MONASH University
Accident Research Centre

A centre within the Monash University Injury Research Institute

Road Safety Committee of the Victorian Parliament Inquiry into Serious Injury: MUARC Submission

Monash University Accident Research Centre
July 23rd 2013

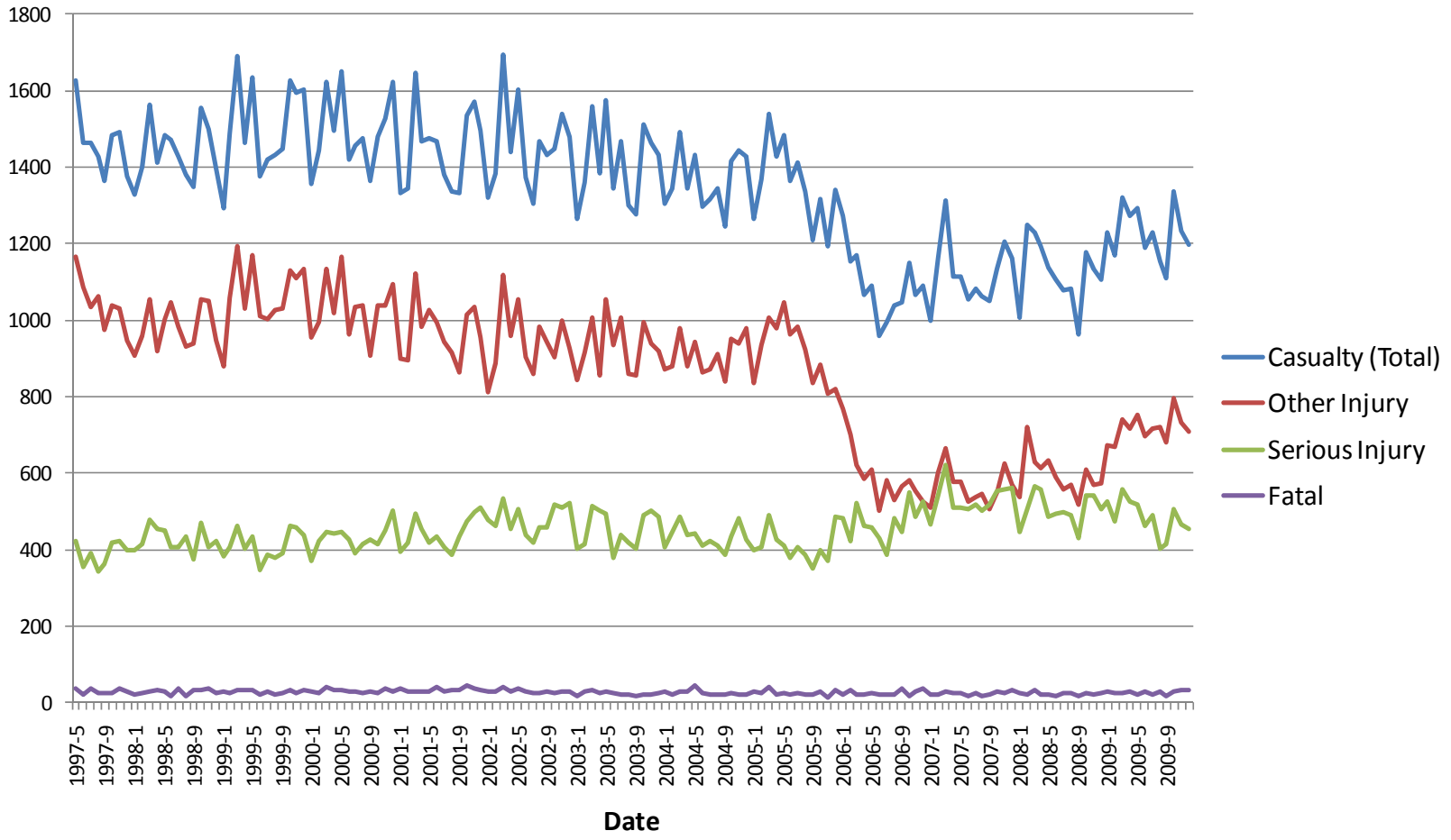
Overview

- Historical measurement of serious injury in Victoria
  - Trends & problems
  - Supporting data systems
- Alternative measure of serious injury
  - Measures
  - Data requirements
- An integrated road safety data system for Victoria
- Costing new measures of serious injury
- Addressing the serious injury problem in Victoria

