



A Key Public Health Issue

world health day 2004: *road safety is no accident*

The significance of World Health Day

The World Health Organization (WHO) sponsors World Health Day (usually on 7 April) each year to celebrate the anniversary of its founding in 1946.

Each year the event focuses on a particular health issue and fosters awareness, understanding, discussion and debate about the issue. The event also mobilises action to address the issue through prevention or treatment.

In recent years, themes for World Health Day included healthy environments for children, physical activity, mental health, safe blood, active ageing, safe motherhood, emerging infectious diseases, healthy cities for better life, and global

polio eradication. In 2004, for the first time since World Health Day commenced in 1950, the day has been dedicated to road safety.

World Health Day attempts to involve a wide range of people at the local, national and international levels. These include health professionals, officials in government, industry and the international development community, and children.

The slogan for World Health Day 2004 – *Road Safety Is No Accident* – suggests that road safety does not happen accidentally, but requires a deliberate effort by governments and their many partners.



In 2001, the WHO hosted a meeting of road safety experts from all the regions of the world. The meeting developed a 5-year *WHO strategy for road traffic injury prevention*. The strategy has three objectives:

- to build better systems for gathering and reporting data on traffic injuries
- to make prevention of road traffic injuries a public health priority in all countries

- to advocate for prevention and promote appropriate prevention strategies for road traffic injuries.

Since this meeting, the WHO has been involved in various collaborative initiatives to promote these objectives in low- and middle-income countries.

The global launch of World Health Day 2004 will take place in Paris, France on 7 April. The event will include the release by WHO of the *World*

Report on Road Traffic Injury Prevention. The report is jointly sponsored by the WHO and the World Bank and contains recommendations for the consideration of national governments.

A discussion is planned on 14 April 2004 in the UN General Assembly on the 'global road safety crisis'. This will be the first time that the General Assembly discusses road safety issues. The resolution to hold the discussion was passed on 29 May 2003 as a result of an initiative by the Sultanate of Oman. The UN Secretary General issued a report on the *Global Road Safety Crisis* in August 2003.

Improving road safety requires strong political will on the part of governments. Countries should aim to ensure that sufficient resources are available, commensurate with the size of the road safety problem in their country.

KOFI ANNAN, UN SECRETARY-GENERAL, 2003



The focus of World Health Day efforts

Various initiatives and activities have been planned around the world to commemorate World Health Day. The WHO has asked that these events be articulated around the following key themes:

- Road traffic injuries are a major global public health and development concern, disproportionately affecting certain vulnerable groups of road users; their magnitude is expected to rise considerably in the years ahead.
- Road traffic injuries can be prevented, and their consequences can be alleviated.
- Strong political commitment is the key to prevention efforts, and governments have a particular role to play in creating enabling environments for road safety.
- Road safety is a collective responsibility; partnerships bridging many sectors of society can promote and facilitate efforts to prevent road traffic injuries.
- The health sector has a key role to play among other sectors in promoting and facilitating road safety.



2 road crashes – a major public health issue

The global dimensions of the problem

Road deaths and injuries are a global problem of massive proportions.

According to the WHO, road traffic injuries are the leading cause of death by injury worldwide (20.3 per cent of all deaths from injury) and the tenth leading cause of all deaths (2.2 per cent of all deaths). Road traffic injuries rank second to HIV/AIDS as the leading cause of ill health and premature death for adult men aged 15–44 years.

Road traffic injuries claimed an estimated 1 170 694 lives in 1998. Of this number, 1 029 037 (87.9 per cent) were in low-and middle-income countries and 141 656 (12.1 per cent) were in

high-income countries. Deaths per 100 000 people were 20.7 in low-and middle-income countries and 15.6 in high-income countries.

