

# ATV Safety Summit



*Keeping Families Safe on ATVs*

## Welcome to the ATV Safety Summit!

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CPSC staff is looking toward the future and envisions a two-pronged approach to improving ATV safety: regulation and stakeholder engagement. Work regarding the 2006 NPR is nearing completion. However, because 6 years have passed since the issuance of the NPR, staff would like to provide

stakeholders an opportunity to present their views on the outstanding issues. In addition, once rulemaking is complete, we envision that the next phase of the effort will focus on the different roles each of the various stakeholders can play to achieve the goal we believe every one of these stakeholders

supports: Keeping families safe on ATVs. With these interests in mind, we are inviting stakeholders to come together for an ATV Safety Summit. This Summit will serve as a forum for stakeholders who have a mutual commitment to ATV safety to share new information, as well as collaborate as a team and seek solutions to common problems.

## A note about the included abstracts

The staff of the Consumer Product Safety Commission is excited by the opportunity to hear from so many stakeholders with such varied points of view.

We have included the abstracts submitted by the panelists so that you can review them and choose the sessions that are most interesting to you.

However, it is important

to note that these abstracts are included as submitted by the panelists, with only minor editing for space and grammar. The inclusion of any abstract, panelist, product, technology, or data should not be interpreted as endorsement or approval of the views contained by either the Commission or staff.

### Key Topics:

- ATV Training
- Consumer Awareness
- State Legislation
- Vehicle Characteristics
- Vehicle Technologies





## Schedule at a Glance

<b>Thursday</b>	<b>Hearing Room</b>	<b>Room 410</b>
9:00-9:45	Opening Plenary	
9:45-10:00	Break	
10:00-11:45	Vehicle Characteristics and Other Rulemaking Topics	Consumer Awareness: ATV Dealers and Teens
11:45-1:00	Lunch	
1:00-2:45	Training: Reaching the Next Generation	State Legislation: Effecting Change
2:45-3:00	Break	
3:00-3:30	Plenary	

<b>Friday</b>	<b>Hearing Room</b>	<b>Room 410</b>
8:30-10:15	Consumer Awareness: Getting the Message Out	Vehicle Technology: New Innovations
10:15-10:30	Break	
10:30-12:15	Vehicle Technology: Roll-Over Protection	Training: New Innovations in Training
12:15-1:15	Lunch	
1:15-3:00	State Legislation: Enforcement's Role in Regulation	
3:00-3:15	Break	
3:15-4:00	Closing Plenary	

**Karen Umphress, IT and Project Manager**

**National Off-Highway Vehicle Conservation Council (NOHVCC)**

The National Off-Highway Vehicle Conservation Council (NOHVCC) is a non-profit educational foundation that develops and provides programs and materials to further responsible off-highway vehicle (OHV) recreation. Project Manager, Karen Umphress, would like to share NOHVCC's programs to communicate positive messages to kids regarding the safe and responsible use of ATVs. Since 2004, NOHVCC has delivered its highly successful "Adventure Trail" educational series. The multi-dimensional program is directed to youth riders and addresses twelve primary messages that promote safe and responsible use. The Adventure Trail trailer displays posters that graphically communicate each message. As the kids travel along the "trail," they complete a fun quiz and then are rewarded with an activity book, a CD with educational games, and other fun items to reinforce the messages. At its conference last month, NOHVCC unveiled its latest project to deliver safety messages to kids in their schools. NOHVCC entered a partnership with School Media, an organization that places messages regarding health and safety, to develop OHVs banners for placement on lockers, floors and walls in the schools. The messages include encouraging safety training, remaining sober and wearing protective gear. A pilot project recently was conducted and the feedback was very positive.

**Cam Arnold, VP**

**Right Rider Access Fund**

The Right Rider Access Fund sponsored "Do the Ride Thing", an ATV and dirt bike safety video contest, in collaboration with the ATV Safety Institute and the Motorcycle Safety Foundation. "Do the Ride Thing" enhances young riders' knowledge of the "Golden Rules" of ATV safety while empowering them to communicate safety messages to their peers through their own PSA video. The contest, in its third year, ran from June 1 to August 15, 2012 and offered 19 prizes totaling \$8,500. Students ages six to 18 could enter. Creating a safety video that highlights one or more of ASI's "Golden Rules" is a great way to motivate and inform the public - especially kids and their parents - about the safe and responsible use of all-terrain vehicles. The contest harnesses the social networking power of YouTube and it gives kids the opportunity to "Do the Ride Thing" and help other kids ride safe/ride smart.

**Gerene Denning, PhD**

**University of Iowa Department of Emergency Medicine**

Safety Tips for ATV Riders: Increasing Adolescent ATV Safety Knowledge Through an In-Classroom Educational Intervention. Objectives: To determine the effectiveness of an in-classroom ATV safety education program that targets younger adolescents and highlights the 10 STARS--Safety Tips for ATV Riders. Methods: An audience response system was utilized to obtain data before and after the educational sessions. A one year follow-up written survey was administered. Results: About 2000 students in thirteen Iowa schools received the ATV safety program; 10 schools participated in the follow-up study. On the three knowledge questions, pre-intervention correct scores were 52%, 27% and 46% which rose to 93%, 80% and 79% on post-exam, respectively. Immediately after the program, 44% said they were likely or very likely to use the ATV safety tips, while 36% said they were unlikely or very unlikely to do so. One-year follow-up knowledge question scores were 77%, 45% and 58%. Lower percentages of students reported having ridden on an ATV with passengers or on a public road in the year following the education program. There were no differences in helmet use. Conclusion: Although it's unclear if ATV safety behavior definitely improved, the classroom educational intervention was able to increase short and long term safety knowledge. Repeated interventions may improve both knowledge retention and safety behaviors.

**Robin Schier, DNP, APRN, CPNP AC/PC  
Assistant Professor of Nursing**

**The University of Texas Health Science Center at Houston**

ATV rider safety training, education and danger awareness has become the major focus on reducing the incidents of injuries and deaths in children under the age of 16 years. Numerous studies and professional organizations have recommended mandatory completion of an effective ATV safety training and education for children, however, no studies have identified what effective safety training looks like or historically why there is such a low attendance and involvement in these efforts. Research shows that only 4–11% of drivers reported attending an ATV safety education course. Similarly, many studies have indicated only one-fifth of youth have completed ATV safety training with many of them indicating that training was not available.

