Australian Government

Department of Infrastructure and Transport

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Pole Side Impact GTR: Assessment of Safety Need: Initial Data Collection

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Data request

- Focus of data request:
  - Up to date statistics covering a number of regions/countries – to gauge the magnitude of the problem (older data in GRSP paper)
  - Time series – allowing assessment of the impact of positive safety developments, including ESC
  - Categories of vehicles – enabling consideration of which vehicles should be covered by a GTR

Data Issues

- Issues
  - Number of countries still to provide data
  - Data is very patchy in terms of vehicle categories and years covered
  - Definitions vary (especially for injury figures and vehicle categories)
- In the time available, analysis has focused on fatalities

Preliminary Analysis - 1

- Fatality levels from pole side impacts vary from country to country
  - although there may be coding issues
- Other side impacts are still a very significant source of fatalities
- Rollovers are a very significant source of fatalities
- The limited data available suggest M1 fatalities greatly outnumber N1 fatalities, but together the constitute nearly all pole side impact fatalities
  - indicating a GTR may sensibly cover both

Preliminary Analysis - 2

- Data from a number of countries suggest pole side impact fatalities have decreased marginally more than the general road toll
  - but in countries where they have been a major issue, they remain a major issue
- Other side impact fatalities show a greater decrease
- Rollover fatalities have increased in several countries

United States

- In 2009, there were 1,371 four-wheeled vehicle occupant fatalities in pole side impacts
- 4,872 in other side impacts and
- 8,794 in rollovers
  - These figures are 4.1%, 14.4% and 26.0% respectively of the US' road toll
  - 5.7%, 20.4% and 36.8% respectively of four-wheeled occupant fatalities
- Of these numbers, 1,353, 4,746 and 8,267 were in passenger cars/small trucks
    - 5.8%, 20.3% and 35.6% of occupant fatalities in these types of vehicles

(pole = pole/tree/shrub/fire hydrant)

