



## ROAD TRAFFIC INJURIES: A PUBLIC HEALTH CRISIS IN THE MIDDLE EAST AND NORTH AFRICA

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*The incidence of road crashes in the Middle East and North African (MENA) countries is rising at an alarming rate and is now the leading cause of death among young adults, as confirmed by recent public health reports.<sup>1</sup> When comparing socio-economic indicators such as road crash fatality rates, healthy years of life lost due to crashes, and percentage of GDP lost, MENA countries now rank among some of the worst performers in the world.*

*This note provides insight into the current situation, and examines why, in contrast to other high and middle-income countries, the increase in wealth among MENA countries in the last decades has not positively affected the road safety crisis.*

*The main findings confirm that economic progress alone does not automatically deliver better road safety performance, but transformational changes in the management of the road system along with ownership of the problem by multiple stakeholders are crucial to stabilize or reduce road crash fatalities and injuries. In the past, countries on the path of development and increasing motorization have taken more than 30 years to effectively reverse the trend in road deaths – a time period which the MENA countries cannot afford.*

*This note concludes with a summary and framework for immediate interventions needed for the region and the role that developmental organizations such as the World Bank Group can play in supporting targeted policies, ensuring a sustainable funding stream, and building capacity to improve the road safety situation in the region.*

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<sup>1</sup> Institute for Health Metrics and Evaluation, Human Development Network, the World Bank. The Global Burden of Disease: Generating Evidence, Guiding Policy – Middle East and North Africa Regional Edition. Seattle, WA: IHME, 2013

**A PUBLIC HEALTH CRISIS WITH MAJOR SOCIO-ECONOMIC COSTS IN THE MENA REGION**

Over the last couple of decades, the Middle East and North Africa (MENA) region has made dramatic progress in successfully decreasing premature death and disability resulting from most communicable, newborn, nutritional, and maternal causes. The recent Global Burden of Disease study (GBD, 2010) confirms that while the number of deaths and years of healthy life years lost are decreasing for the above causes, the numbers for non-communicable diseases (NCD) and injuries are on the rise. Figure 1 shows the relative contribution to total deaths from each major cause in the MENA region, specifically highlighting the contribution from NCD (73%) and injuries (9%). While death due to injuries is still a small proportion of the overall total, there has been a dramatic increase in its magnitude and relative proportion over the last 20 years. To provide some context, communicable diseases such as lower respiratory infection (e.g., pneumonia, bronchitis) are currently the third leading cause of death in MENA (across all ages and gender), but this has been steadily decreasing in magnitude (by 30% since 1990).

Road traffic injuries, on the other hand, are currently the fourth leading cause of death in the region, killing 82,000 people in 2010 (WHO Global Status Report on Road Safety, 2013), and increased by 67% since 1990 (GBD, 2010). Over the years as MENA economies have increased their motorization rate and road infrastructure network, road traffic injuries also have taken a growing toll on deaths and related injuries.

Road traffic injuries, accounts for 3.6% of all deaths (this is the highest percentage among all six world regions). The road safety

performance, as measured by the mortality rate, is rather poor when compared to similarly high-income countries. The road traffic annual mortality rate in the region is 22 deaths per 100,000 population (compared to less than 5 deaths per 100,000 population in the best performing countries worldwide). Furthermore, four countries in the region (Oman, Saudi Arabia, Iran and Libya) rank among the ten worst worldwide performing countries in road traffic mortality and injuries rates (Figure 2 next page).

