



Australian Government

Department of Infrastructure and Transport

Category 2 Vehicles: Australian Sales and Safety Need Data

Thomas Belcher

6th Meeting - GRSP Informal Group on Pole Side Impact

Munich, Germany, 20 June 2012.

Definitions for this Analysis

- Pole Side Impact: *A side impact with a rigid narrow object including; road signs/traffic signals, lamp posts, telegraph poles, electricity poles, trees, fire hydrants, and bridge supports/abutments.*
- Serious Injury: *Taken to hospital and admitted or taken to hospital and admission status unknown.*



Background

At the 5th PSI GTR Meeting in London OICA proposed:

- that vans and mini-trucks be excluded from the scope of a pole side impact GTR; and
- that the distance of the R-point from the front axle and/or the Interior Volume Index (IVI) could be used in the GTR to distinguish vans from pick-ups / utes.

Category 2 vehicles come in different forms and are used differently throughout the world and members of the Informal Group are likely to have different vehicles in mind when discussing the safety need for category 2 vehicles and the scope of the GTR:

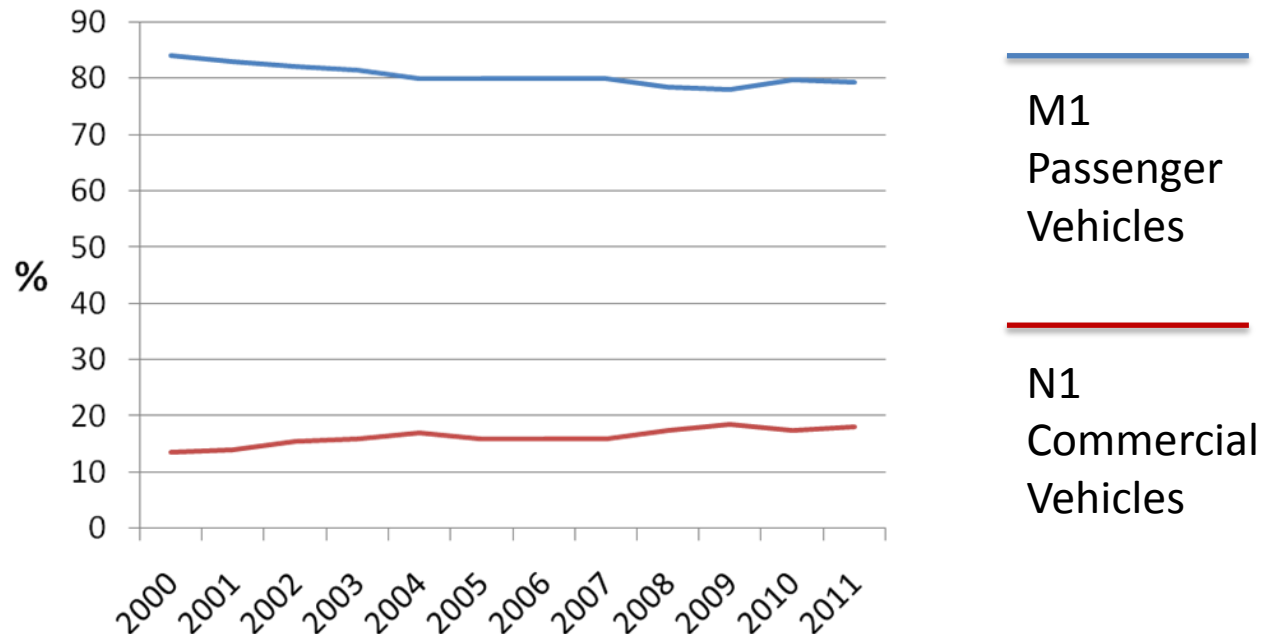
- European members are most likely to be thinking of vans;
- Australia is primarily thinking of utes; and
- North American members are most likely to be thinking of pick-up trucks.



New 4-Wheel Vehicle Sales

Federal Chamber of Automotive Industries (FCAI) figures show that light commercial vehicles now account for 18% of new vehicle sales in Australia. This number has risen from 13% in 2000.

Over the same period, passenger cars, people movers and sports utility vehicles (SUVs) (UN Category M1 vehicles) have dropped from 84% to **79%** of all vehicles sold.

