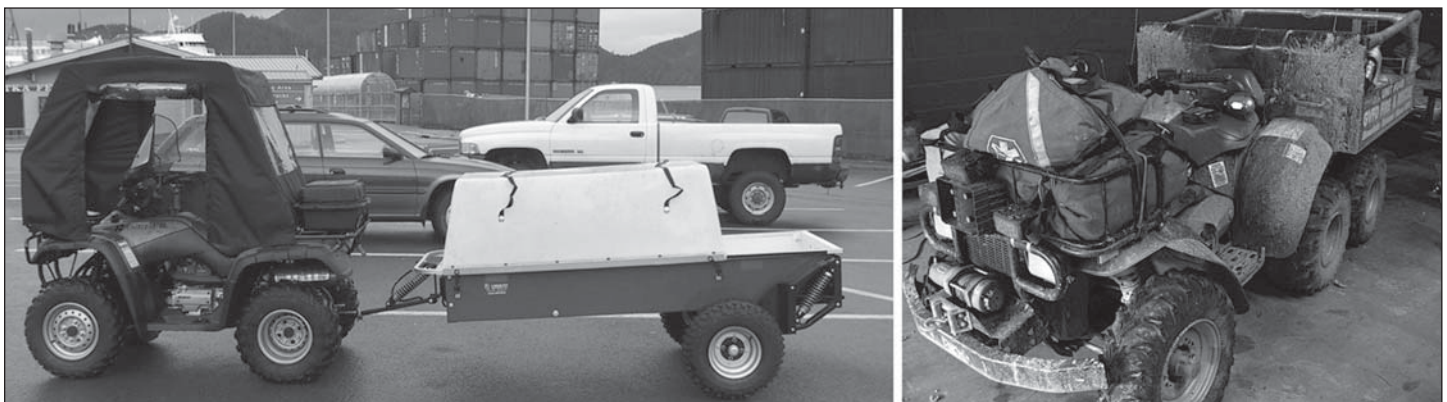
and are trained to use ATVs to transport victims on a sled attached to the back of an ATV. (See fig. 8.) She told us that Alaska has a statewide program that provides funding for about 70 ATVs equipped for emergencies. We also observed an ATV at a fire station in West Virginia that was equipped with emergency rescue equipment to help rescuers reach victims in rugged areas. (See fig. 8.)

Figure 7: ATVs Used by the Military and a Police Department



Sources: U.S. Department of Defense; San Antonio Police Department (reprinted with permission).

Figure 8: ATVs Used for Search and Rescue



Sources: Southeast Region Emergency Services Council, Inc. (reprinted with permission); GAO.

ATVs Are Used Routinely for Transportation in Certain Areas

We also found that people in rural and remote areas use ATVs for transportation. Thirty-five percent of the owners surveyed in 2008 reported using their ATV for general transportation purposes. (See table 4.) An official from the Alaska Department of Health told us that some communities in Alaska use ATVs as a primary mode of transportation. For example, residents of Kotzebue, Alaska, a community we visited, routinely use ATVs for transportation and subsistence hunting. Community representatives told us during an interview that ATVs are more convenient to use than other vehicles because the city has only two paved roads within the city limits. They told us that the only way to travel by land to other cities or villages is by using trails developed specifically for ATVs or snowmobiles. In addition, they said that an ATV is generally less expensive to operate than a car or truck because it has better gas mileage and is less expensive to maintain and ship. One Kotzebue police officer told us that residents use ATVs as their “family car,” commuting to work and school and running errands. (See fig. 9.)

Figure 9: ATVs Used as a Primary Mode of Transportation



Source: GAO.

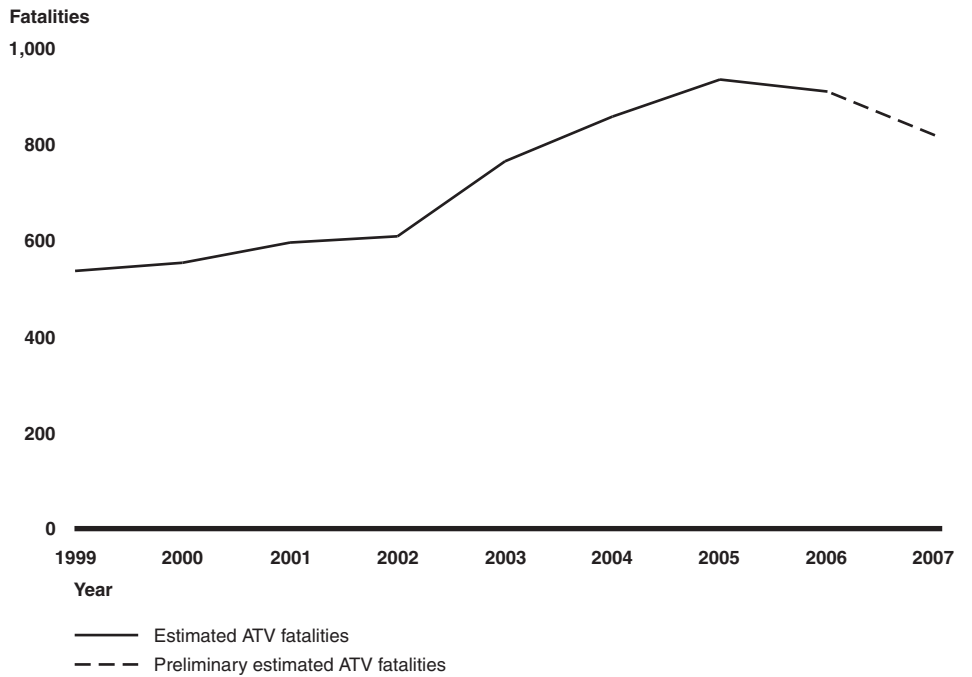
Note: Some ATV owners add equipment to their vehicles that was not provided by the manufacturer. The photo in the upper right-hand corner shows a rack that has been added.

ATV Fatalities and Injuries Have Increased Substantially during the Last Decade When the Number in Use Nearly Tripled

ATV fatalities and injuries have increased substantially since 1999, but not as rapidly as the number of four-wheeled ATVs in use, which nearly tripled.²⁵ Commission staff estimated 6,556 fatalities occurred from 1999 through 2007, an average of about 700 people per year. In 2007, the most recent year for which the Commission staff estimated the number of fatalities, an estimated 816 fatalities occurred, compared with 534 in 1999, an increase of 53 percent (an average of about 6 percent per year). As shown in figure 10, the estimated number of fatalities rose steadily from 1999 through 2005. Although the estimated numbers of fatalities in 2006 (907) and 2007 (816) were less than the number in 2005 (932), Commission staff said that it is likely that the estimated number of fatalities for 2006 and 2007 will change as the agency collects more information. Hence, according to Commission staff, it is premature to make any conclusions about the estimated number of fatalities for those years.

²⁵Unless indicated otherwise, the Commission staff's fatality and injury data reported in this section reflect crashes involving three- or four-wheeled ATVs or an unknown number of wheels.

Figure 10: Estimated Number of ATV Fatalities, 1999 through 2007

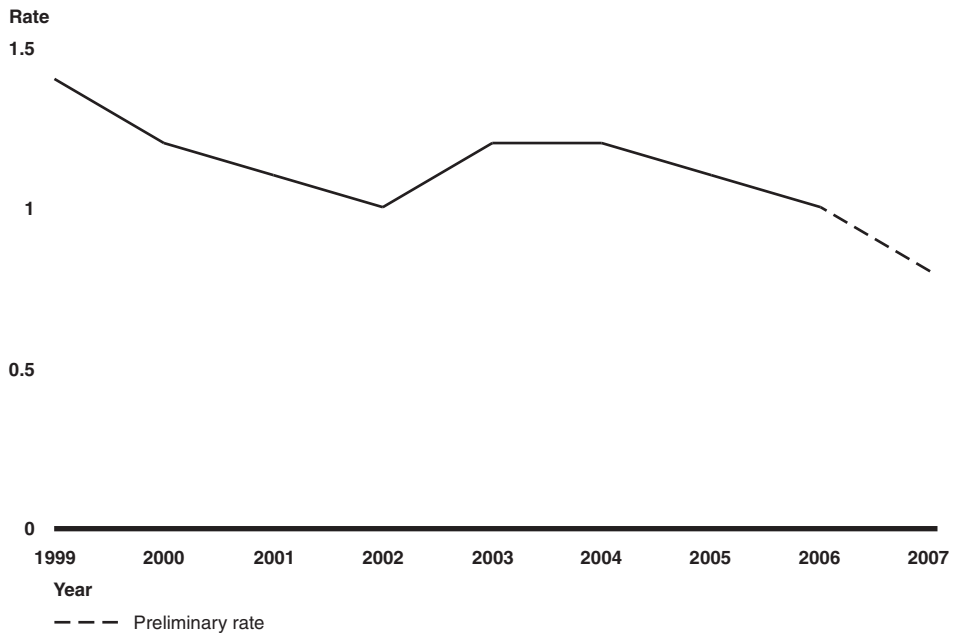


Source: Consumer Product Safety Commission staff.

Note: See table 6 in appendix II for data.

According to Commission staff estimates, from 1999 through 2005—the most recent period for which fatality estimates are complete—the risk decreased from 1.4 deaths per 10,000 four-wheeled ATVs in use to 1.1 deaths per 10,000 ATVs in use, or 21 percent. (See fig. 11.) Commission staff estimated that the risk of death per 10,000 ATVs in use was 1.0 in 2006 and 0.8 in 2007, but said those numbers will change as the agency collects more information and that it is premature to make any conclusions about the risk for those years. In addition, as noted earlier, the Commission staff estimates of the number of ATVs in use do not include data on how often the vehicles are used or how many miles they are ridden.

Figure 11: Estimated Risk of ATV Fatalities per 10,000 Four-Wheeled ATVs in Use, 1999 through 2007



Source: Consumer Product Safety Commission staff.

Note: See table 7 in appendix II for data.

In addition to estimating the number of fatalities, Commission staff count the number of ATV fatalities using a variety of sources, including death certificates, news reports, and information from field staff. For individual years from 1999 through 2005, the estimated number of fatalities ranged from 11 percent to 35 percent higher than the number of documented cases. However, it normally takes Commission staff 3 years to receive data on fatalities for a given year. Therefore, the number of documented deaths counted for 2006 through 2008 (832 in 2006, 699 in 2007, and 410 in 2008) are incomplete and are expected to increase for those years.²⁶ (See table 6 in app. II for the documented number of fatalities.) By contrast, data on

²⁶The results of certain analyses contained in this section are based on the Commission staff's data on documented ATV fatalities. Because 2005 is the most recent year for which Commission staff have completed their data collection on fatalities and because the staff are still collecting data on fatalities for 2006, 2007, and 2008, when available, we report the analyses of fatalities both for 1999 through 2005 and for 2006 through 2008.

ATV injuries, presented later in this report, are current for the reporting year and are not expected to increase.

