



- Reducing injury on all legs of PT Journeys

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• **PT Safety-The total journey**

- PT is generally considered a safe form of transport.
- In New Zealand, cars and van passengers are seven times more likely than bus passengers to be killed or injured in a crash (for the same time spent travelling).
- However, when injuries to PT users accessing PT, exiting from PT, on PT, and journeying to and from PT, are taken into account, the difference narrows.
- These injuries are part of the total PT journey and Safe System principles require their reduction be part of our road safety efforts.

• **The parts of the total PT journey**

- The journey to and from the PT vehicle.
- Entering the PT vehicle.
- On the PT vehicle.
- Exiting from the PT vehicle.

This presentation concentrates on pedestrian journeys but cycling journeys including PT are of increasing importance.

• **Walking as an active transport mode**

- Walking, as an active transport mode, is being promoted by Australasian Governments as part of a push towards safe sustainable transport.
- It is important that the public has confidence in its ability to walk safely on the street network.
- This means putting effort into identifying under what circumstances pedestrian injury occurs, and to instigate effective counter measures.
- Similar sentiments apply to cycling.

• **Safe system approach to road safety**

- This means Road Controlling Authorities (RCAs) are responsible for minimising injury on their networks, whether or not motor vehicles are involved.
- Their networks include the roadway and areas near the roadway used by pedestrians.
- Thus the responsibility to mitigate pedestrian injury falls upon the RCA.

• Pedestrian injuries

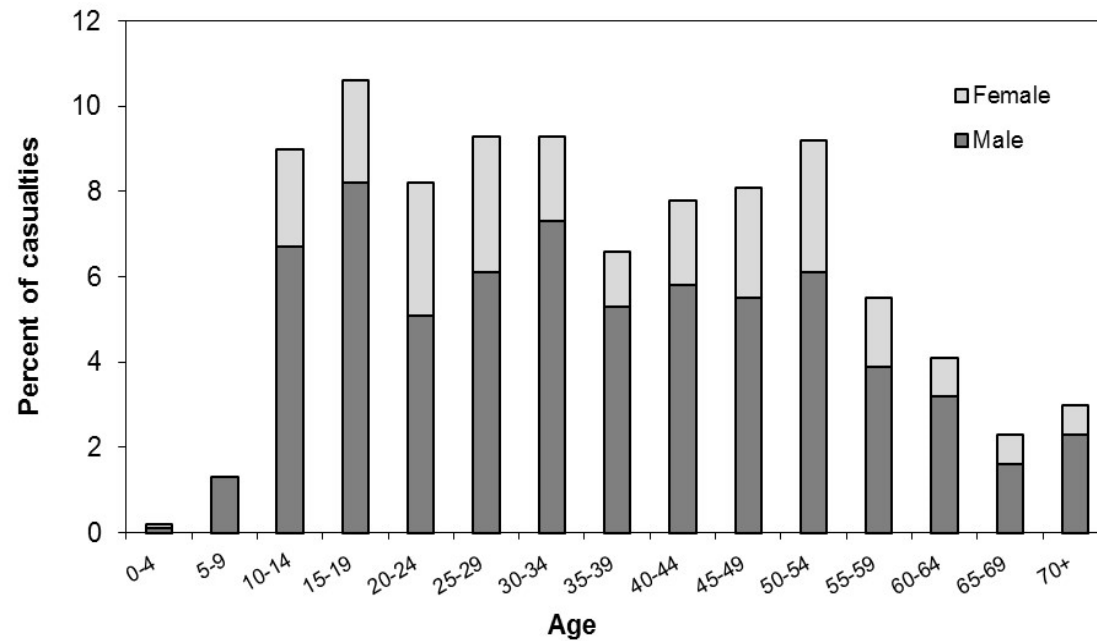
- Most pedestrian injuries involve no motor vehicle and are therefore not reported as part of traffic crash data.
- However they form an important part of the road injury burden.
- Similarly non-motor vehicle cycle injuries are under-reported.



• Pedestrian injuries

- 90% of New Zealand's over 20,000 pedestrian injury insurance claims do not involve a moving motor vehicle.
- New Zealand has around 700 pedestrians admitted to hospital per year due to slips, trips and stumbles on the road and roadside- similar to the 738 pedestrians admitted for motor-vehicle injuries in 2008.
- In Australia, in 2003-2004 there were 4 587 hospitalisations in due to "falls" classified as "on street or highway". This is 72% greater than the 2 666 pedestrian hospitalisations associated with motor vehicles.
- In Sweden $\frac{3}{4}$ of pedestrian injuries are non-motor vehicle.
- In a US study 64 percent of the reported pedestrian injuries did not involve a motor vehicle.