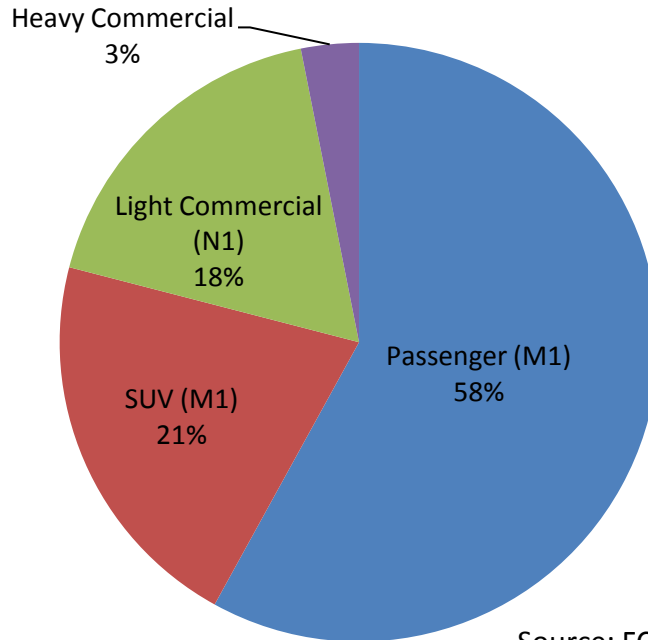


Australian Government

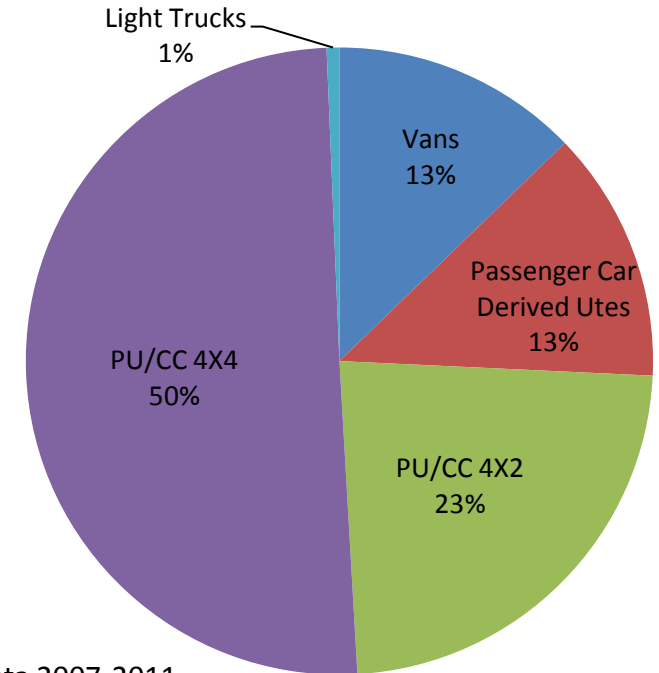
Department of Infrastructure and Transport

Vehicle Sales by Vehicle Type (Australia: 2007-2011)

4-Wheel Vehicle Sales (not including heavy buses)



N1 Commercial Vehicle Sales



Source: FCAI VFACTS Data 2007-2011.

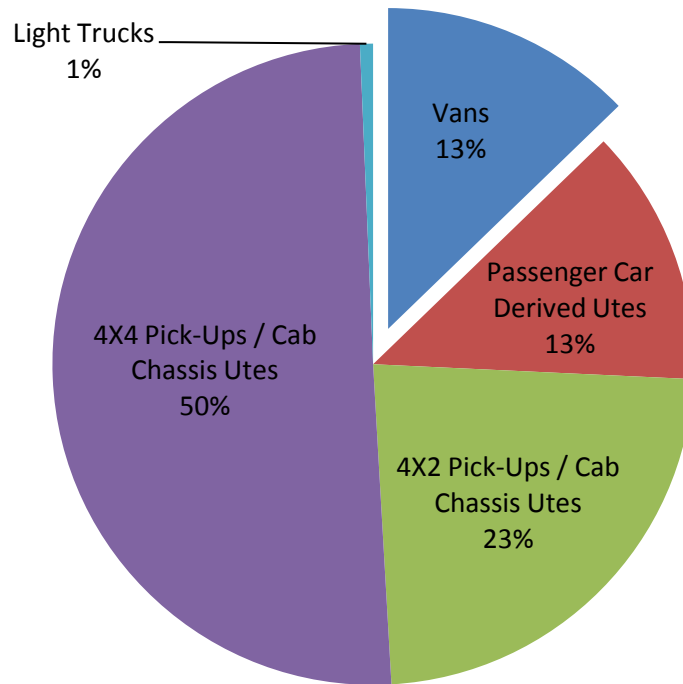
Pick-Ups / Utes accounted for approximately 15.5% of new vehicle sales.
Vans accounted for approximately 2.3% of new vehicle sales.