As discussed earlier, in addition to estimating the number of fatalities, Commission staff count the number of documented cases, which they use for various analyses. For example, Commission staff data on documented fatalities from 1999 through 2008 show that they occurred in all states and the District of Columbia.²⁷ From 1999 through 2005, the states with the most ATV fatalities were Kentucky (240), Texas (213), West Virginia (208), Pennsylvania (191), and Florida (184). (Table 8 in app. II shows the total number of fatalities in each state, the District of Columbia, and Puerto Rico from 1999 through 2005 and preliminary data for 2006 through 2008.) From 1999 through 2005, 86 percent of ATV fatalities were male and the average age was 30. The Commission staff's preliminary data for 2006 through 2008 indicated that 85 percent of fatalities were male and the average age was 33.

Children under the age of 16 represented about 22 percent of all documented ATV fatalities from 1999 through 2008.²⁸ (See table 9 in app. II.) The annual number of fatalities involving children increased from 1999 through 2004, but declined in 2005. Commission staff counted 163 children under the age of 16 among documented fatalities in 2005, compared with 90 in 1999, an increase of 81 percent. Preliminary data collected by Commission staff for 2006 through 2008 reported 143 children among ATV fatalities in 2006, 124 in 2007, and 74 in 2008.

Commission staff data indicate that children who died were mainly riding adult-sized ATVs. These data on ATV fatalities involving children that occurred in 2005 include information on the engine size for 51 percent (84 of 165) of ATVs involved in those crashes.²⁹ This information can be used

²⁷The Commission staff's data on fatalities reflect where the victims died, rather than where the crashes occurred. However, according to Commission staff, the victims usually died in the states where the crashes occurred.

²⁸We did not calculate the risk of fatalities involving children because the Commission staff's data on the number of ATVs in use did not indicate the number used by children.

²⁹Of the 163 documented fatalities involving children in 2005, 51, or 31 percent, involved children who were 8 years old and younger; 42, or 26 percent, were between 9 and 12 years old; and 70, or 43 percent, were between 13 and 15 years old.

to determine whether the ATVs were adult-sized or youth-sized models.³⁰ Our analysis of those fatalities for which vehicle the engine size was recorded indicated that about 94 percent of the children who died in 2005 (79 of 84 children for whom the engine size was recorded) were riding adult-sized ATVs. Preliminary data collected by Commission staff for 2006 through 2008 indicated that 93 percent of children who died (175 of 189 children for whom the ATV engine size was recorded) were riding adult-sized ATVs.

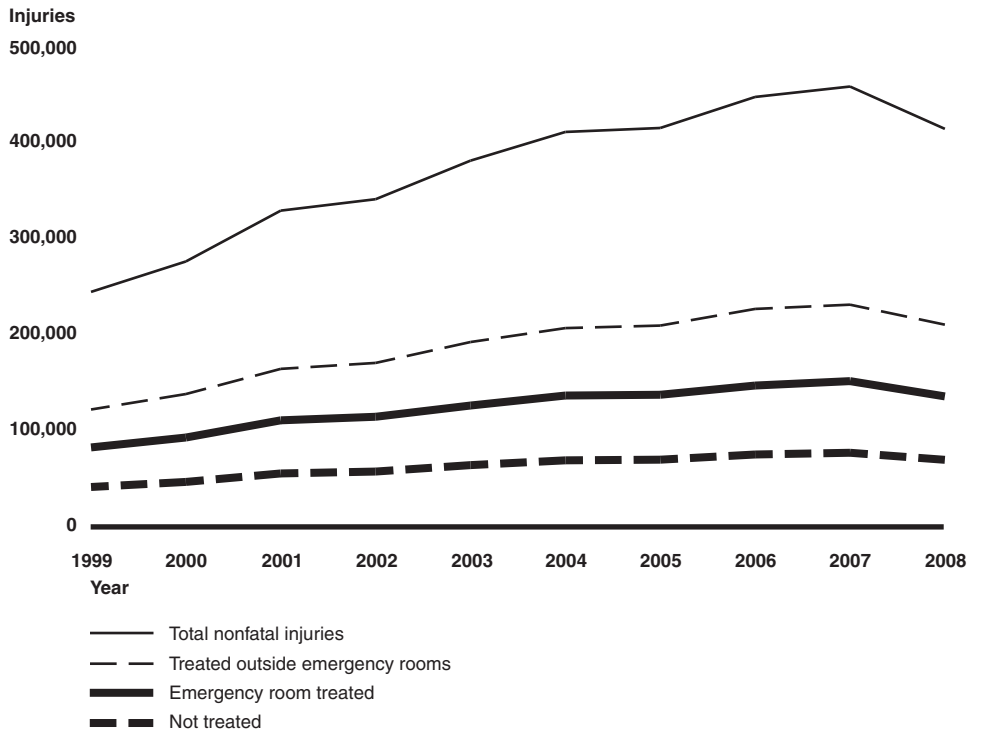
Nonfatal Injuries also Increased during the Last Decade

The estimated number of nonfatal ATV-related injuries, including those involving children, also increased from 1999 through 2007, but decreased in 2008. (See fig. 12.) Commission staff estimated that a total of 413,339 nonfatal injuries occurred in 2008, which was 10 percent less than the estimated number of injuries in 2007 (457,394), but 70 percent higher than the estimated number of injuries in 1999 (243,664). The total estimated number of nonfatal injuries in 2008 included 134,900 that were treated in emergency rooms, which Commission staff said were the most serious; 209,549 that were treated outside of emergency rooms, but were treated in other settings such as doctors' offices and clinics; and 68,890 that were not treated.³¹

³⁰For our analysis above, we assumed that ATVs with engine sizes of more than 90 cubic centimeters were adult-sized models, as they were defined in the consent decree. However, Power Products Marketing, which collected the data on U.S. sales of youth-sized and adult-sized ATVs contained in this report, classified adult-sized ATVs as having engine sizes of more than 150 cubic centimeters. When our analysis includes engine sizes of 125 cubic centimeters and more as adult-sized vehicles (Commission staff had no category for recording engine sizes of between 126 and 150 cubic centimeters), 91 percent (76 of 84) of the children involved in fatalities in 2005 were riding adult-sized ATVs and 87 percent (165 of 189) were riding adult-sized ATVs in 2006 through 2008, according to our analysis of preliminary data for these years. For ATV crashes involving children from 2006 through 2008, Commission staff had data on engine size for 55 percent (189 of 341) of the ATVs involved in crashes.

³¹Commission staff estimated that the number of ATV injuries that were not treated in emergency rooms was about 1.5 times the number of injuries that were treated in emergency rooms and that the number of injuries that were not treated was 20 percent of the number of all medically treated injuries, i.e., all of those treated in emergency rooms, doctors' offices, and medical clinics.

Figure 12: Estimated Number of Nonfatal ATV-Related Injuries, 1999 through 2008



Source: Based on data provided by Consumer Product Safety Commission staff.

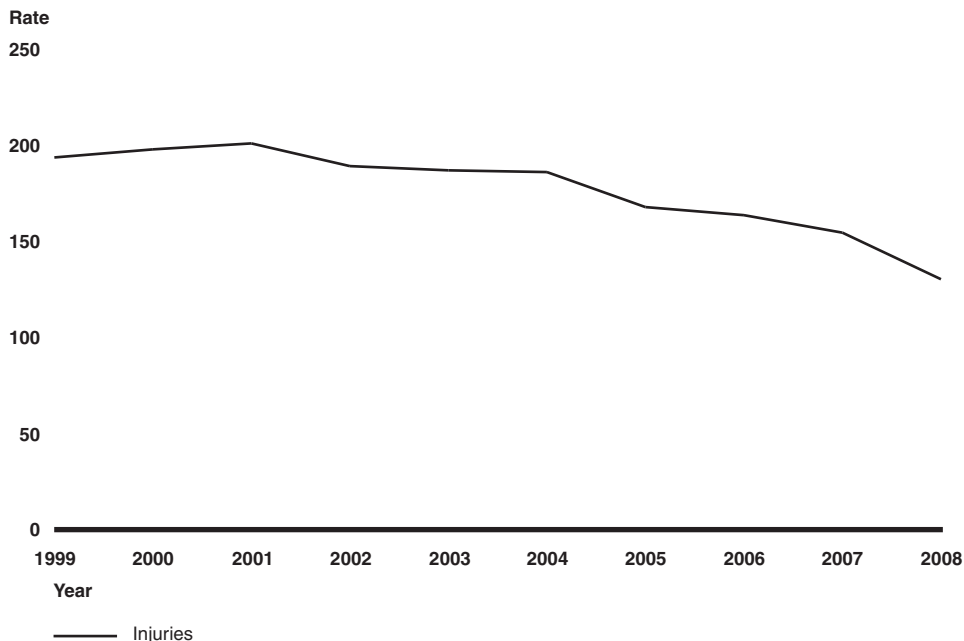
Note: See table 10 in appendix II for data.

In 2008, an estimated 134,900 nonfatal ATV-related injuries were treated in emergency rooms, compared with 81,800 in 1999, an increase of 65 percent. However, the estimated number of injuries treated in emergency rooms decreased from 150,800 in 2007 to 134,900 in 2008, or 10 percent. Commission staff said that although the decrease from 2007 to 2008 is statistically significant, there is insufficient information to examine what caused the decrease. According to the staff, the decrease could have been influenced by one or more of the following factors: (1) exposure, as evidenced by the number of people who rode ATVs and the amount of time that was spent riding, considering that recreational activities often are reduced in times of recession; (2) the state of the ATV market in particular (i.e., sales decreased dramatically in 2008, likely because of the economic recession); (3) legislative and regulatory activities (e.g., the Consumer Product Safety Improvement Act, for example, may have led to a reduction in the availability of imported and youth-sized ATVs beginning in late 2008 and in a relative increase in the availability of mechanically

safer vehicles); and (4) information and education activities at both national and local levels (i.e., increased safety awareness may have led to increased safety practices while riding ATVs). Furthermore, Commission staff stressed that the decrease may be limited to one year. However, an ATV association official said that the increased number of ATVs in use can account for the increase in injuries before 2008 and that decreased sales in 2008 likely would have had a marginal effect on injuries.

Although the absolute number of injuries increased from 1999 through 2007, as the number of ATVs in use increased, the estimated risk of an emergency room-treated injury per 10,000 four-wheeled ATVs in use decreased from 193 injuries per 10,000 four-wheeled ATVs in use in 1999 to 129.7 injuries in 2008, or 33 percent. (See fig. 13.)

Figure 13: Estimated Emergency Room-Treated ATV-Related Injuries Per 10,000 ATVs in Use, 1999 through 2008



Source: Consumer Product Safety Commission staff.

Note: See table 11 in app. II for data.

According to data collected by Commission staff, about one-third of ATV-related injuries from 1999 through 2008 involved children younger than 16 years of age.³² Commission staff estimated that 37,700 children were treated for injuries in emergency rooms in 2008, compared with 27,700 in 1999, an increase of 36 percent, or an average of about 4 percent per year. (See table 10 in app. II for the estimated numbers of injuries treated in emergency rooms, including injuries to children; the estimated numbers of injuries that were treated in other medical settings besides emergency rooms; and the estimated numbers of injuries that were not medically treated.³³) According to the American Academy of Pediatrics, injuries sustained by children riding adult-sized ATVs are often very serious, including severe brain, spinal, abdominal, and complicated orthopedic injuries.

