Preventable death

The 1,000,000 lives campaign

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Every year at least five million people around the world die from injuries—prevention of 20% of these deaths is an ambitious but feasible goal

The Institute of Medicine's report "Crossing the Quality Chasm" estimated that as many as 98,000 lives are lost each year in hospitals in the United States due to medical errors.¹ In response, the Institute for Healthcare Improvement (IHI) has developed an ambitious "100,000 Lives" campaign, aimed at saving 100,000 lives each year in the US.² The IHI is a non-profit organization that is seeking to improve health by "advancing the quality and value of healthcare". The IHI is enlisting 2000 hospitals across the US to participate in this campaign by instituting six evidenced based strategies to decrease hospital deaths: (1) rapid response teams to reverse signs of acute cardiorespiratory decline in patients and prevent cardiorespiratory arrests; (2) evidence based care for patients with acute myocardial infarctions; (3) medication reconciliation to prevent adverse drug effects; (4) prevention of central line infections through five simple interventions for care of central lines; (5) use of preoperative antibiotics to prevent surgical wound infections; and (6) prevention of ventilator associated pneumonia through four simple interventions. This 100,000 lives campaign is a voluntary activity in which hospitals sign up to participate, receive "how to" guides on each of the six topics, and share information with one another on accomplishments. Over 2500 hospitals have agreed to participate, acknowledging the fact that quality of care and patient safety are increasingly recognized by the public as important to their own individual health.

These kinds of bold, but feasible, goals have been responsible for enormous advances in the health of people around the world. The goal of eradication of smallpox was set and achieved, wiping out a scourge that existed in the world for millennia. Similar efforts are now underway to eradicate polio, to vaccinate the world's children against a variety of preventable diseases, and to develop new approaches for old problems such as malaria and tuberculosis.

THE GOAL

It is time that we in the field of injury control have our own equivalent to the "100,000 Lives" campaign. It should be a 1,000,000 lives campaign, however, and be conducted globally. There are at least five million people around the world who die annually from injuries;³ prevention of 20% of these deaths is an ambitious but feasible goal. How might this be accomplished?

Modest improvements in trauma care

Last year, the World Health Organization (WHO) published "Guidelines for Essential Trauma Care".⁴ This report pointed out that there are enormous disparities in survival for trauma patients across the world, ranging from 35% in high income countries, to 55% in middle income countries, to 63% in low income countries for urban injured adults with Injury Severity Scores of 9 or greater. In rural areas, there was a sixfold difference in mortality between high and low income countries for patients with life threatening, but salvageable injuries. The report sought to establish minimum standards for core "essential trauma care services" that realistically could be provided to virtually every injured person worldwide. To assure the services, minimum essential resources are delineated, including human resources (staffing and training); physical resources (equipment, supplies), and administrative mechanisms. Reducing trauma mortality by 8% through better prehospital and trauma care (equivalent to improving trauma care to that in middle income countries) could save 400,000 lives annually.

Prevention of road traffic injuries

The *World Report on Road Traffic Injury Prevention* documented in detail the magnitude of the global problems of road traffic injuries and the risk factors for their occurrence.⁵ The report discusses the complexity of the problem, and the critical need for political will to address road traffic injuries. Despite this complexity, there are feasible interven-

tions to achieve the goal of the 1,000,000 lives campaign. These include developing an injury surveillance system, with a feedback loop to those responsible for traffic and roads; development of safe road infrastructure; setting and enforcing speed limits on both urban and rural roadways; requiring and enforcing seat belt and helmet use; and implementing and enforcing laws for driving while intoxicated. A great many of the traffic deaths globally, especially in developing countries, involve pedestrians. Prevention of pedestrian injuries has proven to be a difficult undertaking in many environments worldwide. Nonetheless, decreases of 50% or more in pedestrian death rates have been achieved through low cost environmental modifications that decrease vehicle speeds.^{6,7} These achievements in pedestrian safety, as well as the fact that seat belts decrease the risk of death by 55%,⁸ and helmets decrease the risk of death in motorcycle crashes by 39%⁹ and risk of brain injuries in bicycle crashes by 88%,¹⁰ various DWI laws decrease the risk of alcohol related mortality by 5 to 15%,¹¹ and enforcement of traffic laws can reduce traffic deaths by 35%,¹² a 25% reduction (300,000 lives) in the 1.2 million road traffic deaths annually is certainly feasible.

Treating depression to prevent suicide

In 2000, an estimated 817,000 people died from suicide, making it one of the most important causes of death in the world.¹³ This accounted for 19,257,000 disability adjusted life years (DALYS) lost annually. Peak mortality was in individuals 15–44 years of age. Depression affects more than 100 million people in the world each year, is the leading cause of disability, and the fourth leading contributor to the global burden of disease. Depression is the leading risk factor for suicide and treatment of depression can prevent suicidality.¹⁴ The management of depression does not require expanded mental health services; it can be done at the primary care level.¹⁵ Such an approach appears feasible in most countries; a 20% reduction in deaths by suicide (160,000 lives saved) seems possible.