The average global death rate due to road traffic injuries was 19.0 per 100 000 people in 2002. The lowest rates were in affluent European countries (average of 11.0) with the United Kingdom having the lowest rate of 5.4. Average rates were highest in the low- and middle-income countries of Africa (28.3) and the Eastern Mediterranean (26.3). In 2002, low- and middle-income countries accounted for 90 per cent of all disability-adjusted life years lost due to road traffic injuries. The disability-adjusted life year (DALY) is an indicator

of the time lost by an individual in living with a disability and the time lost due to premature death.

Road traffic injuries involve issues of social equity, having a disproportionate impact on the poor in developing countries where most victims are vulnerable road users such as pedestrians, children, cyclists and passengers. As poorer members of society have less access to medical services, their chances of recovery after crashes are also relatively lower.

Road traffic injuries also have disproportionate effects on young people. Over 50 per cent of



deaths worldwide occur among young adults aged between 15 and 44. Males are almost three times more vulnerable than females: in 2002, the rates were 27.6 per 100 000 males and 10.4 per 100 000 females. As people in the age groups that are most

economically active are also most affected by road crashes, there is an increased burden on poorer countries attempting to tackle poverty and raise levels of economic growth.

Over 3000 people are killed in road crashes worldwide every day – the equivalent of seven 747 jumbo jets with a full complement of passengers. In Australia, on average, five people die every day in road crashes.

What are the costs?

The global cost of road crashes has been estimated at US\$518 billion in 1997 and typically account for between 1 and 3 per cent of a country's annual gross national product (GNP).

It is estimated that there are about 100 million families trying to cope with the death or disability of a family member involved in a road crash. The impact in terms of emotional and financial stress is enormous. Poverty, depression, physical illness and suicide are common consequences.

Apart from the direct physical and psychological effects of injury on victims of road crashes, there are substantial impacts on their families and friends and on the community in general. The fear of traffic and of being involved in crashes can lead to reduced social interaction and cohesion as people remain indoors. In many countries it has

'THIS MUST NEVER HAPPEN AGAIN'

On 17 August, 1896, Bridget Driscoll became the first person to die in a road crash. A 44-year old mother of two children, she had travelled to London with her teenage daughter and a friend to watch a dance performance.

Mrs Driscoll was hit on a terrace in the grounds of London's Crystal Palace by a car that was supposed to be travelling at 4 miles per hour (6.4 kilometres per hour). Witnesses reported that the car was travelling at 'tremendous speed'.

The car, owned by the Anglo-French Motor Car Company, was being used to provide free demonstration rides to the public. The driver of the car at the time of the crash was Arthur Edsell, a company employee. Mr Edsell had been driving for only three weeks. No licences or driving tests were required at that time.

Mr Edsell is reported to have tampered with the belt, resulting in a doubling of the speed of the car. The car is therefore likely to have hit Mrs Driscoll at about 8 miles per hour (12.8 kilometres per hour). Mr Edsell is also reported to have been in conversation with a young female passenger, possibly trying to impress her with his driving skills!

The inquest lasted six hours, after which the jury returned a verdict of 'accidental death'. The driver and the company were not prosecuted.

At the inquest, the Coroner said: 'This must never happen again'.

also resulted in more sedentary lifestyles, with consequent health effects such as obesity and cardiovascular disease.

Despite data limitations, the WHO has estimated that there were 38 848 625 disability-adjusted life years lost worldwide in 1998 due to road traffic injuries. As table 1 shows, road traffic injuries were the ninth leading cause of all disability-adjusted life years lost and accounted for 2.8 per cent of global disability. It is projected that, by 2020, disability-adjusted life years lost will rise from ninth place to third place.

What does the future hold?

The United Nations has noted that projected trends in motorisation indicate that the problem of road traffic injuries will worsen and become a global public health crisis.

The WHO projections indicate that, by 2020, road traffic injuries will account for about 2.3 million deaths worldwide contributing 27.4 per cent to all injury deaths, with over 90 per cent occurring in low- and middle-income countries.