My doctoral project (currently in press with Journal of Trauma) at Vanderbilt University was dedicated to understanding what the barriers and facilitators were to youth under 16 years of age and ATV safety education and training. The aim of this project was to develop and implement a pilot-version, parent survey assessing barriers against and facilitators for youth under 16 years of age attending the ASI RiderCourse<sup>sm</sup> in Tennessee. This project examined the only national ATV safety course given by ASI to determine the low enrollment in this course. No previously validated survey instrument for parents was found, therefore, survey development for this project was based on injury prevention and survey development literature, and personal experience during the attendance of a RiderCourse<sup>sm</sup>

The knowledge gained from survey results will help guide the development of future projects that are needed to contribute to the body of knowledge concerning ATV safety and children. Many questions remain unanswered: Are there sufficient ATV safety training courses? Are there direct barriers to enrollment in these courses? Does the public feel the need for formal ATV education? Are the available classes effective for children? Is the RiderCourse<sup>sm</sup> student handbook written so children of all ages can understand and comprehend the material? Is it even appropriate to train and educate children on ATV use? Can ATV use ever become a safe, recreational activity for children under the age of 16 years?

**Patricia Wellen, Director, Research & Program Innovation  
Boy Scouts of America**

The Boy Scouts of America's Innovation Team seeks fun and safe programs to enhance retention and recruitment and fulfill the aims of Scouting; character development, participatory citizenship, and physical fitness. We have been successful in doing this by designing programs based on what youth want. In a survey of Scouts and non-Scouts in 2009, we found that riding ATV's was the fourth highest ranked activity they wanted to try. This finding led to a partnership between the BSA and the ATV Safety Institute to provide an ATV rider education pilot program in 2010 and 2011. This program was so successful that in 2012 it became a part of the camping program and is currently conducted at BSA camps across the country. This program has grown from being offered in four camps in 2010 to being offered in 18 camps this past summer, and we anticipate even greater growth during the 2013 camping season. Older Scouts are returning to camp to take part in the ATV program, which is helping us achieve our retention goal. The ATV program is also helping us achieve our goal of having activities youth have never had the opportunity to experience since more than 60 percent of the youth participating have never ridden an ATV before. And, the ATV rider education program is exceeding Scouts expectations - now that's FUN!

**Hector Tavaréz, Executive Director  
Egg Harbor Township Police Athletic League**

Captain Hector Tavaréz, Retired, Egg Harbor Township Police: I am a retired police captain who served 25 years in many capacities, including Detective Sergeant in charge of our Juvenile and Community Service Unit for six years. One of my responsibilities was supervising crimes against and involving children. In the last 15 years I have also been the driving force behind the development and construction of the Egg Harbor Township Police Athletics League's Ready to Ride, OHV park. The park is 35 acres located in the heart of the township. In my years, I have seen the destruction that drugs, alcohol and boredom can have on the life of a child and their families. I have also seen lives and families saved with the introduction of positive activities including ATV riding. Training is a critical part of Ready to Ride's success. We are able to reach young riders who otherwise would not receive training. For experienced riders, we require a Facility Safety Orientation in which our volunteers evaluate the riders' ability prior to granting certification. For novice riders, we offer comprehensive Training for New Riders by appointment and also recognize the ATV Safety Institute's Rider Course.

**Raymond Ochs, Vice President - Training Systems  
All-Terrain Vehicle Safety Institute**

The ATV Safety Institute (ASI) believes in the value of high-quality safety education and training that puts contemporary learning theory into effective practice. Safety countermeasures need to address several audiences, from novice riders to enthusiasts, and to leverage several delivery mechanisms, from electronic and web-based formats to classroom and hands-on training. For nearly 25 years, the core ASI program has been the ATV RiderCourse. In an effort to make the ATV RiderCourse more accessible, ASI recently developed an alternative delivery and participation option through a two-part E-Course and S-Course. In complementing and reinforcing each other, the E-Course provides cognitive learning through three age-appropriate modules while the S-Course provides the skills training and safe riding practices. These courses along with supplementary public information and education programs such as the youth-oriented Treadsylvania, a fun, and engaging web-based game, provide a multi-pronged approach. Because the heart of the ATV RiderCourse and other interactive programs is the dynamic relationship of rider and Instructor, ASI provides initial Instructor training processes coupled with formal development opportunities to foster effective teacher-learner transactions. The result is a student centered instructional strategy that helps riders not only value safety, but internalize safe riding practices in their day-to-day ATV use.

**Pamela Ardern, State 4-H Program Leader  
Clemson University**

ATV Training: Reaching the Next Generation: My name is Pamela Ardern and I serve as the South Carolina State 4-H Program Leader - Clemson University Cooperative Extension. I have been with the university for 28 years and I'm currently working with others across the state to address ATV Safety. 4-H, the youth development program of the Land-Grant University system, has been directly involved in ATV safety education since the mid 1980's. 4-H has partnered with the ATV Safety Institute and others to deliver sustainable community based education programs. These programs utilize the hands-on ASI RiderCourse, the online ASI E-Course, nationally developed 4-H ATV safety curriculum and other educational resources to train educators and volunteers to deliver ATV safety education to youth. 4-H ATV safety provides structured learning, encouragement and adult mentoring of youth, which plays a vital role in helping youth gain decision-making skills around risky behaviors and riding ATVs safely. 4-H is establishing cohesive and committed state-level teams and partnerships that can accomplish more than just one or two individuals or a single organization. By having large and diverse partnerships representing a wide array of interests, 4-H brings more perspectives to address ATV safety, provide more resources, generate more ideas, and create positive approaches.

**Christopher McNeil, Owner  
McNeil Training Simulators**

**Wyoming ORV Safety and Education Program & ATV Safety Institute**

McNeil Simulators (ohvsimulators.com): ATV Safety Awareness Simulator Abstract: The ATV Simulator course is intended to be taught at area schools. Used as a tool to promote State's OHV rules and regulations, active riding techniques, and participation in a required or not safety rider course in a statewide outreach. Students are guided through lessons in a predictable and well sequenced manner. Five major topics are stressed: 1. Safety Gear. 2. Proper fitting guidelines. 3. Center of gravity showing physics of the machine. 4. Machine's capabilities and operator's abilities. 5. Speed vs. Control. The Simulator is a mechanical devise that hydraulically simulates angular movements of an ATV traveling uphill, downhill, side hills, cornering, or a combination of movements. Combined with a series of lessons from start to finish different active riding techniques are achieved. The student actively takes the opportunity to feel the movement- angular forces, and learns proper safe riding skills per instruction eye to eye and some video if preferred. Therefore, instruction can be corrected and positively reinforced if needed. Along with riding skills; pre-riding safety (proper safety gear, weight vs. machine size, center of gravity instruction, hazards of riding double, other) is emphasized. Riding ethics on public lands is also stressed. Average class time is 50 minutes. I have reached over 30,000 students this exciting new awareness program always stressing the need to take a hands-on rider course. Seven other States are now using the simulator as well. It has become a valuable tool for ATV awareness safety training.

