1 Introduction

1.1 Road traffic injuries: a global public health problem

Road traffic injuries are one of the leading causes of death worldwide resulting in more than 1.27 million deaths in 2004; almost equal to the number of deaths caused by HIV/AIDS, tuberculosis and malaria combined [1]. In addition, road traffic crashes are estimated to cause about 20 and 50 million non-fatal injuries every year [2]. Death and disability due to road traffic injuries affect all age groups but the most affected are those in the 5–44 years age group [1]. It is estimated that road traffic injuries will move up in the ranking of leading causes of deaths from tenth in 2004 to fifth in 2030, largely affecting the low- and middle-income countries [1,3].

For a given country, the economic cost of road traffic injuries is roughly estimated to be 1%–2% of its gross national product [2]. Direct economic costs of road traffic injuries in low- and middle-income countries were estimated to be US$ 65 billion per year in 1999, more than the total development assistance received by these countries each year [4]. Furthermore, road traffic injuries lead to indirect costs such as productivity

loss caused by the disabled population and their care providers and loss of property [2].

1.2 Road safety in the Eastern Mediterranean Region

Eastern Mediterranean Region

The Eastern Mediterranean Region of the World Health Organization comprises 22 countries (Figure 1) and is home to 546 million people. Five countries of the Region are high-income, 12 are middle-income, while five are low-income countries. The level of motorization is relatively low in the Eastern Mediterranean Region compared to other parts of the world. Only 4% of the world's motorized vehicles (or 52.7 million) are registered in the Region, which is home to 8.3% of the world's population (Table 1). Overall 96 vehicles are registered per 1000 population in the Region; however wide variations are observed. For instance, the level of motorization is 721 vehicles per 1000 population in Qatar compared to 20 in the occupied Palestinian territory (West Bank and Gaza Strip). Many of the countries of the Region, such as Islamic Republic of Iran and Pakistan, have seen a significant increase in motorization levels from 2000 onwards. Currently, five high-income countries—Saudi Arabia (299), United Arab Emirates (401), Kuwait (479), Bahrain (509), Qatar (721)—and four middle-income countries—Islamic Republic of Iran (238), Jordan (142), Lebanon (296), Tunisia (122)—have higher than average motorization levels compared to the rest of the countries in their income groups worldwide.

