



# How accurate is the identification of serious injury by police?

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Centre for Accident Research & Road Safety - Queensland

CARRS-Q is a joint venture initiative of the  
Motor Accident Insurance Commission  
and Queensland University of Technology



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# Background

- Police reported crash data often the primary source of crash information
- Definition of serious injury within police-reported data is not consistent
- May not be accurately operationalised
- Not all crashes reported to police
- Could lead to misleading estimates of the impact and cost of crashes

# Aims

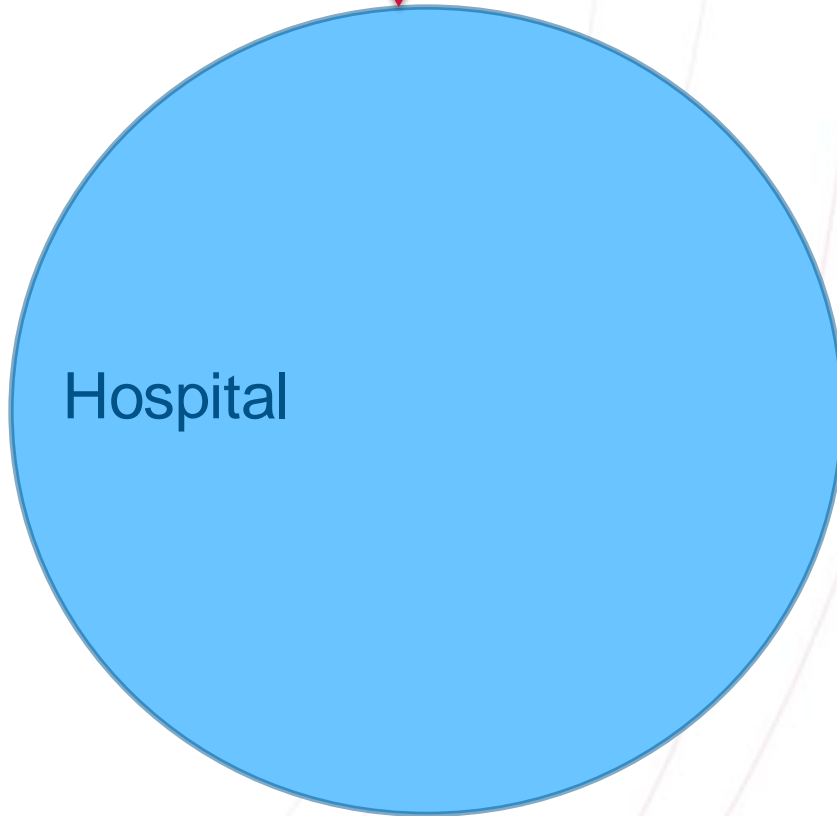
- Identify possible under-reporting and reporting bias
- Assess how accurate the identification of serious injuries is in police-reported crash data
- Queensland context