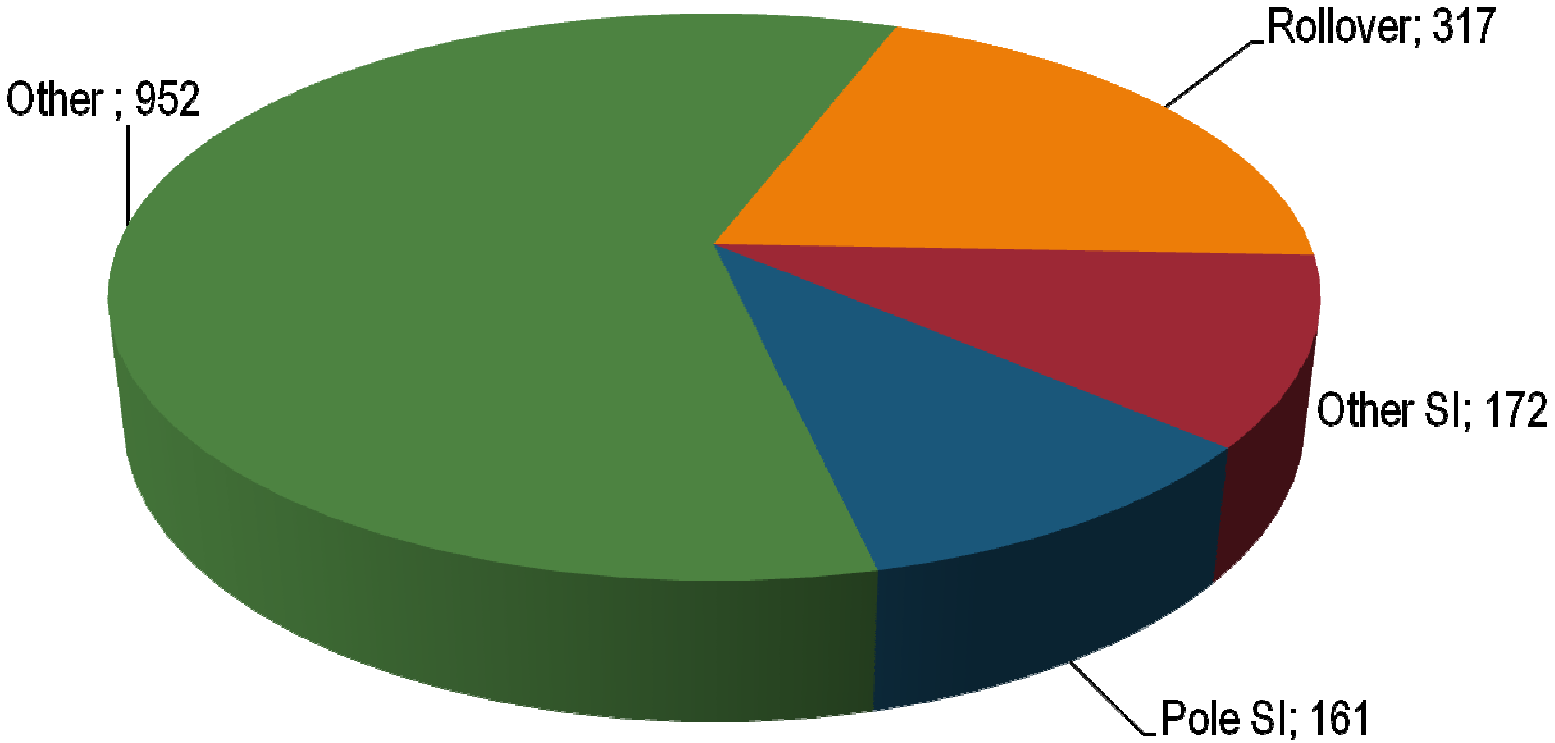
Canada

- In 2007, there were 16 M1 and N1 vehicle occupant fatalities in pole side impacts
- 353 in other side impacts and
- 273 in rollovers
- These figures were 0.6%, 12.8% and 9.9% respectively of Canada's road toll