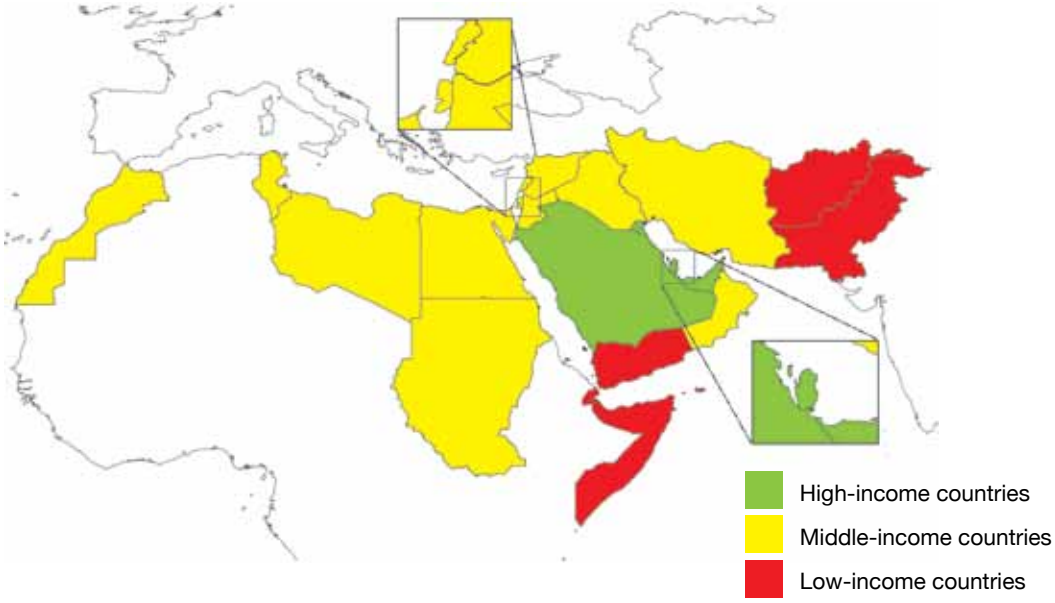

Figure 1. WHO Eastern Mediterranean Region

Table 1. Characteristics of the WHO Eastern Mediterranean Region

Countries	High-income	Middle-income	Low-income	All
Population	33.6 million	299 million	213 million	545.6 million
% of global population	3.3	9.6	8.9	8.3
Vehicles	11.5 million	34.4 million	6.8 million	52.7 million
% of global vehicles	1.7	6.7	5.6	4.0

Source: Global Status report on road safety 2009

Health burden of road traffic injuries in the Eastern Mediterranean Region

In 2004, road traffic injury was the sixth leading cause of death in the Eastern Mediterranean Region (Table 2). It caused an estimated 146 000 deaths and 2.8 million non-fatal injuries—a disturbingly high figure of 17 deaths and 320 injuries every hour. Most of the victims are young, productive members of society. For those between the ages of 15 and 29, road traffic injury is the leading cause of death. It is the second-leading cause of death among the 5–14 and 30–44 year age groups (Table 2). The road traffic injury death rate in the Region among men of between 15 and 29 years is highest in the world (34.2 deaths per 100 000 inhabitants). Among children, particularly male children, road traffic injuries are the most common form of injury [5,6,7]. Overall, the number of deaths due to road traffic injury is greater than that of deaths caused by diseases such as tuberculosis, HIV and malaria (Figure 2).

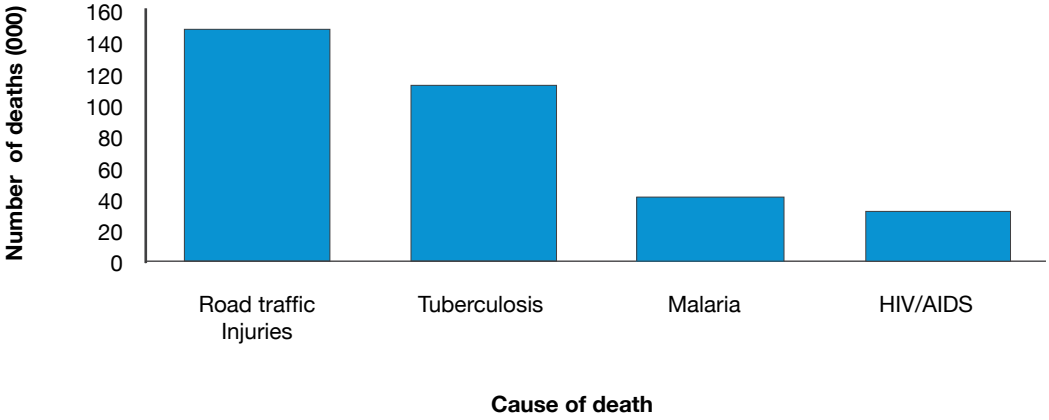

Figure 2. Road traffic injury deaths compared to deaths due to tuberculosis, malaria and HIV/AIDS, Eastern Mediterranean Region estimates for 2004, both sexes

Source: WHO (2008). Global burden of disease: 2004 update

Table 2. Leading causes of death, Eastern Mediterranean Region, both sexes by age group, 2004

