



INJURIES AND VIOLENCE IN EUROPE

**Why they
matter
and what can
be done**

SUMMARY



EUROPE

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Potential for prevention

Every day in the WHO European Region, injuries kill over 2000 people, put 60 000 in hospital and necessitate outpatient emergency treatment for 600 000. Injuries create huge human, financial and other costs to society (1,2). They are the main cause of death in the Region for people aged up to 45 years. Evidence on road traffic injuries (RTIs), drownings, poisonings, falls, fires, self-inflicted injuries and interpersonal violence in the 52 countries in the WHO European Region indicates that they can be studied, predicted and prevented.

If all countries in the Region equalled those with the best performance, more than two out of three injuries (68%) would be prevented and 500 000 lives would be saved a year (1). This would eliminate much suffering and make critical health sector and other resources, currently devoted to dealing with injuries, available for other priorities.

Injuries wreak havoc but are no accidents. What is predictable is preventable. Until recently there was no systematic approach towards understanding the best solutions to the problem of injuries. The misunderstanding that injuries are random and unavoidable has also slowed progress. Moreover, because the responsibility for injuries was mainly attributed to individuals, educational interventions aimed at changing their behaviour were thought to be a sufficient response.

Research in the past few decades across Europe and beyond, however, shows that adopting a broader public health approach can significantly reduce the toll of injuries and violence on health. Such an approach involves understanding the burden and risks, finding out what works and then implementing successful interventions on a broader scale. Injury prevention therefore requires the development and implementation of multisectoral policy, and coalitions across different levels of society to create safer physical and social environments and to promote safety.

This booklet summarizes the findings given in a larger publication (1) to support policy-makers, civil-society organizations and

professionals in the health sector in making the case for injury prevention, advocating safety and working with other sectors to develop preventive plans and action. It identifies eight unique opportunities for policy-making and leadership by the health sector to improve health by reducing the burden of injuries on the European Region.

Definitions

An injury is the physical damage that results when a human body is suddenly subjected to energy in amounts that exceed the threshold of physiological tolerance, or the result of the lack of one or more vital elements, such as oxygen. This energy could be mechanical, thermal, chemical or radiant (3).

Injuries are usually defined as unintentional or otherwise. The main causes of unintentional injuries are RTIs, poisoning, drowning, falls and burns. Violence is defined as the intentional use of physical force or power, threatened or actual, against oneself, another person, or a group or community that results in injury, death, psychological harm, maldevelopment or deprivation (4). Violence can be divided by type: self-directed (as in suicide or self-harm), collective (in war and by gangs) and interpersonal (against a child, partner, elder, acquaintance or stranger).

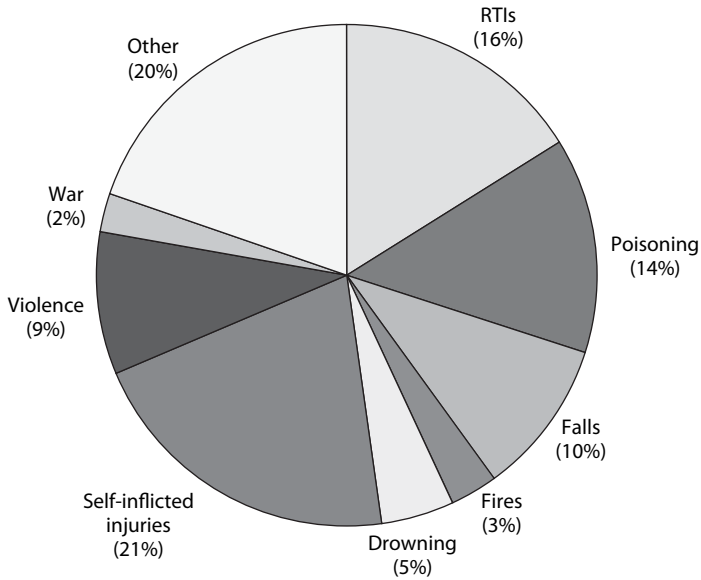
In addition to intent and cause, injuries can be categorized by their settings, such as the home, workplace and road, and by activities, such as sports or other leisure activities.