On the basis of current trends, annual road traffic deaths and injuries in high-income countries may

Table 1:
Disease burden (DALYs lost) for 10 leading causes

<i>1998 Disease or Injury</i>	<i>2020 Disease or Injury</i>
1. Lower respiratory infections	1. Ischaemic heart disease
2. HIV/AIDS	2. Unipolar major depression
3. Perinatal conditions	3. Road traffic injuries
4. Diarrhoeal diseases	4. Cerebrovascular disease
5. Unipolar major depression	5. Chronic obstructive pulmonary disease
6. Ischaemic heart disease	6. Lower respiratory infections
7. Cerebrovascular disease	7. Tuberculosis
8. Malaria	8. War
9. Road traffic injuries	9. Diarrhoeal diseases
10. Chronic obstructive pulmonary disease	10. HIV/AIDS

DALYs (disability adjusted life years) lost is a measure of the burden of disease.

Source: CIL Murray and AD Lopez, 1996

decrease by up to 30 per cent by 2020. This decrease will be due to the substantial efforts these countries will continue to make to improve road safety. However, by 2020, there is likely to be a 60 per cent increase in the annual global number of road deaths and injuries. This means that the increase in the number of deaths and injuries in the low-income countries will be of such magnitude as to completely swamp the improvement in the high-income countries and raise the overall global burden by 60 per cent.

Why is the problem growing?

There are several reasons for the spiralling increase in the burden of road crashes in the low-income countries. The rates of population growth of these countries are outstripping those of the high-income countries. As populations grow, people move from rural to urban areas in search of employment opportunities and come to depend

more on motorised transport. With economic growth, more roads are built and increasing incomes enable greater motor vehicle ownership and use. Although these changes generate greater exposure to crash risk, they are not generally accompanied by commensurate improvements in road safety measures.

The UN attributes the growing problem to insufficient attention at the international and national levels. This inattention is attributed to a lack of information on the extent of the problem and its preventability, a fatalistic approach to crashes, and a lack of political responsibility and multi-disciplinary collaboration.

The WHO has identified three major gaps in road traffic injury prevention:

- inaccurate data on the magnitude of the problem, risk factors and economic consequences
- inadequate evaluation of prevention efforts in low- and middle-income countries
- limited awareness of the problem, particularly among policy-makers and donors.

...road traffic injuries now pose a global public health crisis that requires urgent action at the national and the international levels.

Taking action for road safety

Is road safety too expensive for some countries?

The evidence suggests otherwise. Economic evaluation studies in many high-income countries indicate that road safety expenditure is a good investment. For example, an evaluation of the Australian Government's Black Spot Programme has shown that it generated benefits of about A\$14 for each dollar of expenditure. Apart from the humanitarian imperative to mitigate grief, pain and suffering, efforts to improve road safety provide sound economic benefits.

The WHO has formulated a five-year strategy (2001–2005) to reduce road traffic injuries worldwide, with special emphasis on low- and

middle-income countries. The objectives of the strategy are to:

- build capacity at a national and local level to monitor the magnitude, severity and burden of road traffic injuries
- incorporate road traffic injury prevention and control into public health agendas around the world
- promote action-orientated strategies and advocate for prevention and control of the health consequences of motor vehicle collisions.



Too often, road safety is treated as a transportation issue, not a public health issue... many countries put far less effort into understanding and preventing road traffic injuries than they do into understanding and preventing diseases that do less harm.

DR JONG-WOOK LEE, DIRECTOR-GENERAL, WHO, 2004



The WHO has provided the following list of actions that governments and various other groups can take in advancing road safety.

What governments can do

Institutional development

- Make road safety a political priority.
- Appoint a lead agency for road safety, give it resources and make it accountable.
- Set appropriate road safety targets and establish national road safety plans.
- Develop mechanisms that promote a multi-disciplinary approach to road safety.
- Support the development of safety advocacy groups.

Policy, legislation and enforcement

- Ensure that road safety is viewed to be a serious political issue.
- Set and enforce strong and uniform vehicle safety standards.
- Enact and enforce legislation requiring the use of seat belts and motorcycle helmets, speed limits and the control of alcohol impaired driving.

