



Road traffic injuries continue to constitute a significant threat to public health and development in the Eastern Mediterranean Region and globally. The new Decade of Action for Road Safety 2021–2030 has the ambitious target of preventing at least 50% of road traffic deaths and injuries by 2030. Progress made during the previous Decade of Action for Road Safety 2011–2020 has laid the foundation for accelerated action in the new Decade.

As the Region moves forward it is important to acknowledge the efforts undertaken to prevent and control traffic injuries during the previous Decade, and to capitalize on existing momentum to further build road safety management capacity; improve the safety of road infrastructure; develop the safety of vehicles; enhance the behaviour of road users and improve post-crash response – the five pillars of the first Decade.

The stories presented here provide examples of efforts and successes pertaining to different aspects of road safety from countries in the Eastern Mediterranean Region.

Afghanistan: an integrated approach to road safety measures

Afghanistan has addressed road safety by integrating its approach with other issues on the national health agenda. Integrating strategies for road safety and noncommunicable diseases

(NCDs) has proved beneficial in a number of countries. It maximizes resources, facilitates prompt, life-saving emergency care, reduces the incidence of short-term disability and helps strengthen health systems by enabling different departments to share solutions. Integration also touches on governance: because many solutions for NCDs and road traffic incidents lie outside the health sector, broad partnerships across a range of sectors are necessary.

Tackling Afghanistan's spiralling road traffic death rate figures has been hindered by numerous challenges, including security threats, the destruction of infrastructure and poor roads. There is no designated lead agency for road safety, no building of new roads or maintenance of existing ones, and limited technical capacity. Of the 21 000 km of roads in the country, only 7000 km are paved. In 2016, WHO estimated that the death rate in Afghanistan due to road traffic injuries was 15.1 per 100 000 population, with road traffic crashes accounting for a sizeable proportion of injury-related deaths – 24% and 18% of male and female injury-related fatalities, respectively.

In 2012, in response to Afghanistan's growing NCD burden, the Ministry of Health established a national NCD control department under the General Directorate of Preventive Medicine. The department is also responsible for managing the prevention and control of road traffic injuries.

The support of all stakeholders concerned with road safety, and multisectoral coordination across the various concerned sectors, were crucial in ensuring the national NCDs strategy worked. Stakeholders from different sectors were involved, including Afghanistan's Interior, Transport, Education, Rural Rehabilitation and Development, and Urban Development and Land Ministries, alongside the private sector, non-governmental organizations, and academia.

The resulting National Strategy for Prevention and Control of Noncommunicable Diseases 2014–2018 aimed to prevent or delay the onset of NCDs, including road injuries, and related complications, and to improve the management of NCDs, thus enhancing the quality of life of the Afghan population.

As part of the strategy, Afghanistan has developed approaches towards advocacy, prevention and promotion, management of systems at different levels, data systems and evidence generation, multisectoral coordination to secure support from all partners, and monitoring for better results. Each of the approaches includes actions on road safety.

Despite ongoing challenges hampering progress, Afghanistan continues to implement the strategy, forging a future where road crashes and their tragic human toll no longer blight the country's development.

Bahrain : implications of the new traffic law on road traffic injuries

Bahrain had one of the lowest road traffic fatality rates in the Eastern Mediterranean region with an estimated fatality rate of 8/100 000 population in 2013¹. Nevertheless, road traffic injuries remain a leading cause of death in in the country especially among the younger age groups. As a matter of fact, road traffic injuries are not the leading cause of death in any age group. The WHO Global Health Estimates 2019 found road traffic injuries to be the second leading cause of death in ages 5-29 years old and one of the 10 leading causes of deaths among children <5 years and population aged 30-49 (Table 1).

Table 1. 10 leading causes of estimated deaths in Bahrain by age groups, global health estimates 2019²

