Towards a classification system for emergency care for Australia

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Acknowledgements

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• Dr Sharon Willcox Dr Tim Smyth
• Dr Ralph Hanson Dr Peter Sprivulis

Report is on the IHPA web site at:
Australian context

Around 200 larger emergency department across Australia. In these:

• Patient level data collection
• Triage assigned using the Australasian Triage Scale (ATS)
• Disposition recorded (admitted/discharge) – (but some key differences with other systems as to what is considered ‘admitted’)
• Principal emergency department diagnosis assigned (by clinician) using various coding/terminology systems
• Low level of reporting of second and third diagnosis
• No national reporting of procedures

A larger number of small emergency departments/services

• For many only aggregate reporting of activity
National ABF reforms

- National health reforms of 2012 introduced two classifications for emergency care as part of the Commonwealth funding contribution to hospital services:
  - Urgency Related Groups (URGs) – 113 classes – Larger emergency departments
  - Urgency Disposition Groups (UDGs) – 12 classes – Smaller emergency departments
URGs – original structure
Impetus for the review

• Recognition that improvements could be made to the classification
• Part of a broader agenda of classification development and refinement
• Key objectives:
  – Improved clinical meaning
  – Based on data that is clinically meaningful
  – Recognise secondary uses
Methods

• Development of a set of principles to evaluate candidate classification systems/ approaches
  – Assigned weights to reflect relative importance of each principle

• Literature review
  – Other Australian and international classification systems with coverage of emergency care
  – Cost drivers
  – Development of an ‘issues paper’

• Consultation with wide range of stakeholders

• National workshop

• Final report
Key findings – Australian and international classification systems

- Australian classification systems:
  - Urgency and Disposition Groups (UDGs) and Urgency Related Groups (URGs) (G.A. Jelinek, 1992; G. A. Jelinek, 1994)
  - Summated procedures, investigations or consultations (PICsum) (Sprivulis, 2004)
Key findings – Australian and international classification systems

• International classification systems:
  – UK - Healthcare Resource Groups (HRGs)
  – US - Ambulatory Payment Classifications (APC)
  – US - Ambulatory Patient Groups (APG) and Enhanced Ambulatory Patient Groups (EAPG)
  – US - Emergency Department Groups (Cameron, Baraff, & Sekhon, 1990)
  – Canada: Comprehensive Ambulatory Care Classification System (CACS)
Key findings – Australian and international classification systems

• The boundary between admitted and non-admitted care varies across countries
  – In Australia, 28% of emergency department presentations lead to an admission
  – In the US, 14.8% lead to an admission
  – What is regarded as ‘admitted’ in Australia is not necessarily the case elsewhere

• Subsequently admitted episodes sometimes bundled with a DRG payment, sometimes not
Key findings – Australian and international classification systems

- Approaches vary as to whether emergency care forms a discrete classification, or part of a broader ambulatory classification (e.g. CACS vs. Australian classifications)
- Triage category has not been used as a classification variable in systems outside of Australia (Some countries have now picked up URGs)
- Patient diagnosis used for grouping in some classification systems; tend to use procedures/ interventions instead
Key findings

• Strong preference to maintain a separate ED classification, but align in general structure with admitted (DRGs) and non-admitted

• Sensible to separate ‘emergency’ presentations from ‘other’ presentation.

• **Triage** not favoured as a classification variable
  – Found to predict cost
  – But, used for management of workflow within an emergency department
  – Impacted by inconsistencies in its assignment within and between hospitals.
Key findings

