Health in Action

Data Sources for Improving Estimates of the Global Burden of Injuries: Call for Contributors

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We have recently embarked on a collaborative project to improve estimates of the global burden of injuries. This commentary invites individuals and organizations to contribute to building this global public good by providing the project access to relevant results from local injury data sources.

Reliable estimates of the incidence and burden of injuries are essential inputs for prioritizing prevention strategies. While population-based injury surveillance systems are obviously the best source for such information, it is also widely recognized that such infrastructure is unlikely to be established in most of the world for several decades. Thus, there is an urgent need for the global injury community to collaborate to build the methods and tools that can be used to derive reasonable estimates from a wide range of existing sources, including hospital records, police reports, health surveys, and death registers, among many others.

On July 14, 2007, the core team of the Global Burden of Disease (GBD) project issued an open call for expert participation to ensure that GBD 2005 estimates incorporate the broadest possible knowledge of individual diseases and risk factors [1]. The original GBD study [2] has proven immensely influential in shaping global health priorities, and many in the injury community recognize the need and potential of replicating such work with a focus on injury metrics. As a result, over 160 injury researchers from across the globe volunteered to participate in the GBD Injury Expert Group. The mandate of the group is to further develop the theoretical framework for estimating the burden

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Box 1. What Are Relevant Data Sources and Variables?

1. Data sources for estimating deaths: High-quality cause-of-death registration data are the gold standard. In their absence, we can estimate from incomplete or subnational death registration, mortuary records, funeral/cemetery records, and police reports.

2. Data sources for estimating burden of nonfatal events:

- Health surveys: Population-representative health surveys that include questions on injuries are important sources for estimating incidence of nonfatal injuries. Surveys that disaggregate by type of care are particularly useful.
- Hospital registries: Hospital records provide International Classification of Diseases–coded injury diagnosis, which is needed for estimating public health burden. We are particularly interested in registries that include both external causes and injury diagnosis. Registers of admitted patients and registers of patients attending emergency departments are both valuable.

3. Variables of interest: This project is primarily interested in the injured person's age, sex, external cause of injury, and injury diagnosis. We are also interested in variables that enable best use of the data to estimate population incidence of injury (e.g., variables that allow control of double counting of cases).

4. Time period of interest: GBD 2005 will generate estimates for the years 1990 and 2005. However, when data from these years are not available, the project will analyze information from the closest time period for which data are available.
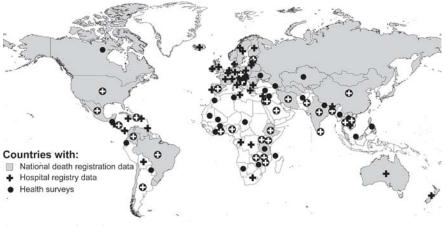
5. Characteristics of good data sources:

- For estimating incidence: High coverage/completeness or population representativeness; few cases assigned to unspecified categories.
- For estimating burden of nonfatal injuries: medically certified diagnosis (e.g., International Classification of Diseases–coded hospital records); inclusion of both external causes and injury outcomes; follow-up studies to estimate long-term disability consequences.

Abbreviations: GBD, Global Burden of Disease

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Figure 1. Known Data Sources that Could Contribute to the GBD Injuries Estimates If Data Access Were Available
This continuing environmental scan can be tracked on the expert group Web site [3].

of injuries, as well as to collect and analyze all available regional data sources. While keeping in mind the need to summarize best evidence for GBD 2005, the expert group also aims at developing these methods for similar work in the future. Various aspects of the group's efforts can be tracked online at our public Web site [3].

Challenges in Estimating the Global Burden of Injuries

A basic guiding principle for this project is that best estimates of the burden of deaths and nonfatal injuries should be generated by inclusion of all existing knowledge and sources of information. Thus, arguably, the most important inputs for this project are existing local, regional, and national administrative data sources that routinely collect information about victims as well as research studies that have collected relevant information as part of their investigation. It is important to note that most countries do not have injury surveillance systems capable of directly reporting population-level estimates of deaths and nonfatal injuries. Thus, analytical tools are needed to maximize the utility of all known data sources for estimating the burden of injuries (see, for instance, [3,4]). In the context of estimating the global burden of injuries, relevant data sources (Box 1) can be used for improving the estimates of incidence of injuries (e.g., by external cause: road traffic crashes, falls, fires, etc.), correlating external causes with injury outcomes (e.g.,

likelihood of hip fractures in road traffic crashes), and/or for improving the estimates of the health burden associated with the disability due to nonfatal injuries. Few data sources can inform all three aspects. For instance, while population health surveys can help estimate incidence of injuries, they rarely provide reliable information about injury sequelae. Similarly, while medical records are one of the best sources for injury diagnosis, they are

often not population representative. Thus, piecing together information from multiple sources is a necessary aspect of estimating the burden of injuries.

Harmonizing results from these diverse sources of information requires the expert group to address a range of difficult analytical and theoretical issues. These include: reclassification of cases assigned to missing or unspecified categories, estimation of the burden associated with multiple trauma, the development of mappings from various external causes to injury outcomes, and the estimation of population incidence of injuries by coupling hospital administrative records with household surveys. These and various other issues pertinent to the estimation of the burden of injuries are being examined by expert group members and are being documented in a series of theoretical papers as described on our Web site [3]. While addressing the theoretical issues and building such a toolkit is a complex task, the expertise in the existing membership of our expert group and past work by the broader injury community [4] will likely result in progress in this direction. However, getting access to the data sources on

which these tools will be applied is a much bigger hurdle.

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The expert group has been conducting an environmental scan to identify all potential sources of information for such work. Figure 1 shows that data sources that can inform such estimates exist in all regions of the world, including regions such as sub-Saharan Africa that have been traditionally considered information poor. It is essential that most, if not all, of these sources inform this project. The group urges all those who support the objectives of the project to help us get access to these information sources (Box 2). The project will evaluate all potential data sources for quality and wherever possible put them to appropriate use.

It is important to understand that in most regions of the world, there are no existing data readily available to the project. In the absence of local data sources, the GBD project will estimate the burden of disease and injury using extrapolation models. If we want to see sensible estimates of injuries produced in this influential study, the burden of providing the best evidence as input rests upon the entire international health community. ∎

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For More Information:

Visit: http://sites.google.com/site/gbdinjuryexpertgroup/

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