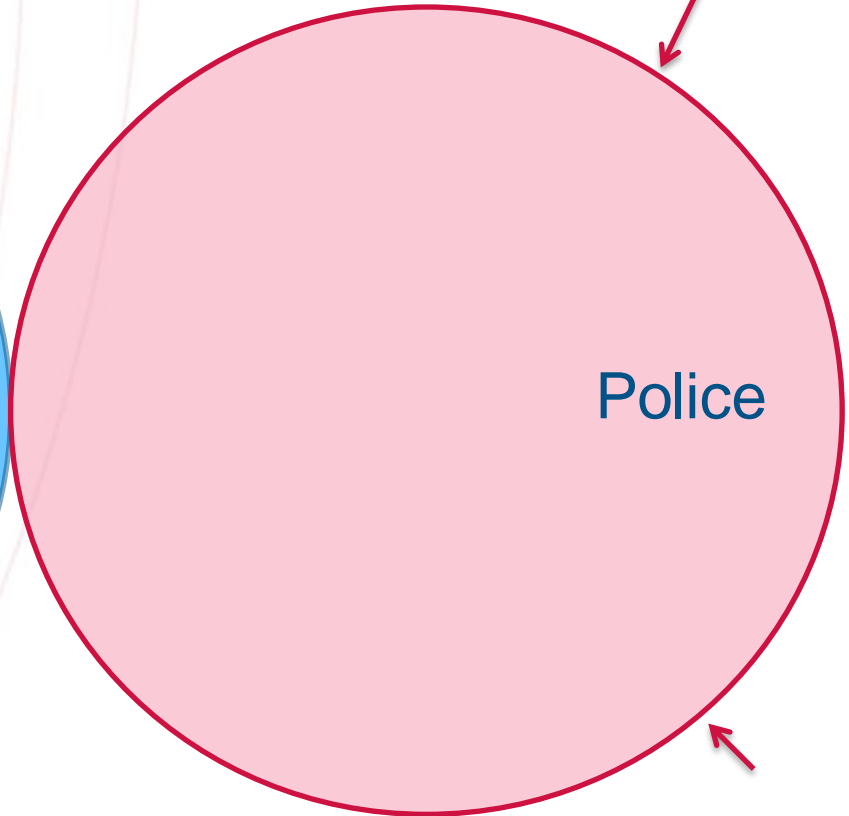
# Data sources

- Queensland Road Crash Database (QRCD)
  - All police-reported crash injuries in Queensland coded as ‘hospitalised’ for 2009
- Queensland Hospital Admitted Patients Data Collection (QHAPDC)
  - All admitted patients in Queensland hospitals coded as ‘traffic-related’ (using ICD-10AM external cause coding) for 2009
- Police data – ‘hospitalised’ = taken to hospital not necessarily admitted to hospital