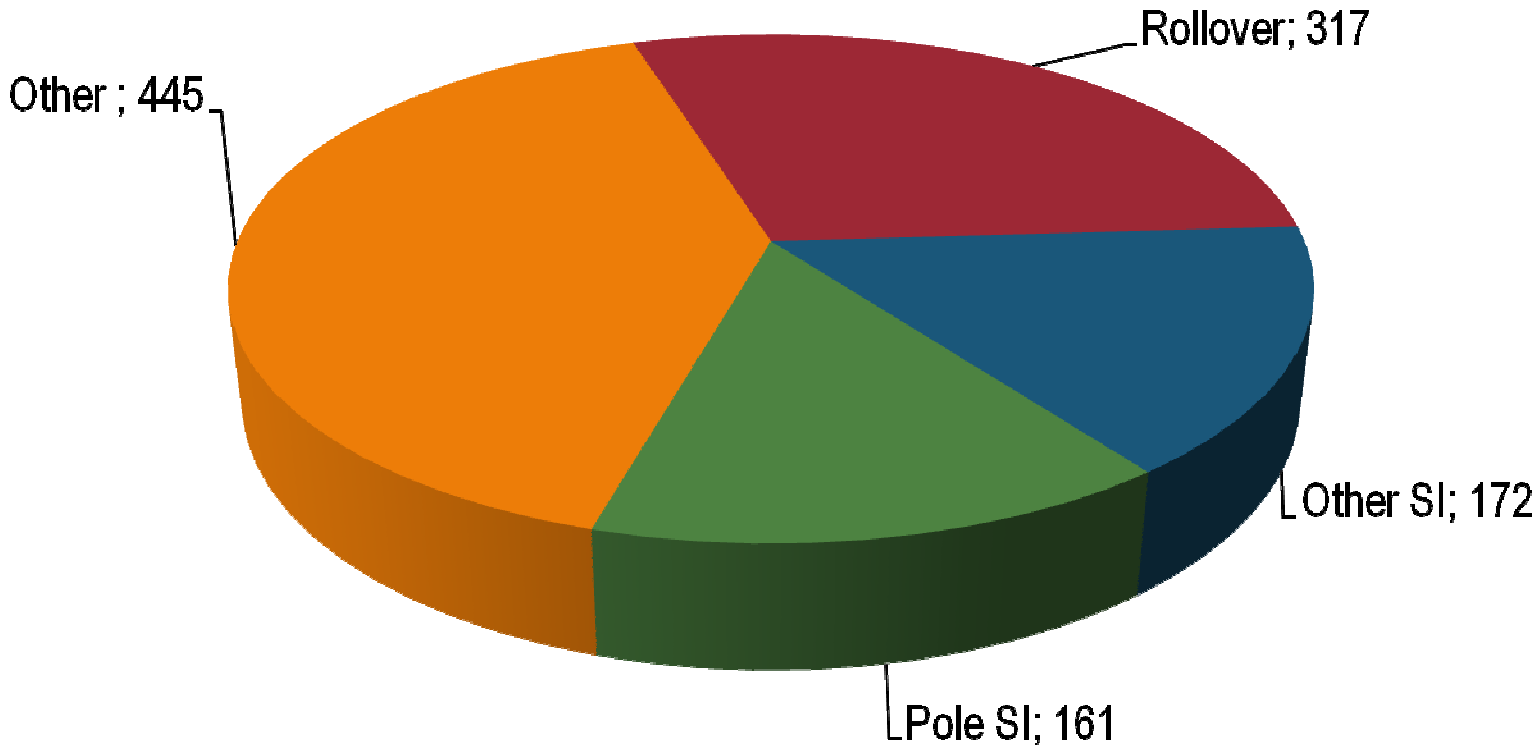
Australia

- In 2006, there were 161 four-wheeled vehicle occupant fatalities in pole side impacts
- 172 in other side impacts and
- 317 in rollovers
  - These figures were 10.4%, 10.7% and 19.8% respectively of Australia's road toll, and
  - 14.7%, 15.7% and 29.0% respectively of occupant fatalities in four-wheeled vehicles
- Of these numbers, 149, 157 and 253 were in M1 vehicles
    - 16.3%, 17.2% and 27.8% of occupant fatalities in M1 vehicles