Public health and medical officials said that injuries are typically bone fractures, or cranial or spinal injuries. According to Commission staff, an estimated 27 percent of the injuries treated in emergency rooms in 2008 were diagnosed as contusions and abrasions, 25 percent as fractures, 16 percent as sprains or strains, and 11 percent as lacerations. In addition, Commission staff data indicated that 87 percent of the people who visited emergency rooms for treatment of ATV injuries were treated and released, while 11 percent were treated and admitted or transferred to other facilities.³⁴ One nationwide study of ATV fatalities and injuries indicated that fracture of the lower limb was the most common type of injury.³⁵ According to a doctor who is an official with the Orthopaedic Trauma Association, the severity of injuries depends on driving speed, terrain, riding behavior, helmet usage, and other conditions involved. This doctor said that injuries often involve multiple traumas that can require long-term treatment. He said that a broken bone in the leg or foot, for example, can cause patients to suffer from muscle weakness or arthritis, resulting in a lifetime of difficulty standing or walking. Moreover, a public health official

³²Similarly, the National Trauma Data Bank, a repository of trauma data from hospitals administered by the American College of Surgeons, found that 29 percent of ATV injuries in 2008 involved children 16 years of age and younger, compared with 28 percent that the Commission staff estimated for that year.

³³Commission staff did not estimate the percentage of injuries sustained by children that were not treated in emergency rooms or were not treated.

³⁴Information was not provided for the other 2 percent of patients.

³⁵James Helmkamp, *Death and Injury Resulting from ATV and Bicycle Crashes: A Five-Year Comparison of National Prevalence and Cost Estimates among Children and Adults* (Morgantown, W. Va.: October 2007).

in a state where ATVs are widely used said that the impact of brain injuries can be considerable, including lifetime medical costs that may be incurred.

Safety Stakeholders Generally Agreed That Children Should Not Operate Adult-Sized ATVs

Safety stakeholders, including Consumer Product Safety Commission, public health, and industry officials; consumer safety advocates; and medical professionals we contacted generally said that children should not operate adult-sized ATVs because they do not have judgment and skill to handle the power, speed, and weight of these vehicles. Instead, industry officials said that youth-sized models are more appropriate for children (except for some larger children) because these models are smaller, less powerful, slower, and lighter than adult-sized ATVs. An industry association official also emphasized that adult supervision is an important part of allowing children to operate ATVs. However, a consumer safety advocate questioned how adult supervision can occur when the adult may be some distance from where the child is riding. A 2004 Commission staff study indicated that if children rode youth-sized ATVs rather than adult-sized models, the risk of injury might be reduced by about one-half.³⁶ Some public health officials we contacted agreed that injuries involving children who were riding youth-sized ATVs would be less severe if the children were riding youth-sized, rather than adult-sized models, because less energy associated with motion would be released during collisions. An official representing a major manufacturer said that the industry is encouraging children to ride appropriately sized ATVs, but parents may be reluctant to buy youth-sized models because their children will outgrow them and the parents then will need to buy larger models.

Although we found general agreement among stakeholders that children should not operate adult-sized vehicles, some consumer safety advocates and medical professionals we contacted said that children under the age of 16 also should not operate youth-sized models. For example, the American Academy of Orthopaedic Surgeons and the American Academy of Pediatrics have taken the position that children younger than 16 years of age should not operate ATVs. A doctor who has treated ATV injuries at a Midwestern children's hospital trauma center and is a member of the American Academy of Pediatrics said there is a misimpression that youth-sized ATVs are safer than adult-sized vehicles, but that they are still heavy, motorized vehicles capable of reaching high speeds. He said that the

³⁶Consumer Product Safety Commission, *A Preliminary Evaluation of the Effects of a Ban of the Sale of Adult-Size ATVs for Use by Children* (Bethesda, Md.: November 2004).

impression that youth-sized ATVs are safer means that more children will ride them, resulting in more injuries. This doctor added that by nature, children have less impulse control than adults and are prone to take increasing risks, seeking greater thrills, which can result in serious crashes. The doctor explained that crashes involving children typically occur when ATVs tip over, even at slow speeds, and that victims can suffocate because they cannot extricate themselves from underneath the heavy vehicles. However, an industry association official said that crashes involving children occur mainly when they are riding adult-sized models at higher speeds without parental supervision. A manufacturing official added that, unlike adult-sized ATVs, youth-sized models do not have headlights (to discourage nighttime riding) and have smaller engine sizes and speed governors.

In addition to concerns about fatalities and injuries involving children, some safety advocates and researchers said they have become concerned about the safety of older ATV riders, as the vehicles have become faster and more powerful. A study of older riders in West Virginia indicated that older adults are at an increased risk of serious injury associated with ATV crashes because age-related changes in physical reserve and sensory limitations, pre-existing medical conditions, and related medication use may exacerbate the risk of injury.³⁷ Our analysis showed a slight increase in the percentage of ATV fatalities of people who were 55 years old or older during the last decade. From 1999 through 2005, about 12 percent of all fatalities were 55 years of age or older (an average of 69 people per year), compared with about 16 percent from 2006 through 2008 (an average of 103 people per year, based on preliminary data). In addition, the number of injuries treated in emergency rooms involving people 55 and older increased from 2,400 in 1999 to 5,800 in 2008, or 142 percent.³⁸

³⁷James Helmkamp and Mary Carter, *ATV Deaths among Older Adults in West Virginia: Evidence Suggesting That 60 Is the New 40!*, Southern Medical Journal (Birmingham, Ala.: May 2009).

³⁸We did not calculate the rate of ATV fatalities involving people 55 years of age or older because the Commission staff's data on the number of ATVs in use were not categorized by that age.

Stakeholders Cited Numerous Factors Involved in ATV Fatalities and Injuries

Safety stakeholders said that ATV fatalities and injuries occur for several reasons, including reckless driving, speed, alcohol use, riding with passengers, riding on paved roads, or riding on roads used by other vehicular traffic. In addition, some consumer safety advocates said that ATVs are inherently unstable because of their high center of gravity, short wheel-base, short turning radius, high-powered engines, and weight. A safety advocate also said that ATV speed governors were not frequently used and could be easily disabled by youth.

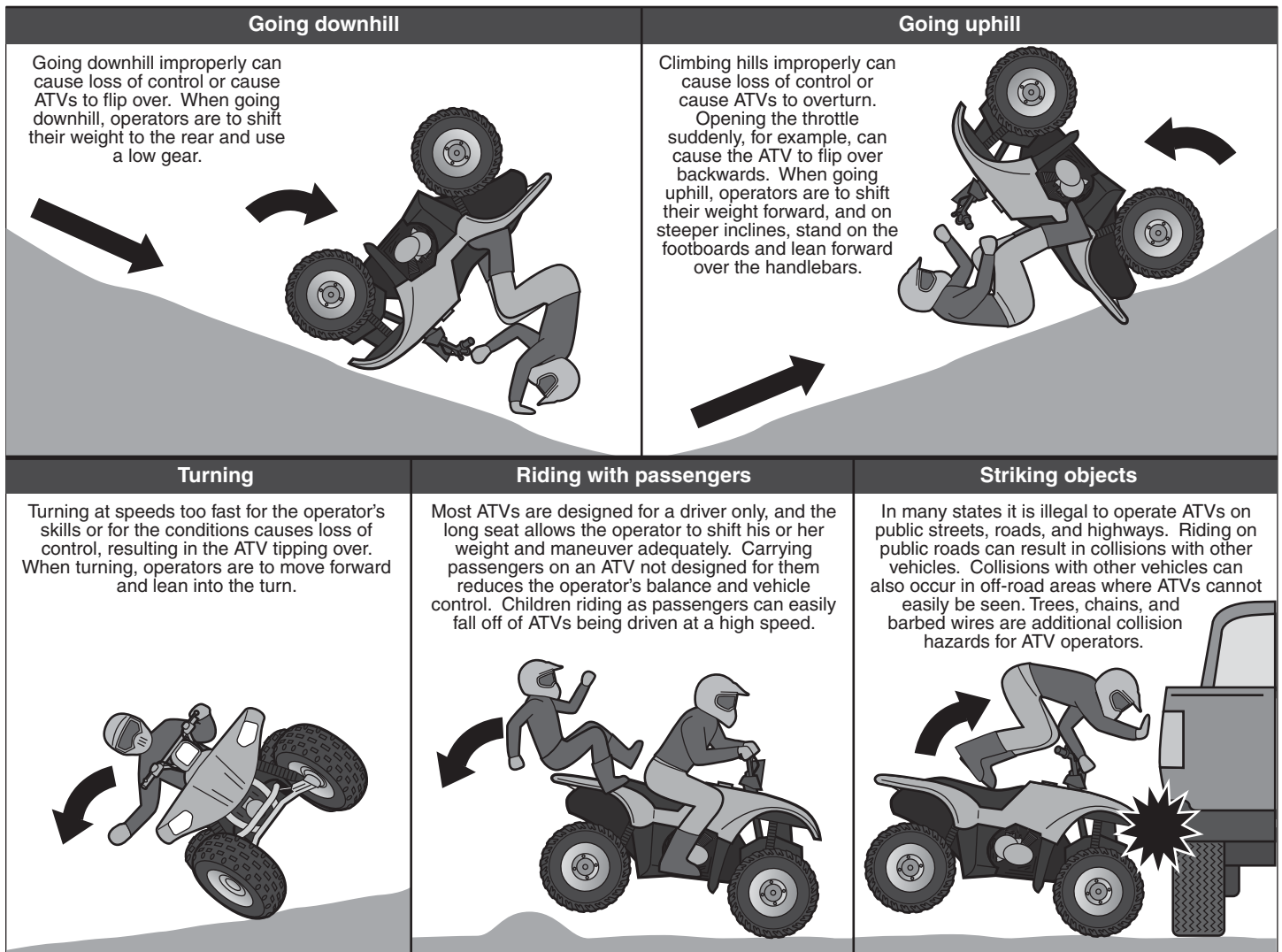
Although more than one hazard pattern may be involved in ATV crashes, Commission staff data included information on what caused the crashes for 94 percent of fatalities (3,874 of 4,122) from 1999 through 2005, which indicated that they occurred when the vehicles involved collided with objects, such as other vehicles (48 percent); the vehicles tipped or flipped over (34 percent); drivers or passengers were ejected from the vehicles (11 percent); or the terrain changed (7 percent).³⁹ For fatalities from 2001 through 2005, our analysis found that 41 percent of drivers had been drinking or were suspected of drinking alcohol before the crash and that 25 percent of crashes occurred when two or more passengers were riding the ATV.⁴⁰ Our analysis of preliminary data on fatalities from 2006 through 2008 indicated that 41 percent of drivers had been drinking or were suspected of drinking alcohol before the crash and 24 percent of crashes occurred when two or more passengers were riding the ATV. For 2005, we found that in 37 percent of fatalities, the operator had been drinking alcohol before the crash and that at least one person riding on the vehicle was not wearing a helmet.⁴¹ Figure 14 illustrates typical fatality and injury scenarios.

³⁹The causes for 2 percent of fatalities were for other reasons. Numbers do not total to 100 percent because of rounding. Our analysis of preliminary data on fatalities for 2006 through 2008 indicated that 52 percent occurred when the vehicles collided with objects; 20 percent when the terrain changed; 19 percent when the vehicles tipped or flipped over; 7 percent when drivers or passengers were ejected from the vehicles; and 3 percent for other reasons. Numbers do not total to 100 percent because of rounding.

