



# What happens when walkers and cyclists share the space?

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Centre for Accident Research & Road Safety - Queensland

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CRICOS No. 00213J



# Outline

- Safe Systems principles
- Review literature
- Crash and injury data
- Results from a survey of Qld cyclists
- Observational study of cyclist-pedestrian interactions

# Safe system principles

- Swedish Vision Zero states that cyclists and pedestrians should be separated from motorised vehicles whose speeds exceed 30 km/h [1]
- About 50:1 ratio of kinetic energy between
  - a 1.5 tonne car in a 50 km/h zone and an adult cyclist riding at 30 km/h in the same direction
  - the same cyclist and a 50th percentile pedestrian walking at 5 km/h [2]
- Current practices are not good at separating bikes from cars or bikes from pedestrians

# What does research show?

- 5% of riding is on footpaths regardless of law [3,4]
- 17% of riding on shared paths [3]
- Most cyclist crashes on shared paths are falls [4,5]
- Observations of 50,000 pedestrians and 12,000 bicyclists on shared paths in NSW found only five near misses and no actual contact between bicyclists and pedestrians [6]

# Relative speeds

- Average speeds of joggers on a shared path in Brisbane was 10 km/h, walkers 6 km/h and cyclists 21 km/h [7]
- Cyclists ride slower on shared paths (21 km/h) and particularly footpaths (11 km/h) than in traffic (29 km/h) [5]
- Japanese study [8] showed that the average speed of cyclists on the footpath dropped from about 12 km/h when there were no pedestrians to about 6 km/h when there were six pedestrians within 20 metres of the bicycle

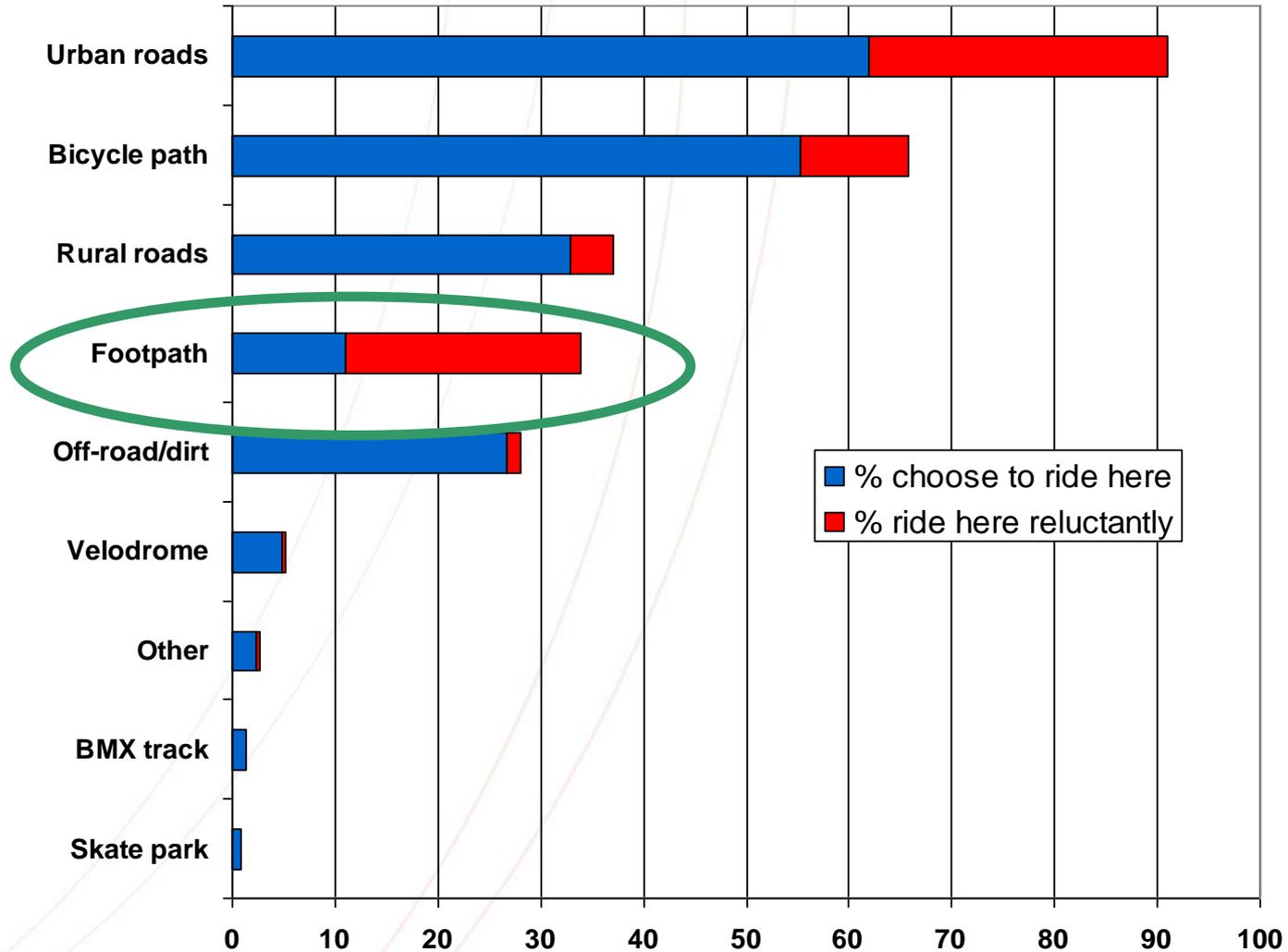
# Injuries in cyclist-pedestrian crashes