**Jack Boles, Director - Arkansas 4-H ATV Safety Program  
University of Arkansas Division of Agriculture**

My name is Jack Boles and I serve as Director of the Arkansas 4-H ATV Safety Program through the University of Arkansas CES. I have been with the university for 25 years and have been involved in 4-H ATV Safety education at both the county and state level for 5 years. On a national scale, ATV Safety promotional efforts focus not only on ATV safety as an issue, but also on connecting with the many educational efforts being conducted on the state and national level. Promotion guides individuals towards more intensive and substantial involvement in ATV safety training, with the ultimate goal of participation in an ASI RiderCourse training. 4-H is involved due to the fact that many of the 14 million underserved ATV riders who need training are youth. Promotional efforts include over 30,000 views on websites operated by Land-Grant Universities and national organizations, as well as 10 million plus contacts made through print, television and communication channels. One million plus copies of 4-H ATV safety brochures have been shared with youth and adults. Over 12,000 Copies of National 4-H ATV Safety Leader's Guide are being utilized by trained educators and volunteers to deliver ATV safety education to youth.

**Sue DeLoretto-Rabe, CoFounder and Carolyn Anderson, CoFounder  
Concerned Families for ATV Safety**

Concerned Families for ATV safety was established in 2005 by three mothers who have lost a child due to an All Terrain Vehicle (ATV) accident. Our non-profit organization provides support to survivors who have suffered injuries or lives due to ATVs. The organization also works to raise awareness of the need for stricter safety standards that will enforce existing laws and keep children under the age of 16 from riding or driving ATVs. Our organization has grown into a network of parents worldwide who have come together as a unit to provide support and safety education in the form of advocacy kits, news broadcasts, research projects and medical statistics. We all share the same goal to protect children and educate parents of the dangers ATVs pose to children under the age of 16. We would like to speak on the topic of Consumer Awareness. We have gotten so many emails from parents AFTER their child has died that always say the same thing, "If only I had known." We plan to show how the message just isn't getting out clearly, not just to the consumers, but the entire public.

**Russ Ehnes, Executive Director  
NOHVCC**

The National Off-Highway Vehicle Conservation Council (NOHVCC) would like to present a session about a program that is currently being developed to help individuals interested in participating in off-highway vehicle (OHV) activities, including ATV riding, for the first time get off on the right foot. The video-based program will help new riders make safe and responsible decisions when they become participants in OHV recreational activities. The videos will help them make decisions regarding the type and size of ATV that might be appropriate for them and family members, where they can get the proper safety training and why it is important to become trained, what types of safety gear are available and required to ride, where they can get information about legal and safe riding opportunities, and how they can become involved with organizations that promote safe and legal riding in their area.

**Charles Jennissen, MD  
University of Iowa Department of Emergency Medicine**

The Anticipatory Guidance Provided by Primary Healthcare Providers with Regards to ATV Safety and Injury Prevention

Objectives: To determine the ATV anticipatory guidance practices of primary care providers, as well as their attitudes, knowledge, and the barriers faced in educating families about the risk of ATV use.

Methods: An electronic survey was administered to primary care providers belonging to Iowa state medical societies. Results: More than 60% of respondents (N=218) believed that providing ATV anticipatory guidance was important. However, 78% gave ATV safety counseling less than 10% of the time during regular pediatric exams, and only 12% did so greater than 25% of the time. Families rarely ask providers for advice on ATV safety issues; 84% of providers were asked once a year or less. ATV knowledge scores were low (median score 2 of 12); however, those with previous ATV exposure had significantly higher scores. Many respondents affirmed insufficient knowledge (47%) and inadequate resources (63%), but the most commonly identified barrier was that it was not a routine part of their practice.

Conclusions: Providers in the study demonstrated limited knowledge, reported multiple barriers, and provided little ATV safety counseling. However, they consider ATV anticipatory guidance important for their patients. Armed with increased knowledge and appropriate resources, providers could play a significant role in promoting ATV safety.

**Mary Aitken MD MPH, Professor of Pediatrics  
University of Arkansas for Medical Sciences**

Education for parents and youth riders of all-terrain vehicles (ATVs) has focused on increasing rider use of helmets and other safety equipment, along with reducing other risky behaviors on the vehicles (passengers, road use). Recent focus group and survey data collected by the University of Arkansas for Medical Sciences ATV research group has led to educational material that is clearer and more practical. Users requested information that demonstrated consequences of risky ATV use and targeted both parents and youth riders. The focus group data also indicated that many users have a very inaccurate perception of ATV risk and stability, thereby reducing the perceived need for use of personal safety equipment. We are therefore working with engineers to develop validated computer models of ATVs to simulate performance with child riders and passengers. Recent speed, inclination and surface simulation models are compelling regarding risk to child riders and riders with passengers, showing ejection and ATV instability even at low speeds (10 mph) in some scenarios. When fully validated, these models may inform educational interventions to provide users with more realistic ATV safety images and motivate individual behavior change. The computer simulations can also highlight where ATV stability and performance may be improved.

**Ty van Hooydonk, Director, Communications / ASI Instructor  
ATV Safety Institute**

The ATV Safety Institute's communications department has worked for years on consumer awareness efforts informing ATV enthusiasts about the right way to buy and ride their machines. An ASI panelist will share highlights of an ongoing media campaign delivering key safety messages to broad audiences. The presentation will come just days after an ASI Autumn ATV Safety Week event near D.C., which will host capitol-based media and other key influencers who can learn about rider training and the ASI's Golden Rules. The department works with some of the largest, most read and most watched media in the country, from network morning news programs such as the "Today" show, to affiliates, magazines and newspapers. The campaign has taken dozens of journalists through the ASI RiderCourse, even hosting New York writers and broadcasters at the first and only training session ever held inside Manhattan, the center of the media world. Besides active safety promotion, the department also makes valuable information available to anyone anytime online. The ASI Website is the first listing when Googling "ATV safety," and there anyone will find brief, content-packed videos about training courses, parental responsibility, proper safety gear and preparing to ride. It's a far-ranging safety awareness program.