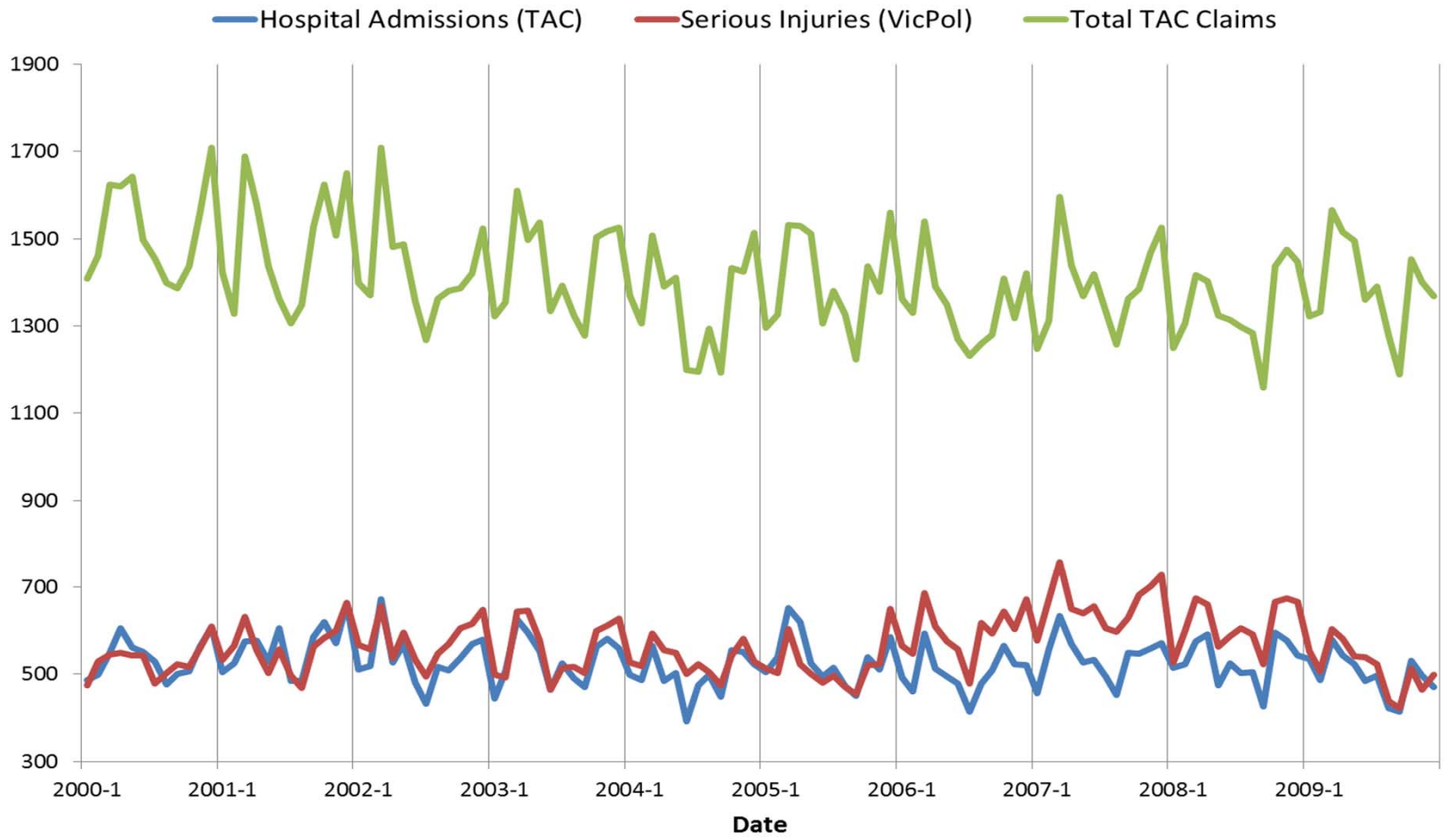
Historical measurement of serious injury in Victoria