Rank	0–4	5–14	15–29	30–44	45–69	70+	Total
1.	Perinatal causes	Lower respiratory infections	Road traffic injuries	Ischaemic heart disease	Ischaemic heart disease	Ischaemic heart disease	Ischaemic heart disease
2.	Lower respiratory infections	Road traffic injuries	War and conflict	Road traffic injuries	Cerebrovascular disease	Cerebrovascular disease	Perinatal causes
3.	Diarrhoeal diseases	War and conflict	Tuberculosis	War and conflict	Chronic obstructive pulmonary disorder	Lower respiratory infections	Lower respiratory infections
4.	Congenital anomalies	Malaria	Self-inflicted injuries	Tuberculosis	Tuberculosis	Hypertensive heart disease	Diarrhoeal diseases
5.	Measles	Drowning	Lower respiratory infections	Drug use disorders	Hypertensive heart disease	Chronic obstructive pulmonary disorder	Cerebrovascular disease
6.	Malaria	Measles	Violence	Lower respiratory infections	Cirrhosis of the liver	Nephritis and nephrosis	Road traffic injuries
7.	Whooping cough	Tuberculosis	Drowning	HIV/AIDS	Lower respiratory infections	Diabetes mellitus	Tuberculosis
8.	Meningitis	Cerebrovascular disease	Fires	Self-inflicted injuries	Nephritis and nephrosis	Cirrhosis of the liver	Hypertensive heart disease
9.	Tetanus	Congenital anomalies	Ischaemic heart disease	Maternal haemorrhage	Road traffic injuries	Diarrhoeal diseases	War and conflict
10.	Protein-energy malnutrition	Meningitis	Maternal haemorrhage	Cerebrovascular disease	Diabetes mellitus	Inflammatory heart diseases	Chronic obstructive pulmonary disorder
11.	Syphilis	Fires	Cerebrovascular disease	Diarrhoeal diseases	Trachea, bronchus, lung cancers	Alzheimer disease and other dementias	Nephritis and nephrosis
12.	Road traffic injuries	Falls	Leukaemia	Asthma	War and conflict	Tuberculosis	Congenital anomalies
13.	Tuberculosis	Protein-energy malnutrition	Drug use disorders	Violence	Breast cancer	Trachea, bronchus, lung cancers	Cirrhosis of the liver
14.	Drowning	Leukaemia	HIV/AIDS	Nephritis and nephrosis	Diarrhoeal diseases	Road traffic injuries	Diabetes mellitus
15.	Fires	Lymphoma, multiple myeloma	Rheumatic heart disease	Breast cancer	Drug use disorders	Bladder cancer	Malaria
16.	Upper respiratory infections	Rheumatic heart disease	Lymphoma, multiple myeloma	Fires	Oesophageal cancer	Endocrine disorders	Measles
17.	Cerebrovascular disease	Epilepsy	Poisonings	Lymphoma, multiple myeloma	Mouth and oropharyngeal cancers	Stomach cancer	Self-inflicted injuries
18.	Endocrine disorders	Nephritis and nephrosis	Abortion	Rheumatic heart disease	Inflammatory heart diseases	Oesophagus cancer	Drug use disorders
19.	Iron deficiency anaemia	Cirrhosis of the liver	Nephritis and nephrosis	Cirrhosis of the liver	Endocrine disorders	Mouth and oropharyngeal cancers	Inflammatory heart diseases
20.	HIV/AIDS	Leishmaniasis	Hypertensive disorders	Hypertensive heart disease	Stomach cancer	Breast cancer	Tracheal, bronchus, lung cancers

Source: WHO (2008). Global burden of disease: 2004 update

Economic burden of road traffic injuries in the Eastern Mediterranean Region

The direct cost of road deaths for Eastern Mediterranean Region countries is estimated to be US$ 7.5 billion annually [8]. A study from the Islamic Republic of Iran showed that the cost of road traffic injuries only on rural roads was approximately US$ 1.2 billion in the years 1997–98, which is equivalent to 1.9% of Islamic Republic of Iran's gross national product (Box 1) [10]. In Jordan the cost of road traffic injuries was estimated to be equal to 2% of gross national product (Box 2) [11]. Despite the evidence that preventing road traffic injuries can lead to significant gains in terms of economy, public spending on road safety in the countries of the Region is very low [12]. For instance, Pakistan spends as little as US$ 0.07 per capita on road safety, which is 1% of its public spending on health and 0.2% of its military budget [13].

