

# Challenges for measuring the burden of non-fatal injury

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### Abstract

Increasing demand for health resources remains a global challenge<sup>1,2</sup>. Valid and reliable methods for quantifying disease and injury burden are essential to guide the public health response to identify unmet needs, inform priority setting, develop appropriate policy, plan health services, and to monitor the impact of interventions<sup>3,4</sup>. The 1990 Global Burden of Disease (GBD) study was a landmark project which aimed to produce comprehensive and comparable estimates of the burden of disease and injury (and their risk factors). The burden of disease concept has been widely adopted by countries and used in many region-specific studies<sup>5-8</sup> to identify the relative magnitude of different health problems, and has been immensely influential in shaping global health priorities.

The GBD study methodology provides a common metric for measuring disease burden called the Disability Adjusted Life Year (DALY). The DALY combines years of life lost (YLLs) and years lived with disability (YLDs) to generate a summary measure of population health relating to each disease or condition<sup>1,9,10</sup>. The YLL component utilises incident mortality data while calculation of YLDs requires data related to incidence, prevalence and duration of disability, along with estimated disability 'weights' for specific diseases or injuries. Despite the widespread use of the DALY metric and the GBD study methodology, the injury DALY estimates require validation using empirically derived data<sup>2</sup>.

A key priority for validation and improvement of the DALY metric has been the estimates of YLDs associated with injury, as this has been shown to be an inherent source of under-estimation (by more than 30%) of the burden of injury<sup>3,9</sup>. Efficient application of the YLD method requires specific injury diagnoses to be grouped into broader "injury health states", and disability weights and expected duration of disability applied to these health states. Among the areas highlighted as requiring validation and improvement include the injury health states developed for the GBD study, the methods for developing the disability weights, the durations estimated for disability following injury, the need to account for multiple injuries in the

estimates, and consideration of the burden of "minor" injuries (most of which are not admitted to hospital)<sup>11</sup>. Much of the GBD methodology for YLD estimation of injury burden has developed through expert opinion and without access to high-quality empirical data describing the course of recovery and degree of disability of injured patients. Many of these issues persist in the current GBD 2010 project and should be considered when interpreting the results, released in late 2012.

An international collaborative project, funded by the National Health and Medical Research Council of Australia, is currently pooling and systematically analysing data from more than 40,000 injured participants to evaluate GBD methods for calculating injury burden, address issues specific to injury, and identify alternative metrics or methods for improving the estimation of injury burden. The overarching goal of the project is to provide valid estimates of the burden of non-fatal injury. It is anticipated that this will provide a quality evidence base which can be used to inform future estimates of injury burden, and provide a context in which the results of the GBD 2010 estimates can be interpreted.

### References

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