Using patient-reported outcome measures to drive improvement in trauma care

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Trauma context

- Changing landscape for trauma with declining mortality and increased focus on the quality of survival
- Burden of injury is multi-dimensional
- Challenges for measuring patient-reported outcomes
  - All age groups
  - Broad spectrum of injury types and severity
  - Wide ranging stakeholders
  - Retrospective pre-injury status
Victorian State Trauma Registry

- System monitoring – integrated into the trauma system
- Population-based trauma registry
- All trauma receiving hospitals provide data (n=138)
- All major trauma patients
- ~3000 cases per year
- Opt-off consent
- Follow-up to at 6, 12 and 24 months post-injury

Capturing patient-reported outcomes

- Focus on brief, validated, and inexpensive instruments
- No outcome measures requiring formal certification or accreditation
- **Centralised** follow-up
- Standardised **telephone** interviews
- Interviewer training and monitoring
- Patient, proxy and paediatric interviews
Outcomes collected

<table>
<thead>
<tr>
<th>Adults</th>
<th>SF-12</th>
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<tbody>
<tr>
<td></td>
<td>EQ-5D-3L</td>
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<tr>
<td></td>
<td>Glasgow Outcome Scale – Extended (GOS-E)</td>
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<td></td>
<td>Numerical rating scale for pain</td>
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<td></td>
<td>Return to work and work disability questions</td>
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<tr>
<td>Paediatric</td>
<td>King’s Outcomes Scale for Closed Head Injury (KOSCHI)</td>
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<td>Pediatric Quality of Life Inventory (PedsQL)</td>
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<tr>
<td>Linkage</td>
<td>Coroner’s data</td>
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<td>State deaths registry</td>
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<td></td>
<td>TAC claims data</td>
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<td>Department of Health data</td>
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</table>

- 32,059 major trauma patients
- 41,566 episodes of acute care
- 21,014 6-month GOS-E outcomes since July 2005
- 19,095 12-month and 16,565 24 month GOS-E outcomes since January 2007
- ≈10,000 TAC cases linked and >2 million individual claim payments
Use of patient-reported outcomes data

- Monitor over time and compare patient groups
- Outcomes for RCTs and other funded and non-funded studies
  - POLAR, EPO, RESTORE, PATCH
- Measure change and recovery
- Measure impact of intervention or system/care change
- Identify impacts of variation in practice
- Guide resource allocation
- Costing

Retrieval system change
Change in trauma retrieval system

- Increasing transfer times over time
- Difficulties with existing system
- Ministerial review of adult retrieval services
- Change to Adult Retrieval Victoria in 2008
  - “one-stop shop” for referrers using a single phone call
  - improved central governance
  - operational integration
  - comprehensive system with state-wide accessibility and promotion of health service participation
  - early warning and activation of the system

- Decrease in risk-adjusted in-hospital mortality for ARV coordinated cases
- Improved adjusted odds of a better functional outcome at 6 months post-injury
Impact of the system for road trauma

Burden of road trauma

<table>
<thead>
<tr>
<th>Financial Year</th>
<th>Deaths and In-Hospital Major Trauma Survivors (N)</th>
<th>YLLs</th>
<th>YLDs</th>
<th>DALYs</th>
<th>% YLD per Case</th>
<th>YLD per Survivor</th>
<th>DALY per Case</th>
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<td>1022</td>
<td>9788</td>
<td>2456</td>
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<td>8363</td>
<td>2116</td>
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<td>2003–2004</td>
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<td>7182</td>
<td>2639</td>
<td>9821</td>
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<td>7626</td>
<td>2912</td>
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<td>7626</td>
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<td>6138</td>
<td>2923</td>
<td>9061</td>
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<td>5612</td>
<td>3233</td>
<td>8845</td>
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<td>3.8</td>
<td>7.8</td>
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<td>Overall</td>
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<td>74,039</td>
<td>28,169</td>
<td>102,208</td>
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<td>4.0</td>
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Closing comments

- Clinical data only a component of what we need to know to understand the impact of clinical practice and healthcare policy
- Patient-reported outcomes now factored into system evaluation and monitoring
- Platform for additional research including clinical trials
- Large NHMRC project (“RESTORE”) focused on outcomes to 5 years post-injury with longitudinal qualitative study
This project is proudly supported by the Transport Accident Commission