Box 1. Successful interventions can reduce road traffic injuries; an example from the Islamic Republic of Iran

The Islamic Republic of Iran initiated a programme of comprehensive road safety interventions in 2005. Three enforcement-based interventions—seatbelt law, motorcycle helmet law and general traffic law enforcement (e.g. use of speed cameras, patrolling)—and mass media educational campaigns on national radio and television (e.g. broadcasts of animated movies for children, expert panels and educational programmes on road safety) were implemented in all 28 provinces of the country. Motorization level (registered vehicles per 1000 inhabitants) increased from 157 in 2004 to 230 in 2007. Fatalities per 100 000 inhabitants decreased 38.2 in 2004 to 31.8 in 2007 (odds ratio [OR] = 0.83, 95% confidence interval [95%CI] = 0.82–0.85) whereas fatalities per 10 000 vehicles decreased from 24.2 in 2004 to 13.4 in 2007 (OR = 0.56, 95%CI = 0.55–0.57). Similarly, road traffic injuries per 100 000 inhabitants decreased from 361.4 in 2004 to 345.7 in 2007 (OR = 0.97, 95%CI = 0.96–0.98) and road traffic injuries per 10 000 vehicles decreased from 227.6 in 2004 to 155.6 in 2007 (OR = 0.68, 95%CI = 0.67–0.68) (Figure 3) [9].

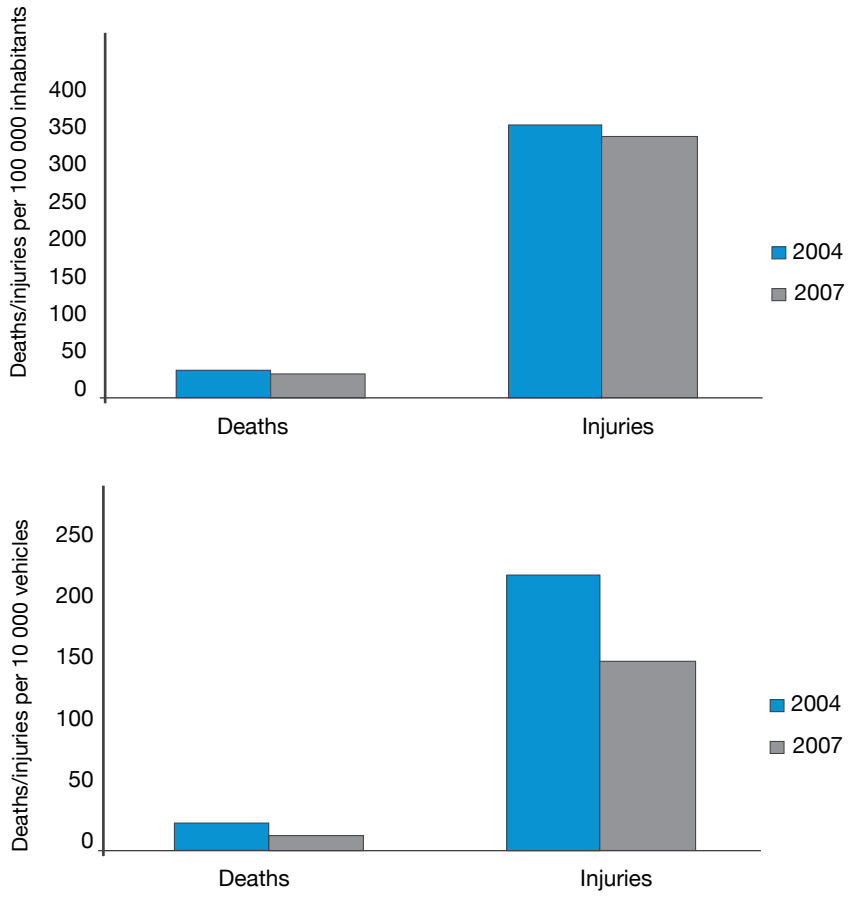

Figure 3. Impact of road safety intervention on road mortality and injury rates in the Islamic Republic of Iran

Box 2. The economic cost of road traffic injuries: an example from Jordan

To assess the magnitude of road traffic injuries to the Jordanian economy in a given year, an estimate was made for 1996. Unit cost of death, injury, property damage, and police and insurance activities were assessed and overall economic costs to the country were estimated. The unit cost per traffic fatality was 46 520 Jordanian dinars (US$ 56 941) of which 59% was attributed to loss of productivity. Overall road traffic injuries resulted in a JD 103 million (US$ 146 million) loss to the economy, equivalent to 2% of gross national product (GNP). Fatal crashes, which were 1.3% of all crashes, accounted for 28% of total cost whereas property damage crashes, which were 69% of all crashes, accounted for 32% of total cost (Figure 4).