Rank

Less than 5

5-14

15-29

30-49

50-59

60-69

70+

1

Prematurity and low birth weight

Other cardiovascular diseases

Other cardiovascular diseases

Other cardiovascular diseases

Other cardiovascular diseases

Other cardiovascular diseases

Other cardiovascular diseases

2

Other congenital anomalies

Road traffic accidents

Road traffic accidents

Cerebrovascular disease

Cerebrovascular disease

Hypertensive heart disease

Cerebrovascular disease

3

Other cardiovascular diseases

Endocrine disorders

Self-inflicted injuries

Self-inflicted injuries

Hypertensive heart disease

Cerebrovascular disease

Hypertensive heart disease

4

Neonatal infections and other conditions

Other neuropsychiatric disorders

Others

Road traffic accidents

Breast cancer

Ischemic heart disease

Ischemic heart disease

5

Birth asphyxia and birth trauma

Other malignant neoplasms

Endocrine disorders

Deaths classified as ill-defined

Ischemic heart disease

Colon and rectum cancers

Lower respiratory infections

6

Congenital heart anomalies

Deaths classified as ill-defined

Other neuropsychiatric disorders

Ischemic heart disease

Other malignant neoplasms

Deaths classified as ill-defined

Other genitourinary system diseases

7

_Endocrine disorders

Inflammatory heart diseases

Other unintentional injuries

Endocrine disorders

Deaths classified as ill-defined

Other malignant neoplasms

Chronic obstructive pulmonary disease

8

Deaths classified as ill-defined

Others

Other malignant neoplasms

Breast cancer

Diabetes mellitus

Trachea, bronchus and lung cancers

Other digestive diseases

9

Road traffic accidents

Leukemia

Drownings

Other unintentional injuries

Other digestive diseases

Nephritis and nephrosis

Nephritis and nephrosis

10

Renal agenesis

Other unintentional injuries

Other respiratory diseases

Other malignant neoplasms

Liver cancer

Breast cancer

Diabetes mellitus

At the onset of the Decade of Action for Road Safety 2011-2020, data from Bahrain published in the Global Status Report for Road Safety 2013 showed a need for strengthening the existing road traffic laws. For example, penalty/demerit point system was not in place and there was no child restraints law in place³. Based on a ministerial decree No 1544 , in February 2015, a new traffic law was issued aiming at reducing crash rates and enforcing its regulations via a demerit point system. The law also addressed child restraints for the first time in Bahrain traffic safety history. The new amendments in the law were noted in the in-depth legislative review conducted as part of the WHO Global Status Report for Road Safety 2015. These included the introduction of penalty demerit point system with several improvements such as setting urban speed limits from 60-80 Km/hr in 2013 to a maximum of 60 Km/hr in 2015 and the introduction of child restraint law.

In December 2015, a journal paper based on a quasi-experimental design was developed to investigate the impact of the new traffic law on road traffic crashes and associated health care events in Bahrain⁵.

Method and results

The study aimed to document the implications of the new road traffic legislation on injuries and ambulance calls and suggested the way forward in terms of the contribution of the health sector in measuring progress against the new law.

An analysis was done of deidentified administrative road traffic crash data obtained from from the accident and emergency department of Salmaniya Medical Complex (SMC), the oldest and largest, public tertiary care centre in Bahrain and the General Directorate of Traffic. All cases who were involved in a road traffic crash, regardless their type of road use or nationality who were residents in Bahrain between 2013 (before the law) and 2015 (post law) were included in the study. Admissions were defined using the International Classification of Diseases, 10th Revision (ICD- 10)⁶ and the severity of injuries were based on the Abbreviated Injury Scale (AIS)⁷.

Throughout our study period, the number of ambulance calls and minor injuries has reduced whereas there was no significant reduction of the number of serious injuries and deaths (Figure 1). There was a reduction of ambulance calls by 31% and minor injuries by 29%. As there were no changes in the reporting mechanisms during the period of observation, the study suggests a real decline that was explained by the compliance with the new law.

¹https://www.who.int/violence_injury_prevention/road_safety_status/2015/country_profiles/Bahrain.pdf. ²

<https://www.who.int/data/gho/data/themes/mortality-and-global-health-estimates/ghe-leading-causes-of-death>. ³https://www.who.int/violence_injury_prevention/road_safety_status/2013/country_profiles/bahrain.pdf.

⁴<https://www.legalaffairs.gov.bh/LegislationSearchDetails.aspx?id=11890>.

⁵ Awadhalla MS, Asokan GV, Matoonq A, Kirubakaran R. Declining trends in injuries and ambulance calls for road traffic crashes in Bahrain post new traffic laws of 2015. *J Epidemiol Glob Health*. 2016 Jun;6(2):59-65.

⁶ <https://icd.who.int/browse10/2016/en>.

⁷ <https://www.aaam.org/abbreviated-injury-scale-ais/>.