- Enforce safety laws already in existence.
- Ensure that road safety considerations are embedded in environmental and other assessments for new projects and the analysis of transport policies and plans.
- Establish data collection systems designed to collect, analyse and use these data to improve safety.
- Make funding of road infrastructure conditional upon compliance with safety standards.
- Create budget lines for road safety and increase investment in demonstrably effective road safety activities.
- Support the development of safety advocacy groups.
- Establish appropriate design standards for roads that promote safety for all.
- Manage infrastructure to promote safety for all.
- Provide efficient, safe and affordable public transport services.

- Encourage walking and the use of non-motorised two-wheelers.
- Set and enforce appropriate speed limits.

What public health can do

- Include road safety in health promotion and disease prevention efforts.
- Systematically collect health-related data on the magnitude, characteristics and consequences of road traffic crashes.
- Support research to increase knowledge about risk factors and the development, implementation, monitoring and evaluation of effective countermeasures.
- Promote capacity building in all areas of road safety and the management of survivors of road traffic crashes.
- Translate effective science-based information into policies and practices that protect vehicle occupants and vulnerable road users.
- Strengthen pre-hospital and hospital care as well as rehabilitation services for all trauma victims.

- Develop trauma care skills of medical personnel at the primary health care, district and tertiary health care levels.
- Promote the development of policies aiming at greater integration of health and safety concerns into transport policies and facilitate this by further developing methods and tools to this effect (e.g. for integrated assessments).
- Invest in medical research to improve the care of trauma survivors.
- Advocate for greater attention to road safety in view of the health impact and costs.

What vehicle manufacturers can do

- Ensure that all motor vehicles meet minimum safety standards, regardless of where a vehicle is made, sold or used, including the provision of seat-belts and other basic safety equipment.
- Begin to manufacture vehicles with safety vehicle fronts to reduce injury for vulnerable road users.
- Advertise and market vehicles responsibly by emphasising safety.

What donors can do

- Make funding for road safety part of grants for health, transport, environmental or educational programmes.
- Support road safety research, programmes, and policy in low-income and middle-income countries.
- Make funding for transport infrastructure projects conditional on the completion of a safety audit and follow up.
- Generate mechanisms for providing funding for knowledge sharing and safety promotion in developing countries.

What communities, civil society and individuals can do

- Encourage governments to make the roads safe.
- Identify local safety problems.
- Help plan safe and efficient transportation systems that accommodate drivers as well as vulnerable road users like cyclists and pedestrians.

- Encourage safety programmes for school children.
- Demand safety features, e.g. seat belts, in cars.
- Encourage strong enforcement of traffic safety laws and regulations, and advocate for strong and swift punishment for traffic offenders.
- Behave responsibly by:
 - abiding by the speed limit on roads.
 - never driving when over the legal alcohol limit.
 - always wearing a seat-belt, and properly restrain children, even on short trips.
 - always wearing a crash helmet when riding a two-wheeler.

Over 171 000 Australians have died in road crashes, compared with 100 000 Australians who have died in wars since the beginning of the twentieth century.

Road trauma in Australia

The scale of the problem

In recent years, there have been around 1 700 road deaths and over 22 000 serious injuries in Australia each year.

Over 171 000 lives have been lost in road crashes in Australia – compared with the 100 000 Australians killed in the wars in which Australia has been involved since the beginning of the twentieth century.

According to the Australian Bureau of Statistics, the road crash was the tenth leading cause of death in Australia in 2002 (2.6 per cent), after cancer (52.5 per cent), heart disease (36.3 per cent), stroke (17.5 per cent), respiratory disease (8.7 per cent), diabetes (4.6 per cent), Influenza (4.3 per cent), diseases of arteries, etc (3.7 per cent), heart failure (3.8 per cent) and suicide (3.2 per cent).

Road crashes contributed 22 per cent to deaths classified as being due to ‘external causes’ (accidents, poisonings and violence).