- Police classification of injury outcome:
  - Killed, Hospitalised, Other Injury, Not Injured
- Serious Injury = Injury Requiring Admission to Hospital
- Similar measures used in many other jurisdictions
- Problems
  - Changes in data collection protocols
    - Police TIS system December 2005
  - Lack of follow-up to validate classification
    - Privacy issues a problem
  - Lack of information on body region, specific injury type and detailed severity

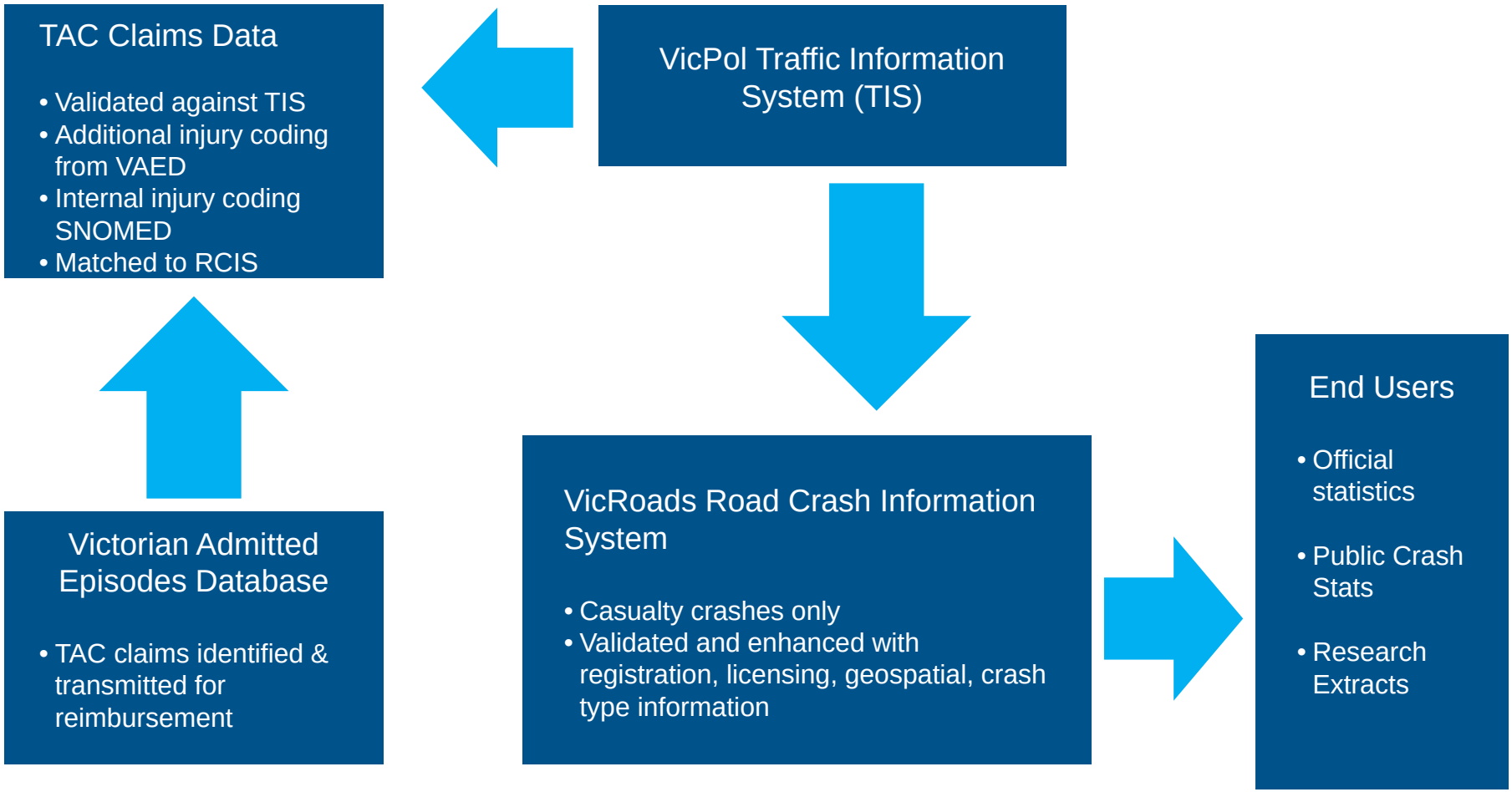
Injury Trends in Victoria



Official S.I. Trends vs. TAC Claims for Hospitalisation