• Cyclist injuries

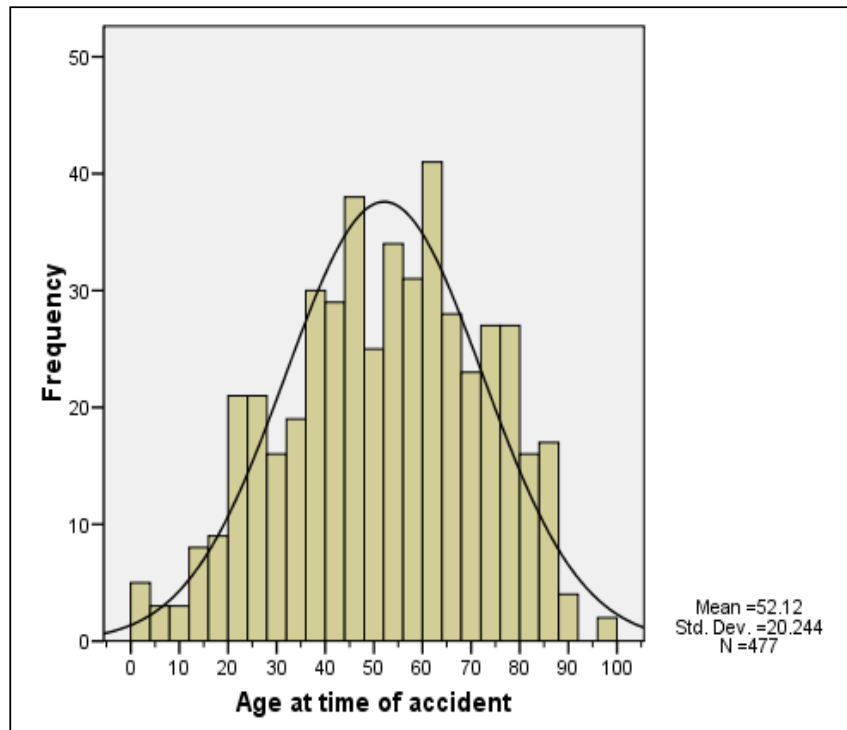


- Non-motor vehicle related cycling injuries by age and gender- Source MoT from hospital admissions data.

• **NZ study of non-motor vehicle pedestrian injury**

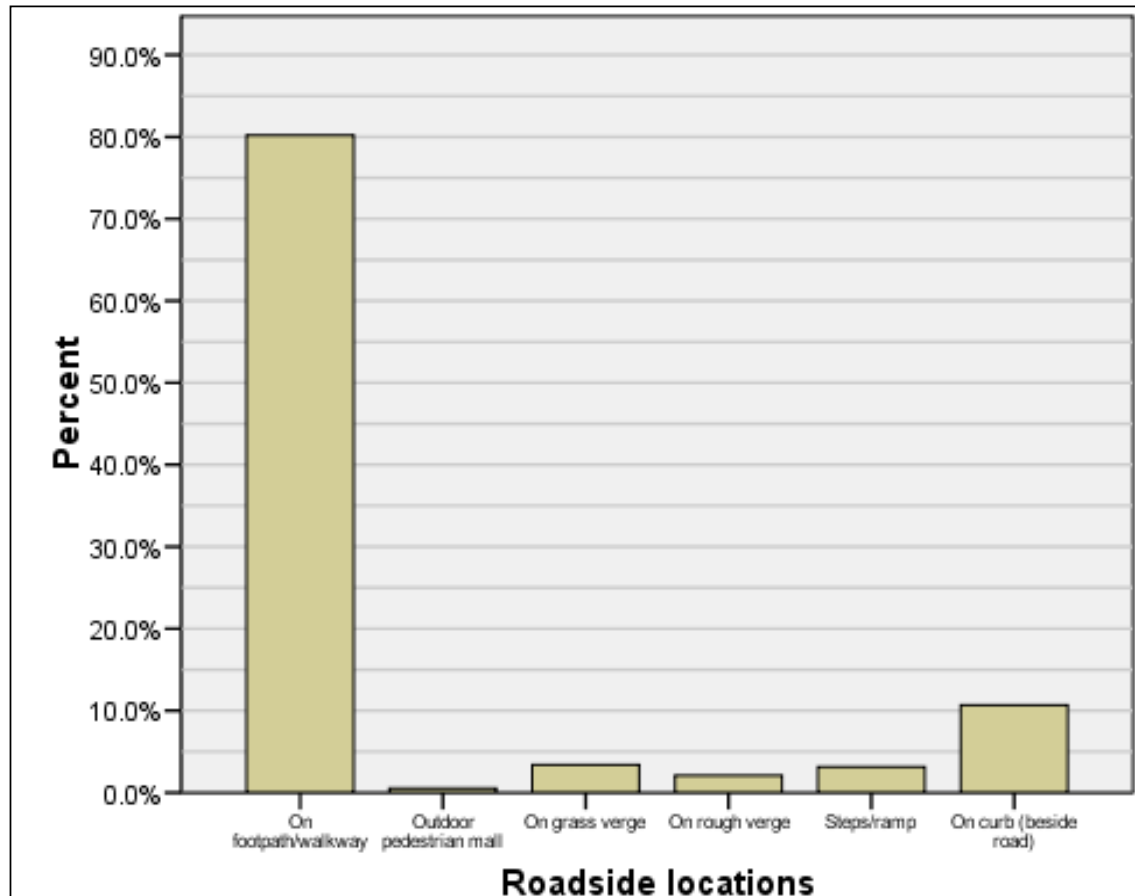
- It involved analysis of:
 - ACC claims for pedestrian injury occurring on or near the road, where motor vehicles were not involved; and
 - a structured home interview survey of Wellington pedestrians injured on roads or footpaths and other roadside areas.
- Survey participants ranged in age from toddlers, where a parent, present at the time of the accident, was interviewed, to elderly pedestrians (up to 97.5 years).
- Average age: 52 years.