As in other countries, a key feature of deaths due to road crashes is their prematurity. A 1991 study by the then Federal Office of Road Safety (now the ATSB) found that although road crashes were responsible for just over 2 per cent of total deaths in Australia annually, they accounted for almost 7 per cent of years of statistical life lost through all causes of death – more than years lost through cerebrovascular disease or lung cancer. The study also found that, when only years of life lost before the age of 65 or during the working age span were considered, road crashes in Australia accounted for more years lost than years lost through all forms of

heart disease, and about three-quarters of years lost through all types of cancer.

The economic cost of crashes has been estimated by the Bureau of Transport and Regional Economics (BTRE), using a ‘human capital’ approach (see facing page) to be in the order of \$15 billion in 1996 – an amount equivalent to Australia’s total annual defence budget. This figure translates to over \$750 per year for each man, woman and child in Australia. More than half the total cost of crashes (56 per cent) are ‘human’ costs, meaning that they involve costs directly related to crash victims, such as lost output, long-term care and rehabilitation and lost quality of life. Every day, road crashes cost the Australian community over \$41 million, of which \$23 million represents human costs.



How is human life valued in estimating road crash costs?

To some people, the notion of putting an economic value on human life may appear distasteful or unacceptable. However, the decisions most people routinely make every day involve trade-offs that implicitly place a monetary value on risk to life. Some examples in the road safety context are decisions to increase travelling speed in order to save time, postponing the replacement of worn tyres, or attempting to cross a busy street instead of using a more time consuming pedestrian overpass or underpass.

Economic approaches to valuing 'life' do not in fact attempt to put a value on human life: they attempt to measure a proxy such as the value of human productivity or the value that individuals assign to changes in risk to their lives. Economic valuation provides an explicit and transparent approach to be used in benefit-cost analysis. The use of consistent values to represent the loss of human life enables estimates to be derived of the benefits of expenditure on specific life-extending programmes and also provides a means of making decisions about whether reallocating limited resources among such programmes would increase overall social benefits.

The 'human capital' and 'willingness to pay' methods are the two most common approaches to valuing human life and injuries for economic purposes, including estimating the human costs of road crashes.

The human capital method is currently used in Australia. It involves estimating the value of a victim's lost output or productivity due to injury or premature death. The value of lost output over the victim's statistically expected life span is converted to current dollar values using an appropriate discount rate. The lost output includes both paid work, usually measured in terms of the victim's work-related income, and unpaid work, which involves an estimate of the victim's contribution to household and community work.

Other elements of costs involved in crashes are estimated and aggregated to provide a total cost of all crashes and average costs per crash. The elements of cost relating directly to the victims ('human' costs) can be separated from the vehicle-related costs (such as vehicle damage and towing) and general costs (such as travel delays, insurance administration, and police and ambulance costs). The human costs include a component for the pain and suffering of crash victims and others.

The willingness to pay method is conceptually different from the human capital method and involves estimating what people are prepared to pay for a safer life (or are prepared to accept in compensation for bearing a greater risk to their lives). There are two broad approaches for estimated values: using survey techniques to ask people how they would trade-off money for risk, or observing their actual risk-taking behaviour.

The willingness to pay method yields a value for a 'statistical' life, meaning that it is the value attached to reducing the statistical risk of losing one human life or the value of preventing the death of a person. Some countries, including New Zealand, Sweden and the United Kingdom use values based on this method. Willingness to pay values are more difficult to estimate and the approach generally produces a range of values which, on average, are considerably higher than values obtained by applying the human capital approach.

A study by the Bureau of Transport and Regional Economics using the human capital approach has estimated the average cost of a death in a road crash at \$1.5 million in 1996 dollars. The cost of a seriously injured person was estimated at \$325 000 and a minor injury at \$12 000.