Current Victorian Road Safety Data System



Possible Alternate Measures of Serious Injury

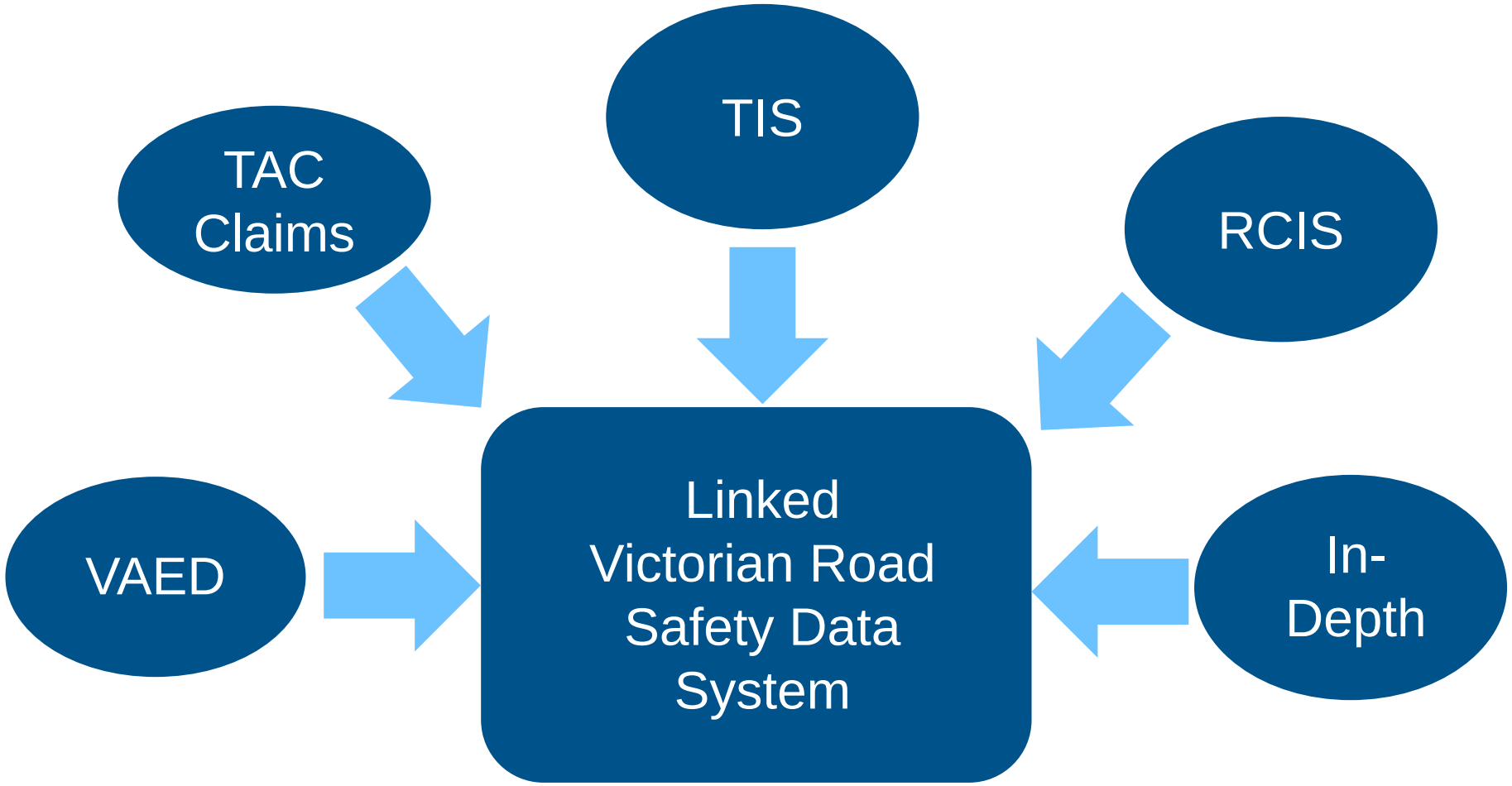
- *Resource Use*
  - Hospitalisation (the current serious injury measure in Victoria)
  - Probability of hospital admission given crash involvement*
  - Length of hospital stay*
- *Threat to Life*
  - Abbreviated Injury Scale (AIS) injury severity score and associated scores
    - Maximum AIS across all body regions*
    - Injury Severity Score (ISS)*; and
  - ICD Based Injury Severity Score (ICISS)*.
- *Burden of Injury*
  - Disability-Adjusted Life Years (DALY)*.