**Charles Jennissen, MD**

**University of Iowa Department of Emergency Medicine**

The Safety Information and Guidance Provided to Parents by All-Terrain Vehicle Dealers and Sales Representatives' Objective: To determine the practice of ATV dealers and salespersons with respect to providing safety information since enactment of the 2009 U.S. Consumer Product Safety Improvement Act. Methods: A "secret buyer" method was utilized to evaluate seller practices. Results: 50 dealerships from 4 states were studied. 35 subjects (70%) were willing to show and discuss selling an adult-sized ATV when told that the purchase was for a 12 year old. Seven (14%) responded that ATVs should not have extra riders when the investigator made statements about the adequacy of a seat being long enough for a child to give a sibling rides. Only one subject, when prompted, informed the investigator about the need for a 12 year old to complete ATV safety training to drive in a public ATV park. Conclusions: Most ATV sellers in this study failed to follow requirements regarding age recommendations or to provide other safety information. Those who did often voiced concerns about possible negative repercussions from violations. Dealership compliance would likely benefit from increased enforcement, training, and resources. However, a "don't ask, don't tell" relationship between seller and buyer was alluded to during the study. This practice would predictably limit the impact of regulation enforcement.

**F.S. "Sandy" Stroope, III, Dealer Principal  
Boat World Honda Polaris**

Chair, Arkansas Motor Vehicle Commission and President Arkansas Motorcycle Dealers Association. ATV dealers have a responsibility to communicate important information to consumers at the point of purchase to help them make informed and correct decisions when purchasing an ATV, especially one for a young rider. I would like to share the types of information that dealers provide to consumers, such as on-vehicle and hang-tag warnings, age recommendations and the offer of free training. As Chair of our state Motor Vehicle Commission, I also have a role in making sure that dealers properly advertise ATVs for sale. I would like to share examples of responsible advertising as well as circumstances when the Motor Vehicle Commission has(or would have to) intervene(d) to stop improper advertisement of ATVs.

**Tom Yager, Vice President  
Specialty Vehicle Institute of America (SVIA)**

The SVIA and its member and participating companies engage in a number of efforts to create ATV safety awareness to purchasers and prospective purchasers. One of the latest offerings in our efforts to improve consumer awareness is the ASI ATV Sales Force E-Course. This on-line course is intended for ATV dealership sales staff, the vital link between the manufacturer and the purchaser. The new E-Course is intended to help ensure the safety of ATV customers by having a sales force that is well-informed about basic ATV safety principles, rider training, and matching an ATV to the intended rider. The course is under one hour long and includes a quiz at the end that must be successfully completed to receive credit. Information about this interesting and informative course was communicated to SVIA member company dealers. SVIA's Vice President, Tom Yager would like to share this latest effort to help ensure new and existing dealer personnel are best equipped to increase consumer awareness of ATV safety.

**Charles Jennissen, MD  
University of Iowa Department of Emergency Medicine**

Adolescent All-Terrain Vehicle Exposure and Riding Behaviors

**Objectives:** To determine adolescent exposure to ATVs and their riding behaviors. **Methods:** A survey was administered to ~3,100 students, mostly 11-15 years of age, as part of an in-classroom ATV safety program. **Results:** Participants were distributed between urban (38%), rural (24%), and isolated rural (38%) communities. 85% reported riding an ATV at least a few times a year and 31% reported riding at least once a week. For those exposed, 92% had ridden with more than one person, 81% had been on a public road, and over 60% reported never or almost never wearing a helmet. 54% engaged in all three unsafe behaviors; 2% engaged in none. 59% had been in at least one ATV crash. Students from isolated rural communities were more likely to have ridden an ATV in the last year relative to their peers, but the likelihood of a crash was not different by rurality. Increased crash likelihood was seen for males and for youth engaged in multiple risky behaviors.

**Conclusions:** A high percentage of youths in Iowa have been exposed to ATVs, engage in unsafe behaviors, and have experienced a crash. Significant efforts are needed to reduce ATV-related deaths and injuries in this high-risk pediatric population.

### **Katie & Mark Kearney, Sean Kearney Memorial Foundation**

We did not know the dangers of ATV's especially to children. We did not know that children were being critically injured and killed each year from riding ATV's. We did not know it was illegal for a child under the age 10 to ride an ATV in Massachusetts. October 27, 2006 our eight-year-old son Sean died from a traumatic brain injury after falling off an ATV while at a friend's house. After his death we researched how many children are hurt and killed each year on ATV's. We were angry by the numbers and needed to make a change. We contacted state legislators, doctors, law enforcement, and safety groups to advocate for change. We worked for tougher guidelines, age restrictions, training, and penalties. July 31, 2010 Massachusetts's legislators passed " Sean's Law", the toughest OHV law in the nation with an age restriction of 14. Awareness of the law is so important. Working with the Environmental police to develop safety materials and reaching adults and children. We would like to explain and share the materials we using to promote awareness.

### **Lewis Howe, Executive Director The Safety Institute, Inc.**

The Massachusetts ATV law. In 2010, Massachusetts enacted Sean's Law, an ATV management statute that contains the following requirement: No person under 14 years of age shall operate a recreation utility vehicle or an all terrain vehicle. This is the first statute in the nation to set this age requirement for ATV ridership. The Massachusetts law may be a model for some states, but may not be feasible in others. This presentation will address why the Massachusetts law was enacted as well as post-enactment issues. The presentation will also cover The Safety Institute's efforts working with researchers, survivors, physicians and advocates across the country to continue to devise sound strategies for reducing ATV injuries.

**Kathy Van Kleeck, Sr. Vice President, Government Relations  
Specialty Vehicle Institute of America**

As Sr. Vice President, Government Relations, for the Specialty Vehicle Institute of America since its inception in 1983, I have worked in numerous states to strengthen ATV safety through enactment of state ATV safety legislation and promotion of SVIA's Model State ATV Legislation. These efforts include working not only with state legislators but with a spectrum of stakeholders including the ATV rider community, health professionals, dealers and state agency officials. As noted in the Federal Register notice, certain aspects of safety related to the behavior of ATV operators, such as restrictions governing helmet use, riding on pavement, licensing of riders, and age restrictions are generally a matter left to the states. Operator behavior is an extremely important facet of ATV safety and as such, state legislation is integral in keeping families safe on ATVs. SVIA is very interested in engaging and working with other panelists and Summit attendees toward enactment of additional state safety legislation, particularly in those states that have few or no ATV safety laws and see the Summit as an excellent way to re-ignite the dialog and work together on this vital component.