Australian Government

Department of Infrastructure and Transport

UN Category N1 Vans



N1 Vehicle Sales (2007-2011)

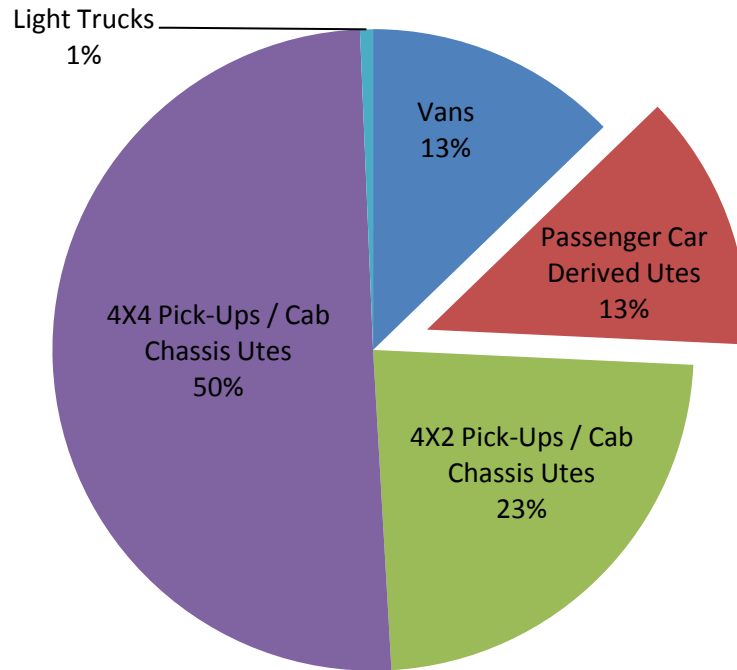
Vans often have high seating positions (i.e. high H-points, high R-points and higher head and thorax heights which may have implications for vehicle-to-vehicle side impact injury risk) as well as a relatively forward and relatively high vehicle centre of gravity.



Australian Government

Department of Infrastructure and Transport

UN Category N1 Passenger Car Derived Utes



N1 Vehicle Sales (2007-2011)

Typically have the lowest H-points, R-points, and therefore head and thorax heights amongst category N1 commercial vehicles.
Low approach, breakover and departure angles.

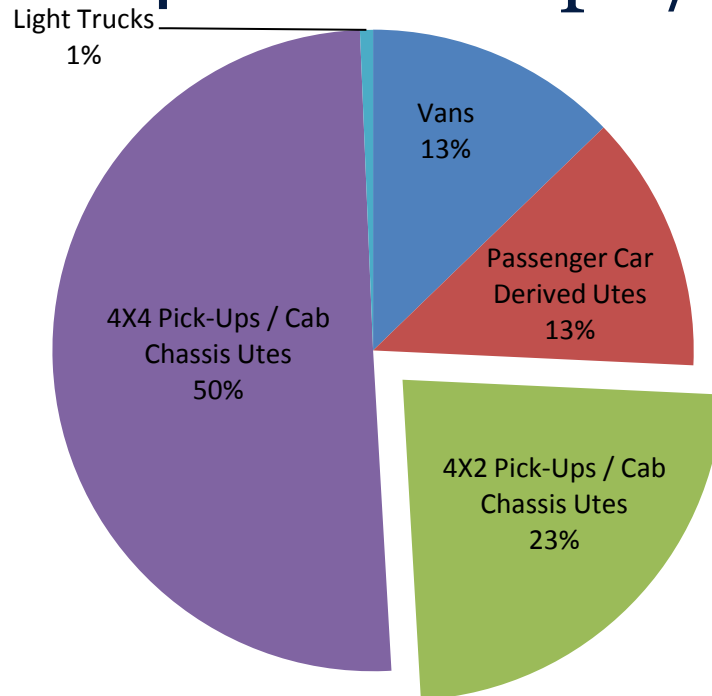


Australian Government

Department of Infrastructure and Transport

UN Category N1

4×2 Pick-Ups / Cab Chassis Utes



N1 Vehicle Sales (2007-2011)