Study results

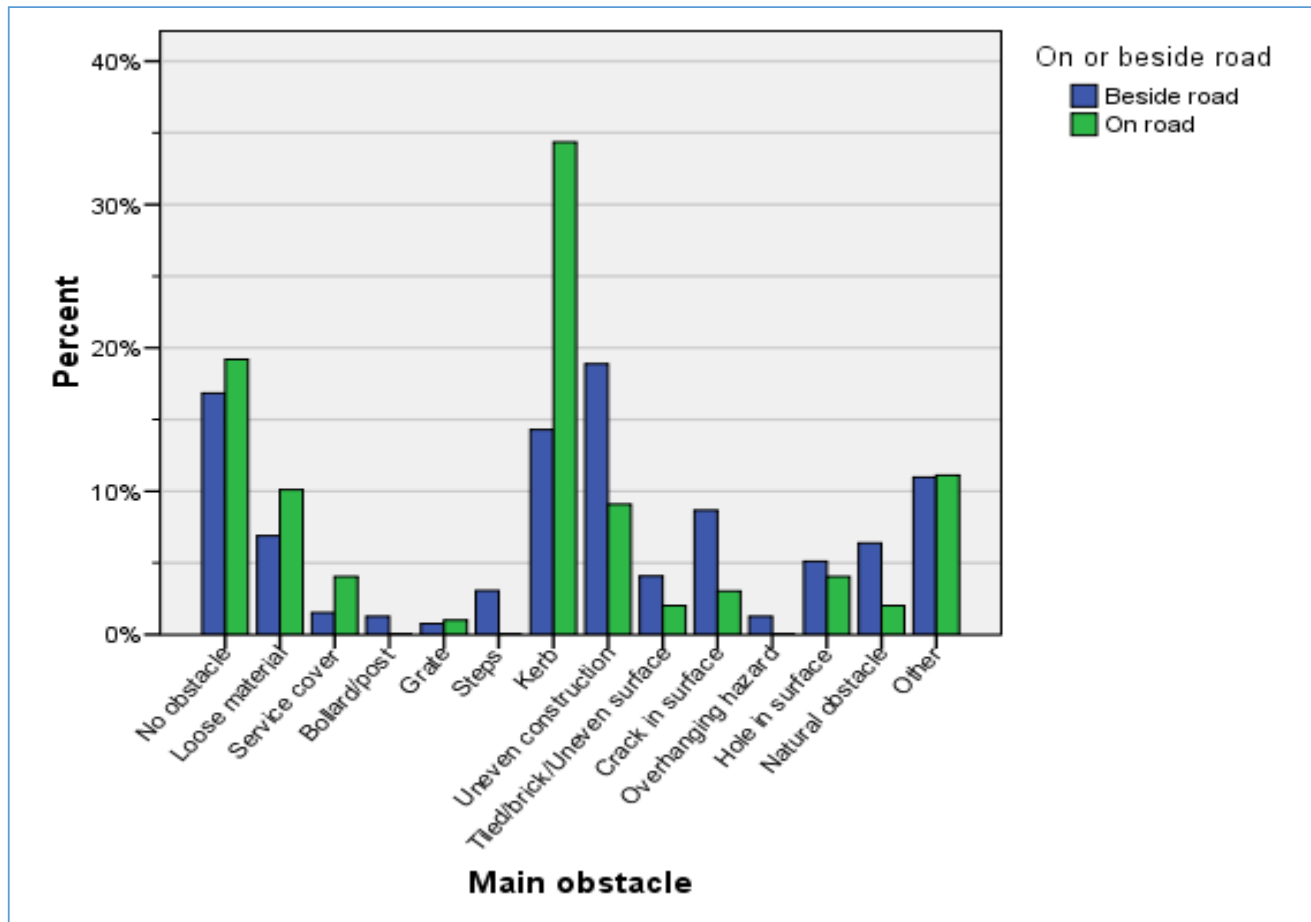


- As expected, the sample was age-biased.
- Percentage of sample 64+ was 29%, while the estimated population percentage 65+ was 13%.
- This relates to increased pedestrian fragility with age.

Location of accident



Obstacles



• Maintenance or design?

- Poorly maintained surfaces are ranked as a more persistent cause of accidents than design issues.
- Poor maintenance includes:
 - Uneven construction (e.g. cracks)
 - Temporary deterioration
- Design issues include:
 - Vertical changes (e.g. kerbs), particularly when stepping up (as opposed to down)
 - Slippery surfaces