**David Chester, New Mexico Off-highway Vehicle Program Manager  
New Mexico Department of Game and Fish**

Comprehensive ATV Legislation: The New Mexico Off-Highway Motor Vehicle Act of 2006 is a comprehensive and uniform set of standards for the registration, permitting and safe operation of ATVs and other off-road vehicles, and for the certification of OHV safety training organizations, instructors and guides, and matters related to off-highway vehicle recreation on public lands. The standards focus on protecting the safety of ATV and other off-highway vehicle users, and ensuring responsible and sensitive use on public lands. The Act synthesizes years of lessons learned and experience from health care professionals, land management agencies, private land owners, and practical guidelines provided by industry leaders. Serving the last three years as New Mexico's OHV Program Manager, I have shared New Mexico's OHV Act with other state's who are forming standards for off-road recreation. As the legislative chairman of the International OHV Administrators Association, I have compiled a database of other state's OHV legislation for the use by other program managers and to stay current on legislative trends across North America. Serving 21 years in law enforcement prior to becoming the state off-highway vehicle manager sealed my interest in working with laws that can affect public health and safety.

**Gerene Denning, PhD**

**University of Iowa Department of Emergency Medicine**

High Proportions of Roadway Deaths and Injuries on ATVs Suggest Poor Knowledge and Compliance with Road Use Laws. Objectives: To compare fatal and non-fatal ATV crashes on and off the road. Methods: Retrospective studies were performed using national fatality data (CPSC) and statewide injury data. Results: From 1985-2009, 62% of U.S. ATV deaths resulted from roadway crashes, and roadway deaths since 1998 have increased at a greater rate than off-road deaths. Fatal roadway crashes were more likely than off-road crashes to result in multiple deaths and to involve multiple riders, higher alcohol use, more collisions, and more head injuries. Similarly, non-fatal Iowa roadway crashes (2002-2009) involved more passengers, alcohol use, and collisions as compared to off-road crashes. Helmet use was significantly lower in roadway crashes relative to off-road; and more severe injuries overall, including head injuries, characterized roadway crashes. Both studies showed helmets reduced the likelihood of head injury. Conclusion: Despite road use laws, over half of U.S. ATV-related deaths and one-third of serious injuries in Iowa resulted from roadway crashes. We hypothesize that multiple risk factors exacerbate the inherent difficulty of safely operating ATVs on roads, and that speed and lack of protective equipment increase injury severity. Improving knowledge and enforcement of road use laws may be an effective way to reduce ATV-related deaths and injuries.

**Gerene Denning, PhD**

**University of Iowa Department of Emergency Medicine**

Off-Highway Vehicle Parks: Do Increased Regulations and Enforcement Improve All-Terrain Vehicle Safety? Objectives: To determine whether there were differences in crash mechanisms and/or compliance with ATV safety laws and regulations when comparing off-road ATV crashes inside and outside state OHV parks. Methods: Data from our Iowa ATV injury surveillance database (2002-2009) were analyzed. Results: 813 persons were included in the analysis, 6% from OHV park crashes. Relative to outside the parks, a smaller percentage of park victims were under the age of sixteen (7% vs. 31%,  $p < 0.01$ ), a lower percentage were passengers (2.5% vs. 13%,  $p = 0.07$ ), and a dramatically higher percentage were helmeted (90% vs. 24%,  $p < 0.0001$ ). However, park crashes involved more jump-related injuries (34% vs. 5%,  $p < 0.001$ ). Mean injury severity scores were not different inside and outside OHV parks, but 5% of outside victims had severe brain injuries (GCS = 8) as compared to no park victims. Conclusions: OHV park crashes involved more jump-related events, suggesting that additional approaches are needed to identify high-risk areas and improve park safety. However, park victims exhibited better compliance with ATV safety-related laws and regulations and suffered less severe brain injury outcomes. These findings support the hypothesis that ATV safety regulations with effective enforcement promote safe behaviors and may prevent injuries.

**Charles Jennissen, MD****University of Iowa Department of Emergency Medicine**

The Effect of Passengers on All-Terrain Vehicle (ATV) Crash Mechanisms and Injuries  
**OBJECTIVES:** To understand the effect of passengers on ATV-related crashes and injuries. **METHODS:** A retrospective chart review was performed of ATV-related injuries from 2002-2009 at a university hospital. **RESULTS:** 345 cases were identified of which 20% were passengers or drivers with passengers. Females and children were more likely to be passengers. Overall helmet use was low (~20%), and passengers were less likely than operators to wear helmets. There was a trend observed wherein passengers increased the likelihood of rollovers on sloped terrains, with backward rollovers the most likely to involve passengers. Victims who fell/were ejected to the rear were significantly more likely to have been on an ATV with passengers than were victims of other ejections or those not ejected, and also had more severe head injuries. Self-ejections and forward ejections appeared less likely with passengers. Patients who self-ejected had higher extremity injury scores than patients who fell/were ejected by other mechanisms, but had less severe head injuries. **CONCLUSIONS:** Passengers on ATVs may be at greater risk for fall/ejection to the rear and rearward falls/ejections appeared to increase the risk of head injury. Strict and well enforced "no passenger" laws could reduce risk of some ATV crashes and injuries.

**Jim Helmkamp, PhD, MS, Senior Epidemiologist****NIOSH Western States Office, Program Coordinator, NORA TWU Sector**

State-specific ATV fatality rates were compared between 1990-1999 and 2000-2007 grouping states according to helmet, and training and licensure requirements (per SVIA state ATV requirement charts). 2,226 deaths occurred from 1990-1999 at a rate of 0.09 deaths per 100,000 population and 7,231 deaths from 2000-2007 at a rate of 0.32. Male rates were at least six times higher than female rates. Males accounted for about 86% of the deaths overall. Children under 17 years accounted for over one-third of the deaths in the earlier period decreasing to about 17% in the latter. The number of deaths increased 225% from the earlier period to the latter with a three-fold increase in the death rate. There was little collective difference between rates for states with or without helmet requirements and between states with or without training and licensure requirements. Policy-oriented prevention strategies over the past decade seem to have largely failed. This failure may be due to lack of enforcement and the casual attitude of many ATV riders to not wear a helmet or take training.

**Rachel Weintraub, Director of Product Safety and Senior Counsel**

**Consumer Federation of America**

I would like to discuss the issue of ATV safety from the consumer perspective. CFA has been involved in this issue for decades and I have been working on it for almost 10 years. My focus would be age categories but would also touch upon consumer awareness of vehicle characteristics and the impact of these characteristics upon use and safety. The issue of ATV safety as it impacts children in the United States is an important one that is in need of more focus and discussion.