⁴⁰“Drinking alcohol” means the operator consumed alcohol recently before the crash. For fatalities that occurred from 2001 through 2005, Commission staff data indicated whether the rider was drinking alcohol before the crash in 67 percent (2,186 of 3,275) of cases and whether two or more passengers were riding the vehicle in 92 percent (3,010 of 3,275) cases. Commission staff data were not sufficient data to include figures for 1999 and 2000.

⁴¹Reflects data available on both helmet and alcohol usage for 56 percent (451 of 804) fatalities in 2005. Data on helmet usage alone are provided later in this report.

Figure 14: Typical ATV Fatality and Injury Scenarios



Source: GAO based on reviews of ATV owners' manuals, ATV Safety Institute training materials, and information provided by Consumer Product Safety Commission staff and ATV safety advocates.

Officials representing manufacturers disagreed with the argument made by some safety advocates that ATVs are inherently unsafe. One official, for example, said that the design of ATVs has improved over time—the suspension is less tiring on the body and speed-limiting devices are better and harder to disable. Another manufacturing official said the vehicles' high center of gravity must be maintained to allow sufficient clearance for

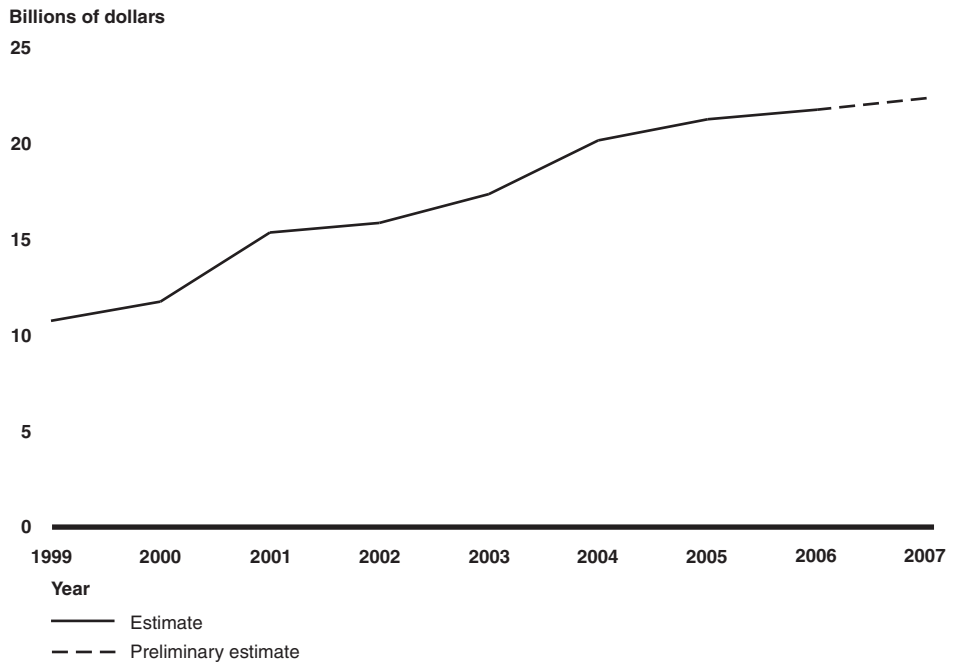
trail riding. However, two emergency room doctors who have treated ATV injuries told us that, although the stability of the vehicles could be improved, they are still dangerous because of the severity of injuries sustained by energy transfers that occur during crashes. Commission staff said they are studying the stability issue.

**Commission Staff
Estimated Economic Costs
of ATV Crashes over \$22
Billion in 2007**

Commission staff estimated that the costs of ATV crashes have doubled in the last decade. (See fig. 15.) For 2007, Commission staff estimated that the total cost of crashes was \$22.3 billion (\$17.7 billion in nonfatal injury costs and \$4.6 billion in fatality costs), compared with \$10.7 billion in 1999 (\$7.7 billion in nonfatal injury costs and \$3 billion in fatal injury costs),⁴² an increase of 108 percent (in 2009 dollars). (See table 11 in app. II for data.) Commission staff have not yet estimated the number and costs of fatalities in 2008, but estimated the costs of nonfatal injuries in 2008 to be \$15.6 billion, compared with \$17.7 billion in 2007, a 12 percent decrease, reflecting fewer injuries in 2008 than 2007.

⁴²Does not total due to rounding.

Figure 15: Total Estimated Costs of ATV Crashes, 1999 through 2007 (in 2009 dollars)



Source: Consumer Product Safety Commission staff.

Note: See table 12 in app. II for data. Includes costs of both fatalities and nonfatal injuries. However, the cost estimates for 2006 and 2007 are preliminary because the estimated number of ATV fatalities for those years are not yet final. Commission staff have not yet estimated the cost of ATV fatalities in 2008. We used the Gross Domestic Product Price Index to inflate Commission staff cost estimates to 2009.

In estimating the cost of a death, Commission staff assumed a \$5 million value for a statistical life—a figure they also have used in their regulatory analyses of other consumer products. Commission staff said they developed the \$5 million figure by reviewing empirical literature that estimated the value of a statistical life at between \$2 million and \$10 million and choosing a mid-range estimate. The \$5 million estimate includes the value of work loss and pain and suffering. To develop injury cost estimates, Commission staff used data from the agency’s National

Electronic Injury Surveillance System⁴³—a national probability sample of hospitals in the United States and its territories—plus estimates of injuries not treated in hospitals. The injury cost estimate takes into account factors such as a victim’s age, gender, body part injured, which are used to estimate the cost of medical and legal expenses, work wages lost, and pain and suffering.

The Commission staff’s cost estimate of ATV fatalities was similar to that developed by public health researchers who estimated \$4.5 billion in costs for 2005,⁴⁴ compared with the Commission staff’s estimate of \$4.7 billion for the same year. For this study, the researchers identified ATV deaths from the National Center for Health Statistics Multiple Cause-of-Death public-access file, which draws data from death certificates, and used the National Highway Traffic Safety Administration’s method of estimating the value of a statistical life. Another study indicated that the highest hospitalization costs were for spinal cord and intracranial injuries.⁴⁵ Two emergency room doctors who have treated children who were ATV crash victims told us that these injury treatment costs are among the highest because of the severity of the injuries sustained.

Various Organizations Offer Training and Promote Safe Riding Practices

Safety stakeholders said that the number and severity of ATV injuries could be reduced through training and by wearing proper equipment such as helmets. A state trauma director said that parents are usually surprised when they see the results of crashes involving children because they were not aware of the dangers of ATV riding.⁴⁶ In addition, an injury prevention

⁴³For the National Electronic Injury Surveillance System, patient information is collected from participating hospitals on emergency visits involving injuries associated with consumer products. From this sample, the total number of product-related injuries treated in hospital emergency rooms nationwide is estimated. For more information on the National Electronic Injury Surveillance System, see GAO, *Consumer Product Safety Commission: Better Data Collection and Assessment of Consumer Information Efforts Could Help Protect Minority Children*, [GAO-09-731](#) (Washington, D.C.: Aug. 5, 2009).

⁴⁴James Helmkamp, Mary Aitken, and Bruce Lawrence, *ATV and Bicycle Deaths and Associated Costs in the United States, 2000–2005*, Public Health Reports (Washington, D.C.: May-June 2009). The researchers’ cost estimate was in 2005 dollars. The Commission staff’s cost estimate was in 2004 dollars.

⁴⁵James Helmkamp, *Death and Injury Resulting from ATV and Bicycle Crashes: A Five-Year Comparison of National Prevalence and Cost Estimates among Children and Adults* (October 2007).

⁴⁶An industry official, however, noted that ATVs come with multiple safety warnings, such as hang tags, labels, and those contained in owner’s manuals.

official said that in many communities where ATVs are widely used, people are not aware of the connection between wearing helmets and preventing brain injuries. According to the Commission, training is important because operating an ATV seems “deceptively easy.” The Commission indicated that even at relatively low speeds (20 to 30 miles per hour), ATVs can take as much skill to operate as an automobile because the operator requires (1) situational awareness to negotiate unpaved terrain with both eye-level hazards, such as trees and other ATVs, and trail-level hazards, such as ditches, rocks, and hidden holes, and (2) quick judgments relating to steering, speed, and braking as well as relating to terrain suitability, weight shifting, and other active riding behaviors.⁴⁷ Formal, hands-on training teaches operators how the ATV responds in situations that are typically encountered.

Manufacturers and distributors agree in their action plans to provide training to ATV buyers. According to Commission staff, manufacturers and distributors, through their dealers, must offer free, hands-on training to first-time purchasers and their immediate families, plus incentives valued at a minimum of \$100 for taking the training. As of February 2010, Commission staff indicated that only the training provided by the Specialty Vehicle Institute of America’s ATV Safety Institute met the requirement. The Safety Institute’s course, which takes about 4 to 5½ hours, encompasses safe riding practices, such as how to operate ATVs on hills and on various types of terrain; the importance of wearing protective gear; and the hazards of improperly operating the vehicles.⁴⁸ In addition, the 4-H youth organization awards grants to local communities and schools to promote ATV safety for children, including hands-on training.⁴⁹ The National Off-Highway Vehicle Conservation Council, an organization that promotes the recreational use of off-highway vehicles, also offers an

⁴⁷ According to the Commission, although the greatest risk of injury occurs with inexperienced riders, training may act as a surrogate for experience. The Commission found that the risk of suffering injuries requiring treatment in emergency rooms was about 65 percent higher during the first year of riding than during the second year.

⁴⁸ The industry association had no current data on the percentage of ATV purchasers who took the training, but indicated that more than 113,000 people took its training from 2007 through 2009. According to a 2004 study conducted by the association, about 7 percent of purchasers took the training.

⁴⁹ A Specialty Vehicle Institute official noted that the hands-on training provided through 4-H is provided by the institute’s safety training organization. In addition, the official said that last year the institute launched an online ATV safety education course for elementary and middle school students that 5,000 people have taken in the first year.

adventure trail activity book and interactive compact disk that provide children with information on safe riding practices.

Other organizations also conduct educational campaigns to publicize ATV risks and encourage safe riding practices. The American Academy of Orthopaedic Surgeons and the Orthopaedic Trauma Association, for example, have conducted a public service advertising campaign since 2007 consisting of advertisements displayed in newspapers and airports, warning people not to think of ATVs as toys and encouraging them to ride safely. (See fig. 16.) Organization members have also participated in media tours to promote the campaign and raise safety awareness.

Figure 16: ATV Safety Advertisement



Over the river and through the woods
to the trauma center we go.

All-terrain vehicles can go 60 mph and weigh 600 pounds. Yet, many owners think of them as just big toys. Consider the facts: 135,100 ATV-related injuries were treated in hospital emergency rooms in 2008. Accidents happen when ATVs are operated in the wrong place, under the wrong conditions, by people too young or too inexperienced in ATV safety measures. If you must ride an ATV, use your head — the right way. A public service message from the American Academy of Orthopaedic Surgeons and the Orthopaedic Trauma Association.

For recommendations on ATV safety, visit orthoinfo.org and ota.org.

