A promise to save 100 000 trauma patients

Corbis

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For the **Trauma Promise** website see www.traumapromise.org

For the **World Day of Remembrance for Road Traffic Victims** see http://www.worlddayofremembrance.org

In *The Lancet*, Christopher Murray and colleagues present the findings of their 2010 Global Burden of Disease Study, in which they show that injuries cost the global population some 300 million years of healthy life every year, causing 11% of disability-adjusted life years (DALYs) worldwide.[1] Road-traffic crashes were the number one killer of young people and accounted for nearly a third of the world injury burden—a total of 76 million DALYs in 2010, up from 57 million in 1990. Most of the victims were young, and many had families that depended on them. A study in Bangalore showed that the extra health-care costs and reduced income after a road-traffic crash force most poor households into debt, with reduced food consumption for the victim's family.[2] A large share of these road-traffic injuries could be prevented with available road safety interventions.[3] Violence also accounted for much human suffering, especially in Latin America and sub-Saharan Africa. Once again, the young bore most (81%) of the burden.

Estimation of the global burden of disease and injury is a challenging scientific endeavour. Reduction of the global burden of disease and injury is an urgent moral obligation. To reduce the human and economic effect of injury, we need better prevention, effective and affordable treatments, and the tenacity to ensure their universal access. For bleeding trauma patients, we now have an effective treatment that is affordable and widely practicable. Road-traffic victims and victims of violence constituted most patients in the CRASH-2 trial, which assessed the effect of tranexamic acid in 20 211 bleeding trauma patients from hospitals in 40 countries.[4,5] Given within 3 h of injury, tranexamic acid reduced the risk of bleeding to death by a third, and at less than US$10 per treatment is a fraction of the cost of a pint of blood. Subsequent studies showed that tranexamic acid is cost effective and could prevent more than 100 000 premature deaths every year.[6–8] On the basis of the CRASH-2 trial results, tranexamic acid was included on the WHO list of essential medicines. We have the evidence—we must use it in the service of humanity. It can take more than a decade for the results of medical research to become standard practice.[9] This is too long. We invite health professionals everywhere to make a promise to their communities that they will review the new evidence on tranexamic acid and apply it to improve the care of trauma patients. Please visit the Trauma Promise website to sign up and make the promise.

This promise should not be undertaken lightly. Those who care for trauma patients will need to ensure that tranexamic acid is available when needed and that trauma teams know who, when, and how patients should be treated. They will need to verify that the appropriate patients are being treated, and whether or not they receive treatment soon enough after trauma. For those willing to make this commitment, we hope that the trauma promise will be made in public and with the support of the local community or victim organisation. We will celebrate those who make the pledge by publishing the names of their hospitals on the Trauma Promise website and on the website of the World Day of Remembrance for Road Traffic Victims, which is commemorated on the third Sunday of November every year.

Thanks to the Global Burden of Disease Study 2010 and similar efforts, we know more about the extent and distribution of death and illness than ever before. Nevertheless, our objective is not to understand human suffering but to reduce it. Injury is a huge cause of disease burden for which we have effective prevention interventions and a highly cost-effective treatment. Thousands of premature deaths could be prevented through the use of tranexamic acid. This promise is just one opportunity to show that we have the skills to quantify suffering and the humanity to reduce it.

*Haleema Shakur, *Ian Roberts, Peter Piot, Richard Horton, Etienne Krug, Jeannot Mersch*

London School of Hygiene and Tropical Medicine, London WC1E 7HT, UK (HS, IR, PP); *The Lancet*, London, UK (RH); WHO, Geneva, Switzerland (EK); and European Federation of Road Traffic Victims, Luxembourg City, Luxembourg (JM)

ian.roberts@lshtm.ac.uk

We declare that we have no conflicts of interest.

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GBD 2010: design, definitions, and metrics

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The Global Burden of Diseases, Injuries, and Risk Factors (GBD) enterprise is a systematic, scientific effort to quantify the comparative magnitude of health loss due to diseases, injuries, and risk factors by age, sex, and geography for specific points in time. The GBD construct of the burden of disease is health loss, not income or productivity loss.[1] For decision makers, health-sector leaders, researchers, and informed citizens, the GBD approach provides an opportunity to see the big picture, to compare diseases, injuries, and risk factors, and to understand in a given place, time, and age-sex group what are the most important contributors to health loss.

The Global Burden of Disease Study 2010 (GBD 2010) builds on the earlier versions for 1990, 1999–2002, and 2004 sponsored by the World Bank and WHO.[2–10] A more thorough description of the context, objectives, key definitions, and metrics used in GBD 2010 is provided in the appendix. Previous GBD studies have led to national burden of disease studies in at least 37 countries and subnational studies in eight countries. GBD 2010 was implemented as a collaboration between seven institutions: the Institute for Health Metrics and Evaluation as the coordinating centre, the University of Queensland School of Population Health, the Harvard School of Public Health, the Johns Hopkins Bloomberg School of Public Health, the University of Tokyo, Imperial College London, and WHO. The study was designed to address key limitations of previous studies, such as the absence of uncertainty intervals, and to solicit the input of many expert advisers across the spectrum of diseases and risk factors. This study represents a great expansion in the scope of work from previous GBD revisions, including a larger disease and injury cause list, more risk factors, many more age groups, and an assessment for three time periods. Furthermore, a completely revised and improved set of estimation methods has been developed; most notably, the prevalence of diseases and their sequelae is estimated using statistical inference on all available data.

A key aspect of the study is the hierarchical cause list for 291 diseases and injuries. This list has four levels of diseases and injuries and a fifth level for sequelae (appendix p 6). The 1160 sequelae are designed to capture the direct consequences of disease or injury that are not otherwise captured elsewhere in the cause list. Across sequelae, there are 220 common sequelae called health states in GBD 2010. For example, anaemia is identified as a sequela of 19 diseases in the cause list. Three health states are associated with anaemia: mild anaemia, moderate anaemia, and severe anaemia. For each of the health states, a lay description was developed for use in the empirical assessment of disability weights. As with diseases, we have developed a hierarchical list of 69 risk factors for which we have developed estimates for 67 (appendix p 6).

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We divided countries into 21 regions on the basis of two criteria: epidemiological homogeneity, and geographical contiguity (appendix pp 6–7). For some statistical analyses, we grouped regions into seven super-regions. To facilitate various detailed analyses, we estimate the burden of disease in 20 age groups for each sex separately: early neonatal, late neonatal, postneonatal, 5 year age groups from 1–4 years to 75–79 years, and 80 years and older. Using strictly comparable data and methods, we have estimated the burden of disease for 1990, 2005, and 2010 to allow meaningful estimation of time trends. This study supersedes all previously published GBD study results.

Figure 1 summarises the overall analytical strategy for GBD 2010 and identifies 18 distinct components. The strong interconnections between components mean that changes in one component require the