* - Each of these measures requires a cut-off point to be defined to represent serious injury

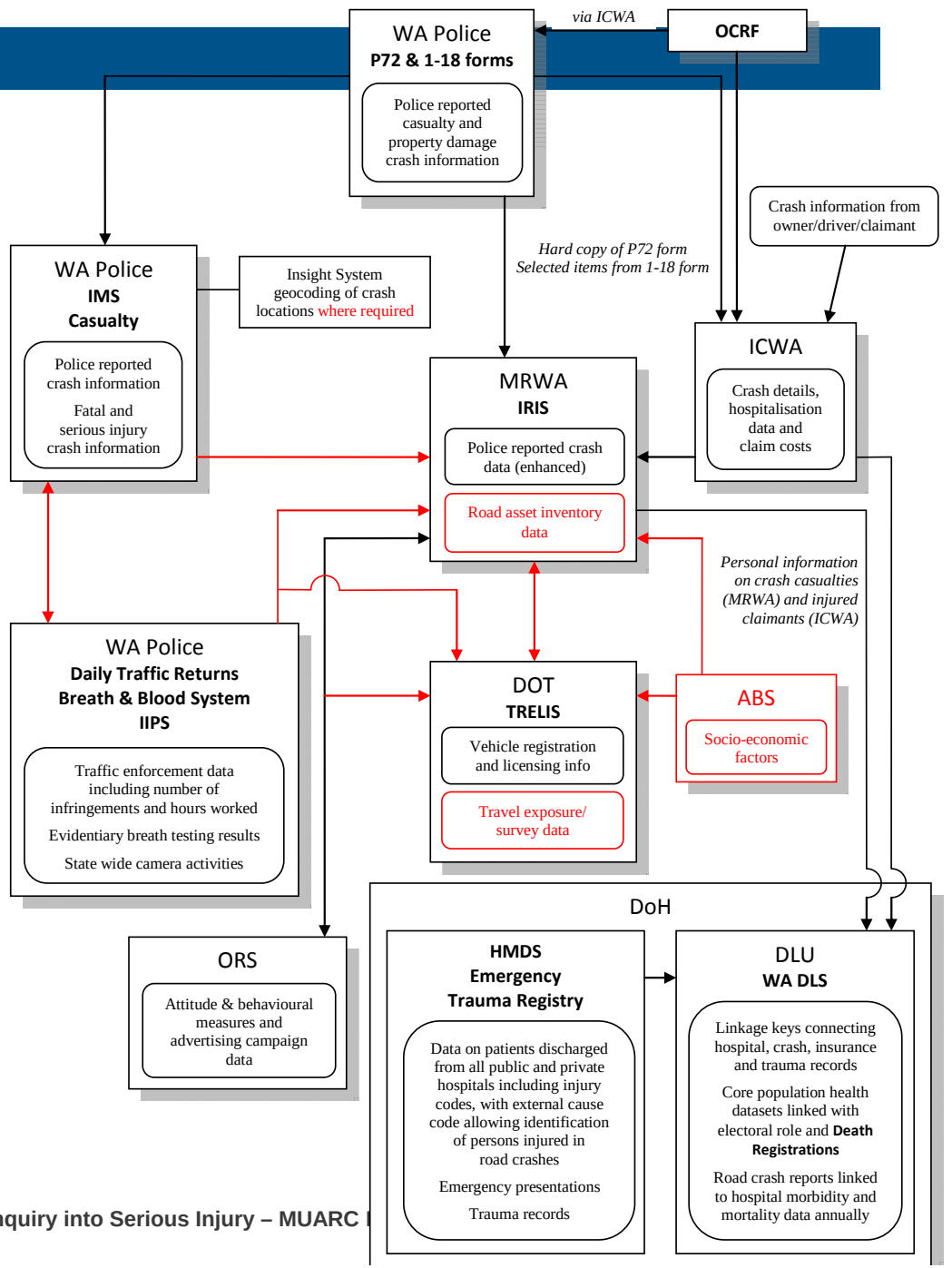
Alternate Measures of Serious Injury: Data Requirements

