Research Proposal

Quantitative analysis of Side Impact injuries, and effectiveness of existing countermeasures
Extension of existing work on side airbag effectiveness
Existing work

• Analysis of effectiveness of side airbags using the “Used Car Safety Rating” database (Australia)
• Few current results are statistically significant
• Some likely trends though
  – Significant effectiveness of side airbags shown for far (non-struck) side crashes
  – No reduction in injured occupants
    • But signs of reduction of injury severity including substitution of more minor injury types, such as extremity.
• Needs more data
Task 1 – Airbag Effectiveness

- Extend existing assessment of effectiveness of side airbags
  - Estimate effectiveness of side airbags in reducing injury risk and severity in pole side impact crashes
  - Including examination of effectiveness of different side airbag technologies
– Data sources:

• Australia:
  – UCSR police reported crash database
  – TAC claims data linked to Victorian police reported crash data
  – Western Australian hospital admissions and mortality data linked to WA police reported crash data.
  – Details of vehicle fitment for this purpose provided by the Commonwealth drawing on information obtained from vehicle manufacturers.

• International:
  – NASS-CDS data (USA)
  – European police reported crash data being assembled for VTI driven MUNDS project
  – European In-depth Crash data
Task 2: Assess injury risk and injury severity

• Estimate injury risk and severity in pole side impacts relative to other side impacts both overall controlling for the following factors and interacting with the following factors:
  – gender;
  – occupants height, mass and BMI;
  – by near and far side impact;
  – by vehicle type including passenger, sport utility, and light commercial;
  – seating row in the vehicle with and without an adjacent occupant present;
  – restrained and unrestrained occupants, and
  – level of vehicle intrusion and impact angles
• **Data Sources**
  • **Australia:**
    – UCSR police reported crash database
    – ANCIS data (and earlier in-depth datasets held by MUARC)
    – TAC claims data linked to Victorian police reported crash data
    – Western Australian hospital admissions and mortality data linked to WA police reported crash data.
  • **International:**
    – NASS-CDS data and the Fatality Accident Reporting System (FARS)(USA)
    – European police reported crash data being assembled for VTI driven MUNDS project
    – European In-depth Crash data
Task 3: Assess relative risk, severity and cost of injuries to different body regions

• Estimate injury risk and severity to vehicle occupants in side impacts relative to other crash types
  – specifically examining pole side impact and other side impacts.
  – As a minimum the analysis would examine injuries to
    • head,
    • neck,
    • spine,
    • thorax,
    • abdomen,
    • pelvis,
    • upper extremities;
    • and lower extremities.
– Differences in injury patterns by occupant age and gender, seating position and impact angle and intrusion would be examined if possible.

– Injury risk and severity would be measured using a sensitive measure such as AIS.
• **Data Sources**

• **Australia:**
  – TAC claims data linked to Victorian police reported crash data
  – Western Australian hospital admissions and mortality data linked to WA police reported crash data.
  – ANCIS data

• **International:**
  – NASS & FARS data from USA

• **European In-depth Crash data**
Task 4: Cost Effectiveness analysis

• Conduct a cost-effectiveness analysis using the analysis outcomes from Tasks 1-3
  – including the likely benefits given a business as usual approach
  – and the potential influence of acceptance of the test procedure. Appropriate cost-benefit methods would be used in line with those previously developed for assessment of outcomes from vehicle safety regulation changes.