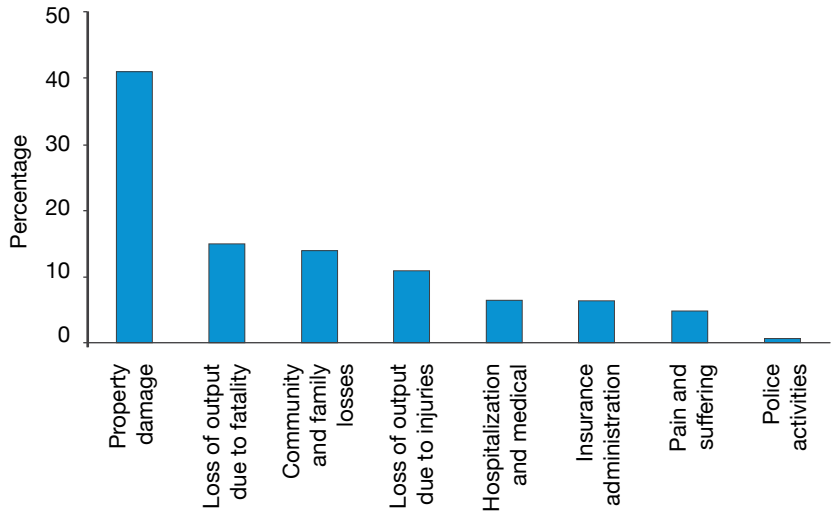

Figure 4. Elements of traffic crash cost in Jordan

Box 3. Specific road traffic injury prevention and control recommendations from *World report on road traffic injury prevention*

1. Identify a lead agency in government to guide the national road traffic safety effort.
2. Assess the problem, policies and institutional settings relating to road traffic injury and the capacity for road traffic injury prevention in each country.
3. Prepare a national road safety strategy and plan of action.
4. Allocate financial and human resources to address the problem.
5. Implement specific actions to prevent road traffic crashes to minimize injuries and their consequences and evaluate the impact of these actions. These actions include measures to reduce excessive and inappropriate speed; to reduce drink-driving; and to increase the use of motorcycle helmets, seatbelts and child restraints.
6. Support the development of national capacity and international cooperation.

1.3 Purpose and scope of the regional status report on road safety

Prevention of road traffic injuries has been on the United Nations agenda for the past 60 years. These efforts gained further strength with the establishment of the Division of Violence and Injury Prevention at the World Health Organization during the past decade. Subsequently, the *World report on road traffic injury prevention*, published by the World Health Organization and World Bank in 2004, led to international focus and agreement on a way forward. The report made six specific recommendations to the member states for prevention and control of road traffic injuries (Box 3). Several countries, including many countries of the Region, have reported adoption of UN resolutions and its road safety agenda over the past five years, setting their national or subnational priorities and working on the prevention of road traffic injuries at different levels.

Comprehensive information on various aspects of road traffic injury prevention was not available from most countries of the Region. In order to define future priorities, it is crucial to evaluate and quantify initiatives taken by the countries. This assessment was particularly important for the Eastern Mediterranean Region for many reasons as follows.

1. Road traffic injuries are known to contribute significantly to the burden of disease in the Region. The Region had the highest road mortality rate for men in the age group 15–29 years.
2. In the Eastern Mediterranean Region the distribution of road traffic injuries was different from other regions. The road mortality rates in high-income countries in the Region were higher than low- and middle-income countries of the Region and high-income countries of other regions [14].
3. Research on road traffic injury prevention and control is rudimentary in most countries of the Region.
4. Data on important contributing factors to road traffic crashes were never reported, possibly due to the involvement of multiple agencies in overall transportation in any country and no structure to support multisectoral collaboration in many countries.

The *Global status report on road safety* was commissioned with the following objectives:

- To assess the status of road safety in all WHO Member States using a core set of road safety indicators and a standardized methodology.
- To indicate the gaps in road safety.
- To help countries identify the key priorities for intervention and to stimulate road safety activities at a national level.