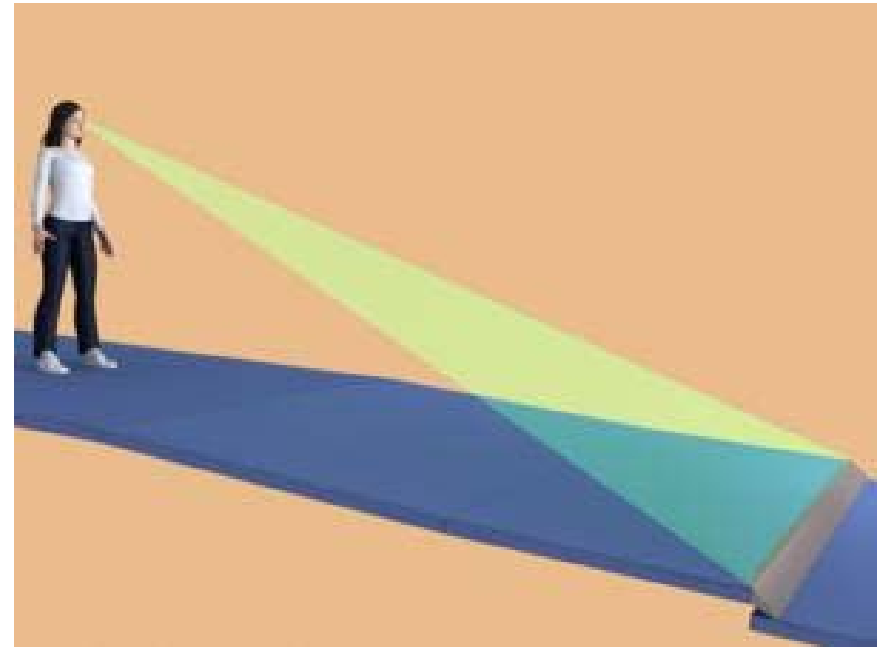
• Lighting

- 13% of accidents occurred where lighting is perceived to be poor.
- These were overwhelmingly in artificially lit areas.
- Indicates that:
 - Current artificial lighting may not always be adequate.
 - Possible hazards may need to be “flagged” in some way if they cannot be removed.



• The role of predictability

- Predictability problem occurs when there is a disparity between the perceived predictability of the environment and the actual continuity of the environment
- Self-explaining footpaths:
 - “No surprises” environments
 - Intuitively encourage safe user behaviours