Burden of disease from injuries in Europe

In 2002, injuries were estimated to cause about 800 000 deaths (8.3% of all deaths) in the European Region (5). Intentional injuries are responsible for a third of these deaths (Fig. 1). This proportion varies by age, however; it is highest in people aged 30–44 years (Fig. 2). The three leading causes are self-inflicted injuries, RTIs and poisoning (see key facts). When all age groups are taken together, injuries rank third amongst the Region's major killers, after cardiovascular diseases and lung cancer.

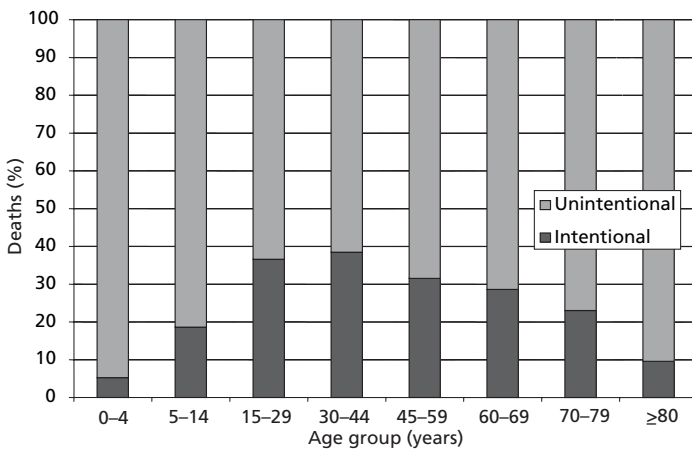
Injuries are also a leading cause of the burden of disease, as measured in disability-adjusted life-years (DALYs – years of life lost

Fig. 1. Proportion of injury deaths by cause in the WHO European Region, 2002



Source: GBD 2002 estimates [web site] (5).

Fig. 2. Proportion of intentional to unintentional injury deaths by age group in the WHO European Region, both sexes, 2002



Source: GBD 2002 estimates [web site] (5).

KEY FACTS

1. Each year, RTIs are estimated to kill 127 000 people, 55% of whom are aged 15–44 years, and injure or disable 2.4 million. Seventy-five per cent occur in males. The risk of RTIs for people living in low- and middle-income countries (LMIC) is 1.5 times that for people in high-income countries (HIC).
2. Poisoning causes an estimated 117 000 deaths, with alcohol being responsible for up to 70% of these in some countries, especially in the eastern half of the Region. Males living in LMIC have 18 times the risk of those in HIC.
3. Drowning leads to about 38 000 deaths and is the third leading cause of death in children aged 5–14. The risk for people in LMIC is nine times that for people in HIC.
4. Falls kill nearly 80 000 people yearly, with the highest mortality among people aged over 80 years. Because of their frailty, these people are more likely not only to fall but also to die as a result. Most falls occur in or around the home. Poverty and unsafe building design are risk factors for children. Males in LMIC have twice the risk of those in HIC.
5. Fires cause about 24 000 deaths, and burns are an important cause of death and disfigurement in children and adults. The risk for people in LMIC is eight times that for HIC. Smoking and alcohol are main risk factors for house fires.
6. Self-inflicted injuries kill around 164 000 people annually, 54% of whom are aged 30–59 years. Alcohol abuse is involved in a quarter of cases. Males are at greater risk than females. People living in LMIC 2.5 times more likely to commit suicide than those in HIC.
7. Interpersonal violence causes about 73 000 deaths, and 20–40 hospital visits for every death. Alcohol is involved in up to 40% of cases. Males predominate among both perpetrators and victims, and are more likely to die violently than females. The risk of violent death in LMIC is 14 times that in HIC. Violence has long-term psychological, behavioural and health effects (5).

to disability or premature death). In 2002, injuries accounted for nearly 21 million DALYs: 14% of the total for the Region.