Djibouti: integrating efforts for better road safety

In the past 10 years, galvanized by the Djibouti Vision 203 and the Strategy of Accelerated Growth and Promotion of Employment 2015–2019, Djibouti has integrated road safety efforts under each of the five pillars of the Decade of Action on Road Safety 2011–2020: building road safety management capacity; improving the safety of road infrastructure and broader transport networks; further developing the safety of vehicles; enhancing the behaviour of road users; and improving post-crash care.

Building on existing efforts, further action would be beneficial to increase public awareness about general road safety and amplify law enforcement on the use of helmets and seatbelts, driving under the influence of alcohol, speeding and the dangers of using mobile phones while driving.

The Djiboutian Road Agency, established in November 2013 as part of the Ministry of Equipment and Transport, guides efforts to improve roads and overall road systems. There have also been collaborative efforts by Djibouti's government and the Japan International Cooperation Agency (JICA) to improve road safety.

Djibouti has committed to the aims of the African Road Safety Charter – a policy framework, advocacy tool and instrument for improving road safety on the continent which emphasizes training and capacity building in all areas of road safety – and has set out measures to develop, maintain and manage urban roads and highways.

Under pillar 1 of the Decade of Action on Road Safety, the Government of Djibouti established the Djiboutian Road Agency and acted to improve data systems. The lead agency for road safety is working in parallel with the Road Safety Observatory in Africa to improve road data and overall road management. The Observatory, under the umbrella of the African Road Safety Charter, supports the efforts of African countries to reduce road transport fatalities by uniting activities to systematically collect, analyse and share reliable road crash data. The Observatory also serves as a platform for government officials and road safety experts to exchange knowledge, share best practices and scale up effective policies across the Region.

Under pillar 2 – safer roads and mobility –, and as part of its partnership with JICA, Djibouti is repairing road networks and highways. The renovation of the national road network is expected

to improve regional development and living conditions for Djibouti citizens.

Under pillar 3, on safer vehicles, Djibouti will make regular inspections of vehicles mandatory. It has also committed to strengthening and implementing safety standards for motor vehicles and related equipment in line with vehicle standards and good practices recommended in the African Road Safety Charter.

Under pillar 4, Djibouti has committed to increasing public awareness on the issue of road safety and increasing law enforcement regarding the use of helmets and seatbelts, and violations such as driving under the influence of alcohol, speeding and the use of mobile phones while driving.

Under pillar 5, on post-crash response, achievements include increasing coverage of emergency care, implementing WHO's Guidelines for Trauma Quality Improvement, strengthening human resources and equipping the country's national health system with standardized ambulances and medical supplies. Djibouti is also training medical personnel and supporting health facilities with emergency medical system supplies.

Djibouti continues efforts to address other areas which need strengthening, including law enforcement of road traffic regulations and increasing public awareness about road safety, as it promotes better road safety for everyone.

Egypt: National Decade of Action for Road Safety 2011–2020

Sustainable road safety strategies to reduce road fatalities have been the focus of Egypt's efforts, underpinned by a strong, collaborative approach by different government sectors.

Following the launch of the Global Plan for the Decade of Action for Road Safety 2011–2020, Egypt developed a national plan to implement the Decade's provisions. Aligned with the five pillars of the Decade of Action, Egypt's national plan included strategies for road safety management, safer roads, safer vehicles, safer road users and post-crash response. Its aim was to develop and implement sustainable road safety strategies and programmes to reduce road fatalities by 2020; strengthen the national management infrastructure and technical capacity; improve the quality of national data collection; monitor the progress and performance of a number of pre-defined indicators and encourage increased funding for road safety.

Government sectors taking part included the National Road Safety Council, the Ministries of Health, Interior, Transport, Education, and International Cooperation, and the Central Agency for Population, Mobilization and Statistics, alongside nongovernmental organizations including the Egyptian Red Crescent and the Egyptian Society for Road Safety, all supported by WHO. The Ministry of Health was represented by the pre-hospital care sector, the Health Information Centre and the Occupational Health Department.

Strengthening post-crash pre-hospital care was led by the Egyptian Ambulance Organization (EAO), in collaboration with the Ministry of Health, Ministry of Defence and Ministry of Communication. A governmental organization with an annual fixed share of the national budget, the EAO played an important role in supporting the national implementation of the Decade's provisions, providing emergency care services free of charge.