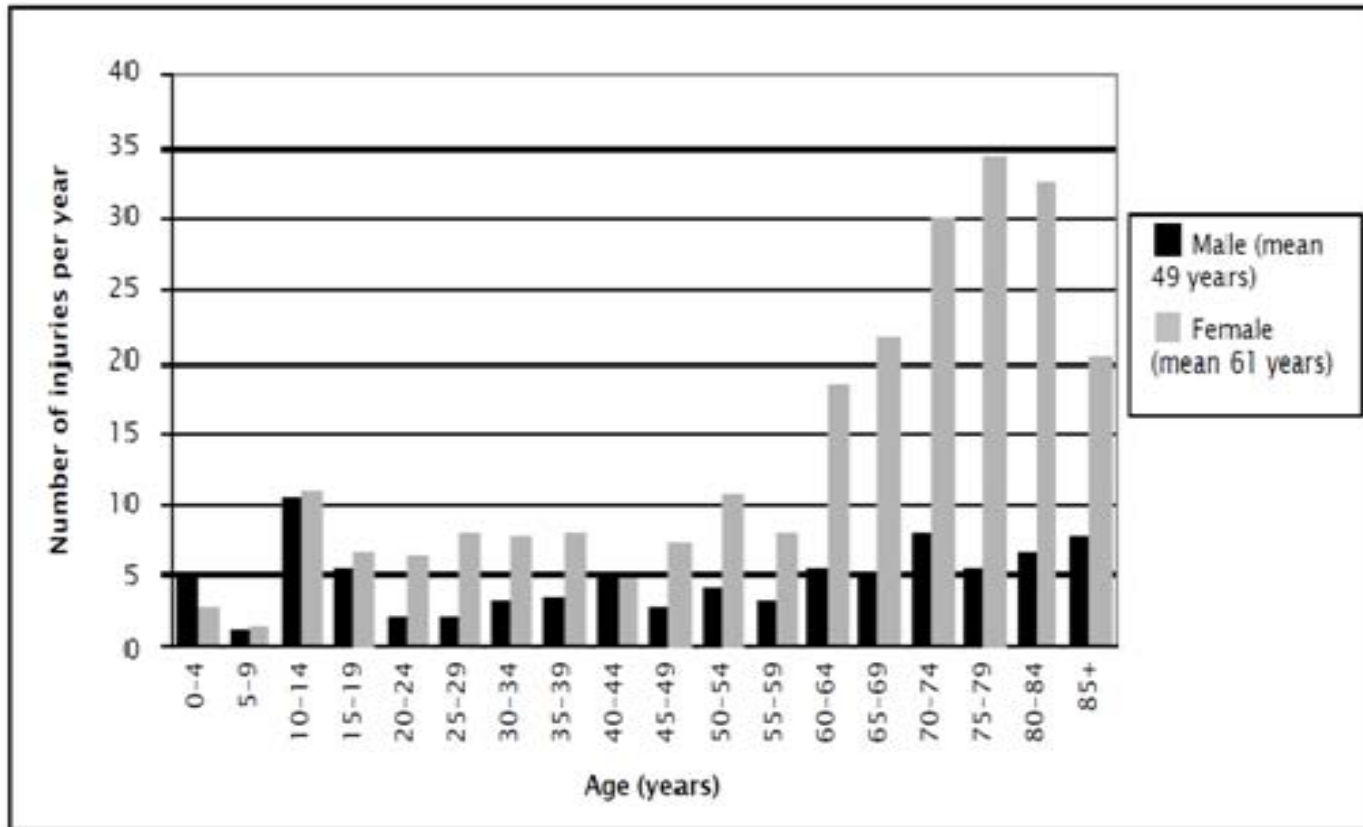
• **Non-crash injuries while exiting/entering PT and on PT**

- Slips, trips and falls on PT, or while entering/exiting PT, are an important part of the total injuries to PT users.
- These injuries are not usually reported to the Police and so are not in traffic crash reports.
- NZ information is from ACC claims.
- The ACC 45 claim form contains a free text box for descriptions of injury circumstances.
- We searched the text by mode and prior activity of 'getting on/off' or 'getting in or out'.

• **Between 2009 and 2014 there were:**

- 1,610 claims where the mode-related search terms were mentioned. Most related to buses (86%) or rail (10%), and the rest to ferry and tram.
- The percentage related to ***entering and leaving*** was 70%, with bus 71% and rail (train plus carriage) 66%.
- This indicates that there may be a higher level of safety entering and exiting trains than buses.
- May reflect the more controlled environment existing at train stations than at bus stops.
- This leaves around ***1/3 of claims probably about injury on the PT vehicle.***

Non-crash injuries on London buses



Age/gender in non- collision bus injuries in Britain from 1994 to 1998

• Sweden as a role model

- Sweden has made a really concerted effort to include the injuries sustained on the total PT journey into their consideration of road safety policy.
- Pedestrian and bicycle injuries not related to motor vehicles are being counted, including significant numbers while inside PT vehicles.
- Sweden has targets for reducing non motor- vehicle, cycle and pedestrian crashes and also crashes involving people on and entering/exiting from PT.

▸ Conclusions

- To address the safety of the whole PT journey requires:
 - Consideration of the whole journey rather than just the road phase.
 - Gathering and analysis of injury data related to all aspects of the journey.
 - Positioning safety expertise in organisational structures to influence PT operation.
 - Including the whole PT Journey in road safety strategies and action plans.



· Acknowledgement

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