- Australian hospital separations 2008-09 [9]
  - 40 pedestrians injured in a traffic accident (footpath or road) with a cyclist (1.5% of hospitalised pedestrians)
  - 33 cyclists injured in a traffic accident with a pedestrian or animal (0.6% of hospitalised cyclists)
- NSW hospitalisations from bicycle–motor vehicle and bicycle–pedestrian collisions over a 5-year period [10]
  - Most cyclists were male and injured in collisions with motor vehicles (n=784)
  - 20 females and 46 males aged 65 and older from collision with a cyclist and severity greater for this group
  - Of the 163 pedestrians hospitalised from collisions with cyclists, 72 resulted from a non-traffic accident and 48 were unspecified.

# Queensland cyclist survey [4]

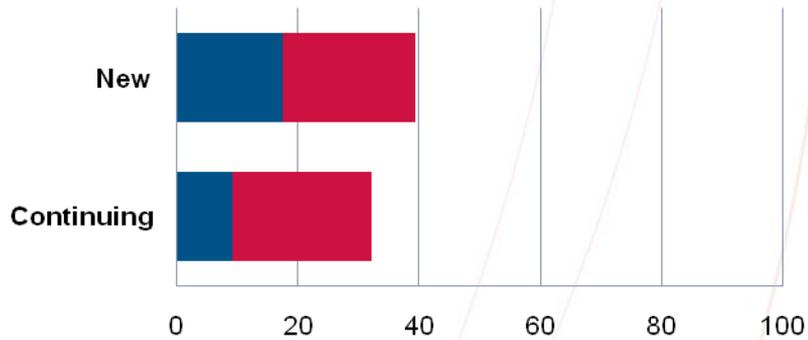
- Self-administered online or paper survey
  - October 2009 – March 2010
  - Qld residents who had ridden in the past year
  - 2,532 respondents
  - mean age 42 years (range 18-78)
  - 73% male
  - 75% urban
  - mean 5 days and 150 km riding per week