Typically lower H/R points, head and thorax heights than 4×4 utes.
Typically lower approach, breakover and departure angles than 4×4 utes.
Increasingly serve a dual role as both a passenger vehicle and a commercial vehicle.

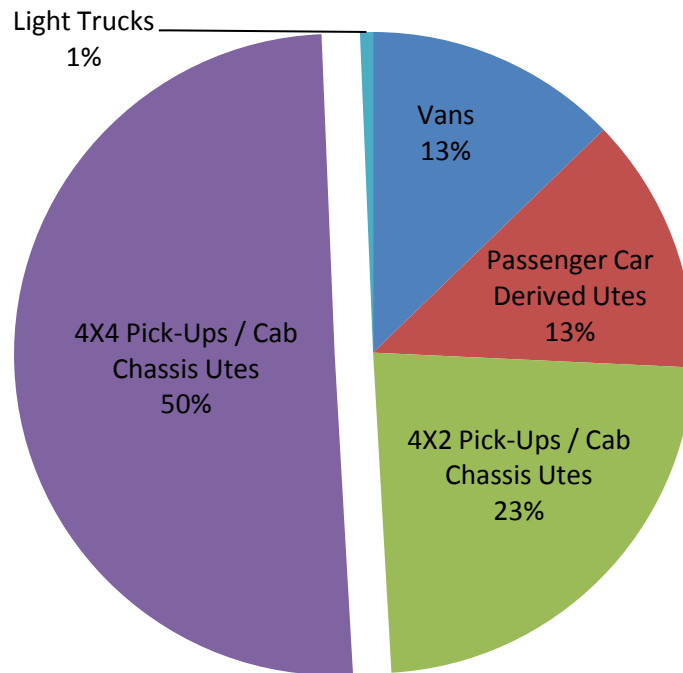


Australian Government

Department of Infrastructure and Transport

UN Category N1

4×4 Pick-Ups / Cab Chassis Utes



N1 Vehicle Sales (2007-2011)

Higher H-points, R-points, head and thorax heights than 4×2 utes.
Usually have larger approach, breakover and departure angles than 4×2 utes.
Increasingly serve a dual role as both a passenger vehicle and a commercial vehicle.