Eliminating child labor

There are an estimated two million work related deaths each year.¹⁶ Nearly 250 million children work. The Fair Labor Standards Act of 1938 restricted hours of work by children under age 16 in the US, and listed jobs too dangerous for workers under 18.¹⁷ The Institute of Medicine recommended updates in these regulations to further lessen the

Table 1 Interventions to save 1,000,000 lives annually

Strategy	Lives lost in 2000	Reductions possible	Lives saved
Improve trauma care	5000000	8%	400000
Prevention of road traffic injuries	1200000	25%	300000
Treating depression	817000	20%	160000
Eliminating child labor deaths	57000	100%	57000
Reducing deaths from intimate partner violence	50000	50%	25000
Reducing child drowning deaths	116000	50%	58000
Total	5000000	20%	1000000

hazards to children.¹⁸ Nevertheless, many children and adolescents in the US and in other countries are injured while working. In one study in Brazil, 28% of children and adolescents who worked reported being injured on the job.¹⁹ In the US, a survey of teens working in agriculture found an injury rate of 15 per 100 full time equivalents per year.²⁰ In Managua, Nicaragua nearly 3% of occupational injuries identified on emergency department surveillance occurred to children under 15.²¹ If this same proportion were applied to the number of fatal occupational injuries occurring in the world, 57,000 lives could be saved through the elimination of child labor.

Reducing deaths from intimate partner violence

Approximately 50,000 women die each year from interpersonal violence; many more probably die from violence but are miscoded as burns, falls, or drowning.¹³ Unlike in males, the vast majority of these deaths in women are the result of intimate partner violence. Physical violence to women by their partners is pervasive, with 10% to 69% of women around the world reporting being victims of physical violence by intimate partners at some point in their lives.²² Elimination of even half of these deaths would save 25,000 lives.

Reducing drowning of young children

In 2000, 116,000 children under the age of 5 drowned. Approximately one half of the worldwide deaths from drowning are to children under the age of 15 years. Following basic principles of injury prevention, environmental barriers are probably the most effective method to prevent these drownings in all countries regardless of income. Implementation of barriers in the relatively narrow circumstances of installing fencing around swimming pools in developed countries has resulted in as much as a 73% reduction in early childhood drowning fatalities.²³⁻²⁴

Drowning in early childhood in most developing countries occurs in a wide variety of bodies of water, including wells, cisterns and other household water containers, fish ponds, irrigation ditches, rice paddies, and various natural bodies of water.²⁵⁻²⁶ The WHO advocates these same types of environmental barriers to prevent drowning in these countries;²⁷ drowning deaths can be prevented.²⁸ While experience with decreasing childhood drowning deaths in developing countries has been limited to date, the basic principles of low cost environmental modifications to decrease the access of young children to hazards has considerable potential. Reducing these deaths by one half would save 58,000 lives.

CONCLUSION

Prevention of 1,000,000 lives lost from injuries is within our grasp by working on these six different areas of injury control in the world. This does not require striking new research breakthroughs nor does it require redirection of enormous sums of money. It does require adopting the vision and having the will to accomplish this goal. For us in the injury control field, our job is to move beyond research studies and limited intervention trials to the larger world of public policy in order to raise the profile of injuries worldwide as a preventable problem. The strength of IHI's 100,000 lives campaign is the promotion of a package of six feasible, scientifically sound interventions that together can have a major impact on health in the US. Each of those individual interventions is well known, but few hospitals implemented all six until they were packaged together into the 100,000 lives campaign. The strength of this 1,000,000 lives campaign would lie in focusing on a single, achievable goal through the use of this set of interventions, rather than a promotion of each individually.

Injury Prevention 2005;11:321-323.
doi: 10.1136/ip.2005.009928

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Accepted 28 August 2005

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WHO VIOLENCE PREVENTION UPDATES.....

TEACH-VIP: WHO's contribution to capacity building for injury prevention

Building capacity is one of the main challenges facing the injury prevention area today. In many countries injuries and their prevention have been largely neglected. As a result, there are many settings around the world where public health training does not address injury related issues; medical training includes treatment of trauma but overlooks prevention; and government staff in sectors relevant to injury have neither received injury related training nor worked within structures that allow for coordinated sharing of information relevant to injury prevention.

Although the capacity building needs are varied, a clear priority is training. Accordingly, and in response to a variety of requests from governments and professional groups, the World Health Organization (WHO) has coordinated the development of TEACH-VIP, a comprehensive injury prevention and control curriculum that has been developed over three years through the efforts of WHO and a network of over 60 global injury prevention experts across 19 countries. The course material is designed around a classroom instruction model, with PowerPoint slide presentations, supporting lecture notes, and learning exercises that address a full range of topics relevant to injury prevention and control.

Among the key advantages of TEACH-VIP are the facts that the curriculum is modular and that it is distributed on CD-ROM. The modularity means diverse settings may select those lessons (from among the 60 available)

that make most sense for the training audience. The dissemination as electronic files means the material may readily be adapted, with integration of local data and training examples to facilitate successful training that is relevant to participants' needs. The training materials on the CD-ROM are accompanied by a users' manual designed to provide trainers with the information necessary to make their training sessions more effective.

The lessons within TEACH-VIP cover a wide range of topics, including: application of key injury prevention and control principles; design of effective surveillance systems; collection and

assessment of injury data; development of preventive programmes and policies; and evaluation of intervention measures. TEACH-VIP was successfully pilot tested in more than 20 settings worldwide between September 2004 and June 2005. Training audiences were varied and included government staff, medical and public health students, and injury prevention and response providers. The training materials include five questionnaires for evaluation purposes. Two important results of the evaluation are that a strong consensus exists that the materials are both of good quality and meet an important need in the various settings.

Training is only one element of capacity building. WHO will continue to strengthen the TEACH-VIP training material and its implementation, while also contributing to address other capacity building needs that fall within WHO's mandate.

TEACH-VIP was made available for general distribution in September 2005. Settings that wish to receive the training packages, which include the users' manual and the TEACH-VIP CD-ROM, may register to receive these on the capacity building section of WHO's injury prevention website at www.who.int/violence_injury_prevention/.

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