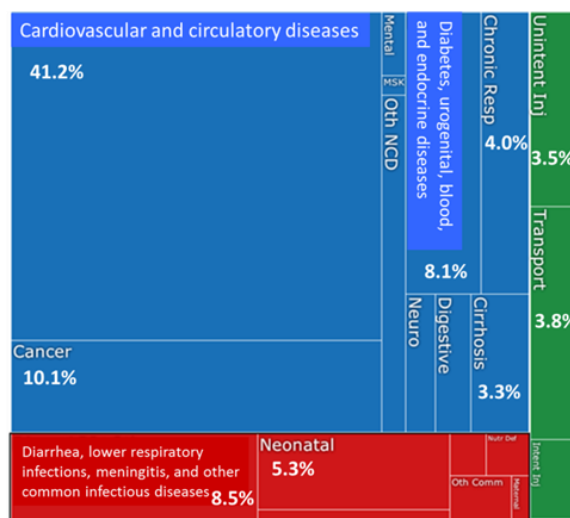


Figure 1. Proportion of deaths (in %) in MENA by causes for both sexes and all ages in 2010. Causes are categories by non-communicable diseases (blue) injuries (green), and communicable, newborn, nutritional and maternal (red) transport includes all modest (Source: GBD study 2010)

In comparison to other developing countries, the composition of road injury deaths in the MENA region stands out even further. As shown in Figure 3, road traffic injuries victims in MENA are predominantly vehicle occupants (63%), followed by pedestrians (22%) and motorcyclists (8%). This is in contrast to the average estimates for developing countries, where around 50% of road traffic deaths affect mostly pedestrians among other vulnerable road users.

The poor road safety performance of Oman, Saudi Arabia, Iran and Libya and other

countries in the MENA region is due to a mixture of risk factors, including: excessive speeding combined with lack of police enforcement and ineffective penalty system; rapid motorization growth and road building combined with poor road design and vehicle regulations.

In the case of Iran, the situation is worsened by the presence of motorcycles whose riders constitute 23 percent of the country’s road traffic fatalities.

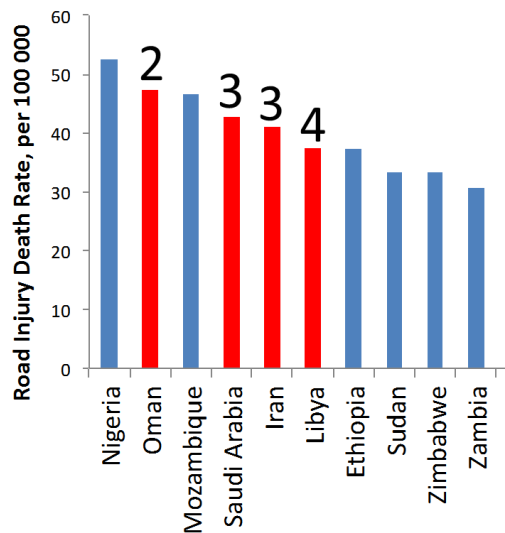


Figure 2. Road traffic fatality rates for the ten worst performing countries including four (red) from MENA region. Number over the bar indicates the rank of road traffic injuries as cause of death among all causes in that MENA country. (Source: GBD study 2010)

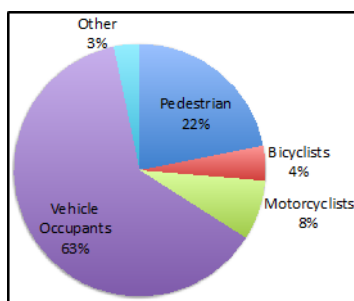


Figure 3. Distribution of road deaths by user group in the MENA region (Source: GBD 2010 study)

Road traffic injuries, besides being a public health burden leading to millions of lives lost, are also associated with an immense economic cost impeding the progress towards poverty eradication and improving shared prosperity. Across Low and Middle Income Countries, where 90% of fatal crashes occur, losses due to traffic injuries are estimated at USD1 trillion per year (iRAP analysis of road crashes – WHO (2013), McMahon and Dahdah (2008)). International comparison of the costs of road crashes is useful to gain insight into the differences in the economic burden of road crashes across countries, and is used as an input for estimating global road crash costs. Based on previous international comparisons, the social costs of road crashes have been estimated at about 1% of Gross Domestic Product (GDP) in low income countries to about 2%-3% in high income countries.