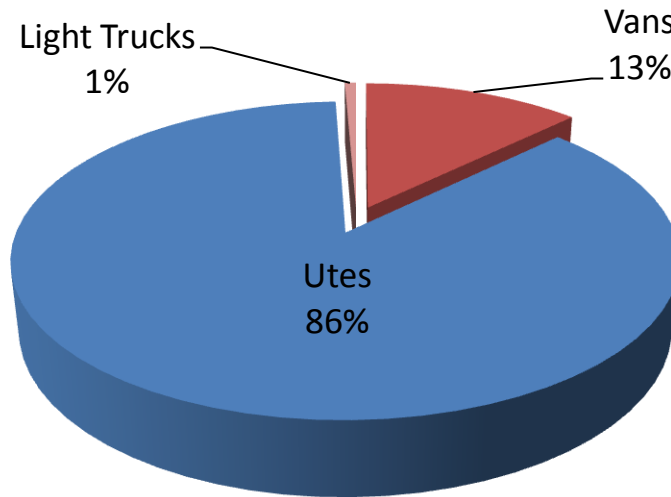


Australian Government

Department of Infrastructure and Transport

Fatalities

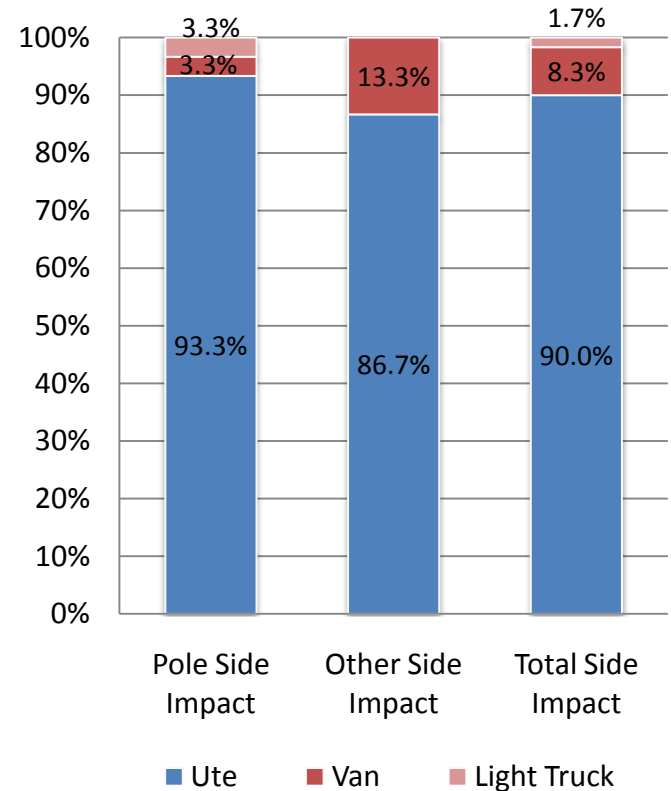
**N1 Commercial Vehicle Sales by Vehicle Type
Australia: 2007-2011**



Vans have accounted for a greater percentage of N1 vehicle sales than they have total N1 vehicle occupant side impact fatalities.

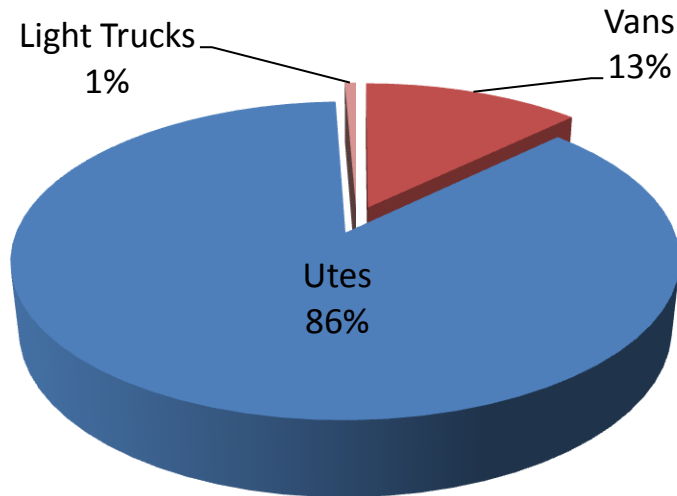
Vans account for very few PSI fatalities.

**N1 Commercial Vehicle Fatalities by Vehicle Type
(Victoria, Australia: 2000-2010)**



Serious Injuries

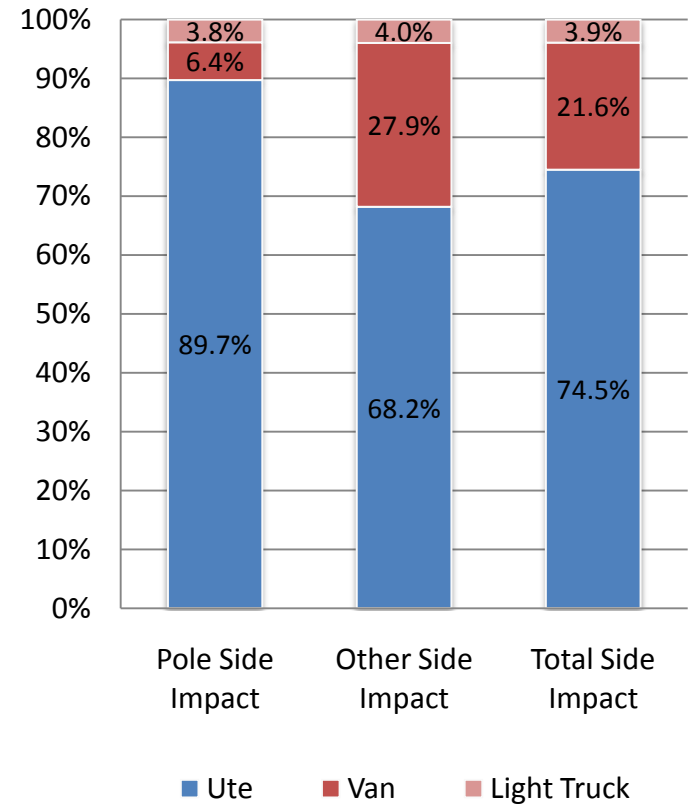
**N1 Commercial Vehicle Sales by Vehicle Type
Australia: 2007-2011**