Admitted  
to hospital



Taken to  
hospital



Definitions



# The actual numbers

**6,725** cases of traffic-related injuries in the **admitted patient hospital data**

**7,003** cases of crash injuries coded as 'hospitalised' in the **police data**

**Under-reporting? →**  
**Hospital**

**Admitted  
to hospital**

**Taken to  
hospital**

**Police**

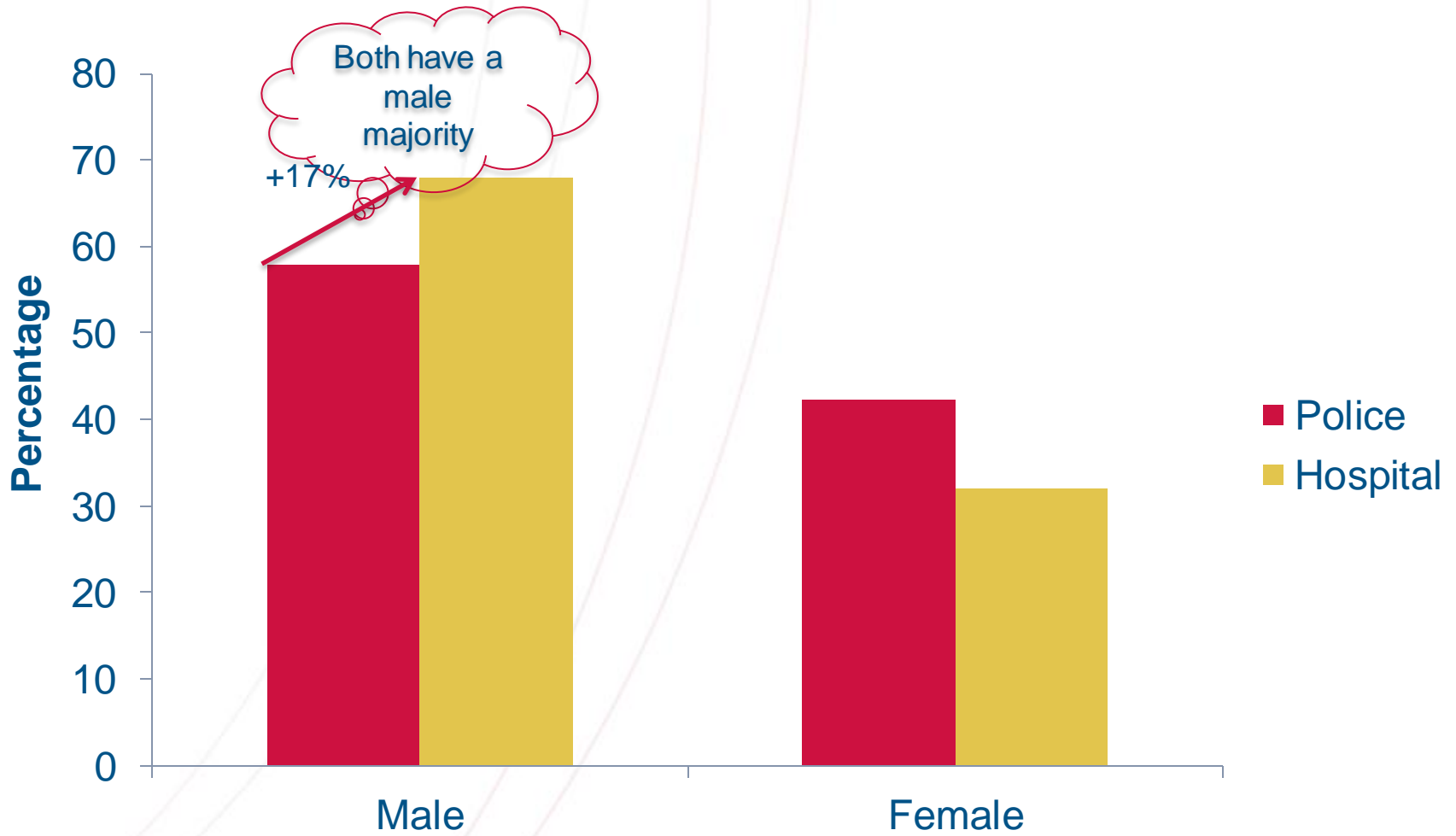
**Definitions**



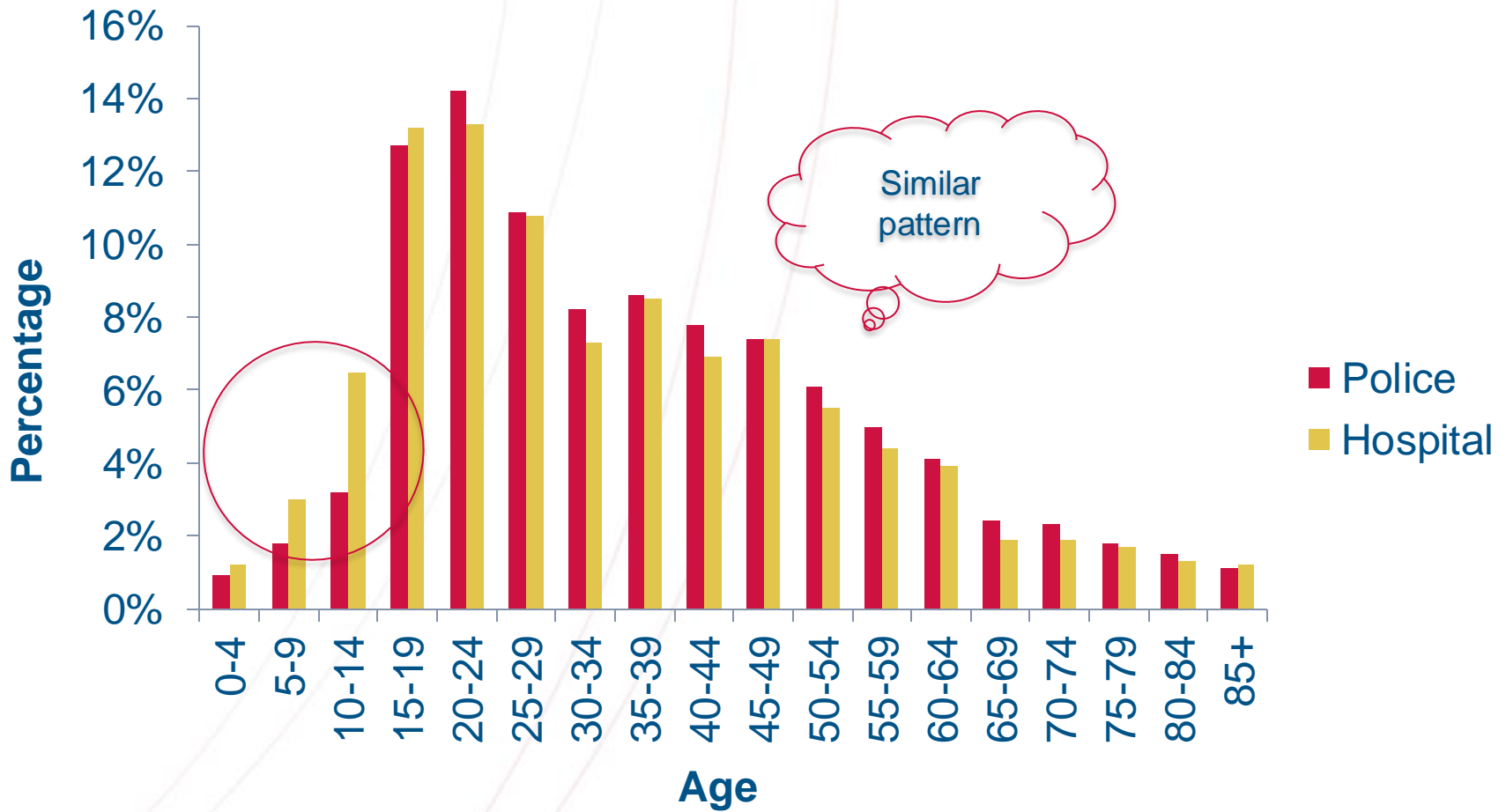
# How are they different?