Males and the young are at more risk than others. Males suffer three out of four injury deaths (586 000) and 77% of the DALYs lost. The young (people aged 0–29) comprise 21% of the deaths and 44% of the DALYs lost.

Opportunity 1. Saving lives and decreasing suffering can reduce inequities and build commitment to social justice.

Problem

The WHO European Region shows the biggest differences in the world in injury mortality and morbidity between poorer and wealthier countries, and between social classes within countries. Moreover, recent data show that the gap is growing, with injury trends in the Commonwealth of Independent States (CIS)¹ among the highest in the world and worsening, while those for the European Union (EU) countries² are among the best in the world and improving (Fig. 3). The average risk of dying from an injury for men in the CIS is almost four times that for men in the EU.

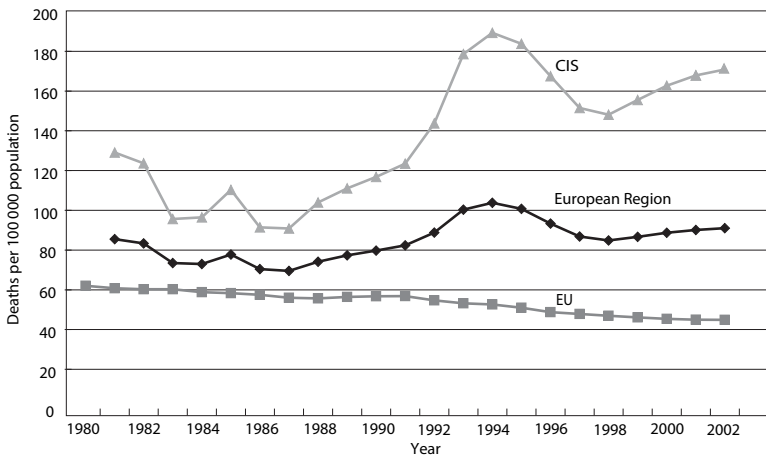
The upward trends in some of the Region's eastern countries are thought to be due to factors such as increased road traffic, worsening inequalities in wealth, higher unemployment, decreased social capital, market liberalization and increased availability of alcohol, and poor regulatory and enforcement mechanisms (7).

Throughout the Region, children, older people and the poor are more at risk. In some of the countries in the eastern half of the Region, 30–80% of the population lives below the poverty line. Poverty continues to exist even in the richest European countries, however, and the unemployed, ethnic minority groups, guest workers, refugees, and disabled and homeless people are particularly at risk. For example, children in the lower social classes in the United

¹ Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, the Republic of Moldova, the Russian Federation, Tajikistan, Turkmenistan, Ukraine and Uzbekistan.

² Austria, Belgium, the Czech Republic, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden and the United Kingdom.

Fig. 3. Trends in standardized mortality rates for all injuries in the European Region, 1980–2002



Source: Mortality indicators by 67 causes of death, age and sex (HFA-MDB) [online database] (6).

Kingdom are 3–4 times more likely to die from injuries than those in the higher classes (8).

Further, individuals and families living in poverty are especially vulnerable to injuries because of their higher exposure to risky situations, unsafe environments and risky behaviour. Lack of access to social capital, poor community cohesion and social exclusion reduce people's capacity to withstand social conflict without resorting to violence, including self-directed violence. When injured, poorer people very often have less access to high-quality emergency medical and rehabilitative services. Further, the costs of health services and lost earning capacity can significantly worsen their financial situation, thereby increasing inequalities.

Opportunity

The huge differences in injury rates between and within countries in the Region point to an opportunity to save lives and reduce suffering by applying the lessons learned in the best-performing countries.

Greater understanding of how unintentional injuries and violence are linked to poverty and inequality has enabled the development of effective programmes that tackle the problem and address this area of social injustice. For example, home visitation schemes and parental training schemes targeting poor single-parent families have been shown to reduce interpersonal violence in later life.

As mentioned, raising the performance of all countries in the Region to the best level achieved would save about 500 000 lives a year, including those of 15 000 children. This means that applying existing preventive strategies could prevent three out of four child deaths from injuries.