# Riding Locations

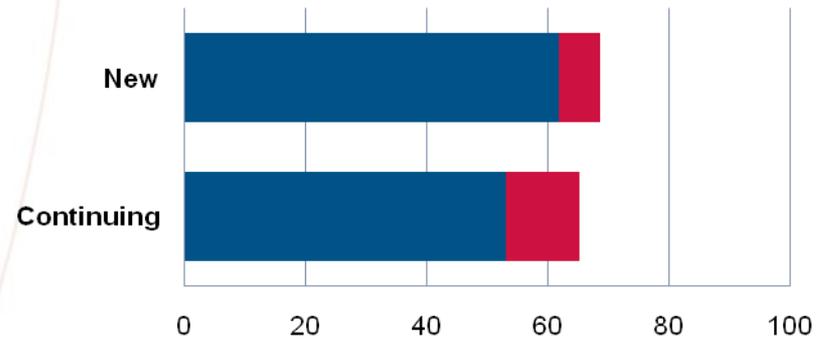


# Experience and riding location

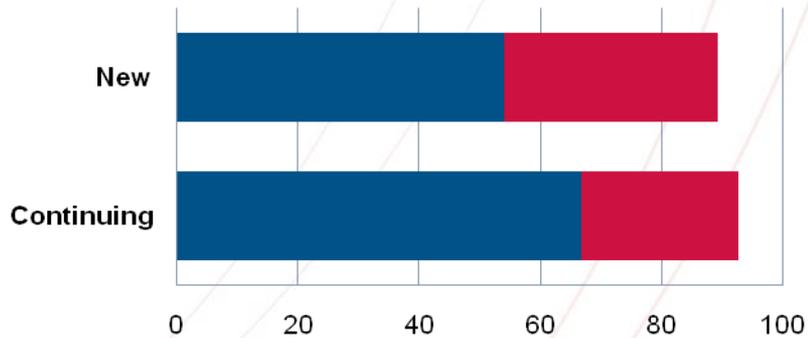
## Footpath



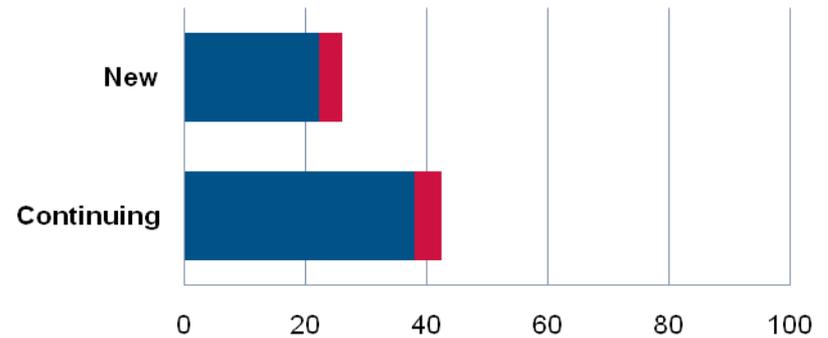
## Bicycle Path



## Urban Road

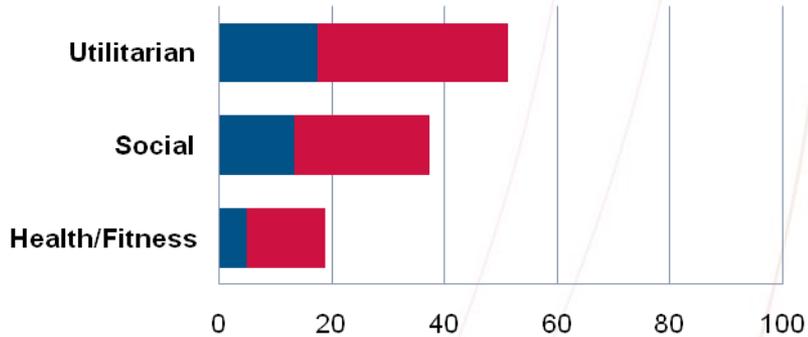


## Rural Road

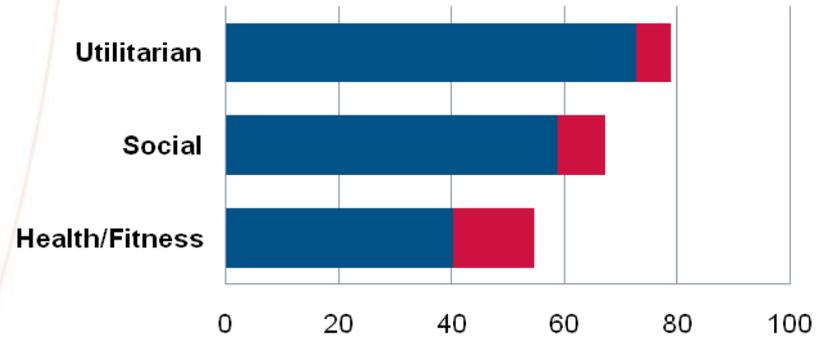