The current figures for MENA countries estimating the economic crash cost of road traffic injuries portray a grim picture. On average the high income countries in MENA lose around 3.9% of their GDP due to road crashes (Oman ranks worst with a loss 7.4% of its GDP, whereas, Malta fares best in the region losing 0.9% of its GDP to road traffic injuries). The economic loss is even worse for some of the lower and upper middle income countries in the MENA region. On average these middle income MENA countries lose around 5.4% of their GDP with Iran losing a significant 8.4% of its GDP to road traffic injuries, which is among the highest in the world. The total cost of road traffic injuries in MENA region has been estimated at USD120 billion for 2010 (iRAP analysis of road crashes - WHO (2013), McMahon and Dahdah (2008)).

Road injuries do not only have an economic impact, but take a lasting toll on society as well. The problem is further compounded as

road traffic injuries mainly affect young populations in the prime of their lives.

Across the world, road traffic injuries are the number one killer for the 10 to 24 year old age group. For MENA countries, the problem is more acute as road traffic injuries are the leading cause of death for a wider age group of 10 to 35 year olds (Figure 4). This has serious social repercussions, especially in developing economies, given that road traffic injuries weaken economic growth and the resulting costs are borne disproportionately by the poor. For the poor households, which make up a majority of road traffic injury victims, the combined effects of health costs and loss of livelihood can put poor and vulnerable families into a vicious cycle of debt and poverty. Without strong social safety nets in these countries, the disabled – often the chief breadwinners – can face a lifetime of physical pain, as well as loss of wage earnings, mobility, and capacity to provide for their families.

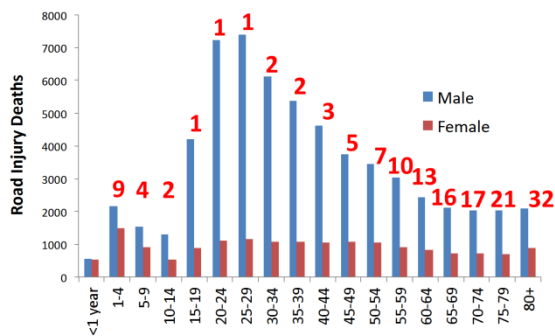


Figure 4. Age distribution of road deaths in MENA region by sex. Numeral over the bar indicates the rank of road traffic injuries among all causes of death in that age group. (Source: GBD study 2010)

While considering the cost of road traffic injuries, one must also take into account that in middle-income countries, the government’s spending on health care is rather low, further burdening the poor families in these countries. MENA governments commit on average only

eight percent of their national budgets to healthcare (World Bank, 2013). This compares with an average of 17 percent in OECD countries. One significant consequence of this low spending is that individuals carry the majority of their healthcare costs. The low public financing for health coverage compromises both access and quality of care.

**ECONOMIC DEVELOPMENT AND ROAD SAFETY PERFORMANCE IN MENA COUNTRIES**

Global data suggests that low and middle income countries are the worst performers with respect to road safety, with 90% of the road deaths occurring in these countries. This data implies that wealthier nations (higher GDP per capita income) would have a better road safety performance by virtue of having more resources to manage infrastructure, safety systems and institutional capacity. While this is true for most high-income countries in Europe, North America and South West Pacific, it does not hold true for high-income MENA countries.

In Oman and Saudi Arabia, for example, (Figure 2), road traffic injuries are the second and third leading causes of death respectively. Iran, a middle-income country, has a road traffic mortality rate of 44 per 100,000 people, which is among highest in the world.

Policy research studies, such as the one by Koptis and Cropper (2003), have predicted the impact of growth in income on road deaths across 88 countries using historic time trend data (1963-1999). The results from the fixed effect regression model estimated that the road traffic deaths per population rises at lower values with increasing GDP per capita. However, the trend is reversed at a threshold income value, after which further increase in

the income level led to steady improvement in road safety performance.

The results of the above study show that the GDP per capita income at which the road traffic fatality rate begins to decline is approximately USD12,383<sup>2</sup> when a common time trend is assumed across all countries, and USD17,458 when region specific time trends are assumed. Using this historic trend as a basis, this note compares the relative performance of the MENA countries in their current situation and implications of any observed differences from the generalized historic trend.