Clearly, much is to be gained from finding context-sensitive ways to transfer the experience gained in some HIC to other countries in the Region. Policy-makers can support the exchange of knowledge and experience by identifying and disseminating good practice and supporting the establishment and expansion of injury prevention networks. Examples of such networks include those of: national focal points working with WHO, the European Child Safety Alliance (9), the European Network for Safety among Elderly (10), the European Network of Health Promoting Schools (11), the Healthy Cities initiative (12) and the International Spinal Cord Society (13). In addition, the Safe Community Network (14) promotes the concept of a community that recognizes safety as the concern and responsibility of all.

Opportunity 2. System-level action can produce quick, visible gains.

Experience from the countries with the best safety records shows that political leadership, along with well-organized efforts by society to provide safer physical and social environments, can often result in quick, visible reductions in injury mortality and morbidity.

For example, as RTIs were the leading cause of death in young people in France, President Chirac made road safety a national priority in his Bastille Day speech in July 2002. This led to the formation of an interministerial committee and a national plan of action, which empowered various agencies to take action at both

the national and local levels. This in turn led to a 34% reduction in RTI deaths in 2002–2004, through the implementation of preventive measures such as enforcing speed limits, traffic calming, seat-belt use and control of drink–driving (15).

The most effective interventions have all involved multisectoral cooperation. Developing and strengthening partnerships with stakeholders at the local, national and international levels can provide coordination and an integrated response to injury. At the international level, this could involve country stakeholders' developing collaboration with the European Commission (for example, its Working Party on Accidents and Injuries), the Council of Europe, the European Conference of Ministers of Transport, the Organisation for Economic Co-operation and Development (OECD), the United Nations Children's Fund (UNICEF), the United Nations Economic Commission for Europe (UNECE), the European Crime Prevention Network, and nongovernmental organizations (NGOs) and international financial institutions active in the Region.

Evidence points to the need for system-level commitment to putting safety first in, for example, the design of safer roads, urban environments, housing, playgrounds and products and ensuring that people's daily activities are as hazard free as possible (16). This requires society to take a major share of the responsibility for injuries, rather than individuals. Opportunities to create wealth and reduce socioeconomic inequalities are also needed to reduce the daily toll from unintentional injuries and violence (17).

Examples of safety initiatives that have reduced the occurrence of injuries in the Region include:

- the national cycling programme in Finland, which reduced cyclist deaths by 75% and had added health benefits from increased physical activity;
- multisectoral action to introduce child-resistant containers in the Netherlands, which cut child deaths from poisoning by half; and
- WHO's Safe Communities initiative, which involves the whole community in safety awareness and injury prevention, and in an Austrian province reduced not only injury fatalities by 39% but

also the length of hospital stays for injured people by a total of 30 000 days in 10 years.

Opportunity 3. Effective prevention strategies can reduce health care and other costs.

Problem

Injury care takes up a large share of health service expenditure and makes demands on already overstretched health resources. Although the health care costs for injuries in the Region are not widely available, estimates have been made for this report. The figures are staggering. For example, in 1999, hospital admissions for injuries in the home and from leisure activities cost about €10 billion for the 15 countries of the European Union before May 2004, or about 5.2% of total inpatient expenditure (18). For the Region, the annual health care cost of treating patients who subsequently die is estimated at about €1–6 billion and that of non-fatal injuries about €80–290 billion.³

Beyond health care costs, the economic costs are vast and have only begun to be mapped. Studies suggest that RTIs alone account for the loss of 1–3% of countries' gross domestic product (GDP) each year (19). Most of these costs relate to injury and the resulting loss of productivity. In England and Wales, a study estimated that violent crime had total costs of €34 billion; this includes both direct costs, such as those of the police, judicial system and health services, and indirect costs, including lost productivity and physical and emotional costs (20). Moreover, economic valuations underestimate the real cost paid by society, as they do not cover the suffering caused to victims' families and social support networks, or to communities, workplaces and schools.