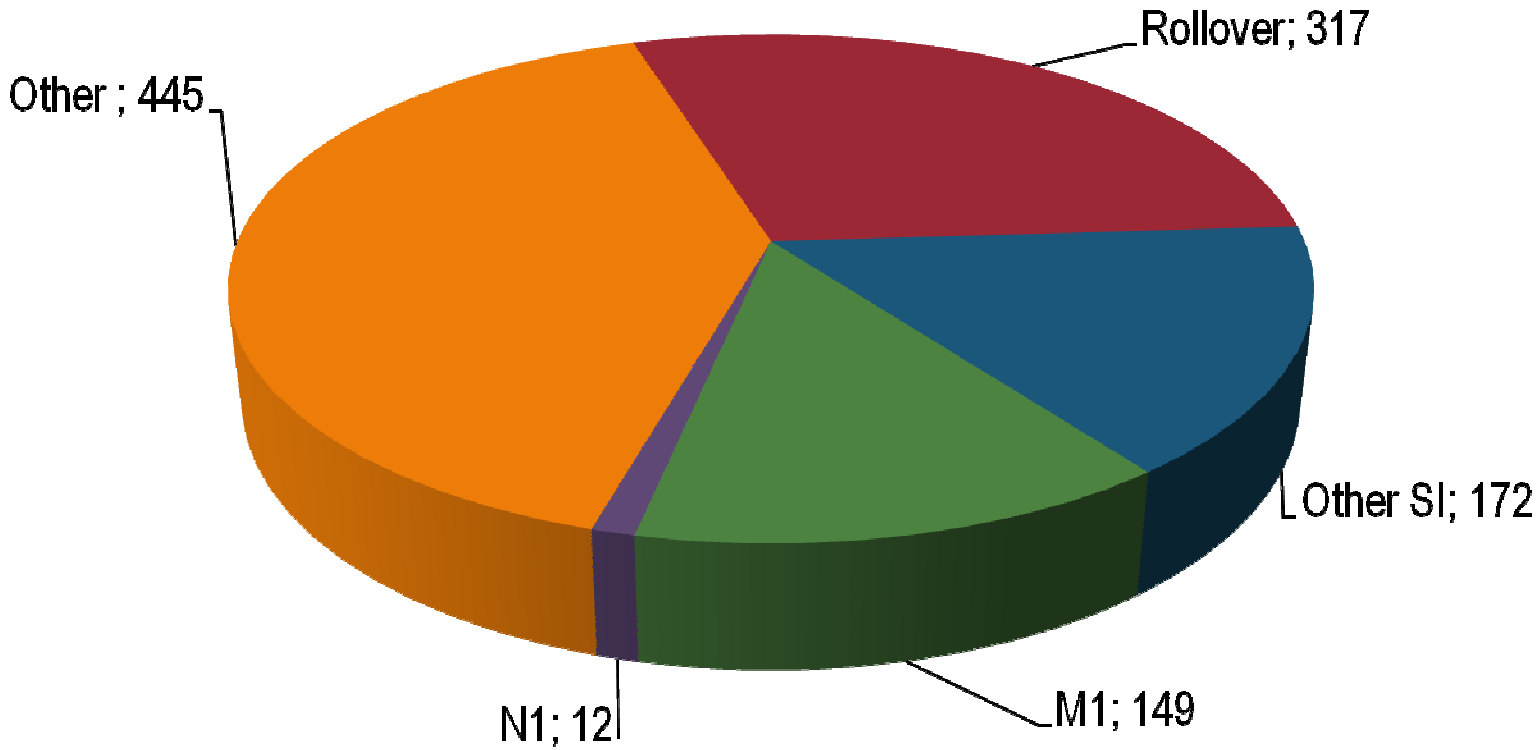
Australia: Total Road Toll 2006



Australia: Vehicle Occupants



Australia: Vehicle Occupants



Victoria (Australian state)

- In 2009, there were 31 four-wheeled vehicle occupant fatalities in pole side impacts
- 20 in other side impacts and
- 38 in rollovers
  - These figures were 10.7%, 6.8% and 13.1% respectively of Victoria's road toll, and
  - 15.8%, 10.2% and 19.4% respectively of occupant fatalities in four-wheeled vehicles
- Of these numbers, 25, 17 and 23 were in M1 vehicles
    - 16.7%, 11.3% and 15.3% of occupant fatalities in M1 vehicles

New Zealand

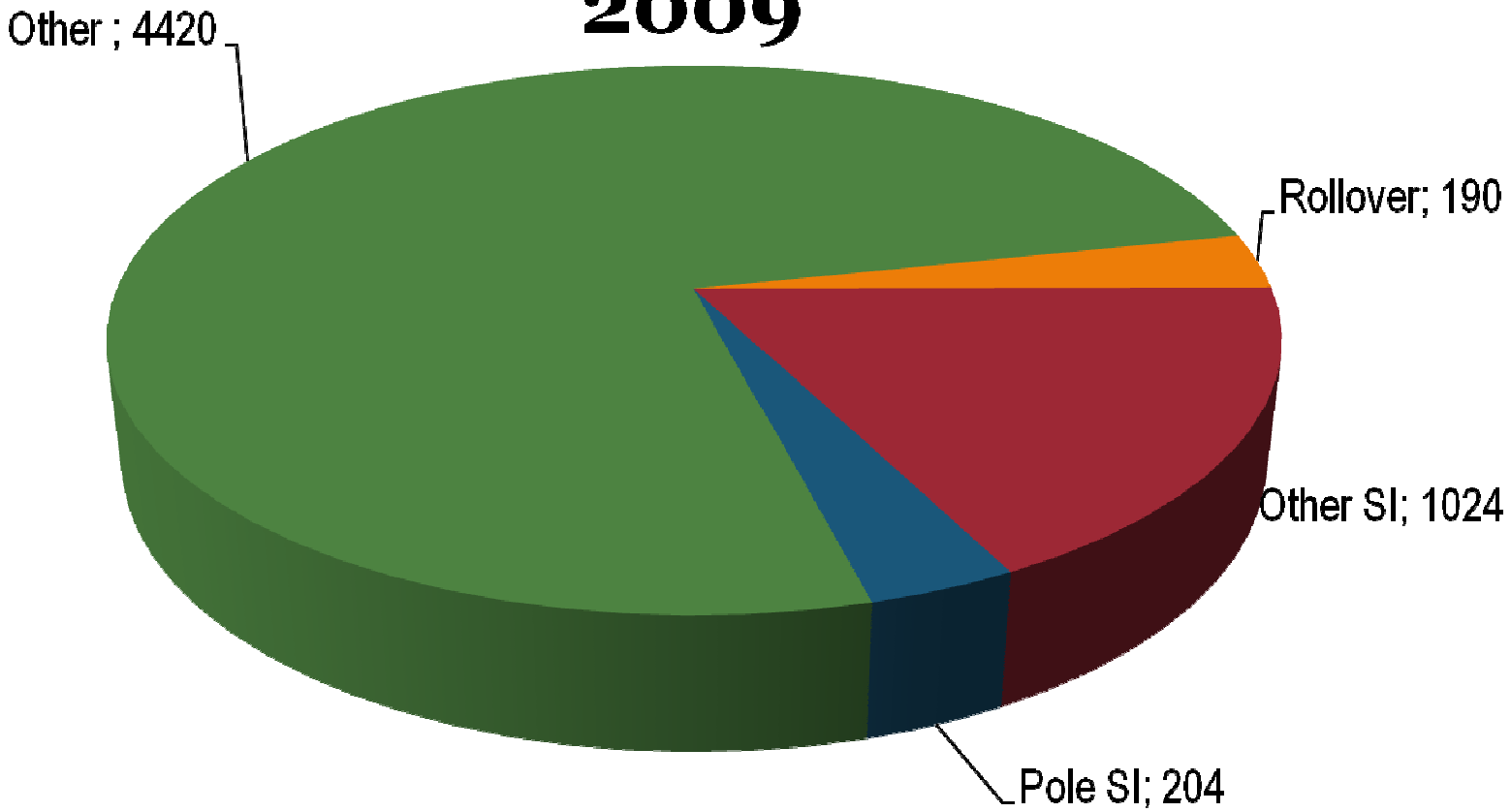
- In 2009, there were 7 four-wheeled vehicle occupant fatalities in pole side impacts (fairly typical)
- 41 in other side impacts and
- 89 in rollovers
  - These figures were 1.8%, 10.7% and 23.2% respectively of New Zealand's road toll
  - 2.4%, 13.9% and 30.2% respectively of occupant fatalities in four-wheeled vehicles