# Trip purpose and riding location

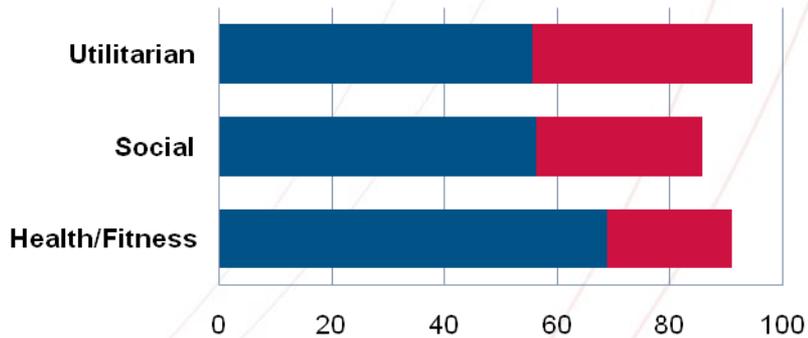
## Footpath



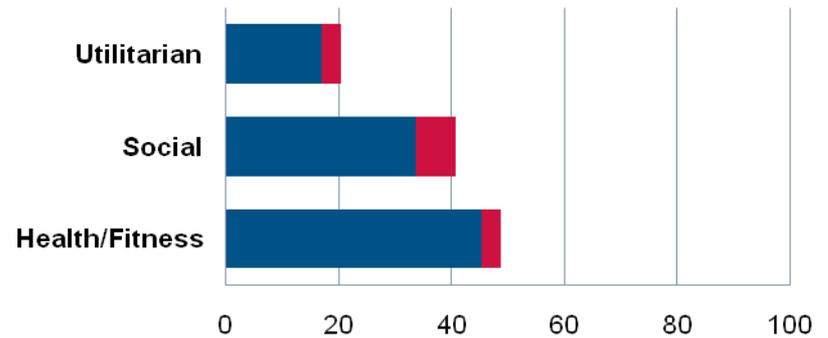
## Bicycle Path



## Urban Road



## Rural Road



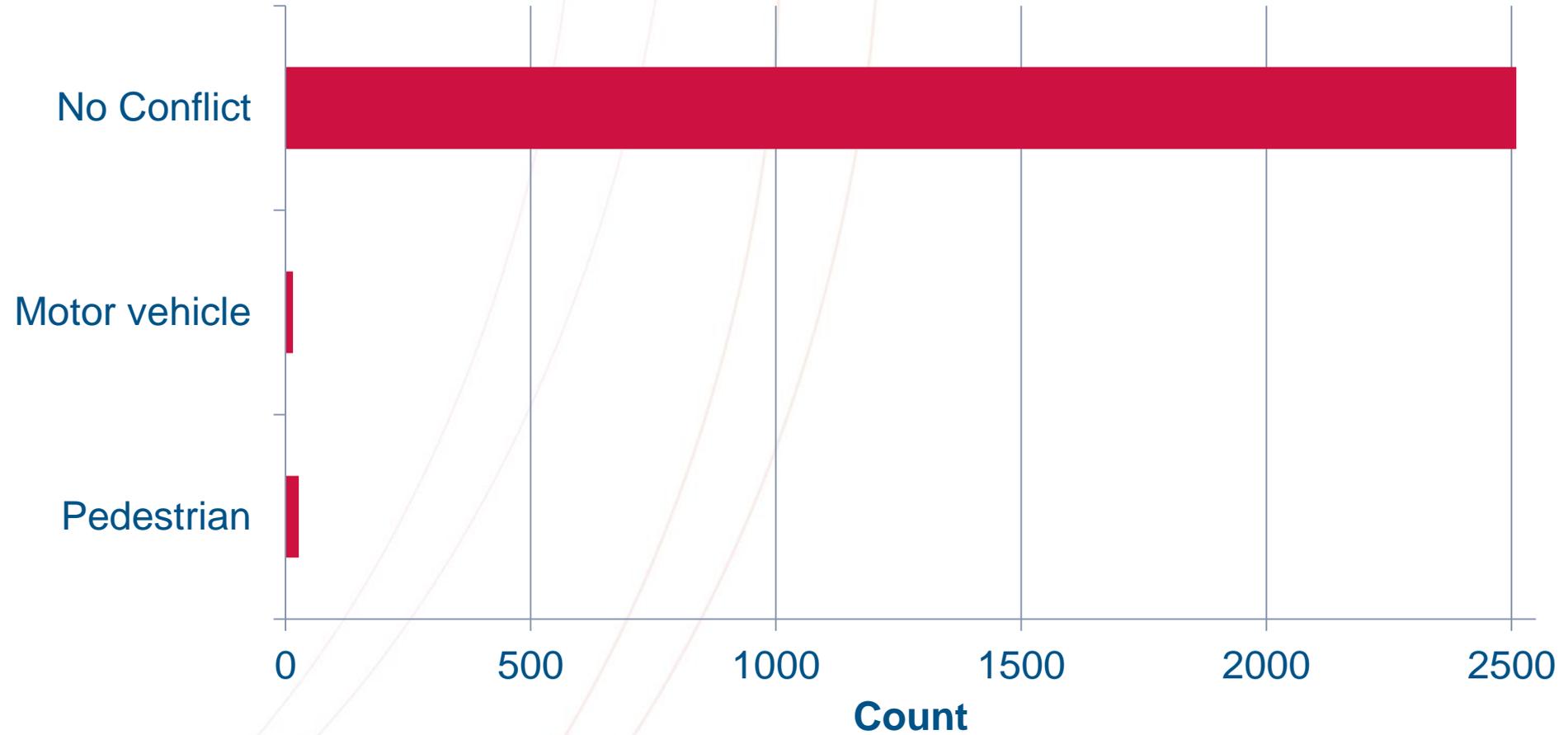
# Footpath crashes

- 6% of “most serious” crashes in last 2 years
- 69% involved only the bicycle
- 10% involved pedestrians (18% bike paths)
- 18% between 6 pm -12 pm
- 68% no medical treatment - less serious than crashes on roads
- cause was “fall from bicycle” (49%), “poor surface conditions” (33%)
- 28% new riders
- 65% utilitarian riders

