Not In Traffic Crashes:  
*Is The Data Telling The Correct Story*

**Off-Road Vehicle (ORV) Crashes**

- All-Terrain Vehicle (ATV)
  - Straddle seat
  - Handle bars
  - Low pressure, deep-tread tires
  - High clearance
  - Narrow wheelbase
  - Lack of rear differential
  - Recent models = 700-800 lbs, >60 mph

- Sport ATV
- Utility ATV

- Side-by-Side (SxS): UTV
  - Utility Task Vehicles (UTVs)
    - Maximum speeds of 25 mph or less.
    - Many UTVs do not have a rollover protection structure (ROPS) and seat belts.
Side-by-Side (SxS): ROV

Recreational Off-Highway Vehicles (ROVs)
- Maximum speeds > 30 mph.
- Vehicle weights **1600-2300 lbs**
- All have ROPS and restraint system (typically three-point seat belt but may be harness).

ROVs are Increasing in Popularity

Where Do ORV Crashes Occur?

<table>
<thead>
<tr>
<th></th>
<th>ATV</th>
<th>ROV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatal</td>
<td>60% on roadway</td>
<td>55% on roadway</td>
</tr>
<tr>
<td></td>
<td>40% off the road</td>
<td>45% off road</td>
</tr>
<tr>
<td>Non-fatal</td>
<td>33% on roadway</td>
<td>57% on roadway</td>
</tr>
<tr>
<td>U.S.</td>
<td>67% off the road</td>
<td>43% off the road</td>
</tr>
</tbody>
</table>

U.S. data from Consumer Product Safety Commission (CPSC)
What Proportion Of Roadway ATV Crashes Are Traffic-Related?

- Fatal: 34%
- Traffic-Related: 29%
- Non-Collision: 37%
- ATV-Collision With Object: 27%
- ATV-Collision With Motor Vehicle: 35%

A rollover is an example of a non-collision event.

What Proportion Of Roadway ROV Crashes Are Traffic-Related?

- All Roadway Crashes: 84%
- Traffic-Related: 14%
- Vehicle-Vehicle Collision: 2%
- Collision With Object: 98%
- Non-Collision Event: 84%

A rollover is an example of a non-collision event.

Why Does Finding the Crashes Matter?

- Define the scope of the problem:
  - Crash prevalence at national, state, and/or local level.
  - Trends in crashes over time.
  - Vehicle-associated injury patterns.
- Determine the impact of:
  - Sales and marketing
  - Changes in public policy
  - Injury prevention interventions
National Sources For ORV Crashes

- Consumer Product Safety Commission (CPSC)
- ATV Fatality Database
- ROV Crash Database
- National Electronic Injury Surveillance System (NEISS)

CPSC Will Identify Crashes

- Can request fatality data for ATVs.
- Can request ROV data for fatal and non-fatal crashes.

Not All Crashes Documented for Vehicle Type in NEISS

National Electronic Injury Surveillance System (NEISS)

- Code 3285: 3-wheelers
- Code 3286: 4-wheelers
- Code 3296: >4-wheels
- Code 3287: Wheel number not specified
- Code 5044: Utility vehicles
National Sources For ORV Crashes

- National Highway Traffic Safety Administration (NHTSA)
  Fatality Analysis Reporting System (FARS)

Thank you Stephen Oesch!

Some Chances for Miscoding in FARS

<table>
<thead>
<tr>
<th>ATV</th>
<th>Side-by-Side</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coded as Body Type 90</td>
<td>Coded as Body Type 97</td>
</tr>
<tr>
<td>Will find SxSs under</td>
<td>Side-by-sides</td>
</tr>
<tr>
<td>this body type code</td>
<td>Go-karts</td>
</tr>
<tr>
<td>(more later on how)</td>
<td>Dune buggies</td>
</tr>
<tr>
<td></td>
<td>Street sweepers</td>
</tr>
<tr>
<td></td>
<td>Golf carts</td>
</tr>
<tr>
<td></td>
<td>Others</td>
</tr>
</tbody>
</table>

National Sources For ORV Crashes

- Centers for Disease Control and Injury Prevention (CDC)
  Web-based Injury Statistics Query and Reporting System (WISQARS)
No Specific Code for ATVs and SxSs

Web-based Injury Statistics Query and Reporting System (WISQARS)