Efforts to strengthen post-crash care included continuous training programmes, the refining of criteria for selecting staff, on-the-job training, conversion training courses and an Egyptian ambulance fellowship.

Reliable and durable ambulances were made available, alongside specialized services such as ambulance boats and ambulances for neo-natal patients, equipped with advanced medical equipment to ensure patient safety during transportation. Information and communication technology was used on a large scale, and a new business model was developed combining the legacy of past decades with modern, evidence-based management practices.

The scaling-up of efforts has kept pace with Egypt's burgeoning population, new cities and expanding road network, and has involved the introduction of river ambulances, 4x4 ambulance vehicles for accessing mountainous terrain, and intensive care unit ambulances.

Under pillar 2 – safer roads and mobility – a rating system for new and existing roads has been introduced and investments are being undertaken to upgrade high-risk road locations and develop urban public transport systems. Under pillar 3 – safer vehicles – Egypt has adopted UNECE WP.29 regulations covering frontal impact standards, electronic stability control and pedestrian protection.

Under pillar 4 – safer road users – legislation is now in place covering key risk factors such as speeding, drink- and drug-driving, motorcycle helmets, seatbelt use and mobile phone use while driving.

Egypt has a single emergency care access number, and offers formal training for doctors and nurses in emergency medicine, both of which, besides the efforts of the EAO, support pillar 5 – post crash response. An assessment of the emergency care system with multi-stakeholder engagement at both pre-hospital and facility level was also undertaken, and the action priorities the assessment identified are being implemented.

Egypt's progress in road safety, including a decline in reported road traffic fatalities between 2007 and 2016, was recorded in three consecutive WHO global status reports on road safety (2013, 2015 and 2018).

Where the WHO global status reports pointed out areas requiring further strengthening – they included sustainable funding for road safety management; greater consideration of vulnerable road users during infrastructure design; the review of legislation on key risk factors to align with best practices, and the strengthening of data systems for both outcome and intermediate indicators to further enhance measurement of the efficacy of road safety interventions – action is already underway.

These efforts lay a solid foundation for further action developing Egypt's road safety systems, with a firm vision of fewer road traffic deaths and injuries across the country.

Islamic Republic of Iran: a road safety strategy for the future

The Islamic Republic of Iran has implemented an ambitious strategy to tackle the country's alarming rates of road traffic injuries. In line with the Decade of Action on Road Safety 2011–2020, the National Road Safety Commission (NRSC) developed the Iran Road Safety Strategic Plan 2011–2020 with a target of reducing the country's overall road traffic crash index from 30 in 2008 to 9 by 2020.

Road traffic crashes have been a leading cause of death and injury in the Islamic Republic of Iran for decades. The WHO Global status report on road safety 2018 estimated the country's road traffic fatality rate as 20.5 per 100 000, higher than the global average. According to the Global Burden of Disease, road traffic crashes rose from the sixth to the third cause of death in the Islamic Republic of Iran between 1990 and 2019.

In the absence of a shared road safety vision among different sectors, the NRSC played a key role in formulating multisectoral action and multidisciplinary approaches to road safety. Recent surveillance records show progress across a range of road safety indicators. Outcome indicators such as rates of road traffic deaths per 100 000 population and per 10 000 vehicles showed a remarkable decline between 2011 and 2019. National data indicate that road fatalities were reduced significantly, from 27 000 per annum (40.5 per 100 000 people) to 16 000 per annum (21.1 per 100 000 people) between 2004 and 2016. Between 2006 and 2012, the Iran Ministry of Health improved its overall medical registration by capturing causes of death using a condensed list of ICD-10 classifications. This was later upgraded in 2013 using detailed ICD-10 codes.

Investigations of 1585 crash hot spots on the Islamic Republic of Iran's road network were conducted. To prevent fatal head-on crashes, 800 km of freeway, 4000 km of four-lane highways, and other road networks were widened, and central safety barriers are now in place on all freeways and highways. There has been an emphasis, too, on improving the safety of schools located beside busy roads.

To accelerate efforts towards better road safety in the country, and to meet the target of a 20% reduction in road fatalities by 2025, the Iran Road Safety Partnership, led by NRSC, was formed in 2018. Based on situation analysis, the Partnership proposed that a Safe System Approach (SSA) be adopted, and designed a project, the Enhanced Safety Model Corridors (2020–2023), focusing on speed management based on SSA and results-based management.