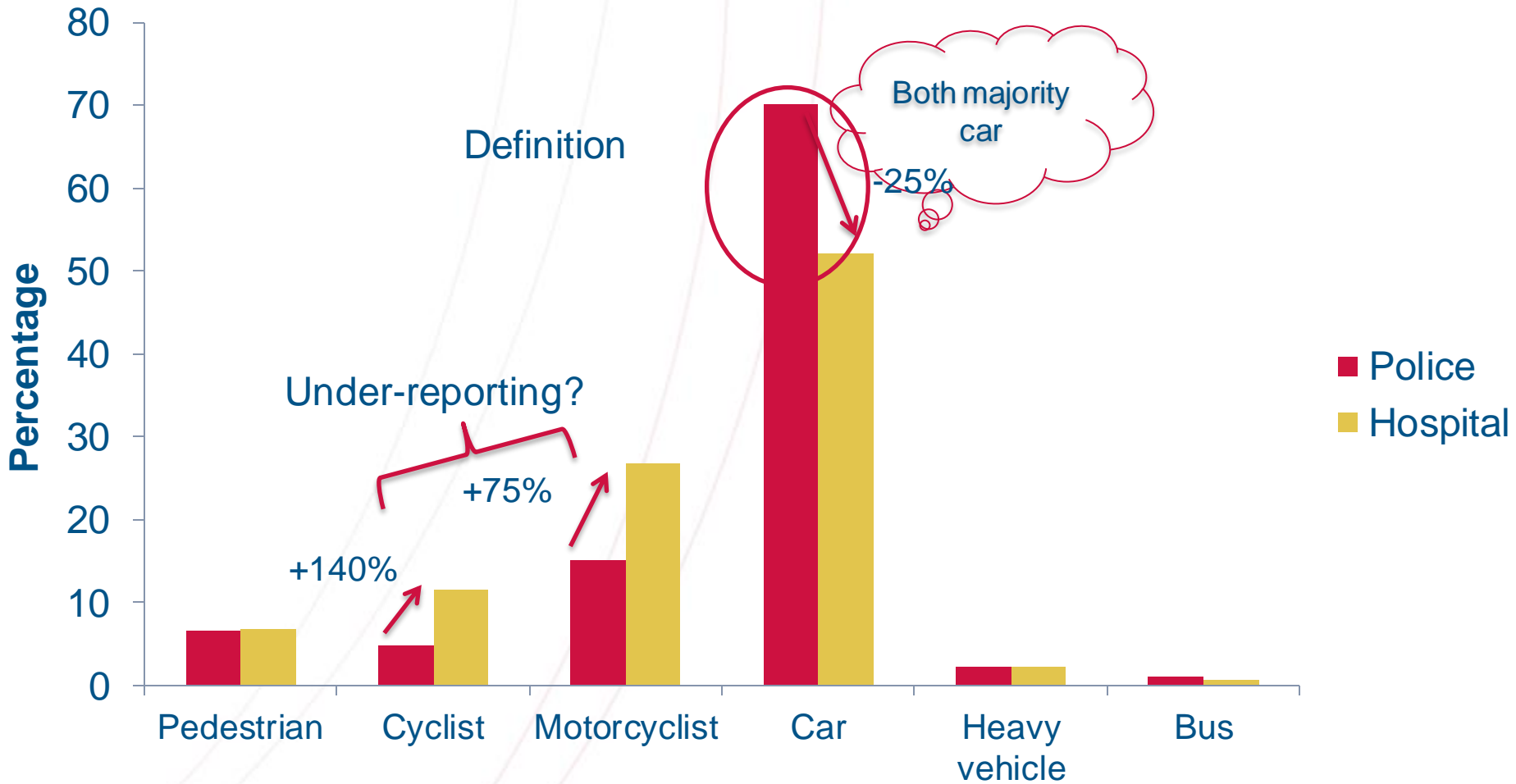
# Gender



# Age



# Road users



# Severity

# Current severity classification

How it is counted	Fatal	Serious injury	Non-serious injury	
How it is defined in QLD	Fatal	Hospitalised	Medical treatment	Minor injury

- ‘Hospitalised’ = Serious?
- ‘Hospitalised’ does not mean admitted
- Taken to hospital = broad category not necessarily serious
- Need more precise measures

# Severity measures

- Abbreviated Injury Scale (AIS)

1	2	3	4	5	6
Minor	Moderate	Serious	Severe	Critical	Un-survivable

- Survival Risk Ratio (SRR)

- Probability of surviving with a particular injury (0 = no chance to 1 = 100% chance)

- ‘non-fatal serious’ =  $SRR < 0.941^1$

- Both mapped using ICD-10AM (coded in hospital, derived in police data)