Measure	Data Requirements	Source
Hospitalisation	Hospital admission records	VAED / TAC Claims
Probability of hospital admission given crash involvement	Hospital admission records + total crash count	VAED / TAC Claims, TIS / RCIS
Length of hospital stay	Hospital admission records	VAED / TAC Claims
Abbreviated Injury Scale (AIS) injury severity score and associated scores	Direct AIS injury codes or ICD Injury codes mapped to AIS	In-Depth Crash inspection data VAED / TAC Claims + ICD to AIS Map (e.g. ICDMAP-90 MacKenzie & Sacco, 1997)
ICD Based Injury Severity Score (ICISS).	ICD Codes with corresponding survival risk ratios	VAED / TAC Claims + SRR Map (e.g. Stephenson et al)
Disability-Adjusted Life Years (DALY)	ICD Codes with corresponding disability weights & person age with corresponding years of life remaining to recovery or death	VAED / TAC Claims + DW + years life remaining map (e.g. GBD, Murray, 1996)

An Integrated Victorian Road Safety Data System



Western Australian Integrated Road Safety Data System



Recommendations: Measures & Data

- Recommending a single measure of serious injury difficult: each has strengths and weaknesses
  - Current resource based measure is weak & insensitive
  - Likely need 2 new measures: both threat to life and long term outcome

- ICISS Recommended as threat to life measure
  - Easily calculated, better correlate with threat to life than AIS
  - Many other jurisdictions considering adoption
  - Likely to be good local ICD-ICISS maps developed

- Daly should be explored as long term outcome measure
  - Need appropriate disability weights
  - Needs consideration of effects on policy focus (less focus on elderly)

- Comprehensive road safety data needs to be developed urgently including ICD injury codes for hospital admissions
  - System needs proper management and access protocols
  - Policy needs to be developed to underpin fundamental data collections
  - Establish dedicated road safety office with appropriate resourcing & authority

Costing Serious Injury

- The issue of costing can only be properly addressed when the measure or measures of serious injury that are to be used are established.
- There is significant advantage to using well validated national estimates of road injury costs if available (e.g. BITRE): Victoria should work with the Commonwealth.
- Australian road injury costs have been based on the human capital approach. Victoria should consider moving to a willingness to pay based costing system in line with other jurisdictions.
- Moving to a new measure of serious injury could facilitate calculation of injury costs on a much finer scale.

Addressing The Serious Injury Problem In Victoria

- New measures of serious injury will have clear implications for determining the most effective road safety strategy. New measures will need to be:
  - Adopted across all road safety systems and activities.
  - Be the focus of key target setting in road safety strategies
  - Used explicitly evaluating the effects of road safety countermeasures.

- Recommended that:
  - METS style modelling approach continue to be used in formulating future road safety strategies.
  - Countermeasure effectiveness estimates and analysis of road safety problems to be used in the METS approach be based on the new measures of serious injury
    - limited countermeasure effectiveness estimates from evaluation studies based on the new measures in first instance.
    - Need to establish a methodology to translate countermeasure effectiveness based on the old serious injury measure to give likely effects based on the new measures.

Questions & Discussion