The project began by focusing on speed management and will extend gradually to other SSA pillars. In its first stage, the project aims to offer an applicable model of SSA and results-based management. The speed limits of the selected corridors were revised, national crash investigation protocols were updated and mandatory crash investigations for all crashes involving severe injury and fatality were endorsed by NRSC.

Under pillar 4, safer roads, intelligent traffic control systems – more than 600 video surveillance

systems, 900 traffic infringement recording cameras, and 2000 automatic traffic counting devices – have been installed over the Islamic Republic of Iran’s national road network. The country also developed SEPAHTAN, a system for controlling and monitoring the national road network for professional bus drivers. Together with systematic monitoring of transport drivers and companies, this has greatly improved safety.

To improve post-crash care access under pillar 5 – post-crash response – and decrease the burden of individual spending by Iranians on health care, the Iranian Ministry of Health provides free-of-charge care at its hospitals for people injured in road crashes. To facilitate this, 10% of mandatory third-party motor vehicle insurance premiums are deposited with the Ministry of Health.

The Ministry of Health has improved its overall medical registration by capturing information about causes of death from all provinces, and cross-checks the data using multiple sources at a district level. National Organization for Civil Registration and cemetery and facility data are used to identify omissions and duplication.

National guidelines and offline protocols for improving the quality of triage have been developed, and the emergency care infrastructure has been strengthened. An online system for issuing transport documents is now established with the aim of eliminating human error. Meanwhile, traffic infringement penalty rates have been increased, and efforts are underway to train motorcyclists and educate younger students about road safety.

The mean response time of the Islamic Republic of Iran’s emergency services was reduced in rural and urban areas, with a reduction of response times of 2.12 minutes in small cities, and 15 minutes on rural roads. There was a 40% increase in the number of emergency medical service bases, and an 86% increase between 2011 and 2019 in the number of ambulances available nationwide.

As a result of these efforts, the country’s road traffic fatality rate fell from 26.7 in 2011–2012 to 20 in 2019–2020.

NRSC will continue to expand its road safety action plan across the country with the implementation of the new 2021-2030 National Road Safety Decade in the Islamic Republic of

Iran, in line with the UN Sustainable Development Agenda 2030, further strengthening the road traffic injury prevention programme following the SSA, relying not only on internal but also external evaluation bodies and focusing on solution-oriented and results-based management.

Iraq: strengthening post-crash response in a challenging environment

Iraq is making significant efforts to lessen the human impact of road crashes and the injuries, deaths and disabilities they cause, amid a volatile scenario of ongoing security threats which can result in damage to infrastructure including hospitals.

The WHO Global status report on road safety 2018 estimated that in 2016, 7686 people lost their lives due to road traffic crashes, an estimated fatality rate of 20.7 per 100 000 population, higher than the Eastern Mediterranean Region average rate of 18 per 100 000. Global Health Estimates data revealed that 60% of the estimated road traffic deaths in 2016 occurred among 15 to 49-year-olds.

To address the problem, Iraq established a Supreme Council for Road Safety, led by the Ministry of Interior. One of the council's five subcommittees, led by the Ministry of Health's Public Health Directorate, focuses on post-crash response, highlighting the effective collaboration between the Ministries of the Interior and Health to tackle road safety.

The post-crash response subcommittee followed the Global Plan for the Decade of Action for Road Safety 2011-2020 by developing a forward-looking strategy for post-crash care, while the four other committees focused on road management and improvement, safer roads and mobility, safer road users and safer vehicles.

Improvements to Iraq's post-crash service delivery have been facilitated by the launch of a single national emergency access number, an enhanced ambulance service with the capacity to access crash sites more easily, and greater numbers of ambulance stations. Iraq also now has formal certification pathways for pre-hospital care providers, and injury surveillance systems in at least one hospital in each of the country's governorates.

Iraq has improved its pre-hospital trauma care system with paramedic training, and fully certified specialist and sub-specialist training programmes for doctors in emergency care and trauma surgery. Newly appointed doctors can access acute stress coaching training and first aid training, and the procurement process for emergency response equipment has been improved.

As part of Iraq's strategy to strengthen post-crash response, in-facility injury triage, care and management is now available, including triage and trauma counselling training for in-facility service providers. Procedural standards for complex and mass-casualty situations are more developed, increased essential trauma care supplies are available and there is a regional centre for emergency training.