<sup>1</sup> Cryer and Langley, 2006

# Usefulness of police descriptions

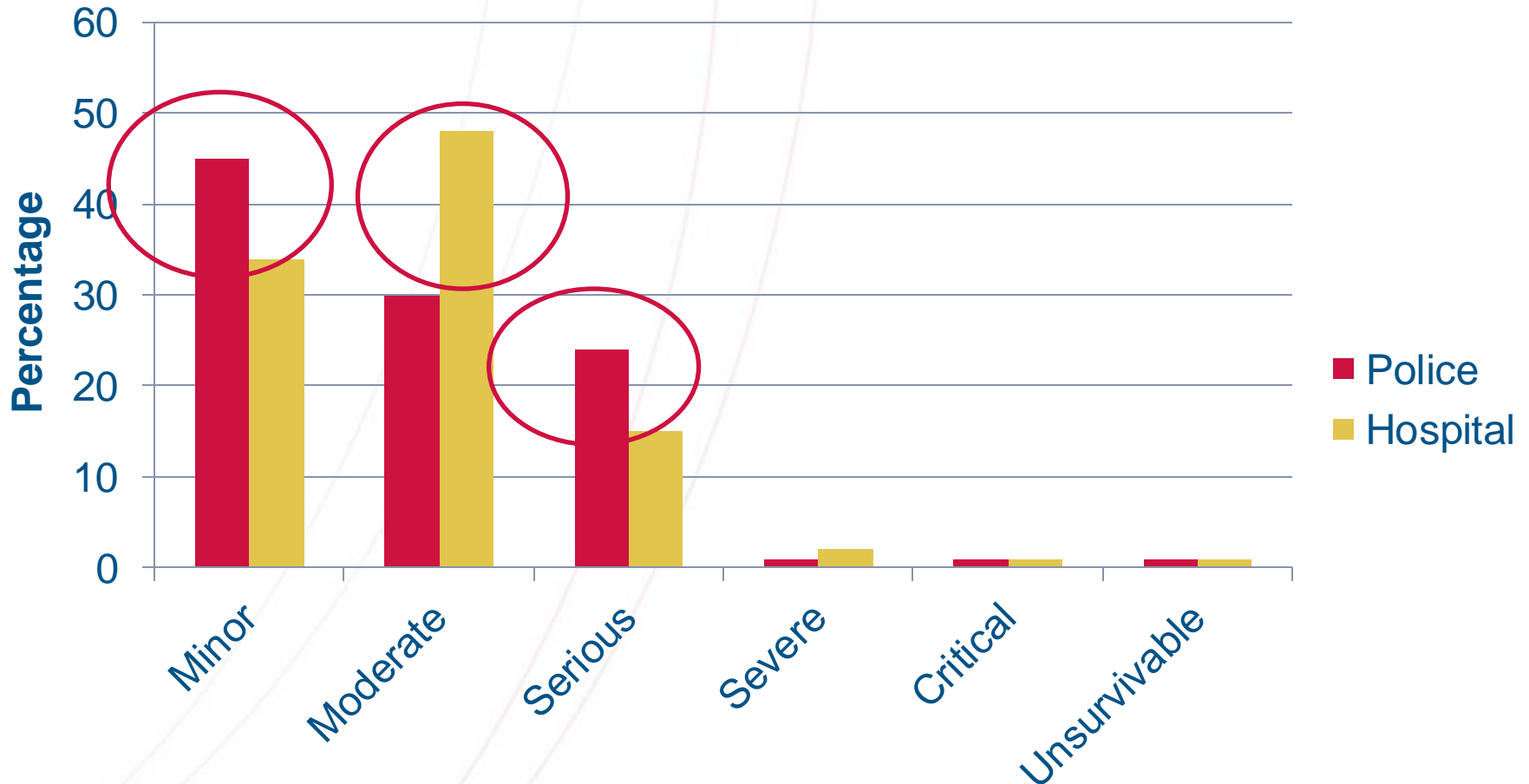
- Difficulty recording information on injuries
  - Busy/dangerous crash scene
  - Other priorities
  - Lack of expertise in the area

87% unable to be matched due to missing or non-specific injury information

# Differences between the data collections



# Differences in severity AIS



# Differences in severity SRR

	Police	Hospital
Serious non-fatal (< 0.941)	12.7%	13.8%
Range	0.50 – 1.00	0.31 – 1.00