Republic of Korea

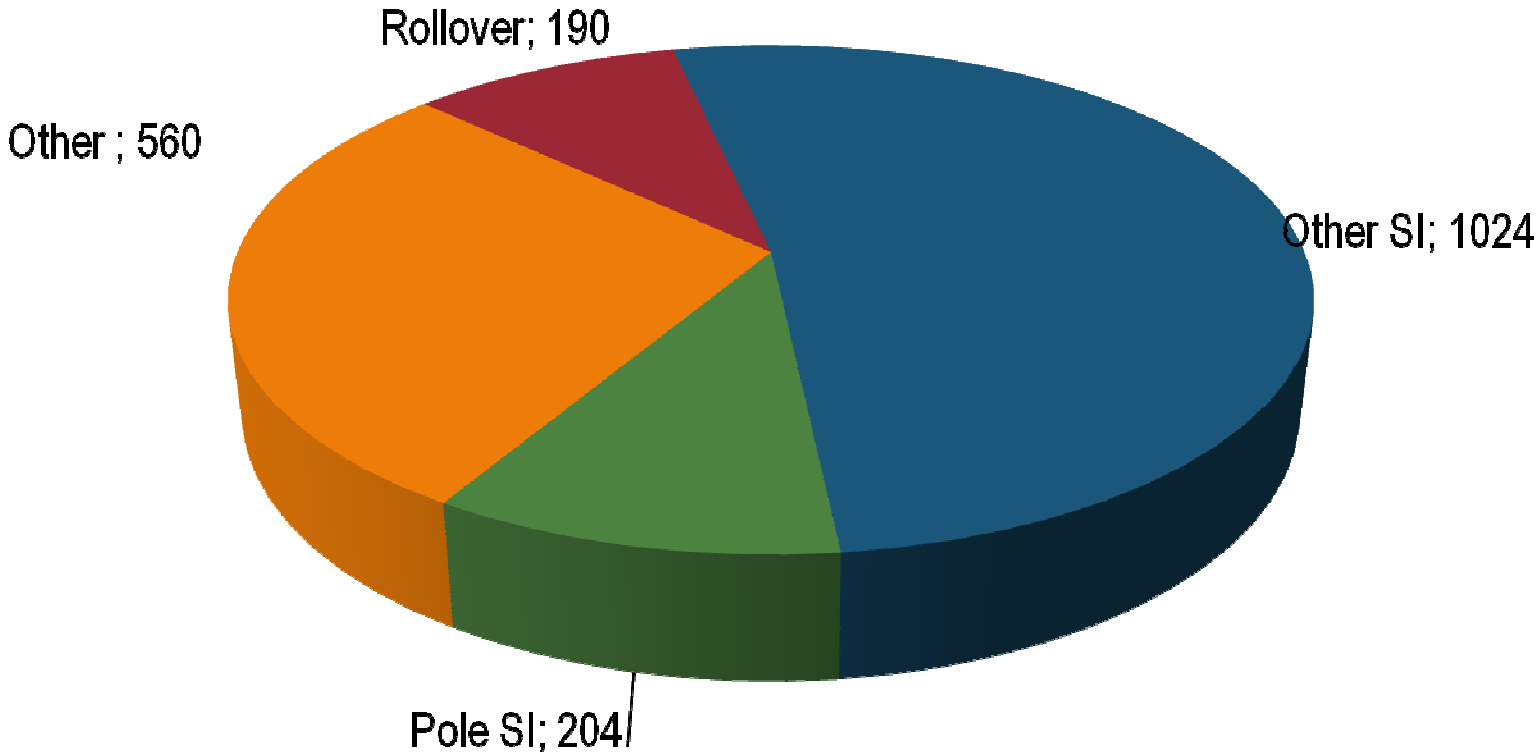
- In 2009, there were 204 four-wheeled vehicle occupant fatalities in pole side impacts
- 1,024 in other side impacts and
- 190 in rollovers
  - These figures were 3.5%, 17.5% and 3.25% respectively of the ROK's road toll
  - 10.3%, 51.8% and 9.6% respectively of occupant fatalities in four-wheeled vehicles