Vans have accounted for a relatively high percentage of N1 vehicle occupants seriously injured in other side impacts.

Vans account for few PSI serious injuries.

**N1 Commercial Vehicle Seriously Injured by Vehicle Type
(Victoria, Australia: 2000-2010)**

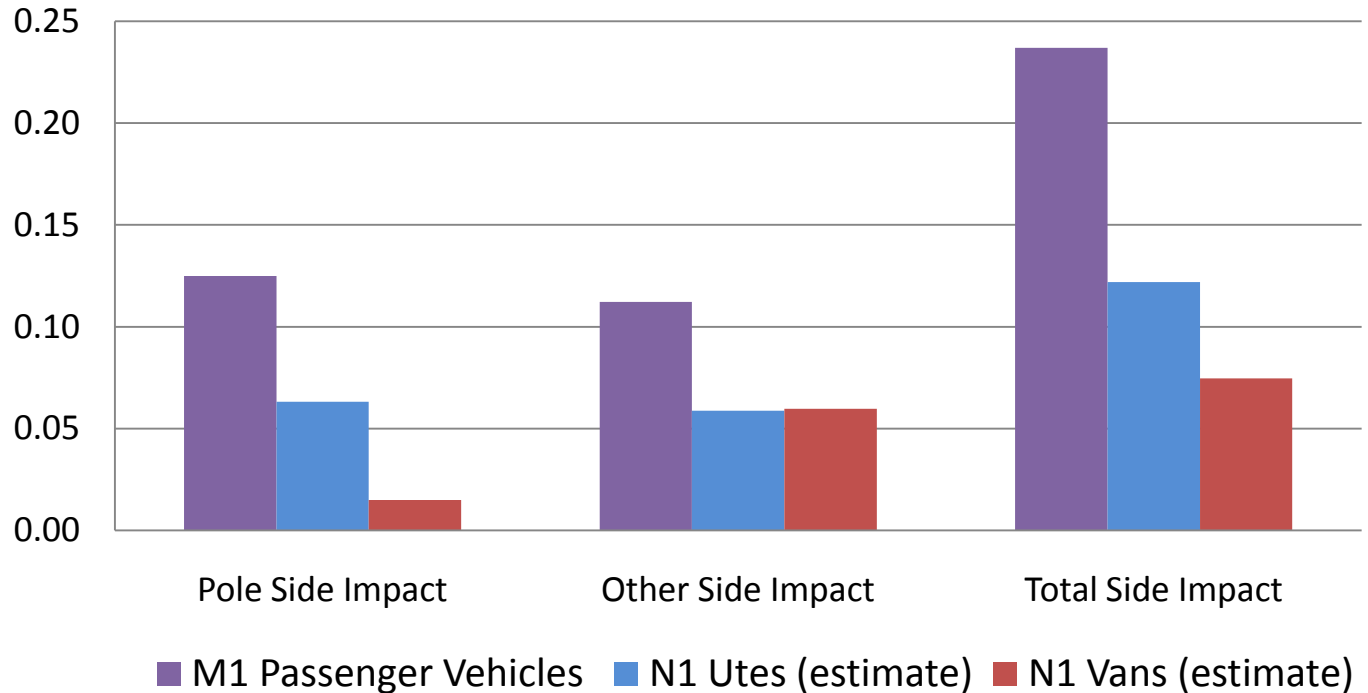


Australian Government

Department of Infrastructure and Transport

Relative Fatality Rates

Average Annual Fatalities per 10,000 Registered Vehicles
(Victoria, Australia: 2000-2010)



Vans have had a significantly lower pole side impact fatality rate than both passenger vehicles and utes.