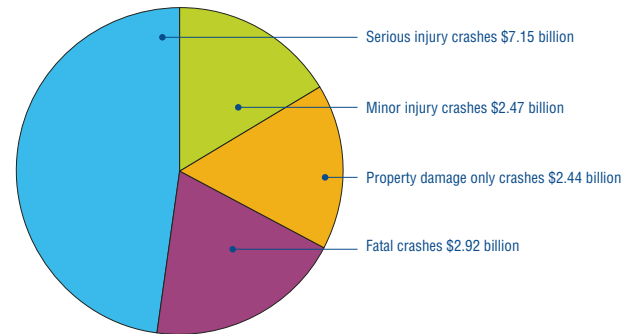
Economic estimates of the costs of road crashes are useful in understanding the general dimensions of the economic burden of crashes on the Australian community and on particular groups within the community. However, it is very difficult to meaningfully assess the full impact and magnitude of the grief, pain and suffering that crashes inflict on members of the community.

Reducing the number and severity of road crashes will release resources for use in more socially and economically beneficial areas, such as improving national productivity and reducing pressure on health and medical services.

*Every 22 minutes,
someone is killed or
seriously injured on
Australia's roads.*

The cost of crashes in Australia in 1996 by injury category are shown in figure 1.

FIGURE 1:
The economic cost of road crashes in 1996 by injury category

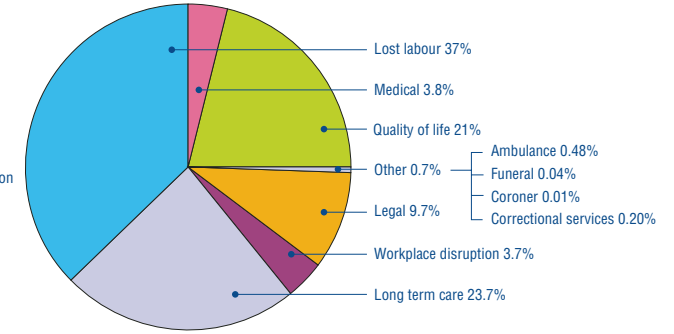


Source: Bureau of Transport and Regional Economics

It is important to distinguish between the cost of a fatal crash (comprising the human costs, vehicle-related costs and general costs) and the cost of a fatality or death (the human costs only). As a fatal crash can involve more than one fatality, the cost of a fatal crash, on average, will be higher than the cost of a fatality.

The human costs of crashes in 1996 are shown in figure 2.

FIGURE 2:
Summary of human costs of road crashes in 1996



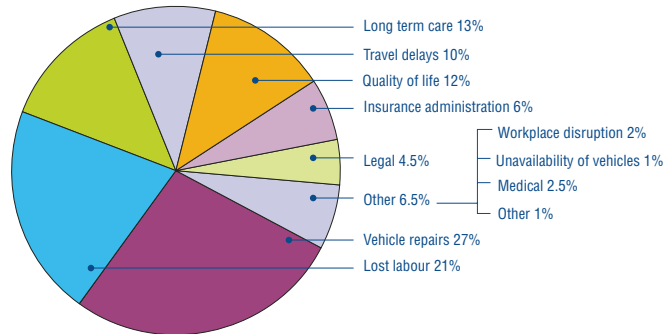
Source: Bureau of Transport and Regional Economics

The average cost of a fatal crash was \$1.7 million; serious injury crash, \$408 000; minor injury crash \$14 000; and property damage only crash \$6 000. The average cost per crash (all injury levels) was \$24 000.



The \$15 billion cost of road crashes disaggregated by cost category is shown in figure 3.

FIGURE 3:
Cost of road crashes by cost category, 1996



Source: Bureau of Transport and Regional Economics

Road crashes are by far the largest contributor to the overall cost of transport-related accidents in Australia. The BTRE's estimates of aviation accidents in 1996 (A\$112 million) and rail accidents in 1999 (A\$133 million) are much less significant than the A\$15 billion cost of road crashes.

Road crashes cost each Australian over \$750 per year and cost the community over \$41 million every day.