Rehabilitation and support services for those affected by road traffic crashes are an important part of Iraq's strategy. They include specialized rehabilitation hospitals for the injured and orthopaedic rehabilitation centres. People with disabilities sustained in traffic crashes can now access a registration project that offers support during the rehabilitation process. Hospital doctors are also being trained to provide psychological rehabilitation services for people with disabilities caused by road crashes.

Community awareness underpins national progress on road safety. Iraq has established a road safety training curriculum for health educators in different sectors, and runs campaigns to promote public awareness of road safety. Despite the challenging context, with public support and political will Iraq can continue to decrease road traffic casualties through a safe system approach to road safety.

Jordan: efforts to address dizzying road safety figures

In Jordan, the Decade of Action on Road Safety 2011–2020 was accompanied by a raft of interventions, with the Jordanian Traffic Institute taking the lead in addressing the five road safety pillars itemized in the action plan.

According to the Jordanian Traffic Institute, a road crash happens in Jordan every five minutes, resulting a fatality every 13 hours. WHO's Global status report on road safety 2018 estimated Jordan's road fatality rate at 24.4 per 100 000 based on 2016 data, higher than the global and

regional averages cited in the same report. Reasons behind the high rate include a major increase in the number of registered vehicles in the country, below-standard road design, inadequate maintenance of roads, poor pedestrian protections and risky driving behaviour.

More recent studies by the Jordanian Traffic Institute have shown a dramatic improvement in road safety indicators. Compared to the base year 2013, there was a reduction of 27.2% in the rate of vehicle crashes per 1000 vehicles in 2017, beating the target of 20%, and a reduction of 27.3% in the rate of injured people per 1000 vehicles, again beating the 20% target. There was also a 35.6% reduction in the rate of deaths per 1000 vehicles.

Interventions to reduce the figures and improve road safety included the National Transport Safety Programme, which is part of Jordan's Long Term National Transport Strategy; the Jordanian Traffic Safety Plan 2013–2017; a number of transport projects; legislative amendments and other actions (<https://www.unece.org/fileadmin/DAM/trans/doc/2016/wp1/ECE-TRANS-WP1-2016-Presentation-4e.pdf>).

Under pillar 1, there was a multisectoral effort to commission studies and make field visits with a view to identifying crash black spots. The studies drew on surveillance by the Jordanian Traffic Department and citizen feedback and pinpointed a number of dangerous spots, many of them close to schools.

Under pillar 2, on safer roads and mobility, in 2011 the Towards Safer Roads project was established, led by the Public Security Directorate. The project is supported by stakeholders including government agencies, the private sector, nongovernmental agencies and civil society. It aimed to identify areas with a high incidence of crashes through a series of commissioned studies, field visits and citizen feedback. Recommendations were made based on the studies. They included implementing traffic surveillance systems, improving and renovating road infrastructure, and building pedestrian crossings around schools and other institutions.

Under pillar 3 – on safer vehicles – interventions have included establishing a mobile driver licensing station and automated vehicle technical inspection procedures, and launching nationwide campaigns addressing vehicle safety in winter and the inspection of buses and vehicles for people with disabilities. Committees were also set up to inspect construction and agricultural vehicles on site.

To support pillar 4, on safer road users, many aspects of traffic legislation were strengthened and a demerit point system for drivers implemented in line with global recommendations. Training of traffic personnel and the use of automated surveillance such as drones and electronic reporting devices has also helped detect violations such as mobile phone use while driving, people not using seatbelts and speeding.

Efforts to educate and raise the awareness of road users include a specialized traffic safety curriculum, and have benefited from the annual Jordanian International Conference for Traffic Safety which fosters the exchange of knowledge. Improvements were introduced to driver training and the curricula of driving schools, including the automation of driving license applicants' exams linking all driving training centres and schools.

Regional level specialized committees now oversee the maintenance of standards at driving centres, and a comprehensive surveillance system has been introduced, including body cameras to limit human errors in decisions during driving tests. Existing curricula were updated in line with recommended traffic safety tools, and an incentive programme linking insurance premiums to traffic violations – drivers who do not commit traffic offenses are given a discount on insurance premiums – was introduced.

Building on these efforts, a national road safety strategy 2019–2023 has been developed, targeting a further 20% reduction in the fatality rate by the end of 2023.

