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Child injury around the world: a global research agenda for child injury prevention

The World Health Organization (WHO) and UNICEF released the *World report on child injury prevention* in December 2008.¹ The report emphasises that over 1 million children around the world die from injury, and that 19 of every 20 child injury deaths occur in the developing world. Investing in global injury research is a critical catalyst to prevent tens of thousands of deaths and injuries.

High-income countries have reduced child injury rates by nearly half since 1981, galvanised by research to measure injury burden, identify causes, and shepherd investment into effective strategies to prevent, treat and rehabilitate injured children.¹ In stark contrast, injury deaths in developing countries are unacceptably high and are likely to grow dramatically. More than 1 billion people do not have access to roads, but industrialisation is rapidly bringing children into close proximity with vehicles speeding through towns and villages.

A global research effort is needed to move the agenda from the WHO child injury report forward; low- and middle-income countries are able to invest their scarce resources only in what works. Critical research needs are in four areas: (1) measuring the burden of global injury; (2) highlighting modifiable risk factors for injury control; (3) designing and evaluating injury programmes; and (4) supporting the dissemination of programmes that work in developing countries.

Research to measure the burden of global injury is urgently needed, including integration of injury measurement into quality household surveys, low-cost methods to glean data from hospital records, and the application of cutting-edge methods to estimate injury burden in the context of imperfect information. A census of childhood injury in Asia,² conducted as part of the household survey, found that in Bangladesh, an epidemiological transformation has occurred such that injury is now the leading cause of death for children over 5 years of age. The Alliance for Safe Children household injury survey

in selected Asian nations found that the most common cause of *all* childhood death is drowning.

We need *research to elucidate modifiable risk factors for injury control*, highlighting that injuries are predictable and preventable whether in Seattle or Surinam. For example, modest improvements in trauma care can begin to address enormous disparities in survival of trauma patients across the world.³ Interventions such as use of a simple surgical checklist can have considerable effects on morbidity and mortality.⁴

Research is needed to design and evaluate injury control programmes, focusing on prevention strategies adapted to the economics, needs, infrastructure and culture of low- and middle-income countries. For example, improvements in pre-hospital care in Mexico reduced the percentage of transport patient deaths from 8.2% to 4.7%.⁵ In Ghana, rumble strips installed on the main highway reduced crashes by 35% and fatalities by about 55%.⁶

Finally, *investigations should support the widespread dissemination of developing country programmes that work*. Last year Vietnam passed a law requiring motorcycle helmets for scooter and motorcycle riders; today over 90% of riders in Vietnam wear helmets.⁷ Community workers in Bangladesh cordon off swimming areas in lakes and rivers using bamboo barriers and are teaching children to swim for less than \$5 per child.⁸ High-income countries can also learn from the innovative approaches in low- and middle-income countries.

There are many problems in the world that clamour for our attention. Injuries harm the most vulnerable people in society at a scale which cannot be ignored. Research in global child injury is needed to develop and disseminate injury strategies to prevent children from injury, just as vaccines protect children from infections. A rational approach to injury research will require a commitment to greater investment in global injury research, proportional to the estimations

of increasing injury disability. For example, injuries account for 9% of disability in Africa; however, the investment in injury research in Africa represents less than 1% of total investment.⁹ The research community has a unique opportunity to work together in averting a growing public health catastrophe, and reshaping the science of preventable childhood injury around the world.

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