AAOS
AMERICAN ACADEMY OF
ORTHOPAEDIC SURGEONS

OTA
ORTHOPAEDIC TRAUMA ASSOCIATION

Source: American Academy of Orthopaedic Surgeons. Reprinted with permission of the American Academy of Orthopaedic Surgeons.

State governments are also involved in promoting ATV safety. Transportation officials in West Virginia, for example, make 30- to 45-minute presentations to schools and community groups, emphasizing safety practices such as wearing a helmet, as part of a safety awareness program established in 2005. Under state law, all ATV riders under the age of 18 in West Virginia must wear a helmet and satisfactorily complete a rider safety awareness course approved by the Commissioner of Motor Vehicles. A state highway safety official said that to receive certification, children must watch a 10-minute video and children as young as 5 years old have received certification. Commission staff also have taken steps to promote safety awareness through television and radio public service announcements in areas where crashes occurred, creating a Web site (www.ATVSafety.gov), and partnering with organizations to promote safety.

However, despite safety educational and training programs that focus on the importance of practices such as wearing helmets, rider helmet usage appears to be low. Our analysis of ATV fatalities that occurred during 2005 indicated that 17 percent of the victims were wearing helmets and at least 83 percent were not wearing them.⁵⁰ Similarly, preliminary data on ATV fatalities from 2006 through 2008 indicated that 18 percent of the victims were wearing helmets and at least 82 percent were not wearing them.⁵¹ A consumer safety advocate said that extensive, multiyear educational efforts on ATV safety are needed to make a positive impact, similar to those efforts used to educate people about the safety benefits of using seat belts in automobiles. The consumer safety advocate said that advertising campaigns promoting ATV safety should be expanded and cited the success that public service announcements have had in reducing smoking, but said the effort should be coupled with enforcement. Similarly, a state public health official told us that injury prevention and safety programs are not effective alone and must be part of a package that includes laws with enforcement. West Virginia's Hatfield-McCoy Trails, for example, employs law enforcement personnel to enforce riding rules such as wearing helmets, maintaining reasonable speeds, not consuming alcohol,

⁵⁰An industry association official noted that people killed on ATVs may have disproportionately low rates of helmet usage compared with all ATV operators. The association had no information on helmet usage by operators as a whole. Commission staff had information on helmet usage for 78 percent (627 of 804) of fatalities in 2005 and no data on helmet usage for 22 percent.

⁵¹Commission staff had information on helmet usage for 79 percent (1,531 of 1,941) of ATV fatalities from 2006 through 2008 and no data for 21 percent.

and not allowing children to ride adult-sized ATVs. Trails officials said these rules have been effective in preventing crashes on the trails. They said that there have been 3 ATV fatalities on the trails since 2000, compared with 50 to 60 fatalities that have occurred per year throughout the state, including crashes that occurred on private property where unsafe riding practices may not be prohibited and where many ATV crashes occur. Because much ATV riding occurs on federal lands, the Consumer Federation of America, a consumer safety advocacy group, has recommended that guidelines for federal lands be developed prohibiting children from riding adult-sized ATVs; requiring the use of helmets; and banning riding with passengers, on paved roads, and at night. The American Academy of Pediatrics, citing research on the effectiveness of helmet usage by motorcycle and bicycle riders, has also recommended that the federal government require ATV riders on public lands to wear helmets.

State Laws on Use Vary by State

Laws addressing the behavioral aspects of ATV use, such as helmet usage and training, are generally found at the state level and vary greatly. (See table 5.) Some state laws apply only to riding on public lands.

Table 5: Number of States with Selected ATV Requirements

Requirement	Number of states
ATV registration or title	36
Minimum operating age	32
Helmet/eye protector	28
Safety education certificate	21
A motor vehicle license	12

Source: Specialty Vehicle Institute of America as of 2009.

Note: Many of these requirements have exceptions and apply only in certain circumstances. See table 12 in appendix III for more detailed information.

The Specialty Vehicle Institute of America has developed model state legislation calling for, among other things, hands-on training for operators, that children under age 16 be under continuous adult supervision while operating an ATV on public land, and restrictions on the sale of adult-sized ATVs for use by children.

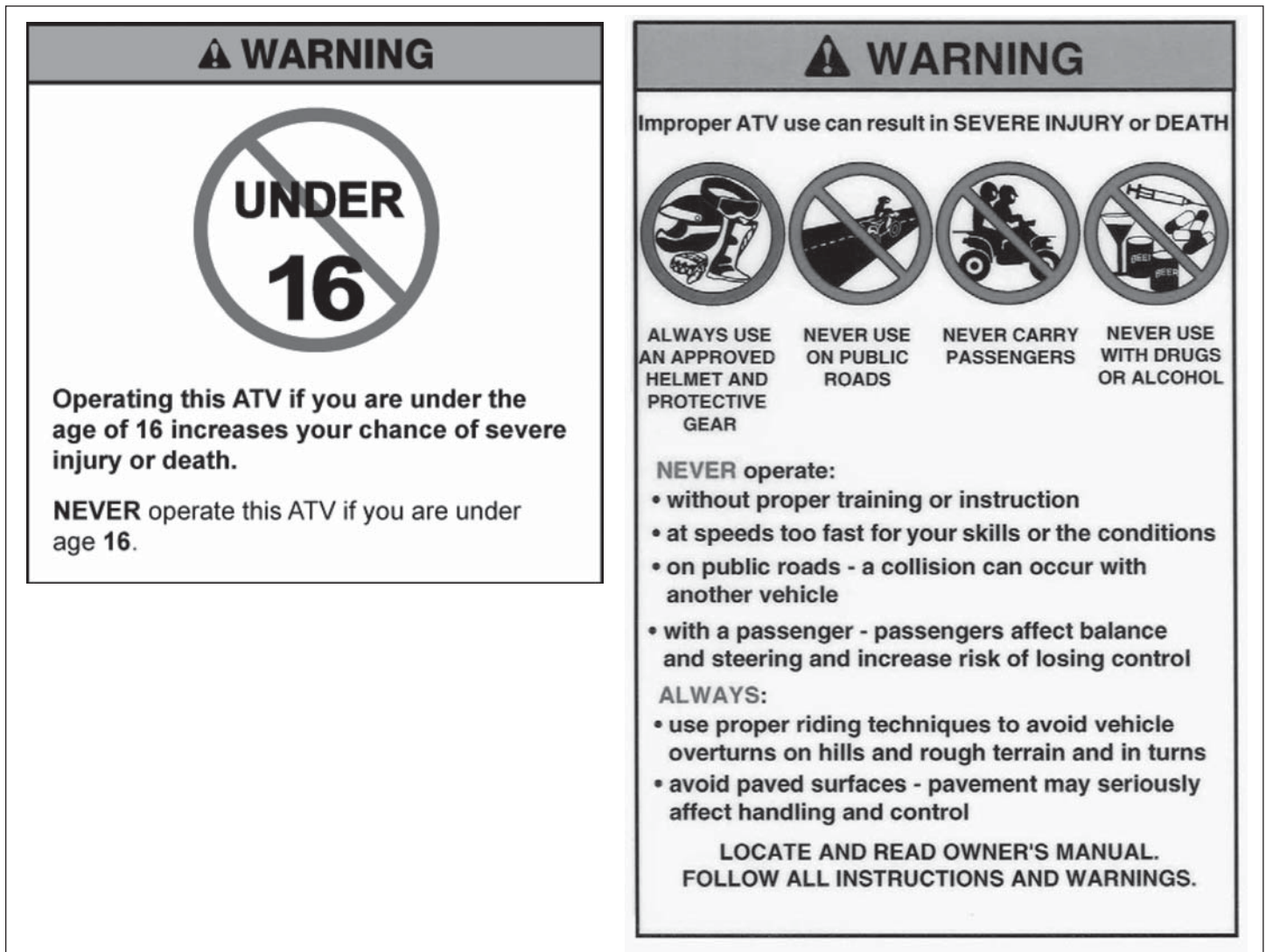
Manufacturers and Distributors Have Agreed Not to Sell Adult-Sized ATVs for Use by Children, but We Found That Many Dealers Will

To sell ATVs in the United States, the Consumer Product Safety Improvement Act requires manufacturers and distributors to file “ATV action plans,” which must be approved by the Commission, and to comply with all provisions of the plans and the ATV industry standard.⁵² The mandatory industry standard also contains provisions pertaining to the use of ATVs by children, such as requiring manufacturers and distributors to affix warning labels on ATVs about preventing crashes and identifying the appropriate (minimum recommended) age for vehicle operators. (See fig. 17.) Sales of ATVs for use by children are covered by provisions in the plans under which manufacturers and distributors agree to (1) refrain from recommending, marketing, or selling adult-sized ATVs for use by children younger than 16 years old and (2) monitor their dealers to check, using independent investigators, whether dealers are willing to sell adult-sized ATVs for use by children and take action against dealers who disregard the standard’s operator age recommendations. We were told that many manufacturers and distributors use dealership agreements to obligate dealers to comply with practices such as not selling adult-sized ATVs for use by children.⁵³ Furthermore, some manufacturers require their dealers to have their customers sign statements at the time of sale indicating that they have been informed and understand that children should not operate adult-sized ATVs.

⁵²15 U.S.C. § 2089. Action plans that were filed prior to August 14, 2008, do not need to be approved by the Commission.

⁵³As used throughout this report, a “manufacturer” is any person who manufactures or imports a consumer product. 15 U.S.C. § 2052(a)(11). A “distributor” is any person to whom a consumer product is delivered or sold for purposes of distribution in commerce, except that such term does not include a manufacturer or retailer of such product. 15 U.S.C. § 2052(a)(8). A “retailer” or dealer is any person to whom a consumer product is delivered or sold for purposes of sale or distribution by such person to a consumer. 15 U.S.C. § 2052(a)(11). According to the Commission, generally, the largest ATV manufacturers sell their products through franchised dealers. Importers, who are treated as manufacturers, typically import ATVs from a foreign manufacturer and market them to retailers, although some importers sell directly to consumers. In addition, some imported ATVs are sold directly to consumers through import brokers who never have physical possession of the vehicles. Some ATVs are offered for sale through the Internet. There is also a substantial market for used ATVs, with dealers selling both new and used machines.

Figure 17: Examples of ATV Warning Labels



Source: Specialty Vehicle Institute of America. Reproduced with permission of the Specialty Vehicle Institute of America. Copyright 2008.

Note: The label on the left is for adult-sized ATVs. The label on the right is for ATVs designed to carry only one person.

A Commission compliance official said that the Commission has the authority to enforce the terms of ATV action plans. However, there are several weaknesses in the Commission’s ability to enforce provisions of the plans aimed at preventing the sale of adult-sized ATVs for use by children. First, the Commission does not have direct recourse against ATV

retailers (dealers) under the action plans.⁵⁴ The Consumer Product Safety Improvement Act applies directly only to the manufacturers and distributors who are responsible for ensuring that their dealers are not selling adult-sized ATVs for use by children.⁵⁵ Although many manufacturers and distributors use dealership agreements to obligate dealers not to sell adult-sized ATVs for use by children, the Commission does not routinely require these agreements to be made available for its inspection. In addition, these agreements are typically governed by state law, which the staff indicated can make enforcement difficult because a number of manufacturers and distributors specify in their action plans that they will follow their plans only to extent allowed under state law. Moreover, details about how manufacturers and distributors will use their “best efforts” to prevent the sale of adult-sized ATVs by their dealers vary from company to company. Another problem with enforcing the age recommendations is that many retailers, such as sporting goods stores, sell a variety of ATV brands and even if one manufacturer discontinues its arrangement with that seller, the retailer can still sell several other brands. Finally, most of the action plans are not publicly available,⁵⁶ precluding public examination of companies’ monitoring plans.