Kuwait: nationwide improvements in post-crash response

Kuwait's tremendous growth in motor vehicle use, combined with a burgeoning urban population, has led to a sharp increase in the demand for road space and transport services, jeopardizing road safety rates. Kuwait's Emergency Medical Services (EMS) have made great strides in addressing the ensuing road safety problems. The EMS, established in 1988 under the Ministry of Health, operate a specialized, two-tier system overseeing rescue services and emergency medical care in line with internationally approved standards in Kuwait's 6 provinces.

As in other countries, road crashes constitute a major economic, social and health problem in Kuwait. The Global status report on road safety 2013 found that Kuwait reported 373 fatalities and many more injured due to road crashes in 2010, at the onset of the Decade of Action for Road Safety 2011–2020.

To address road safety the Ministry of Health developed the Strategic Plan for EMS in 2010, in collaboration with the Faculty of Administrative Sciences of Kuwait University, and in consultation with emergency care service providers. The Plan laid out a number of objectives and expected outcomes based on a situational analysis of existing emergency medical services in three areas: emergency programmes, emergency care and transport services, and training.

Kuwait has a single, centralized dispatch centre for ambulance services, and receives all calls for EMS, including inter-hospital transportation. A universal emergency access number has automatic location identification with centralized dispatch for police and fire services, and EMS.

The Health Ministry established a Central Medical and Emergency Control Unit in 2018, and thanks to its efforts the arrival time for care of the injured fell to 11.2 minutes in 2019. The Unit was able to build on earlier advances: the transition to a digital communication and ambulance traffic tracking system in 2013, and the implementation of a new data system in 2016 facilitating data sharing between ambulances and hospitals. In 2015, air ambulance and evacuation services were introduced. Fully equipped ambulances have been procured, and more emergency centres covering the entire population were established in 2018, located along highways, borders, and in commercial areas and complexes.

Kuwait has also focused on developing and increasing the workforce in the emergency and ambulance sector. Financial allowances and benefits for emergency staff were increased in

2012, and infection and hazard allowances for medical technicians were increased in 2016. The EMS have worked to improve the professional, technical and administrative capacities of emergency services, and to strengthen the communication skills and technical competencies of paramedic staff through specialized medical courses.

An emergency medical technician specialization is now available at Kuwait's College of Health Sciences, and a new training centre at Kuwait's Medical Emergencies Department was established in 2019, made possible through alliances with international emergency care partners such as the British Ambulance Authority, the American Heart Association and King Abdulaziz Medical University. The centre offers specialized curricula, including for emergency medical technicians, and provides courses in rehabilitation and defensive driving – i.e. driving strategies to minimize risks and prevent crashes. Efforts have also been made to promote medical emergency specialization among high school students, and to attract high-calibre foreign professionals.

In early 2020, Kuwait published a set of policies to govern and guide EMS efforts into the future, setting targets such as reducing emergency response times to less than 8 minutes, and establishing a total of 77 first aid centres in Kuwait by end of 2020. The policies indicate clear progress not only for post-crash health care, but for improving road safety nationwide.

Lebanon: enhancing road safety management capacity

Lebanon has introduced a dedicated academic programme to train road safety professionals from Lebanon, the Region and the rest of the world.

The 18-month road safety management masters course at Saint-Joseph University, established a year after Lebanon adopted the 2009 Moscow Declaration, covers topics ranging from economics and public health to technical and psychosocial issues through a road safety-centric approach. Twelve students from a regional pool of applicants, with backgrounds ranging from engineering and law to economics, are admitted annually. The course, accredited by the Lebanese authorities, builds the capacities of road safety professionals, and proved central to Lebanon's and the Region's responses to the Global Plan for the Decade of Action for Road Safety 2011–2020.

The programme is the first of its kind in the Region. The curriculum includes mandatory practical training and was developed through consultation with international training programmes and international road safety specialized bodies, including the World Bank and WHO.

The course covered the five pillars of road safety set out in the Decade for Action for Road Safety: road safety management; safer roads and mobility; safer vehicles; safer road users; and post-crash care. Memoranda of understanding were established with institutions in European countries, and in the United States of America, enabling short-term practical training for prospective graduates.

In 2018, graduates from the course presented studies on Algeria, Egypt, Lebanon, Morocco, UAE and Yemen examining cross-cutting and innovative solutions to address road traffic-associated problems.

