
**Measuring the population burden of injuries:
implications for global and national estimates using
different approaches**

19/09/2010

GBD Meeting, Swansea

Aim: UK Burden of Injuries Study

The principal aim of the UKBOI study was to provide estimates of the UK burden of injury

UKBOI used aspects of the Global Burden of Diseases methodologies but developed its own disability metrics and had enhanced access to morbidity data

Decided to compare the UK population burden using UKBOI and GBD approaches

Design of quantitative component of UKBOI

- Recruit 1320 participants from ED and inpatient settings in 4 centres; 50% ED treated, 50% admitted
- Pre-injury, 1, 4, 12 month assessment of HRQoL, work limitations, health and social care service utilisation
- Once returned to 'normal' no further follow up
- Categorisation by previously used groupings – Dutch studies
- Need for data imputation for some categories recognised
- Mapping study specific data to incidence data from electronic ED, inpatient and mortality datasets to provide UK estimates

Design continued

- Mortality data: 2005; no electronic – published ONS England and Wales, and from Scotland and Northern Ireland from PHOs.
- Inpatient data: HES (England) and PEDW (Wales) – factored to UK
- ED incidence: based on 5 hospitals in All Wales Injury Surveillance System (AWISS)
- Mapping of AWISS codes to Dutch/GBD injury groups and ICD10
- Calculation of DALYs – Global Burden of Diseases Study
Methodology: - Years of Life Lost (YLLs); Years Lived with Disability (YLDs)

UKBOI summary results

- 1517 recruited, 5-99 yrs, 54% male, 92% unintentional injuries
- Response rates: 65%, 80%, 86%
- Assigned to 13 Dutch categories, but few in some categories (poisoning, internal organ)
- Mostly AIS severity 1,2 and 3
- Of 12 month responders, 71% (n=230) still affected
- Disability weights and durations calculated for hospitalised/not

Coverage of ED and HDR cases using different injury groupings

Injury Groups		ED (AWISS*) %	HDR (PEDW**) %
EURO COST 39	Coded		
	Other	7.5	7.6
MEERDING 13	Coded		
	Other	8.9	12.6
GBD 33	Coded		
	Other	32.6	21.7
Haagsma 44	Coded		
	Other	34.4	42.0

*AWISS - All Wales Injury Surveillance System

** PEDW – Patient Episode Database for Wales

Comparison of UK population BOI using GBD or UKBOI methodologies

	GBD methodology	UKBOI methodology
YLLs	320,721	320,721
YLDs	349,101	1,450,765
DALYs	669,822	1,771,486

Explanation of reasons for differences

1. UKBOI has higher disability weights
 1. e.g. UE#: 0.12 vs 0.02
2. Injury impact typically lasts longer in UKBOI
 1. e.g. hip #: 32% vs 5% still affected at 12 months
3. Fewer cases with no DW – ‘others’ in GBD
 1. 13% vs 22% (inpatient), 9% vs 33% (ED)
4. Better morbidity data
 1. 67% YLDs occurred in non admitted cases

Kavi-ats (Caveats)

1. Despite 1517 cases, small numbers in some groups (imprecision of DWs and durations)
2. Loss to Follow up
3. Heterogeneity within 13 injury groups (also in GBD33)
4. No DWs for some injuries (poisoning)
5. No metrics for injuries not treated in ED/inpatient
6. Only measured DALYs and not complete burden of injuries (see Injury LOAD paper)

The injury List Of All Deficits (LOAD) Framework:
conceptualising the full range of deficits
and adverse outcomes following injury and violence

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and Steven Macey

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Implications

- Original GBD methodology underestimates injury related DALYs
- A key contentious issue is the use of panels to estimate DWs rather than people who have experienced injury
- Another issue is the importance of high quality ED data
- The impact of underestimation will be greatest where morbidity and mortality data are less well developed (LMICs)
- International collaboration is needed to produce more precise estimates of disability weights (meta-analyses) and use these in measuring global and national injury related DALYs

Acknowledgements

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