**Mike Klumpp, Associate Professor Emeritus**

**Multi-State 4-H ATV Safety Coordinator, Oklahoma 4-H ATV Safety Coordinator, Oklahoma State University - University of Arkansas**

My name is Mike Klumpp and I'm an Associate Professor Emeritus with the University of Arkansas. I have over 34 years experience in ATV safety education and youth development and currently serve as the Multi-State and Oklahoma 4-H ATV Safety Coordinator with Oklahoma State University CES. 4-H and the ATV Safety Institute recommend that parents first determine their child's readiness to operate an ATV safely before allowing them to ride. Considerations include physical size, strength, coordination, visual perception, emotional maturity, reasoning and decision-making. Once the decision is made for a young person to operate/ride an ATV, choosing the right ATV is important. We follow the manufacturer's minimum age recommendation warning label on the ATV. Since 2008, 4-H educators have trained over 4,000 youth and adults in the ASI RiderCourse. In our programming placing a large-framed 10/11 year old on an under 70cc unit or a large-framed 14/15 year old on a 90cc unit has been difficult. We have found that the Y10 and Transition models specified by the current ANSI/SVIA standard are ideal/safer for large-framed youth in those specific age ranges. We encourage CPSC to support the use and availability of these models.

**James Jongkind, Manager**

**American Honda Motor Co., Inc.**

**Chair, Specialty Vehicle Institute of America Technical Advisory Panel.**

Whether children are ready to learn how to ride an ATV depends on a number of factors their parents must consider, including their age, physical size, strength, coordination, visual perception, and emotional maturity, as well as their ability to reason and make good decisions. Of these, the child's age and size may be the most basic considerations, yet ones that too often are overlooked or ignored, particularly when selecting the appropriate ATV to ride, in disregard of the most predominant safety warnings present on ATVs. For many years parents and manufacturers alike were limited as to the youth ATV size options available to them. In 2007, the Specialty Vehicle Institute of America (SVIA) created new age categories (i.e. Y-10, T-14) intended to help address this concern. In this presentation, the Chair of the SVIA Technical Advisory Panel will review the new categories, the regulatory and economic challenges that have limited their availability and the important role that stakeholders can play in increasing the number of youth riders on ATVs that are appropriate for their age, size, and abilities.

**J. Paul Frantz, Senior Consultant  
Applied Safety and Ergonomics, Inc.**

Dr. Frantz is a Senior Consultant at Applied Safety and Ergonomics (ASE) and teaches Safety Management at the University of Michigan. Dr. Frantz and his colleagues have conducted research on age appropriateness and recommendations for ATVs and other wheeled and motorized products for youth. They have also studied vehicle human factors related to on- and off-road vehicle control. He will present research regarding the development of age categorization aimed at reducing the number of children riding adult ATVs, including focus group and individual interviews with parents and youth. This work is further informed by a review of data and literature regarding physical, psychomotor, psychological, temperamental/affective, and social development. He will also describe the current practices in youth ATV classification, including the current utilization of the 2010 ANSI/SVIA age classification system.

**Charles Jennissen, MD  
University of Iowa Department of Emergency Medicine**

Why The Need For Speed?-- ATVs, Speed and Head Injuries. Objective: To better understand the relationship between speed and ATV crash-related head injuries. Methods: A retrospective chart review was performed of ATV-related injuries from 2002-2009 at a university hospital. Results: 345 cases were identified; 30% were children <16 years of age. Rollovers (42%) were most common, followed by striking an object (20%) and ejection/fall (13%). Collisions with another ATV occurred in 7% of patients. Victims were struck by the ATV in 21% and pinned by the vehicle in 9% of cases. Higher speeds were associated with lower patient Glasgow Coma Scale (GCS) scores and higher head injury scores. About 20% of victims overall were wearing a helmet. Competitive racers, although helmeted, had more severe head injuries than all other victims. Non-racers without helmets had lower GCS scores than their helmeted peers. Conclusion: The increasing speeds of today's ATVs are likely contributing to more serious injuries, including more severe head injuries. Although helmets are protective, there may be ATV crash speeds or mechanisms of brain injury at higher speeds that reduce helmet effectiveness. All ATVs should have a code-protected, tamper-proof speed governor. This would particularly assist parents in protecting children and teens from the serious risks associated with high operating speeds.

**Charles Burhans, Senior Consultant  
Applied Safety and Ergonomics, Inc.**

Charles Burhans is a Senior Consultant at Applied Safety and Ergonomics (ASE). He has been involved in recent national standards efforts addressing product warnings (e.g., ANSI Z535.6 and he leads an ANSI working group for warnings in electronic media). He has researched and developed standardized warnings for off-road vehicles, and analyzed human factors associated with adult and youth off-road vehicle accidents. Mr. Burhans will present an overview of ATV labeling, owner's manuals, safety videos, and point-of-purchase safety materials. This presentation will highlight various factors associated with youth and adult off-road vehicle accidents and in relation to other motorized vehicles. He will describe data regarding consumer understanding of ATV risks and protective behaviors. For example, he will present the results of focus group interviews with parents and individual interviews with youth about their reactions to youth ATV warnings. Additionally, he will discuss the context in which safety information is provided to parents about youth operation of ATVs compared to other motorized vehicles with observations from interviews illustrating how parents make decisions about youth operation. He will further discuss the role and influence of standardized safety messages/warnings in promoting ATV safety.

**Paul Vitrano, Executive Vice President  
Specialty Vehicle Institute of America**

ATV manufacturers strive to constantly improve and innovate their vehicles. The pursuit of innovation, however, must be balanced against the imperative to only introduce proven technologies that will not lead to unintended consequences. Innovations also must be considered in the context of longstanding standards, now mandatory, that have been developed through collaboration among industry, government and other stakeholders. The Specialty Vehicle Institute of America (SVIA) is the American National Standards Institute accredited standards developing organization for the four-wheel ATV standard. SVIA's Executive Vice President, Paul Vitrano, will discuss innovations that have and have not been implemented, including features in the areas of handling, braking, drivetrain and lighting.

**Jim Helmkamp, PhD, MS, Senior Epidemiologist  
National Institute for Occupational Safety and Health (NIOSH)  
Western States Office, Program Coordinator, NORA TWU Sector**

Hundreds of men, women and children are killed in ATV crashes each year with tens of thousands more seriously injured requiring emergency care. Between 35 and 65% of crashes involve tipping, flipping or rolling of the ATV. There has been much research underpinning these types of incidents, but little attention to identifying effective engineering solutions to minimize the risk in the event of a rollover. Crush protection devices (e.g., Quad Bar) provide increased protection to the rider when the ATV rolls. Australian research suggests that fitting ATVs with Quad Bars could potentially reduce the number of ATV deaths by up to 40%. The Quad Bar (TM) CPD is a small unobtrusive, hairpin shaped hoop mounted on the ATV behind the rider designed to counter some of the risks associated with rollovers. The Quad Bar can be an important safety modification that can have immediate impact to reduce death and injury from rollovers. Other designs are being tested in New Zealand and Sweden.

