
Five country analysis of injury admissions
An attempt to minimise health service effects

19/09/2010

ICE Meeting, Swansea

Background

Injury Observatory for Britain and Ireland (IOBI) www.injuryobservatory.net

The purpose of the thematic injury observatory is to support injury prevention practitioners working on the prevention of injuries caused by accidents, violence or self harm, by making important and relevant information and tools available in one site, including:

- **Analyses of trends in injury deaths, hospital admissions and injury occurrence across countries and regions**
- Policy support for prevention - abstracts and links to policies and strategies which support injury prevention
- Evidence base for prevention – links to systematic reviews of what works in preventing injuries and summaries, guidance and briefings on evidence.
- Access to practical prevention tools – e.g. the on-line SAFEHOME
- Latest injury prevention news - through access to various electronic newsletters and a news section.
- Information on conferences and events.

Problem

- ED attendances or even admissions are not a good proxy for unmeasured injury incidence
- Factors influencing the likelihood of admission include:
 - *Bed/theatre availability; Social factors (distance from home); Infirmary and co-morbidity; Hospital payment system; Patient preference; Concern about intentionality; Professional variation in practice; Development in clinical practice; Sub-specialization increases intervention rates; Clinical factors (joint involvement in fractures); Competing workload of doctors; Experience of training grades*

Source: Lyons et al, 2005, Purpose, development and use of injury indicators. Int J of Inj Contr Saf Promot, 12(4), 207-211

- Need to develop valid indicators for cross-national comparisons
- IOBI attempted to do so

Methods (1)

- Theoretical indicator of more 'severe' injuries developed by Lyons for UK Department for Transport for analysis of trends of inpatient data
- List of ICD10 anatomical injuries which if resulting from road traffic collisions in the UK and presenting to ED thought to be highly likely to be admitted
- Acknowledged that list might change over time as treatments/ access to neuro-imaging changed and that list would need validation (requires matched ED-Inpatient ICD10 coded data not currently available in UK)

List of 'severe' injuries from RTCs

S02 (excluding 02.2, 02.5) S06	Fracture of skull and facial bones Intracranial injury	S36, 37, 38	Injury of intra-abdominal organs, injury of pelvic organs, crushing injury and traumatic amputation of part of abdomen, lower back and pelvis
S12 S14	Fracture of neck Injury of nerves and spinal cord at neck level		
S22.0, 22.1, 22.2 S22.5 S24 S25, 26, 27, 28	Fracture of thoracic vertebra and sternum Flail chest Injury of nerves and spinal cord at thorax level Injury of blood vessels of thorax, injury of heart, injury of other unspecified intrathoracic organs, crushing injury of thorax and traumatic amputation of part of thorax	S48, 58, 68 S72 (72.0 to 72.3) S73 S78, 88, 98 T02 T04 T05 T06	Traumatic amputation of shoulder and upper arm, forearm, wrist and hand Fracture of femur (neck and shaft) Dislocation of hip Traumatic amputation of hip and thigh, lower leg, ankle and foot Fractures involving multiple body regions Crushing injuries involving multiple body regions Traumatic amputations involving multiple body regions Other injuries involving multiple body regions, not elsewhere classified
S32 (excluding 32.2) S34 (34.0 to 34.5) S35	Fracture of lumbar spine and pelvis Injury of nerves and lumbar spinal cord at abdomen, lower back and pelvis level Injury of blood vessels at abdomen, lower back and pelvis level		

Methods (2)

- Analysis of inpatient data for Wales, England, Scotland, Republic of Ireland, and Northern Ireland by IOBI analysts
- Agreed data specification, emergency admissions...
- Ability to link data varied
- Compare European Age Standardised Rates (EASRs) for all emergency admissions, hip fractures and 'serious' injuries with and without hip fractures
- Compare variation using Coefficient of Variation

Methods (3)

- ‘Serious’ injury definition designed originally for high energy transfer RTCs
- Some of the included diagnoses might not be suitable for non RTC injuries
- Admission rates for all emergency injuries varies because of variation in incidence and variation in health service factors
- Hypotheses: less variability for ‘serious’ injuries, and possibly within ‘serious’ for RTC injuries compared to other causes

Results – coefficient of variation by external cause category

	All Emergency Admissions	Serious Injury Admissions
Total	0.180	0.280
MVTC	0.260	0.433
Falls	0.224	0.257
Drowning	0.414	1.251
Burns	0.386	0.446
Firearm	0.219	0.594
Cut/pierce	0.382	0.479
Struck by/Against	0.256	0.284
Poisoning	0.336	0.962
Other	0.129	0.369

Implications

- Use of 'serious' indicator did not reduce international variability as expected
- The 'serious' grouping did not demonstrate lower variability when restricted to RTC related injuries
- In light of findings by Cryer et al the diagnoses included within the 'serious' group need revision – some diagnoses need to be more refined at 4th digit level (e.g. S06)
 - Inclusion of concussion (S060) within the 'serious' group may not be warranted???
 - Impact likely to vary across countries
 - Wales: 1.2% of 'serious' cases = concussion
 - Republic of Ireland: 16.6% of 'serious' cases = concussion

IOBI representatives

Wales – Ronan Lyons, Samantha Turner, Leila Pinder, Steven Macey

Scotland – Colin Fischbacher, Andrew Lee, Fiona Mackenzie

Republic of Ireland/Northern Ireland – Steve Barron, Kevin Balanda

England – Paul Brown, Wendi Slater