(NB: pole impacts = all impacts with fixed objects)

Korea: Total Road Toll 2009



Republic of Korea: Vehicle Occupants



Japan

- Data is for M1 vehicles
- 60 reported fatalities from pole side impacts and 254 reported fatalities from other side impacts in the period 2005-07 - 1.3% and 5.4% respectively of fatalities in M1 vehicles in that period
  - Fatality figures do not include people not wearing seatbelts – about 50% of the Japanese road toll
  - The definition of pole is restricted and does not include trees

Europe

- Awaiting data from all countries
- APROSYS (2009) reported approximately 10,000 car occupant fatalities in side impact crashes in Europe annually.
- In Germany in 2008, 931 fatalities were due to collisions with trees – 20.8% of the road toll
  - In the large majority of cases (810/907), passenger cars responsible
  - Germany is to provide fuller statistics, but likely that over half of the collisions were pole side impacts
- In the UK in 2009, at least 265 fatalities were due to pole impacts – 11.9% of the road toll

Vehicle Coverage - 1

- In the period 2000-2006 in Australia
  - M1 (93.4%) and N1 (6.5%) vehicles accounted for 100% of four-wheeled occupant fatalities in pole side impacts
  - M1 (93.3%) and N1 (5.3%) vehicles accounted for 98.6% of four-wheeled occupant fatalities in other side impacts
  - M1 (80.6%) and N1 (8.4%) vehicles accounted for 89.0% of four-wheeled occupant fatalities in rollovers
- In period 2000-2009 in the US, passenger cars and light trucks accounted for 98.9%, 97.7% and 94.3% respectively of pole side impact, other side impact and rollover occupant fatalities in four-wheeled vehicles

Vehicle Coverage - 2

- Side impacts and rollovers present a similar hazard for N1 vehicles as for M1 vehicles

- In the period 2000-2006 in Australia
  - 12.1% of occupant fatalities in N1 vehicles were in pole side impacts
  - 13.1% in other side impacts, and
  - 26.5% in rollovers

Trends over time

- In Australia road fatalities decreased by 11.8% between 2000 and 2006 and four-wheeled vehicle occupant fatalities by 15.2%
  - In the same period M1 occupant fatalities decreased in pole side impacts and other side impacts by 18.7% and 35.0% and increased in rollovers by 19.5%
    - The M1 category is the most likely to reflect improvements due to ESC
- In Victoria road fatalities decreased by 28.7% between 2000 and 2009 and four-wheeled vehicle occupant fatalities by 30.7%
  - In the same period M1 occupant fatalities decreased in pole side impacts, other side impacts and rollovers by 40.4%, 59.5% and 39.4% respectively (small numbers)

Trends over time - 2

- In New Zealand road fatalities decreased by 16.8% between 2000 and 2009 and four-wheeled vehicle occupant fatalities by 21.3%
  - In the same period all four-wheeled vehicle occupant fatalities decreased in pole side impacts and other side impacts by 22.2% and 43.8% and increased in rollovers by 11.3% (small numbers)
- In the US road fatalities decreased by 19.4% between 2000 and 2009 and four-wheeled vehicle occupant fatalities by 27.6%
  - In the same period passenger car/light truck occupant fatalities decreased in pole side impacts, other side impacts and rollovers by 16.2%, 37.2% and 17.0% respectively
- In Germany, total road fatalities decreased by 40.3% in the period 2000 to 2008, while fatalities with trees decreased by 44.8%

Next steps

- Complete initial data collection by end December
- Analyse – serious injuries as well as fatalities
- Consider further more detailed data requirements (including age, gender, body region injured)