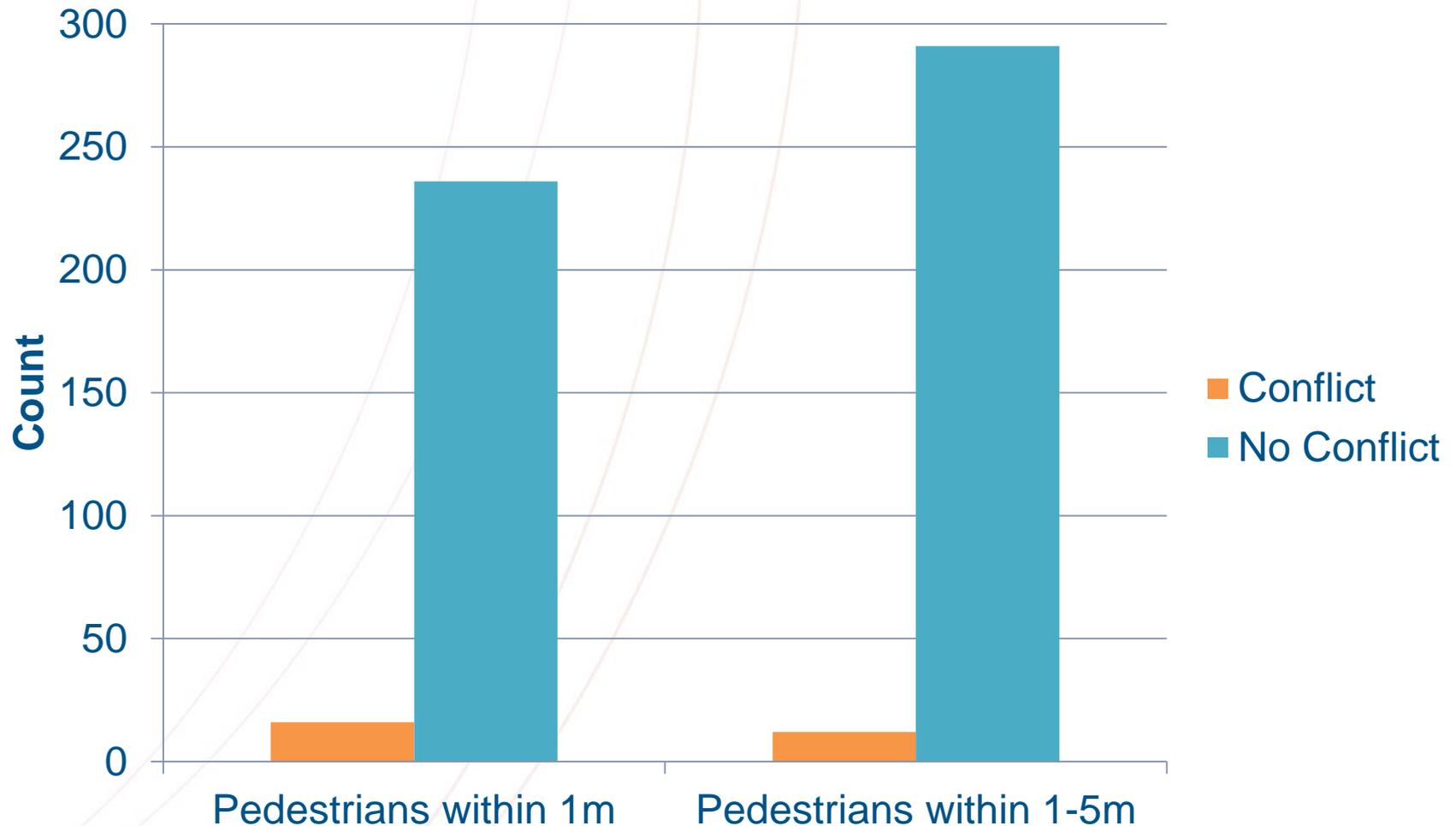
# Observational study [11]

- 6 Brisbane CBD mid-block locations
- 46 observation periods
- 2-hr periods on weekdays
  - 7-9 am, 9-11 am
  - 2-4 pm, 4-6 pm
- 85% male, 98% adults
- 1971 cyclists in October 2010, 2551 in 2012 (29% increase)
- 22% on footpath 2010, 24% 2012 (ns)

# Conflict with other road users



# Pedestrian vicinity and conflict on footpaths



# Factors increasing the odds of a pedestrian-cyclist conflict

- Male riders
- Riders not wearing correctly fastened helmets
- Riding on the footpath
- Higher pedestrian density (within 1m but not within 5m)
- Morning peak and 2-4 pm (compared with 4-6 pm)
- Two-way roads
- Roads with more lanes
- Higher speed limits
- Yellow marked bicycle symbols on the road

# Discussion

- Pedestrians and cyclists forced to share space because of infrastructure provision and fear of cars
- Consequences of collisions can be severe
  - but most aren't, and
  - risk appears to be low
- Shared off-road paths seem to be a greater issue than footpaths
- Greater concern for elderly pedestrians

# Acknowledgments

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# Questions?

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**Save the Date!**



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The graphic features a yellow road sign graphic on the right side, including a yellow diamond sign with a black arrow pointing up and right, a red triangular 'GIVE WAY' sign, and a yellow diamond sign with a black kangaroo silhouette. The background of the sign graphic is a collage of images: a night view of a city skyline reflected in water, a person on a motorcycle, a bus, and a cyclist.

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