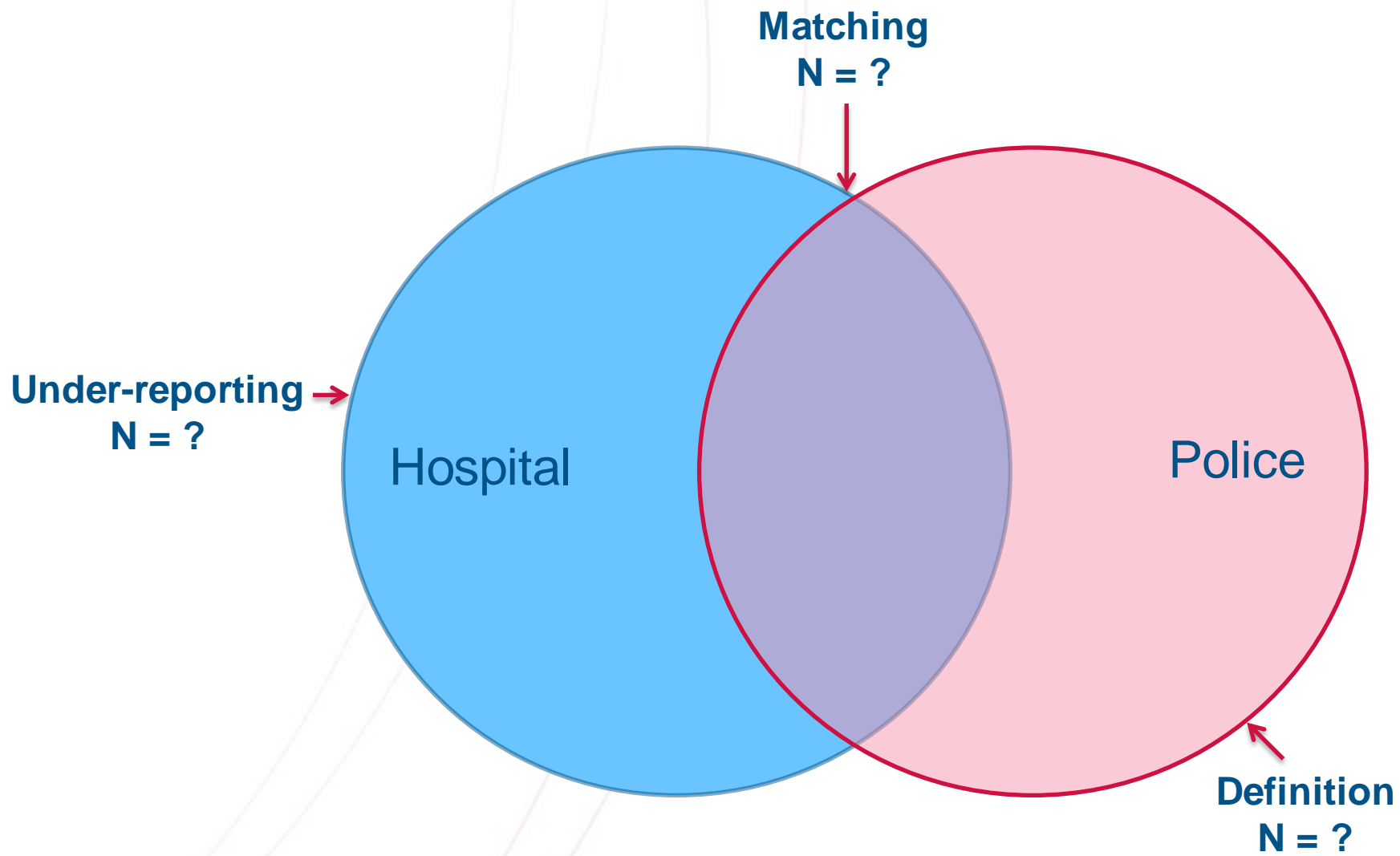
# Summary

- Under-reporting to police of hospitalised motorcyclists, cyclists, males, and young people
- Lack of precision, police assigned severity
- More precise measure of severity preferred (SRR/AIS)
- Missing and unspecified injury description in police data

# Conclusion

- Include other data sources for injury information
- However, lack details of the nature and circumstances of crashes
- Data linkage could be an answer
- Study method limited
  - Identification of cases in hospital data
  - Unable to quantify the elements





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- However, lack details of the nature and circumstances of crashes
- Data linkage could be an answer
- Study method limited
- PhD in data linkage
- Is it feasible?





# Questions?

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