Opportunity

As the costs of injuries are enormous, so are the potential economic benefits of effective prevention strategies. Analysis of the costs and benefits of selected safety measures reveals that they give significant

³ Sensitivity analysis estimated the average cost of health care as €1250–7250 per fatal injury in the Region (19), calculated on the basis that there are 800 000 fatalities in the Region, and the average cost of health care as €4800–12 000 per non-fatal injury in the Region, calculated on the basis that there are 16 million non-fatal injuries in the Region.

value for money, as shown in Table 1 (21–23). Investing in the primary prevention of injuries is therefore very worth while for society.

Table 1. Financial savings from selected injury prevention interventions

Expenditure of €1 each on:	Savings (€)
universal licensing of handguns	79
smoke alarms	69
child safety seats	32
bicycle helmets	29
home visits and parent education against child abuse	19
prevention counselling by paediatricians	10
poison control services	7
road safety improvements	3

Opportunity 4. Emergency and trauma care systems can be optimized.

The health sector cares for the victims of both unintentional and intentional injuries. This includes primary health care, emergency care by ambulance staff, acute care in emergency departments and hospitals, and victim rehabilitation and reintegration. Evidence from some high-income countries suggests that improvements in trauma care have led to decreases of around 30% in mortality (24). There is little documentation of similar improvements in all countries of the Region, and much would be gained from a more evidence-based approach to trauma care.

A number of problems has led to a suboptimal quality of care for victims of injuries. These include:

- inadequate attention to testing trauma care interventions and the organization of such care;
- little research investment in relation to the size of the problem; and
- insufficient resource investment in developing services and human resources.

Consequently, the practice and quality of trauma care vary within and between countries in the Region. Systematically evaluating and improving the quality of care, and devoting more resources and

research to developing it, could save lives and prevent disability and other long-term negative health effects.

Opportunity 5. Alcohol use and abuse can be controlled and monitored.

Problem

Alcohol and drug use are key risk factors for all unintentional injuries and violence (4,25); 40–60% of all injury deaths are attributed to alcohol consumption (26). Much of the excess adult mortality in the CIS and other eastern countries in the Region has been attributed to drinking (27,28). The figures for family violence are even worse: alcohol abuse was estimated to be the main trigger in 85% of incidents in the Russian Federation. Children are at risk from both the violence and the negligence of drunken or drugged parents.

The hazardous and harmful use of alcohol has risen as regulatory controls of its availability have been relaxed. Illegal production and smuggling are particularly important issues in the CIS. Aggressive marketing by alcohol manufacturers has contributed to large increases in alcohol consumption among young people in all countries. Socioeconomic factors further influence patterns of consumption.

Opportunity

Several resolutions of the WHO Regional Committee for Europe and the WHO European Alcohol Action Plan 2000–2005 (26) address alcohol-related harm and identify a variety of control measures, including alcohol-free environments, drink–driving laws, advertising controls, better access to treatment, increased product safety and better training of professionals in prevention, detection and control. Data on alcohol-related injuries can be used to monitor the effectiveness of control policies and provide the evidence base for new initiatives.

For example, the City Centre Safe initiative in Manchester, United Kingdom, uses an integrated approach – combining education/training, legislation, monitoring and security, high-profile awards and social marketing – to reduce alcohol-related violence and provide

a safer night-time environment. Evaluation showed that serious assaults in the city decreased by 12.6% in the three years since the scheme began.

Given the high proportion of deaths attributable to harmful alcohol use, action to control alcohol consumption could possibly have the single greatest impact on rates of injury mortality and morbidity. The effect of drug abuse on injuries needs further study.

Opportunity 6. Violence can be addressed as part of an overall injury strategy.

Safety is an ever increasing societal concern. Finding effective ways of dealing with societal insecurity and fear of violence is high on political agendas. The *World report on violence and health (4)* shows that violence, like other injuries, can be predicted and effectively approached as a preventable public health problem.