Vans have had the lowest overall (total) side impact fatality rate.

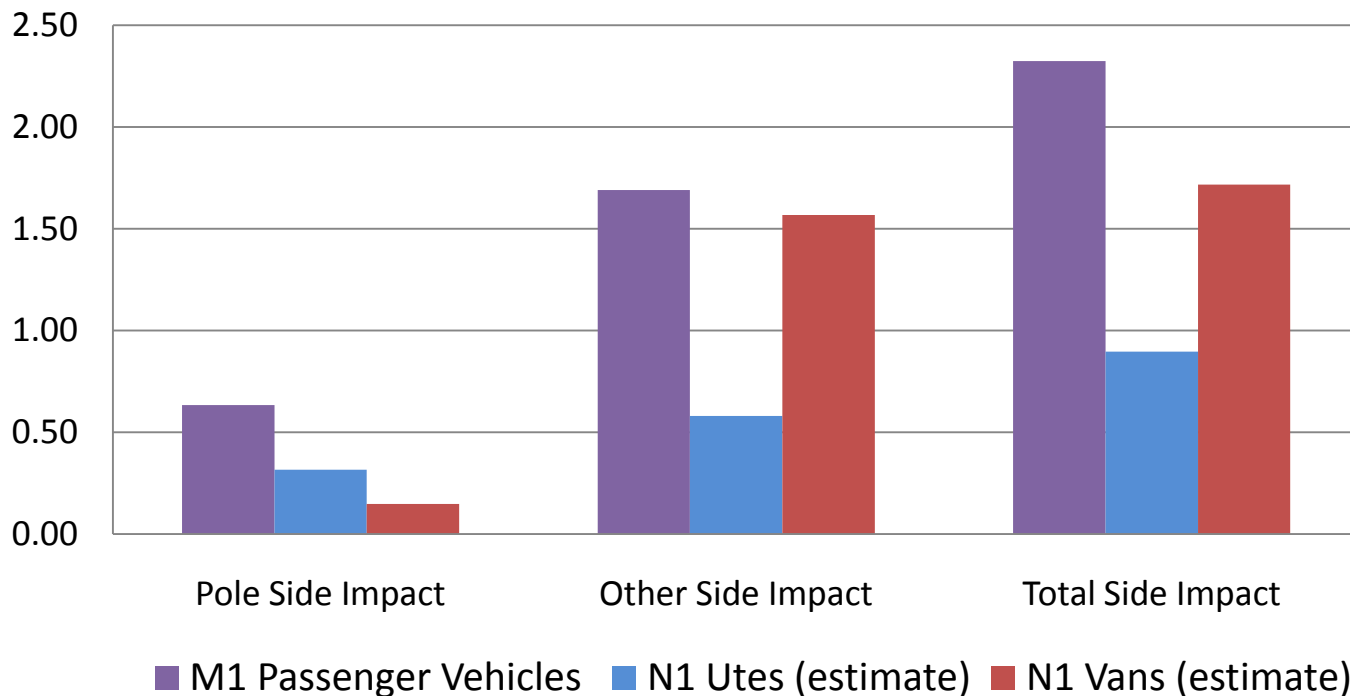


Australian Government

Department of Infrastructure and Transport

Relative Serious Injury Rates

Average Annual Serious Injuries per 10,000 Registered Vehicles
(Victoria, Australia: 2000-2010)



Vans have had a significantly lower pole side impact serious injury rate than both passenger vehicles and utes.