Although we found a broad consensus that children who operate adult-sized ATVs are at significant risk of serious injury or death, the ages specified in the industry standard for operating ATVs of various sizes are only recommended ages, which are reflected in warning labels and hang tags. Adult-sized ATVs are designed for use by persons who are 16 years of age or older, and are placarded as such. However, some 15-year-old children are physically and mentally more mature than typical 16-year-olds; conversely, some 16-year-olds are not as physically or mentally mature as typical 15-year-olds. The fact that adult-sized ATVs are designed

⁵⁴The Commission may be able to pursue penalties against a dealer that knowingly sells an ATV that does not comply with the ATV standard. According to a Commission official, the Commission has not pursued such an action against a dealer, but noted that it has only had the ability to pursue such action since April 2009 when the ATV standard became mandatory.

⁵⁵Manufacturers and distributors may be placed in an awkward position in trying to enforce their adult use policy. Dealers often sell products manufactured or distributed by multiple firms. Dealers may play manufacturers and distributors against each other and mitigate the effect of any one manufacturer’s or distributor’s efforts to enforce sales discipline by promoting its competitor’s product.

⁵⁶The Commission has posted six of the original manufacturers’ safety action plans on its Web site. Most of the other companies have refused to publicly disclose their action plans.

for persons who are at least 16 years old does not preclude their safe operation by some 15-year-olds.⁵⁷ Because the age provisions in the ATV standard are recommendations, there are no specific age requirements that the Commission could enforce. In addition, the Commission's major focus is on ensuring the safety of consumer products when used as they are designed. Some products are not safe for children; some require a higher level of mental and physical maturity than young children possess if they are to be operated safely. These differences are taken into account in determining whether a product is safe for use by those who are its intended users. Although the Commission can sometimes act to discourage unsafe use or products, it has limited ability to prevent product misuse by purchasers, such as misuse of adult-sized ATVs by children whose parents disregard the placards, training, and other safety warning designed to put them on notice that operation of adult-sized ATVs by children can be unsafe.⁵⁸

Industry officials said they are taking actions to prevent the sale of adult-sized ATVs for use by children and Commission staff said they have taken steps to ensure compliance.⁵⁹ During our discussions with three major manufacturers, officials said the companies were monitoring their dealers and had taken corrective action when dealers were found to have disregarded the minimum age recommendations. Actions taken were said to include financial penalties, attempted termination of dealership agreements, and termination of dealership agreements. Since 1998, Commission staff have conducted undercover inspections of ATV dealers,

⁵⁷ Although federal law is not violated by a parent who buys an adult-sized ATV for a child, this is not to suggest that such behavior might not be an abdication of parental responsibility under some state laws, at least in some circumstances.

⁵⁸ The Consumer Product Safety Act and the Consumer Product Safety Improvement Act do not provide a basis for barring the manufacture or importation of a product that is safe provided that related requirements, such as the filing of any required action plan, are met. According to Commission staff, it is easier for the Commission to obtain remedial action against a product that is unsafe when used as designed than when it is unsafe when only not used as designed. In appropriate instances, however, the Commission may require placarding and other means of mitigating risk that products will be used in an unsafe manner.

⁵⁹ Under the act, the mandatory standard applies only to the importation and distribution in commerce in the United States of *new* assembled or unassembled ATVs. 15 U.S.C. § 2089(a)(2).

by posing as buyers, to check compliance with the age recommendations.⁶⁰ Nevertheless, compliance rates of the ATV dealers that Commission staff checked decreased from 85 percent in 1999 to 63 percent in 2007.⁶¹ (See table 13 in app. IV for annual compliance rates.) A Commission compliance official said no undercover inspections of dealers had been conducted since early 2008 because Commission staff were focused on preparing to implement the Consumer Product Safety Improvement Act, but that inspections will be resumed in the future. According to Commission staff, the agency expects manufacturers and distributors to conduct at least 50 undercover checks of their dealers each year. Manufacturers and distributors with recently approved ATV action plans are also required to check each of their dealers at least twice a year. Commission staff indicated that if a dealer is found to have committed more than one violation, manufacturers and distributors should initiate terminating their agreements with the dealer.

Examples of interactions with ATV sales staff by secret shoppers:

- Sales staff at two dealerships said they were willing to sell adult-sized ATVs for use by children if the customer returned to the store the following week and said the vehicles were for the adult.
- At another dealership, when the secret shopper said he was purchasing an ATV for a 13-year-old, the salesperson immediately said “16-year-old” and then repeated “16-year-old.”
- A salesperson at a fourth dealership initially said that he could not sell an adult-sized ATV for use by a child, but later asked the customer how much he was willing to spend and then recommended an adult-sized vehicle.
- At a dealership that refused to sell an adult-sized ATV for use by a child, the salesperson immediately asked the age of the child, said he would not sell an adult-sized ATV for use by a child, and mentioned that he would be subject to sanctions if he did.

Because Commission staff had not conducted any undercover inspections of dealers since 2008 and because the number of new entrants in the marketplace that had not been checked (as of February 2010, 37 companies had ATV action plans authorizing them to sell ATVs in the United States, compared with 8 companies in 2008), we conducted undercover operations of selected dealers to check whether dealers were willing to sell adult-sized ATVs for use by children under the age of 16. In our undercover checks, we selected a variety of dealers who were selling ATVs both in stores and through the Internet, including those selling ATVs manufactured by new market entrants, focusing on dealers located in some states with the highest numbers of ATV fatalities involving children.⁶² We checked some retailers that exclusively sold a single brand as well as other retailers, such as sporting goods stores that sold a variety of brands. We followed the same protocol that Commission staff had used in their undercover dealer checks and indicated to sales staff that we were seeking to purchase an ATV for a child who was 12 or 13 years old. We found that most of the dealers we visited (7 of 10) were willing to sell

⁶⁰Commission staff did not select dealers to check on a random, statistical basis. Therefore, the compliance rates may not be representative of all ATV dealers. Commission staff focused on checking dealers with a history of noncompliance in states with high rates of ATV fatalities.

⁶¹To protect the integrity of their investigative work, Commission staff requested that we not disclose the number of dealers they checked.

⁶²We visited retailers in Florida, Pennsylvania, Texas, and West Virginia.

adult-sized ATVs for use by children. In addition to visiting 10 dealers' stores, we sent e-mails to 6 dealers indicating that we were seeking to purchase an adult-sized ATV for a child who was 13 or 14 years old. One of these dealers responded to the e-mail by recommending an adult-sized ATV; a salesperson from another dealer said she that liked an adult-sized model, but did not explicitly recommend it for the child; and the other four dealers did not respond. The dealers who were willing to sell adult-sized ATVs for use by children included retailers that sold ATVs made by the traditional manufacturers and new market entrants as well as those that sold a single brand and a variety of brands. In some cases, sales staff subtly and in other cases blatantly admitted that they should not be selling adult-sized ATVs for use by a 13-year-old, but would do so anyway. In addition, one dealer we visited was selling ATVs manufactured by a company without an ATV action plan. (See sidebar on previous page for examples.)

ATV Industry Officials and Safety Advocates Raised Additional Safety Issues

During our review, stakeholders raised additional issues involving ATV safety that Commission staff could explore in carrying out the agency's oversight responsibilities. For example, officials from three major manufacturers said their companies are no longer selling ATVs designed for children 12 years of age and younger because of restrictions contained in the Consumer Product Safety Improvement Act on manufacturing children's products containing lead. One company official said, for example, there is no evidence that the small lead content in ATV components presents, or has ever presented, any risk to child operators, and that having fewer youth-sized ATVs on the market may result in more children riding adult-sized ATVs, which could result in more crashes. The Commission has granted a temporary stay of enforcement of lead content limits for certain metal components of youth-sized ATVs to ensure that such models remain available, given what it called the "mortal danger" presented when children 12 years of age and younger use adult-sized ATVs.⁶³ However, an official from one manufacturer that has stopped making ATVs for children 12 years of age and younger said that complying with the lead requirements under the stay of enforcement is too burdensome in terms of testing and reporting. A Commission compliance official acknowledged that complying with the requirements under the stay of enforcement is burdensome, but said that the agency needs an

⁶³U.S. Consumer Product Safety Commission, *Report to Congress Pursuant to the Statement of Managers Accompanying P.L. 111-117* (Bethesda, Md.: Jan. 15, 2010).

adequate justification and record of support to provide the stay. An official from another manufacturer that is still making ATVs for children 12 years of age and younger said the company is meeting its obligations under the stay by finding lead-compliant parts and, in some cases, redesigning vehicles to make some lead-containing parts inaccessible, but is uncertain whether such youth-model ATVs will be available that meet the Commission's interpretation of the law when the stay expires in May 2011.

Also during our review, stakeholders expressed various opinions on how youth-sized and adult-sized ATVs should be classified. Some safety advocates objected to the ATV standard's classification of youth-sized models by speed, rather than engine size.⁶⁴ One consumer advocate, for example, said that engine size is a better measure because it encompasses power, vehicle size, and speed, compared with the single dimension of speed, and that evidence is lacking that children can handle ATVs at the speeds that the standard allows. Another consumer advocate said that the standard does not limit ATV size in classifying youth models, which she said is a factor in roll-over incidents. Moreover, a trail manager said that children's height and weight should be considered as well as age in determining appropriate model sizes for youth. However, a manufacturing official said that speed is a better classification measure because engine size does not necessarily determine the top speed. A Commission official also said an ATV that fits a child's size may go faster than what someone his or her age can handle. Furthermore, in 2006, when the Commission proposed to categorize ATVs by engine size rather than speed, it indicated that categorizing adult-sized ATVs on the basis of engine size restricted the vehicles' design and that engine size does not necessarily limit vehicle size or regulate maximum unrestricted speed.

Some safety advocates also said that the size, power, and weight of ATVs are increasing, which they believe has led to more crashes and more severe injuries. An industry official also said that ATVs are becoming larger and more powerful. However, Commission staff said they did not have information that would document whether the size, power, and weight of ATVs have increased and, if so, whether those changes had increased the number or severity of injuries. An official from one manufacturer said the power of sport ATVs and the weight and power of

⁶⁴Under the consent decree that the manufacturers were following from 1988 through 1998, ATVs with engine sizes less than 90 cubic centimeters were considered to be youth-sized models.

utility ATVs have increased, but that the injury rate has dropped while sales have increased during the past 5 years. According to Commission staff, a 2001 injury and exposure study sponsored by the ATV industry in consultation with Commission staff showed large increases in the percentage of ATVs in use with engine sizes of 400 cubic centimeters or more and the risk associated with that engine size class between 1997 and 2001. Commission staff added that the market has changed since 2001 and that ATVs with both larger and smaller engine sizes now are now available on the market, but they have not studied the impact of this market change on the risk of injury or updated the 2001 study. Commission staff also said that studying the relationship between the physical characteristics of ATVs on the market and the risk of injury could be explored in any future rulemaking. However, they said that given the time and resources needed to conduct such a study, it would be important to first establish whether such a study would be useful and necessary for providing information about trends in injuries and fatalities and would help address the hazards associated with riding ATVs.