Addressing violence as part of an overall strategy on injuries is a useful way to highlight the magnitude of both problems and develop common solutions. Violence and other injuries share common economic, social, political and environmental determinants and risk factors such as alcohol and drugs, and they both disproportionately affect vulnerable groups in the population. An integrated approach can benefit data gathering for hospital surveillance and community surveys.

Both unintentional injuries and violence require a multisectoral approach to deal with their common risk factors, and both demand a concern with ethical issues, such as social justice and equity, when considering preventive policies for vulnerable populations. Moreover, health service responses to the victims often involve the same providers of emergency pre-hospital and trauma care, toxicology care (for poisonings), psychological support and rehabilitation services. Because of the overlap between unintentional injuries and violence, a combined approach would benefit the organization of emergency services, and the development of institutional and technical capacity.

By demonstrating the effectiveness of public health interventions, the health sector's leadership in dealing with violence at this critical time should help generate more investment in health and health care.

Opportunity 7. Effective interventions can be rolled out and scaled up.

Many effective injury prevention and reduction strategies have been introduced and evaluated in a wide variety of settings across the European Region, and are discussed in detail in the larger publication (1). Table 2 identifies and summarizes the key interventions and potential savings if all countries equalled the injury mortality rates of the countries with the lowest rates. The United Kingdom has the lowest rates for RTIs, falls, drowning, self-inflicted injury, interpersonal violence and all injuries; and the Netherlands, for poisoning and fires.

Table 2. Potential numbers of lives saved in the European Region if all injury mortality rates were the same as those in the country with the lowest rates, 2000–2002 or three most recent years

Injury by type	Average deaths per year ^a	Number (and percentage) of potential lives saved per year	Effective interventions
RTIs	100 710	54 667 (54%)	<ul style="list-style-type: none"> Enforcing speed limits and providing safer conditions for vulnerable road users Building safer road infrastructures for vulnerable road users Requiring the use of motorcycle helmets, and seat-belts and child seats for cars Setting and enforcing legal limits on blood alcohol Planning and designing roads and urban environments for safety Providing visible, crashworthy, smart vehicles Delivering effective post-crash care
Poisoning	101 519	95 317 (94%)	<ul style="list-style-type: none"> Adopting legislation and fiscal policy to reduce access to alcohol and unlicensed alcohol production Using child-resistant closures, and promoting safe storage of dangerous substances in the home Restricting the availability of dangerous substances Having a network of poison control centres

Table 2. (contd)

Injury by type	Average deaths per year^a	Number (and percentage) of potential lives saved per year	Effective interventions
Falls	72 104	36 425 (51%)	<ul style="list-style-type: none"> Conducting risk assessment and then modifying homes and playgrounds Ensuring product and design safety to prevent falls Implementing occupational safety standards Training older people in physical activity and maintaining their balance
Drowning	34 026	30 713 (90%)	<ul style="list-style-type: none"> Fencing of recreational and other waters Teaching swimming skills Providing lifeguards and better supervision of water users Ensuring the availability and use of water flotation devices
Fires	21 742	18 853 (87%)	<ul style="list-style-type: none"> Using smoke alarms Providing safer stoves, utensils and fuels for cooking Ensuring immediate simple first aid for burns (application of cold water)
Self-inflicted injuries	145 493	87 557 (60%)	<ul style="list-style-type: none"> Restricting access to means, such as firearms, carbon monoxide in domestic gas, pesticides and other harmful substances Ensuring early identification and treatment of at-risk groups Reducing poverty and social isolation Improving social cohesion
Interpersonal violence	61 717	54 666 (89%)	<ul style="list-style-type: none"> Preventing child maltreatment through parenting training and home visitation Strengthening police and judicial systems Passing laws to criminalize all forms of violence Promoting safe storage and control of firearms Reducing alcohol availability Training health professionals in case detection and management of violence against women, children and elderly people Training children and adolescents in life skills

Table 2. (contd)

Injury by type	Average deaths per year ^a	Number (and percentage) of potential lives saved per year	Effective interventions
Interpersonal violence (contd)			Reducing high concentrations of poverty and income inequalities Changing cultural norms to make violence unacceptable Reducing portrayals of violence in the mass media
All injuries	746 512	508 313 (68%)	

^aThe numbers of deaths were obtained from the WHO statistical information system (29), and do not cover Andorra, Bosnia and Herzegovina, Cyprus, Iceland, Malta, Monaco, San Marino, Serbia and Montenegro, Tajikistan and Turkey.

