Methods

- Queried CIREN for occupants ≤17 years old in a model year 1990+ vehicle with an AIS 2+ spinal injury
- Excluded cases of rollover, limited injury information, gross restraint misuse, or pre-existing comorbidity predisposing injury
- Reviewed each case with a multidisciplinary team of physicians and engineers to determine injury causation scenarios (ICS)

Results

- Motor vehicle crashes (MVCs) are the most common mechanism of spinal injury in children
- Spinal cord injuries result in the most residual physical disability in children following discharge from inpatient rehabilitation
- Little is known about patterns of spinal injuries and their associated causation scenarios for restrained child occupants

Findings and Conclusions

- Nearly half of occupants were 16-17 years old (47%)
- Occupants were most frequently in passenger cars (64%)
- Crash direction was most often frontal (62%)
- Fracture was most common injury (80%)
- Spinal injury causation typically due to:
  1. Flexion or lateral bending over the lap and/or shoulder belt or child restraint harness
  2. Compression by occupant’s own seat back
  3. Axial loading through the seat pan