In addition, some industry officials and a consumer safety advocate said there is a risk of unsafe ATVs being imported into the United States. For example, in May 2009, the Commission recalled an ATV made by a Chinese company that did not have an approved action plan and sold for between \$250 to \$350. An industry association official also said that it is possible for a company to have an approved action plan, but not comply with the ATV standard. A Commission compliance official said that the agency currently is focusing on enforcing the action plans, rather than the standard, and that the agency plans to increase testing of ATVs when it opens a new testing facility next year. In addition, Commission staff said they are addressing unsafe imports by providing lists of manufacturers and distributors with approved action plans to U.S. Customs and Border Protection so that unapproved ATVs will not be imported into the United States. A Commission compliance official, for example, said that in October 2009, U.S. Customs and Border Protection seized a container⁶⁵ of Chinese-made ATVs at the port of Houston that was being shipped from a manufacturer that did not have an approved action plan and therefore was prohibited from importing its products into the United States.

⁶⁵A Consumer Product Safety Commission official could not tell us how many ATVs were in the container, but said that a container can hold up to 50 ATVs.

Moreover, a Commission compliance official noted that the Consumer Product Safety Improvement Act gives the agency enhanced authorities for overseeing ATV safety. This official said, for example, that before the Consumer Product Safety Improvement Act was enacted, the Commission was required to determine that unsafe products were defective and a substantial product hazard, which is a longer and more difficult process than stopping products from being imported that are unapproved or do not meet mandatory product safety standards. This official also said that it is now easier for the Commission to levy civil penalties against ATV manufacturers and distributors for violating the act, but has not yet done so. For example, Commission staff said that if manufacturers and distributors violate their action plans, they are subject to civil penalties of \$100,000 per violation, up to \$15 million, and criminal penalties of up to 5 years in prison. In addition, to help educate manufacturers about action plan and manufacturing requirements, Commission staff have conducted outreach efforts through public meetings and the Commission's Web site, and recently conducted a Chinese-language Webinar for Chinese manufacturers.

Conclusions

The effect of possible recent increases in ATV size, power, and weight—which safety advocates and medical professionals say are factors in the amount of energy released in collisions—on the frequency and severity of injuries is unknown. It is possible that any increases in size, power, and weight are too recent to be reflected in the latest fatality and injury data, which are still being collected. Determining whether such a relationship exists could help guide the Commission's future rulemaking on ATV safety.

Fatalities and injuries involving children have been a significant problem over the last decade, with children accounting for about one-fifth of fatalities and one-third of injuries. The Commission staff's previous undercover checks to determine whether dealers were willing to sell adult-sized ATVs for use by children, as well as our recent checks, indicate that noncompliance is a persistent problem. Although it may be difficult for the government, at the local, state, or federal level to determine whether children are riding adult-sized ATVs, especially on private property, manufacturers and distributors have agreed in their action plans that they will not market, advertise, or sell adult-sized ATVs for use by children and will monitor their dealers' sales practices. Commission staff could assess whether manufacturers and distributors are adequately monitoring their dealers by resuming their undercover checks of dealers and targeting new market entrants that have not yet been checked.

Given that a substantial number of dealers that the Commission checked and the majority of dealers that we checked were willing to sell adult-sized ATVs for use by children, the Commission's approach to preventing such sales appears to be relatively ineffective. Allowing the manufacturers and distributors to use nonspecific and conditional language in their action plans to describe how they will enforce dealer compliance with the age recommendations; not requiring manufacturers and distributors to make dealership agreements available for the Commission's inspection; and not making all of the action plans publicly available weaken the Commission's ability to enforce provisions of the action plans aimed at preventing the sale of adult-sized ATVs for use by children. Addressing these problems could help prevent the sale of adult-sized ATVs for use by children.

Recommendations for Executive Action

To enhance the Consumer Product Safety Commission's oversight of ATV safety, we recommend that the Commission take the following three actions:

First, when sufficient data are available, assess whether the size, power and weight of ATVs have increased in recent years and, if so, whether and how those increases correlate with the severity of injuries. Commission staff should consider the results of this assessment in the agency's future rulemaking on ATV safety issues.

Second, resume undercover checks of ATV dealers, focusing on new market entrants, which have not been tested, to assess dealers' willingness to sell adult-sized ATVs for use by children.

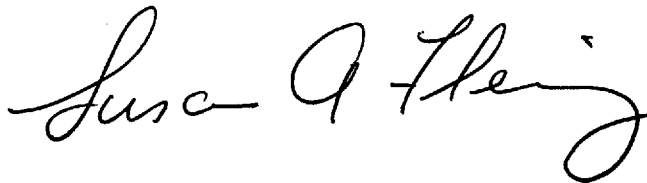
Third, consider how the Commission's enforcement of the age recommendations can be strengthened and act accordingly. Options could include, but are not limited to, requiring ATV manufacturers and distributors to (1) provide more specific language about how they will enforce their dealers' compliance with the age recommendations and (2) make dealership agreements with dealers available for Commission staff to inspect how the agreements address the age recommendations. In addition, the Commission could consider making all of the action plans publicly available.

Agency Comments and Our Evaluation

We requested comments on a draft of this report from the Chairman of the Consumer Product Safety Commission. In response, a Commission official said that the report presented the information in a clear and well-organized manner and that the Commission accepts our recommendations. Commission staff provided some technical comments and clarifications that we incorporated.

We are sending copies of this report to congressional subcommittees with responsibilities for consumer product safety; the Director, Office of Management and Budget; and the Chairman of the Consumer Product Safety Commission. In addition, this report will be available at no charge on GAO's Web site at <http://www.gao.gov>.

If you or your staff have any questions regarding this report, please contact me at (202) 512-2834 or flemings@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. Key contributors to this report are listed in appendix V.



Susan A. Fleming
Director, Physical Infrastructure Issues

Appendix I: Scope and Methodology

For background information on all-terrain vehicles (ATV), we reviewed descriptive information about the vehicles, including the sales price, engine size, and weight of various models. In addition, we reviewed the regulatory and legislative history concerning ATVs, including the Consumer Product Safety Commission's (Commission) regulatory authorities and safety oversight efforts; relevant provisions of the Consumer Product Safety Improvement Act of 2008;¹ and the 1988 consent decree between the government and ATV manufacturers. To describe recent changes in the ATV marketplace, we obtained from Power Products Marketing, a research and consulting firm, U.S. sales data from 2004 through 2008, broken down by sales of youth models and sales made by traditional and nontraditional (Chinese and Taiwanese) manufacturers. We also obtained information from Commission staff on the number of manufacturers and distributors that may legally sell their products in the United States and estimates of the number of ATVs in use from 1999 through 2008. For demographic information on ATV owners, we reviewed the results of a nationwide survey that the Motorcycle Industry Council conducted with the Specialty Vehicle Institute of America in 2008. We discussed with officials from Power Products Marketing, Commission staff, and the Specialty Vehicle Institute how their data were collected and determined that the data were sufficiently reliable for our purposes.

To identify how ATVs are used and the advantages of their use, we interviewed industry officials, manufacturers, a dealer, and users, such as advocacy groups, trail managers, and industry groups and government agencies that use ATVs at work. We also analyzed the results of the Motorcycle Industry Council's 2008 survey of ATV owners to determine the extent to which these vehicles are used for recreation and work and the reported advantages of ATV riding. We reviewed the methodology used to conduct the survey and determined that the process was sufficiently reliable for our purposes. In addition, we reviewed studies conducted during the last 5 years on the uses of ATVs and the economic impact of riding on areas surrounding ATV trails. Lastly, we visited Alaska and West Virginia because ATVs are used widely in these states. To document how ATVs are used for daily transportation, we visited a remote community in Alaska and spoke with its community leaders. In West Virginia, we visited a major ATV trail system and spoke with community business owners to obtain information on the economic impact of trail riding.

¹Pub. L. No. 110-314, § 232, which amended the Consumer Product Safety Act, Pub. L. No. 92-573, as amended.

To identify the nature, extent, and costs of fatalities and injuries, we reviewed studies conducted during the last 5 years. In addition, we reviewed ATV fatality and injury data that Commission staff collected for 1999 through 2008, assessed their quality, and identified trends, including trends involving children, engine size, and helmet usage. We discussed with Commission staff how they collected the fatality and injury data and estimated the numbers of fatalities and injuries, and determined that these data were sufficiently reliable for our purposes. Furthermore, we interviewed industry officials, user groups, consumer safety advocates, public health officials, and medical professionals about the causes of ATV fatalities and injuries and efforts to prevent them, including training and education. In addition, during our visits to Alaska and West Virginia, we discussed crash and injury prevention efforts with ATV users and dealers, public health officials, and other state government officials. Moreover, because Commission staff had not conducted any undercover inspections of dealers since 2008 and because the number of new entrants in the marketplace has recently increased, we conducted undercover checks at 10 dealers' stores in 4 states and attempted to contact 6 dealers by e-mail to assess their willingness to sell adult-sized ATVs for use by children. For our undercover checks, we selected a variety of dealers, focusing on those selling ATVs manufactured by new market entrants and dealers located in states with the highest numbers of ATV fatalities involving children, both in stores and through the Internet. We used the same protocol that Commission staff had used in their undercover checks.

Appendix II: ATV Fatality and Injury Data

This appendix presents various ATV fatality and injury statistics and estimated associated crash costs.

Table 6: Estimated and Documented ATV Fatalities, 1999 through 2008

Year	Estimated number	Documented number
2008	N/A	410 ^b
2007	816 ^a	699 ^b
2006	907 ^a	832 ^b
2005	932	804
2004	855	753
2003	762	653
2002	606	548
2001	593	517
2000	551	450
1999	534	397
Total	6,556	6,063

Source: Consumer Product Safety Commission staff.

^aCommission staff said that it is likely that the estimated number of fatalities for 2006 and 2007 will change as the agency collects more information. It normally takes Commission staff 3 years to receive ATV fatality data for a given year.

^bThese figures are preliminary and are expected to increase. Commission staff are still collecting data on documented ATV fatalities for 2006, 2007, and 2008.

Table 7: Estimated Number of Four-Wheeled ATVs in Use from 1999 through 2008 and ATV Fatalities per 10,000 Four-Wheeled ATVs in Use, 1999 through 2007

Year	Estimated number (in millions)	Estimated deaths per 10,000 four-wheeled ATVs in use
2008	10.2	N/A
2007	9.5	0.8 ^a
2006	8.6	1.0 ^a
2005	7.8	1.1
2004	7.0	1.2
2003	6.3	1.2
2002	5.6	1.0
2001	4.9	1.1
2000	4.2	1.2
1999	3.6	1.4

Source: Consumer Product Safety Commission staff.

Appendix II: ATV Fatality and Injury Data

^aBased on preliminary data on ATV fatalities: therefore, these rates are not comparable to other years.