**Raphael Grzebieta, Professor  
Transport and Road Safety (TARS), University of New South Wales**

Results of a previous major study in Australia examining Quad Bike (ATV) safety, measures for improved stability and the feasibility of fitting effective occupant rollover protection system (ROPS), will be presented. Around 50% of Australian ATV fatalities and injuries were caused by the vehicle rolling on top of the rider with resultant crush injuries and/or pinning them down causing asphyxia. Computer modelling demonstrates it is possible to design a practical ROPS that prevents such deaths and injuries. Also discussed will be analyses revealing fundamental flaws in basic assumptions and validation of the method used by industry to reject ROPS fitment, the ISO 13232 methodology. The paper also outlines a research program to develop a New Quad Assessment Program (NQAD) consumer tests ranking ATV stability and crush protection. Experience from the past 30 years in automotive safety has demonstrated a dramatic increase in safety of passenger vehicles resulting mainly from the well-publicised IIHS, NCAP, ANCAP and EuroCAP consumer testing. From a position of significant resistance by most automotive manufacturers in the 1980's, there has been an almost complete reversal in industry activity resulting in improved vehicle safety. A similar program for ATV's would hopefully result in a similar effect.

**Mr. David Robertson  
Quadbar Australia**

The Quadbar Crush Protection Device has been used successfully in Australia for a number of years now and has proven effective at preventing injuries and deaths associated with ATV rollovers. Monash University defines a Crush Protection Device (CPD) as *a structure designed to form a protective space between the bike and the ground in the event of roll over. Such devices aim to prevent or reduce rider injuries incurred due to crushing or asphyxiation. In general, CPDs are not designed to be used with occupant restraints, thereby allowing the use of active riding techniques and rider separation from the vehicle during loss of control events.* Presented will be the research study by the University of Southern Queensland and independent engineering reports on the Quadbar CPD. Real life case studies into accidents involving roll over and the effectiveness of the Quadbar at preventing injuries associated with these roll over events will also be discussed.

**Jerry Johnson, Founder and CEO  
PRO-TEC ATV SAFETY SYSTEM**

I will share the protection value of the PRO-TEC ATV SAFETY along with our long term plans for teaching and promoting ATV Safety throughout the US school system.

**Mr. Ross Anderson  
PRO-TEC**

Completely safety oriented: hardware for the entire ATV industry worldwide. Life saving measures.

**Chris Van Ee, Principal Engineer  
Design Research Engineering**

ATV rollover events can lead to serious and fatal injuries. Field data indicate that some of these injuries result from ATV contact with the rider when positioned between the ATV and the ground. Crush protection devices (CPDs) are intended to reduce this injury mode by reducing the frequency of inverted ATV-rider contact. Currently, field data of real-world ATV rollovers is primarily limited to injury causing events and lack ATV and occupant dynamics necessary to evaluate the injury mitigation effectiveness and unintended consequences of CPDs. To increase understanding of ATV and rider dynamics for injury and non-injury rollovers, we collected and analyzed videos of real-world ATV rollover events identifying vehicle, environment, and rider factors. Vehicle dynamics and rider responses, including dismount kinematics, were analyzed to better understand rollover ATV-rider contact and non-contact scenarios. Active rider dismount was a common and effective strategy to avoid injurious ATV-rider contact. Video analysis and laboratory investigation demonstrates that one type of CPD may obstruct successful rider dismount and may result in injurious CPD contact with a dismounted rider who was otherwise uninjured. This analysis represents an important contribution to understanding the determinants of rider injury associated with ATV rollovers and the potential influence of a CPD.

**Charles Jennissen, MD**

**University of Iowa Department of Emergency Medicine**

Determining Rider-Vehicle Dynamics Utilizing an ATV Simulator. Objectives: To build an ATV simulator designed to study rider-vehicle dynamics. Methods: We constructed an ATV simulator in the 3D Bio-Motion Research Laboratory at the University of Iowa Center for Computer-Aided Design. An adult-sized ATV is mounted on a unique Moog-FCS motion platform that is capable of producing angular movements with 6-degrees of freedom and acceleration (simulating speed), as well as varying vibration frequencies (simulating rough terrain). Target sensors are attached to the ATV and the subject, and cameras capture rider and vehicle motion during platform movements. Data are entered into NIH-approved 3D modeling software (Visual3D™) and selected measures of rider-vehicle dynamics are determined. Pressure sensors on the handlebars, seat, and footrests will be added to provide additional biomechanical measurements. Results: Six experienced adult ATV operators have been studied during a series of incline, side to side, and vertical changes at a variety of accelerations. Conclusions: Our preliminary data provide proof-of-principle for using our simulator to study "active riding". Future studies include determining how factors such as gender, age, inexperience, and passengers influence rider-vehicle dynamics. Simulator-based technology is a powerful and safe tool to address research questions related to ATV operation that cannot be tested using other study methods.