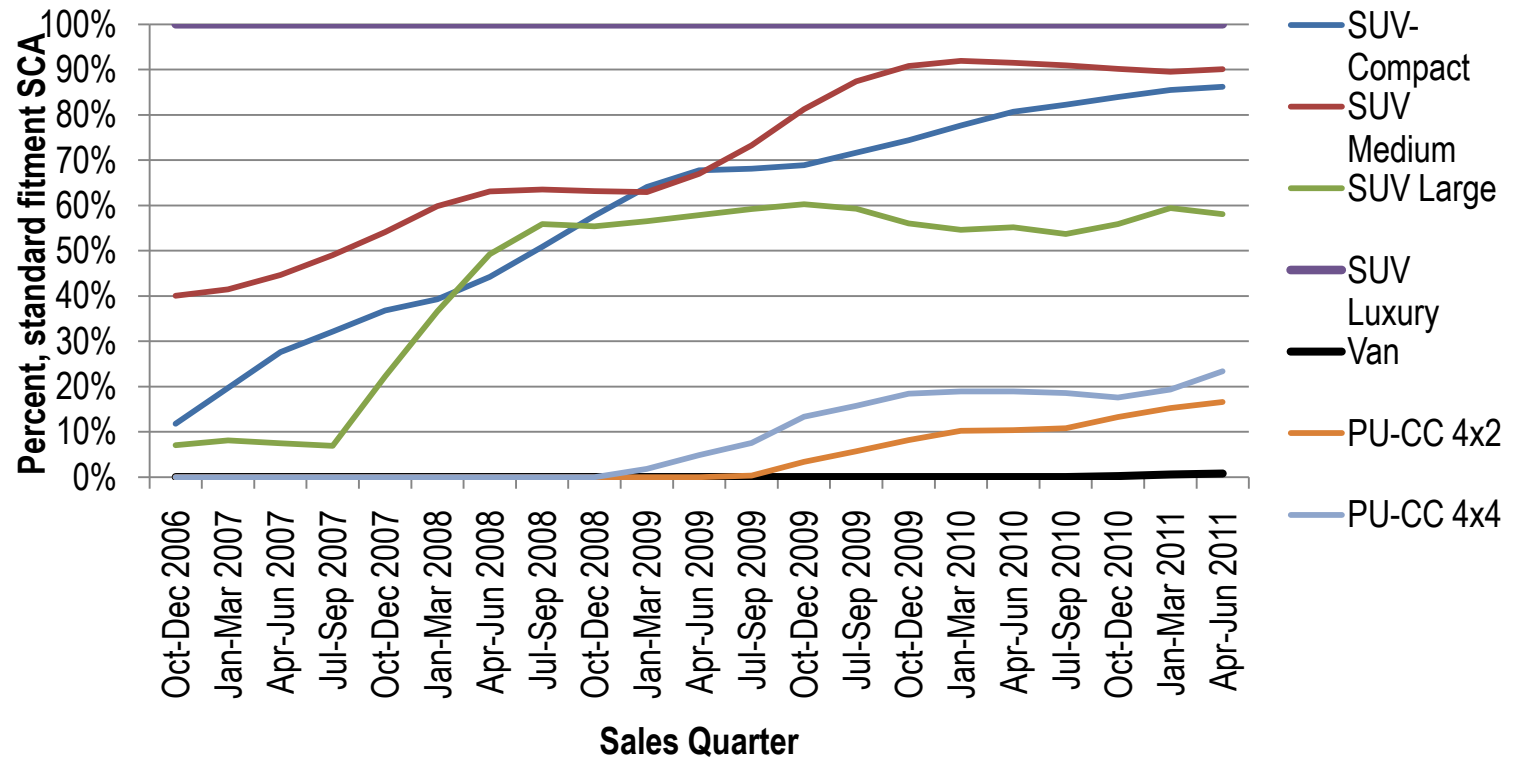
Vans have had higher other side impact and overall (total) side impact serious injury rates than utes.



Australian Government

Department of Infrastructure and Transport

Side Curtain Airbag Fitment Rates



Source: MUARC Presentation [PSI-05-03](#).

N1 vehicles may have had lower side impact fatality rates than M1 vehicles, but they also have lower side airbag fitment rates – this has implications for benefits of PSI GTR.



Australian Government

Department of Infrastructure and Transport

Open Questions

- Do vans rollover more often when impacted from the side by another vehicle?
- Pole side impact test performance requirements are most likely to achieve head and thorax injury reduction benefits – to what body regions do van occupants admitted to hospital following a vehicle-to-vehicle side impact currently sustain injuries?
- Is the test procedure appropriate for vehicles with a forward centre of gravity and/or where the occupant sits upright and/or above the front axle?



Conclusions

- Vans accounted for very few pole side impact fatalities and serious injuries.
- Vans had the lowest overall (total) side impact fatality rate.
- Vans had higher other side impact serious injury rates per registered vehicle than utes.



Thank you



Australian Government

Department of Infrastructure and Transport