Opportunity 8. The health sector can take a leading role in advocacy and coordination.

The health sector can contribute more than treatment and rehabilitation. It is uniquely positioned to provide support for victims, identify and promote the implementation of evidence-based strategies, lead research and innovation, promote advocacy, and work closely with other sectors. Through active involvement in all steps of the public health approach, the health sector can take the lead in surveillance, research into risk factors and interventions, work with other sectors to implement effective prevention and control activities, evaluating programmes, advocating prevention and developing health and social policy to ensure safety is a priority.

Before national and local action can take place, injury prevention plans need to be developed and partnerships established with stakeholders from different sectors and levels of society, including NGOs and community leaders. The health sector is ideally placed to act as coordinator. Such plans will ensure that action is coordinated and comprehensive and that all key sectors are represented (5,8,30).

Framework for action

Taking the injury prevention agenda forward requires long-term political commitment. To help policy-makers consider such public health action, WHO has developed the following framework for action by countries.

- Develop national plans for unintentional injury and violence prevention.
- Form an intersectoral injury prevention committee to ensure that injury prevention is properly integrated into different departments' policies.
- Improve national surveillance to reach a better understanding of the burden and risks of injuries.
- Strengthen national capacity to respond to the burden of injuries through both primary prevention and care.
- Promote evidence-based practice by facilitating the exchange of knowledge and experience across the Region.
- Recognize gaps in knowledge and prioritize research and development in both primary prevention and care, as well as studies on costs.

Conclusion

It is tragic that the burden of injury in the European Region remains so high when evidence-based, cost-effective means of drastically reducing deaths and suffering are available. People across the Region are demanding societal-level action to reduce risks from unintentional injuries and violence. The public health approach demonstrates that injuries are no accident.

In responding to these challenges, health sector leaders, practitioners in injury prevention and advocates have a unique opportunity to draw on experience from across the Region. This can enable them to help people at all levels to engage with, champion, adopt and enforce policies for injury prevention. Such action recognizes safety as a priority in health and social policy. It will not only save lives and reduce suffering but also begin to counterbalance the loss of control, insecurity and fear that too often isolate people and communities, and contribute to the sustainable development and long-term prosperity of Europe's societies.

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**The WHO Regional
Office for Europe**

The World Health Organization (WHO) is a specialized agency of the United Nations created in 1948 with the primary responsibility for international health matters and public health. The WHO Regional Office for Europe is one of six regional offices throughout the world, each with its own programme geared to the particular health conditions of the countries it serves.

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Injuries create huge human, financial and other costs to society. In the WHO European Region, road traffic injuries, drowning, poisoning, falls, fires, self-inflicted injuries and interpersonal violence kill over 2000 people, put 60 000 others in hospital and necessitate outpatient emergency treatment for 600 000 more every day. But the evidence shows that they can be predicted and prevented.

This booklet summarizes the findings given in a larger publication, which show that adopting a broader public health approach and implementing successful interventions more widely can significantly reduce the toll of injuries and violence on health. It calls for the development and implementation of multisectoral policy, and coalitions across different levels of society to create safer physical and social environments and to promote safety. If all countries in the Region equalled the performance of the safest, more than two out of three injuries would be prevented and 500 000 lives would be saved per year.

As well as the larger publication, this summary is intended to help policy-makers, civil-society organizations and professionals in the health sector make the case for injury prevention, advocate safety and work with other sectors to develop preventive plans and action. It identifies eight unique opportunities for policy-making and leadership by the health sector to improve health by reducing the burden of injuries on the European Region.

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