**Gerene Denning, PhD**

**University of Iowa Department of Emergency Medicine**

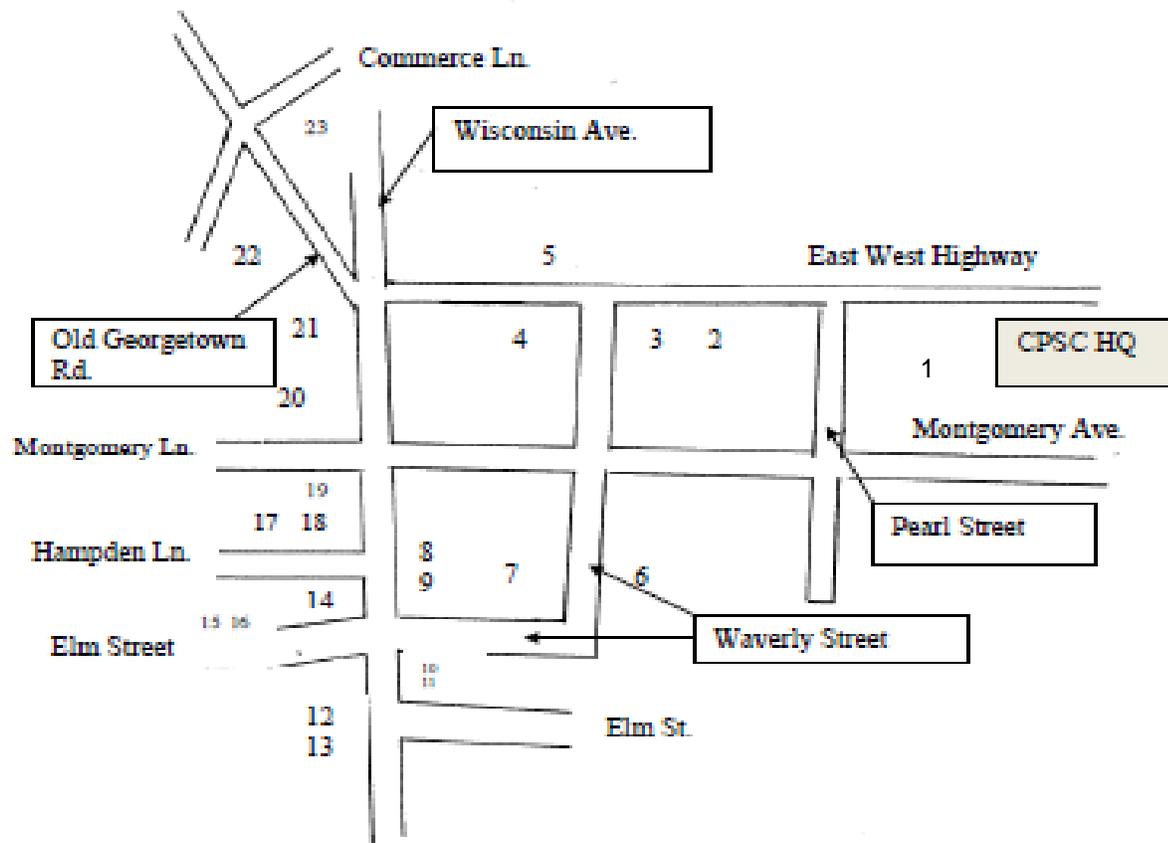
Optimizing Seat Design to Reduce Multiple Riders on All-Terrain Vehicles. Objectives: Determine the variability of seat design for adult single-person ATVs. Methods: We measured seat placement and length for 77 ATV models (sports and utility) at dealerships and using a novel image-based method. Results: Seat lengths varied from 20-37 inches with significant differences between sport and utility models and between manufacturers. 75% of all seat backs ended near/over the rear axle. Longer seats generally resulted in shorter distances from the handle grips to the front of the seat (distance range 3.3-19 inches). An incline/decline study showed that a rider going downhill should shift his seat to near the rear axle with fully extended arms to avoid a forward rollover. Leaning forward from a normal seated position is sufficient to keep the center of gravity ahead of the rear tires and prevent a backward rollover when riding uphill. Conclusions: A wide variability in seat length was observed. Seats starting closer to the handle grips allow smaller children to be in front of adult drivers, or allow younger drivers. A shorter seat starting further from the handlebars and not extending beyond the rear axle would reduce the space available for passengers. Seat design is a potentially valuable approach to ATV-related injury prevention.

**Chandrashekhar Thorbole, Director  
TST LLC & University of Arkansas**

ATV crashes involving rollovers are mainly governed by factors such as an ATV's dynamic characteristics, terrain properties, and rider performance. To develop successful safety strategies, ATV crash reconstruction requires detailed crash site surveys and proper understanding of injuries involved, which is often time consuming and costly. Computer simulation technology, widely used in various engineering fields to improve occupant protection features, could be applied to the field of ATV safety. The requirements of an accurate dynamic ATV model, ATD (Anthropomorphic Test Device) models, and terrain environment are essential for any successful ATV crash simulation. In order to successfully conduct sensitivity analysis to understand the most significant factors dictating injury outcomes the ATD must possess bio-fidelity of a bicycle or motorcycle rider, the ability to grip a handle bar, and have a human face profile in order to facilitate correct helmet fit. The Arkansas ATV Safety Research group has developed a computer model of an ATV which can be used to simulate crashes. Future injury simulations will be conducted utilizing a rider and passenger. Pending activities also involve the development of a child rider ATD model for child injury prevention education and the development of applications for testing ATV helmets.

## Local Food Options

### Food Service in the Vicinity of the CPSC Bethesda



- |                             |                            |
|-----------------------------|----------------------------|
| 2. Perfect Pita             | 13. Pizzeria Uno           |
| 3. Starbucks                | 14. Hampden Café           |
| 4. Booeymonger              | 15. Potbelly               |
| 5. Kudo Beans               | 16. Barking Dog            |
| 6. Cheong's Hunan           | 17. Pines of Rome          |
| 7. Nuts & Deli              | 18. Jerry's Subs & Pizza   |
| 8. Divino                   | 19. Tommy Joe's            |
| 9. Jay's Grill              | 20. Morton's               |
| 10. Nabi's Lunchbox         | 21. Daily Grill            |
| 11. Ruth's Chris Steakhouse | 22. Terrace Deli           |
| 12. Brown Bag               | 23. Gatoralley Bar & Grill |

#### 1. In-building delis:

**A-1 Café** – first floor of 4340 (middle building)

**Bethesda Gourmet** – first floor of 4350 (opposite building, enter through door near garage entrance and walk down the hallway)

CPSC Headquarters  
Hearing Room, Fourth Floor  
4330 East West Highway  
Bethesda, Maryland 20814  
[Directions](#) / [Map](#)

### Hotel

There are several hotels within a few blocks walk of the Consumer Product Safety Commission's (CPSC) offices: <http://g.co/maps/rhwd>

### Metro

The metro/subway is located on the Red Line and the name of the stop off the Red Line is Bethesda. The access point for the Bethesda metro/subway is at the corner of Wisconsin Avenue and East West Highway. Below is a link to the metro/subway system for fare information and general information:  
<http://www.wmata.com/rail/maps/map.cfm>

### By Metro to the Bethesda Station

**From downtown Washington:** Take the Red Line train marked Shady Grove or Grosvenor to the Bethesda station. Allow about 30 minutes.

**From points North of Bethesda:** Take the Red Line marked Glenmont or Silver Spring to the Bethesda station. Allow about 15-30 minutes, depending on distance.

**From Reagan National Airport:** Take the Yellow Line marked Mt. Vernon to the Gallery Place-Chinatown station or the Blue Line Largo Town Center to the Metro Center station, then transfer to the Red Line marked Shady Grove or Grosvenor to the Bethesda station. Allow about 45 minutes.

**From Bethesda Station to CPSC:** At the top of the long escalator, turn right and go through the pedestrian tunnel, through the glass doors, up the short escalator, and out the doors in front of you. You'll be on East-West Highway. Turn right and walk about 2 blocks to CPSC's offices -- in the last of three very large white office buildings -- on your right (4330 East-West Highway). Take the elevator to the 4th floor to the Guard Station.

**By Car/Shuttle Service from area airports:** Allow about an hour during non-rush hour.