Figure 5 plots the annual road traffic fatality rate (per 100,000 people) as a function of the GDP per capita income (2010 USD) for all countries, with MENA countries highlighted in red. The distribution for all countries clearly demonstrates that those with lower income levels have significantly poorer road safety performance. The quadratic regression model with linearized regional time trend developed by Koptis and Cropper is superimposed on the current (2010) fatality rates. The comparison first highlights that most MENA countries, in any income category, have a poor road traffic fatality rate in comparison to other countries with a similar income level. For instance, Saudi Arabia and Slovakia have similar GDP per capita income levels of USD 16,423 and USD 16,036 respectively (2010). The road traffic fatality rate in Saudi Arabia is 25 per 100,000 people in stark contrast to 9.5 for Slovakia.

Besides noting the relatively high levels of road traffic fatality rates, it is also important to examine whether the high income MENA countries are following the downward trend for fatality rates suggested by Kopits and

Cropper (2003). More recent road traffic fatality data (from GBD 2010) suggests no appreciable decline in the fatality rates has been observed for the high income MENA countries in the past 20 years.

On the other hand, low and middle income MENA countries, which already have significantly high road fatality rates, are expected to experience a further increase in fatality rates, as noted by the GBD study.

Thus, it is an imperative that as the income and motorization levels continue to rise for developing economies in the MENA region, strong measures for improving road safety management are immediately put in place to avoid the increasing burden of road traffic injuries, and the respective costs from the loss of GDP and human lives that also affect high-income countries in the region.

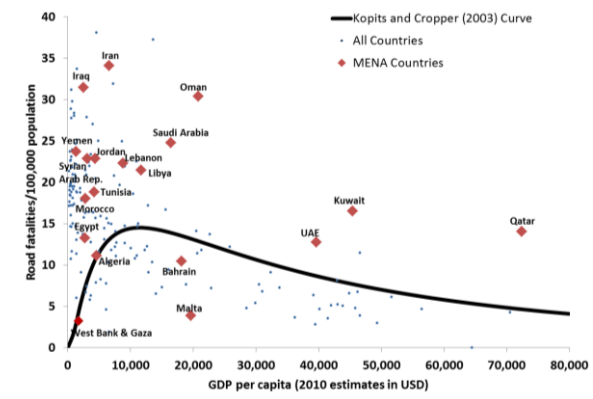


Figure 5. Road fatalities (Global Status Report-WHO 2013) as a function of GDP per capita income (in 2010 USD) compared with adjusted time trend results from Kopits and Cropper (2003)

The final point relating to developmental progress and road safety performance is the comparison of motorization rates between developed MENA countries and similar countries around the world. While one can correlate high level of motorization with better road safety performance worldwide, it is clear that in the case of MENA countries,

<sup>2</sup> 2010 International Dollars

motorization alone does not reduce the burden of road injuries. To illustrate this point, the World Bank data shows that high income OECD countries have a motorization rate of 630 motor vehicles per 1,000 people (this excludes two-wheelers), which is comparable to the latest motorization rate in Kuwait (527), Qatar (532), and United Arab Emirates (313). However, the road fatality rates in these three countries are much higher than in their OECD counterparts.

Higher motorization and income levels were historically seen as precursors to improving road safety performance. Even with this path, it took the current top performing countries some 30 years to reverse their increasing trend in fatality rates. However, in most MENA countries fatality rates keep increasing despite higher motorization and income levels.

Higher motorization and income levels alone will not reduce road traffic fatality rates in countries as they develop. Today's top performing countries have heavily invested in effective programs over the course of their development in order to achieve a decreasing trend in their road traffic fatality rates. These programs were often designed around legislation and institutional changes, as well as behavioral change of relevant stakeholders

### **IMPROVING THE ROAD SAFETY PERFORMANCE IN MENA REGION**

MENA countries should systematically work to eventually reverse their road fatality rates. The UN General Assembly adopted, in March of 2010, Resolution 64/255 which proclaimed 2011-2020 the Decade of Action for road safety, with a global goal of stabilizing and then reducing the forecasted level of global road fatalities by 50 percent in 2020.