Note: Commission staff said that it is likely that the estimated risk for 2006 and 2007 will change as the agency collects more information and that it is premature to make any conclusions about the risk for those years. Commission staff have not yet estimated the number ATV fatalities per 10,000 ATVs in use for 2008. It normally takes Commission staff 3 years to receive data on ATV fatalities for a given year.

Table 8: ATV Fatalities by State, the District of Columbia, and Puerto Rico, 1999 through 2008

State	Documented fatalities from 1999 through 2005	Documented fatalities involving children under the age of 16 from 1999 through 2005	Preliminary documented number of fatalities from 2006 through 2008^a	Preliminary documented number of fatalities involving children under the age of 16 from 2006 through 2008^a
Alabama	91	30	39	14
Alaska	40	10	24	3
Arizona	69	17	66	15
Arkansas	100	17	34	9
California	178	39	102	13
Colorado	69	15	15	1
Connecticut	18	1	6	0
Delaware	3	0	1	0
District of Columbia	2	2	1	1
Florida	184	51	106	12
Georgia	163	52	44	7
Hawaii	9	1	3	1
Idaho	54	10	27	5
Illinois	88	17	50	7
Indiana	85	22	33	8
Iowa	52	5	18	4
Kansas	50	11	20	6
Kentucky	240	44	111	14
Louisiana	88	33	41	17
Maine	45	4	20	3
Maryland	37	8	16	2
Massachusetts	25	7	8	1
Michigan	114	22	47	10
Minnesota	98	21	47	7
Mississippi	136	41	57	17
Missouri	116	27	68	14
Montana	30	7	17	1

Appendix II: ATV Fatality and Injury Data

State	Documented fatalities from 1999 through 2005	Documented fatalities involving children under the age of 16 from 1999 through 2005	Preliminary documented number of fatalities from 2006 through 2008 ^a	Preliminary documented number of fatalities involving children under the age of 16 from 2006 through 2008 ^a
Nebraska	37	9	20	3
Nevada	36	7	14	1
New Hampshire	23	5	1	0
New Jersey	36	6	9	3
New Mexico	45	14	7	1
New York	125	19	55	4
North Carolina	167	49	62	15
North Dakota	18	6	17	5
Ohio	120	30	80	15
Oklahoma	70	28	38	9
Oregon	68	17	40	1
Pennsylvania	191	40	75	9
Puerto Rico	0	0	0	0
Rhode Island	2	0	2	0
South Carolina	63	20	33	10
South Dakota	25	8	17	1
Tennessee	173	39	74	19
Texas	213	52	85	27
Utah	60	19	25	8
Vermont	17	3	14	1
Virginia	75	19	50	3
Washington	49	8	23	2
West Virginia	208	32	134	8
Wisconsin	93	28	41	3
Wyoming	24	3	4	1
Total	4,122	975	1,941	341

Source: Consumer Product Safety Commission staff.

^aAccording to Commission staff, the counts for 2006 through 2008 should not be used for between-state comparisons because data are still being collected for those years and data from some states are more complete for some states than for others.

Table 9: Number and Percentage of ATV Fatalities Involving Children under 16 Years of Age, 1999 through 2008

Year	Number of children killed	Percentage of fatalities involving children younger than 16 years old
2008	74 ^a	19 ^a
2007	124 ^a	16 ^a
2006	143 ^a	17 ^a
2005	163	21
2004	180	24
2003	153	24
2002	133	24
2001	132	26
2000	124	28
1999	90	23
Total	1,316	22

Source: Consumer Product Safety Commission staff.

^aNumbers reflect documented ATV fatalities. Commission staff are still collecting data on fatalities that occurred in 2006, 2007, and 2008. Therefore, the numbers for those years are expected to increase.

Table 10: Estimated Nonfatal ATV-Related Injuries, 1999 through 2008

Year	Total estimated nonfatal injuries	Estimated nonfatal injuries treated in emergency rooms	Estimated nonfatal injuries treated outside of emergency rooms	Estimated nonfatal injuries not treated	Estimated nonfatal injuries treated in emergency rooms sustained by children younger than 16 years old	Percentage of nonfatal injuries treated in emergency rooms sustained by children younger than 16 years old
2008	413,339	134,900	209,549	68,890	37,600	28
2007	457,394	150,800	230,362	76,232	40,000	27
2006	446,561	146,200	225,934	74,427	39,100	27
2005	414,252	136,600	208,610	69,042	40,400	30
2004	410,142	135,800	205,985	68,357	44,500	33
2003	380,266	125,400	191,488	63,378	38,600	31
2002	340,130	113,700	169,742	56,688	37,000	33
2001	328,264	110,000	163,553	54,711	34,200	31
2000	275,340	92,100	137,350	45,890	31,900	35
1999	243,664	81,800	121,253	40,611	27,600	34
Total	3,709,352	1,227,300	1,863,826	618,226	370,900	30

Source: Based on data provided by Consumer Product Safety Commission staff.

Note: Data in table pertain to injuries involving ATVs with three, four, or an unknown number of wheels.

Table 11: Estimated Risk of Emergency Room-Treated ATV Injury, 1999 through 2008

Year	Estimated number of injuries treated in emergency rooms involving four-wheeled ATVs	Estimated risk of emergency-room treated injury per 10,000 four-wheeled ATVs in use
2008	131,700	129.7
2007	146,500	153.9
2006	140,900	163.0
2005	130,000	167.2
2004	129,500	185.4
2003	116,600	186.3
2002	104,800	188.5
2001	98,200	200.3
2000	82,300	197.2
1999	68,900	193.0
Total	1,149,400	

Source: Consumer Product Safety Commission staff.

Note: Includes emergency room-treated injuries resulting in fatalities.

Table 12: Consumer Product Safety Commission Staff's Cost Estimates of ATV Crashes, 1999 through 2008 (in 2009 dollars)

Dollars in billions

Year	Costs of nonfatal injuries	Costs of fatalities	Total costs
2008	\$15.6	N/A	N/A
2007	17.7	4.6 ^a	22.3 ^a
2006	16.6	5.1 ^a	21.7 ^a
2005	15.9	5.3	21.2
2004	15.3	4.8	20.1
2003	13.0	4.3	17.3
2002	12.3	3.4	15.8
2001	11.9	3.4	15.3
2000	8.5	3.1	11.7
1999	7.7	3.0	10.7
Total	\$134.5	\$37.2^b	\$156.1

Source: Consumer Product Safety Commission staff.

Note: We used the Gross Domestic Product Price Index to inflate prior years' cost estimates to 2009 so that comparisons across year could be made on the same basis.

^aBecause Commission staff are still collecting data on ATV fatalities for 2006, 2007, and 2008, the cost estimates for those years are incomplete and are expected to increase.

^bNumbers above do not total because of rounding.

Appendix III: State ATV Laws

This appendix provides information on the major provisions of state ATV laws as reported by the Specialty Vehicle Institute of America. However, in many cases, the requirements apply only in narrow circumstances, particularly with respect to requiring motor vehicle licenses to drive ATVs. See the table notes for more information about the types of exemptions allowed under these laws.

Table 13: Major Provisions of State ATV Laws

State	Registration and titling may apply ^a	Minimum operator age requirement may apply ^b	A motor vehicle operator's license may be required ^c	Safety education certificate may be required ^d	Helmet/eye protection may be required ^e
Alabama					
Alaska		14			
Arizona	✓				✓
Arkansas	✓	12			
California	✓	14		✓	✓
Colorado	✓				
Connecticut	✓	12	✓	✓	
Delaware	✓	12			
District of Columbia					
Florida	✓	16		✓	✓
Georgia					
Hawaii					
Idaho	✓				✓
Illinois	✓				
Indiana	✓	14	✓		
Iowa	✓	12	✓	✓	
Kansas	✓				
Kentucky		12	✓		✓
Louisiana	✓				
Maine	✓	10		✓	✓
Maryland	✓	12	✓		✓
Massachusetts	✓	10			✓
Michigan	✓	12	✓	✓	✓
Minnesota	✓	10		✓	✓
Mississippi					

Appendix III: State ATV Laws

State	Registration and titling may apply ^a	Minimum operator age requirement may apply ^b	A motor vehicle operator's license may be required ^c	Safety education certificate may be required ^d	Helmet/eye protection may be required ^e
Missouri	✓	16			✓
Montana	✓				
Nebraska	✓				
Nevada					
New Hampshire	✓	14	✓	✓	✓
New Jersey	✓	14		✓	✓
New Mexico	✓	6		✓	✓
New York	✓	10		✓	✓
North Carolina		8		✓	✓
North Dakota	✓	12	✓	✓	✓
Ohio	✓	12	✓		✓
Oklahoma	✓		✓		✓
Oregon	✓	16		✓	✓
Pennsylvania	✓	8		✓	✓
Rhode Island	✓	12	✓	✓	✓
South Carolina					
South Dakota	✓				
Tennessee	✓				✓
Texas	✓	14		✓	✓
Utah	✓	8	✓	✓	✓
Vermont	✓	12		✓	
Virginia	✓	12			✓
Washington	✓	13			✓
West Virginia	✓	18		✓	✓
Wisconsin	✓	12		✓	✓
Wyoming	✓				

Source: Adapted from a table prepared by the Specialty Vehicle Institute of America (2009).

^aThe registration and titling requirements vary by state under different circumstances, such as when ATVs are operated on public lands, possess a certain engine size, or are purchased after a certain date. Some states provide exemptions from this requirement for ATVs used in agricultural or other types of activities or events. While some states require registration with the motor vehicle agency, others require registration with the recreation management agency.

^bThe minimum age requirement varies by state under different circumstances, such as whether the child is supervised, possesses a safety certificate, is operating an ATV on public lands, or is operating an ATV with a certain engine size.

⁶The motor vehicle license requirement varies by state and circumstances. For example, a license may be required to operate an ATV on public lands or when the operator is under 18 years of age. Most of these states only require a motor vehicle license for crossing highways. Some states exempt people from this requirement when the operator possesses a safety certificate.

⁷The safety education certificate requirement varies by state and circumstance. For example, a certificate may be required to operate an ATV on public lands or when the operator is under a certain age, or the requirement may apply only to first-time buyers. Some states exempt people from this requirement when the ATV is being operated for agricultural purposes, the operator is being supervised by an adult with a safety certificate, or the operator possesses a motor vehicle license.

⁸The helmet/eye protection requirement varies by state and circumstance. For example, it may apply only when riding on public lands or when the operator is under a certain age. Some states exempt people from this requirement when operating an ATV for agricultural purposes.

Appendix IV: Dealer Rates of Compliance with Age Recommendations from the Commission Staff's Undercover Checks

Table 14: Dealer Rates of Compliance with ATV Sales Age Recommendations Checked by Consumer Product Safety Commission Staff, 1999 through 2007

Year	Compliance rate (percent)
2007	63
2006	64
2005	74
2004	70
2003	63
2002	59
2001	72
2000	75
1999	85

Source: Consumer Product Safety Commission staff.

Note: Commission staff did not select ATV dealers to check on a random, statistical basis. Therefore, the results may not be representative of all dealers' compliance. Commission staff focused on checking dealers with a history of disregarding the age recommendations in states with high rates of fatalities.

Appendix V: GAO Contact and Staff Acknowledgments

GAO Contact

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Staff Acknowledgments

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