

# 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.