If MENA countries are to achieve the Decade's goals, it is estimated that 380,000 lives will be saved and 3.8 million serious injuries avoided during the course of these 10 years. This is equivalent to economic savings of USD200-300 billion, and will constitute the largest life-saving public health program ever developed in the Region.

A Global Plan for the Decade of Action was launched in May of 2011 to guide countries and to facilitate coordinated and focused actions for achieving the goals and objectives of the Decade of Action.

The Global Plan calls for activities at the local, national, regional and global levels, but with a primary focus on national and local-level actions.

Thus, countries are encouraged to implement a multi-sectorial approach, according to five pillars: Road Safety Management, Safer Roads and Mobility, Safer Vehicles, Safer Road Users, and Post-Crash Response.

Some concrete activities under the Global Plan include: establishment of a lead road agency; development of a national strategy and the setting of realistic and long-term national targets; the establishment of, and support for data systems for on-going monitoring and evaluation; promotion of road safety ownership and accountability mechanisms among road authorities and urban planners; and many others dealing with sustainable urban planning, maintenance and improvement of existing road infrastructure; and capacity building in other areas of safety regulations, including speed limits, drinking and driving, seat belt and helmet wearing, etc.

The first step that MENA countries need to undertake is the establishment of national

road safety lead agencies, which will be accountable for achieving the Decade of Action Goals. Without an accountability mechanism, the goals of the decade will not likely be achieved even if countries start implementing different activities under the proposed Global Plan. This should be followed by the adoption of a national road safety strategy which sets realistic short, medium and long term targets in line with the Decade of Action 2020 Target and relying on evidence-based activities that are well funded.

The second step would be to pass appropriate legislation and enforce the law through evidence-based and sustained activities that will promote positive changes in human behavior as well as improve vehicle standards.

The third step is a large road improvement program based on retrofitting high risk sections of the road network with protective features for vulnerable road users. Low-cost and sporadic black-spot treatments have not achieved a sustained reduction in road traffic crashes.

An expenditure review conducted by the Global Road Safety Facility (GRSF) in 2008 concluded that low and middle income countries in the MENA region should invest USD 4 billion in 2010 and up to USD9 billion in 2020 in order to achieve the Decade's Goal of a 50 percent reduction in the forecasted road traffic fatalities in 2020 (from a forecast of 125,000 to 65,000) which is equivalent to a 20 percent reduction of the 2010 number. This required investment is a small fraction of the yearly cost from road crashes estimated at USD120 billion for 2010.

## **WORLD BANK RESOURCES FOR ROAD SAFETY ENGAGEMENT**

The World Bank is ready to assist MENA countries in their efforts to improve road safety, and has the following resources to help design and implement effective road safety systems:

- Global Road Safety Facility (GRSF), a global partnership established in 2006 with a mission to help address the growing crisis of road traffic deaths and injuries in low and middle income countries. The Facility provides funding, knowledge and technical assistance services with the aim of achieving sustainable results and leveraging investment opportunities in client countries.
- Institutional Development Fund (IDF): this Fund has recently been redesigned to enhance the delivery and implementation of programs that will ultimately lead to better development results. Therefore there will be a stronger alignment with the twin goals of the World Bank Group: ending extreme poverty and boosting shared prosperity. Road Safety projects that are aligned with the Bank's twin goals may also benefit from IDF support.
- The World Bank's own budget provides technical assistance to client countries. This assistance has, for example, supported the implementation of the Iran Road Safety Project between 2009 and 2011. Partnerships with the private sector have also been used to leverage road safety resources. For example, GRSF and the oil company TOTAL launched an initiative in Africa along the main transport corridors of Northern and Central Africa.
- Multilateral-Development Banks Road Safety Initiative was launched in 2009 to

collectively leverage country and regional road safety programs to help accelerate knowledge transfer strengthen institutional capacity and scale up road safety investment. This initiative has led to several joint projects. Under this Initiative, for example, the World Bank is partnering with the European Investment Bank to jointly address road safety in Morocco and possibly Egypt and Jordan.

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