Coded as “Other Modes of Transportation”

State Sources For ORV Crashes

Statewide Sources:

- Department of Transportation
- Department of Natural Resources or equivalent

Partnering With DOT Improved Coding

Iowa Department of Transportation (DOT)

<table>
<thead>
<tr>
<th>Data Dictionary 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vconfig (15)</td>
</tr>
<tr>
<td>ATV</td>
</tr>
<tr>
<td>Side-by-side</td>
</tr>
<tr>
<td>Moped/Scooter</td>
</tr>
<tr>
<td>Snowmobile</td>
</tr>
<tr>
<td>Golf cart</td>
</tr>
<tr>
<td>Go-kart</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Data Dictionary 2015</th>
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</thead>
<tbody>
<tr>
<td>Vconfig codes</td>
</tr>
<tr>
<td>Sport utility vehicle (3)</td>
</tr>
<tr>
<td>3-wheeled, unenclosed (19)</td>
</tr>
<tr>
<td>All-terrain vehicle (28)</td>
</tr>
<tr>
<td>Specific codes for mopeds, golf carts, snowmobiles etc.</td>
</tr>
</tbody>
</table>
DOT Coding for ATVs and SxSs Varies From State to State

Possible DOT Codes

- Specific ATV Code (Only Some States)
- Non-Highway Motorized Vehicles
- Recreational Vehicles
- Farm Equipment

Local Sources For ORV Crashes

- County sheriff’s office
- City police department
- Statewide and local medical databases
- State and local EMS databases

Injury Prevention Questions We Ask

- Is it an adult or youth vehicle?
- Is it a 3-wheeled or 4-wheeled ATV?
- How many passengers does the SxS seat?
- How big and heavy is the vehicle?
- What is its engine size and maximum speed?
- Does the SxS have a ROPS and restraint system, doors, passenger handholds, or cargo area?
Many key vehicle-related variables are only moderately or poorly documented: Make, Model, Wheel number, Engine size. Some are not documented: Weight, Maximum speed, Presence of ROPS and restraint system.

The Vehicle Identification Number (VIN) Says It All

<table>
<thead>
<tr>
<th>Manufacturer (H = Honda)</th>
<th>Vehicle attributes, e.g. engine type</th>
<th>Vehicle year</th>
<th>Check digit to verify authentic VIN</th>
<th>Assembly plant</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>2nd</td>
<td>3rd</td>
<td>4th-8th</td>
<td>9th</td>
</tr>
<tr>
<td>Country where manufactured: 1 and 4 = U.S.</td>
<td>Vehicle type or Manufacturing Division</td>
<td>Sequential production number</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

17 Digit Alphanumeric Code

VINs are Often Missing in Crash Databases

FARS (2016)
- Body type 90 (ATV)
  - 350 vehicles
  - 30% had no usable VINs
  - 34 (14%) decoded as side-by-sides
- Body type 97 (Side-by-Sides)
  - 72 vehicles
  - 49 (68%) had no usable VINs
  - The remaining 23 decoded as side-by-sides

Why so many missing VINs?
ATV VINs Could be Several Places

ATV VIN location varies by make and model:

- Front cross member
- Rear cross member beside the mud wing
- Rear vertical bar next to taillight
- Rear vertical frame member
- Rear frame behind tire
- Upper frame above exhaust
- Left side frame rail

SxS VINs Could be Several Places

SxS VIN location varies:

- Frame rail under one of the wheel wells
- Under the hood on the driver's side (not on the engine)
- On the firewall behind the shock of the front passenger side

VINs On Roadway Vehicles

National Highway Traffic Safety Administration:

- Has required location for VIN.
- Manufacturers are required to provide NHTSA with information on how to decode the VIN.

Neither of these is required by the CPSC for ORVs.
Standardized Coding: Vehicle Code

1. Standardized set of definitions and vehicle codes across:
   - National agencies
   - State Departments of Transportation
2. Goal: Distinguish off-road vehicles, including ATVs and ROVs, from other vehicles.

Standardized Coding: VIN

1. ANSI standard that requires a common location for the VIN as is seen for roadway vehicles.
   - Common locations should be easy to see.
2. Manufacturers should make information on decoding VINs available through the CPSC.
3. Training to improve VIN documentation.

“Where’s The VIN” App?

Something way better than this