• Strong support for use of emergency department **diagnosis** as a classification variable
  – Debate over ‘presenting problem’ vs ‘diagnosis’
  – Grouping to Major Diagnostic Block as in current URGs – loses clinical meaning – too broad.
  – ‘Diagnostic groupings’ could be similar to the Adjacent DRGs in the medical arm of the AR-DRG classification
  – Some diagnoses are less relevant to emergency department and need to be ‘collapsed’ (e.g. maternity, cancer). Others need to be expanded to reflect the different casemix within EDs - (e.g. injuries)
<table>
<thead>
<tr>
<th>ED diagnosis grouping</th>
<th>Episodes</th>
<th>% of episodes</th>
<th>Mean ED Cost ($AU)</th>
<th>Relative cost weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>I801 Concussion without loss of consciousness</td>
<td>2,606</td>
<td>0.1%</td>
<td>565</td>
<td>1.06</td>
</tr>
<tr>
<td>I802 Intracranial Injury</td>
<td>10,298</td>
<td>0.3%</td>
<td>737</td>
<td>1.39</td>
</tr>
<tr>
<td>I803 Skull fractures</td>
<td>4,590</td>
<td>0.1%</td>
<td>815</td>
<td>1.53</td>
</tr>
<tr>
<td>I821 Injuries, internal organs</td>
<td>1,537</td>
<td>0.0%</td>
<td>1,218</td>
<td>2.29</td>
</tr>
<tr>
<td>I822 Injuries, multiple body regions</td>
<td>4,972</td>
<td>0.2%</td>
<td>1,005</td>
<td>1.89</td>
</tr>
<tr>
<td>I831 Fractures of pelvis</td>
<td>3,768</td>
<td>0.1%</td>
<td>1,018</td>
<td>1.91</td>
</tr>
<tr>
<td>I832 Fractures of neck of femur</td>
<td>10,066</td>
<td>0.3%</td>
<td>969</td>
<td>1.82</td>
</tr>
<tr>
<td>I833 Fracture, lower leg</td>
<td>21,821</td>
<td>0.7%</td>
<td>589</td>
<td>1.11</td>
</tr>
<tr>
<td>I834 Fracture, shoulder and upper arm</td>
<td>18,166</td>
<td>0.6%</td>
<td>577</td>
<td>1.08</td>
</tr>
<tr>
<td>I835 Fracture, ankle and foot</td>
<td>17,394</td>
<td>0.5%</td>
<td>444</td>
<td>0.83</td>
</tr>
<tr>
<td>I836 Fracture, forearm</td>
<td>35,923</td>
<td>1.1%</td>
<td>511</td>
<td>0.96</td>
</tr>
<tr>
<td>I837 Fracture, ribs and sternum</td>
<td>2,249</td>
<td>0.1%</td>
<td>787</td>
<td>1.48</td>
</tr>
<tr>
<td>I841 Sprains, strains and dislocations of hip, pelvis and thigh</td>
<td>9,537</td>
<td>0.3%</td>
<td>633</td>
<td>1.19</td>
</tr>
<tr>
<td>I842 Dislocation, sprain and strain, knee</td>
<td>21,751</td>
<td>0.7%</td>
<td>423</td>
<td>0.80</td>
</tr>
<tr>
<td>I843 Dislocation, sprain and strain, shoulder</td>
<td>22,035</td>
<td>0.7%</td>
<td>517</td>
<td>0.97</td>
</tr>
<tr>
<td>I844 Dislocation, sprain and strain, elbow</td>
<td>13,754</td>
<td>0.4%</td>
<td>387</td>
<td>0.73</td>
</tr>
<tr>
<td>I851 Nasal Trauma and Deformity, Foreign body</td>
<td>7,884</td>
<td>0.2%</td>
<td>384</td>
<td>0.72</td>
</tr>
<tr>
<td>I861 Trauma to the eye, foreign body on external eye</td>
<td>17,425</td>
<td>0.5%</td>
<td>297</td>
<td>0.56</td>
</tr>
<tr>
<td>I862 Trauma to the eye, other</td>
<td>16,160</td>
<td>0.5%</td>
<td>329</td>
<td>0.62</td>
</tr>
<tr>
<td>I881 Injury to forearm, wrist, hand or foot, other</td>
<td>162,262</td>
<td>4.9%</td>
<td>394</td>
<td>0.74</td>
</tr>
<tr>
<td>I882 Injury to shoulder, arm, elbow, knee, leg or ankle, other</td>
<td>16,403</td>
<td>0.5%</td>
<td>407</td>
<td>0.77</td>
</tr>
<tr>
<td>I883 other injury to skin, subcutaneous tissue and breast</td>
<td>159,989</td>
<td>4.8%</td>
<td>431</td>
<td>0.81</td>
</tr>
</tbody>
</table>
Key findings – Analysis of emergency department diagnoses

• Use of short lists for assignment of diagnosis code in emergency department
  – Analysis shows that about 1,500 codes account for over 97% of principal emergency care diagnoses across Australia
  – Diagnosis usually assigned by a clinician directly into a software system, therefore, helpful to have a short list
  – Also sensible to have a standardised list across the country for consistency
Key findings – Severity/complexity

• The need for better measures of severity/complexity was highlighted during the consultation.

• Approaches suggested for capturing severity/complexity in the medium term to long term:
  – Additional diagnoses
    • Could focus collection on a relatively small set of conditions that typically complicate care (e.g. dementia, mental health conditions.)
  – Procedures
  – Age
  – Possibly disposition
  – Possibly triage in short term
Key findings – Procedures

• Data on procedures not currently collected in national data sets of emergency data

• Some stakeholders supportive of collecting information on procedures; some not

• Key challenge to minimise data collection burden
Key findings – Overall findings

• URGs and UDGs were assessed as not being suitable for classifying emergency care in the medium to long term in Australia.
• International alternatives weren’t considered appropriate.
• The overall recommendation from the project was that IHPA support a staged development over a five-year period of a new classification system.
Recommended classification system

First split: type of visit
- Emergency visits
- Non emergency visits
- Did not wait
- Dead on arrival

Second split: diagnosis group
- Diagnosis group 1
- Diagnosis group 2
- Diagnosis group 3
- Diagnosis group 4
- Diagnosis group 5

Third split: complexity
- Class 1X
- Class 2A
- Class 2B
- Class 3A
- Class 3B
- Class 4X
- Class 5A
- Class 5B
- Class 5C

Medium term:
Complexity splits based on age, disposition and triage. Either a score based approach or splits

Long term:
Complexity splits based on additional diagnoses, procedure, age and possibly disposition. Probably a score based approach
Key findings – Features of the recommended classification system

• Tier 1: Use visit type and episode end status to allocate episodes related to:
  – Emergency versus non-emergency visits
  – Patients who did not wait
  – Patients who are dead on arrival

• Tier 2: For emergency patients only, based on principal diagnosis

• Tier 3: Based on severity, complexity and dependency