Under pillar 1, road safety management, projects included: analyses of road safety in Algeria and the development of a national action plan; the implementation of an automatic system to report road crashes in Lebanon; a study of road safety and corporate social responsibility in Morocco; preparations for the implementation of the ISO 39001, a management system for road safety, in Morocco; and governance and management of secure road freight transport in Algeria.

Contributing to safer roads, an organizational framework and technical standards proposal for road safety audit in Lebanon was developed, and an audit of road risk prevention according to the requirements of ISO 39001: 2012. Contributing to safer road users, students drafted a road safety curriculum for a number of African countries and examined speed management on highways.

As regards post-crash response, students looked at the implementation of an automatic crash notification system and QR rescue codes as part of Lebanon's post-crash emergency response.

To promote safer vehicles, students evaluated the status quo of traffic safety management in Yemen's development proposals, and completed an evaluation of fleet safety management in the private sector in United Arab Emirates.

After completing their studies, programme graduates are recruited by road safety management departments in a number of Eastern Mediterranean Region Member States. Among the institutions that benefited from the programme were specialized bodies such as Lebanon's Internal Security Forces.

Lebanon's ground-breaking masters programme has shown how academia can make a meaningful contribution to addressing the multi-faceted issues involved in road safety.

Libya: preventing road crashes with a health-led management structure

The Libyan government has targeted a 50% reduction in the number of road crashes annually, and has planned interventions to improve post-crash response, enforce the use of seat belts and child seats, and encourage motorcyclists to use helmets.

The Global status report on road safety 2018 estimated that Libya lost 26.1 per 100 000 people annually in road traffic crashes. Between 1995 and 2018, 46 979 Libyans lost their lives according to Libyan surveillance records, and the Libyan Ministry of Health reported that 150 000 were injured during the same period.

In 2019, the Libyan Ministry of Health issued a ministerial decree establishing the Permanent Committee of Road Traffic Injury Prevention, which in turn introduced the 2020–2024 National Programme for Prevention of Road Traffic Crashes, led by the Ministry of Health. The Committee coordinated multisectoral consultations with road safety stakeholders, including representatives of the Libyan Ministry of Health, Ministry of Interior and WHO.

Measures instigated as part of the National Programme include meetings between national stakeholders involved in road safety, and studies on the causes of road traffic crashes in Libya and their impact on hospitals. A road analysis is planned to identify black-spots and dangerous roads across the country's network, accompanied by media outreach campaigns to raise public awareness of road safety issues. In addition, Libyan representatives will participate in global road safety events, seminars, conferences and workshops on road safety, and the Committee of

Road Traffic Injury Prevention is liaising with influential religious leaders and mosques to improve public awareness of the issues.

To improve post-crash response, the committee will liaise with Libya's national communications agency with the aim of launching a universal emergency access number and establishing a standard procedure for hotline calls. This will entail training access number respondents and staff, and rolling-out a national campaign to alert the public about the number. There are also plans to design paramedic training course manuals, fix standards, implement courses for trainers and establish routine assessments and first-aid training, all within the National Programme for Prevention.

Targets include a 60% reduction in the overall number of road traffic crashes by the end of 2024 – 20% in the first year of implementation, followed by 10% in subsequent years – and reducing the time for post-crash response, which currently ranges from 10 to 20 minutes. The goals are ambitious but realistic, given that concrete, targeted efforts continue to be made to improve road safety for all road users.

Morocco: making road safety governance and management a national priority

Road safety is a priority for the Moroccan government which, working in collaboration with concerned stakeholders, has adopted comprehensive, integrated road safety strategies to improve road safety governance. This has resulted in many improvements to road safety.

The Global status report on road safety 2009 showed that nearly 4000 people died every year in

Morocco while using the roads, with many thousands more injured in crashes. The Moroccan Ministry of Works, Transport and Logistics reported a death toll of almost 3700, and 12 000 serious injuries on average annually (<http://www.equipement.gov.ma/AR/Transport-routier/Chiffres-Cles/Pages/chiffres-securite-routiere.aspx>).

In 2018, Morocco inaugurated the National Road Safety Agency (NARSA), which was able to build on earlier work by the Inter-ministerial Committee for Road Safety (CISR) and the Permanent Committee for Road Safety (CPSR), both of which were established in 2006, to improve road safety management. (CISR and CPSR were responsible for national road strategies, and the coordination, monitoring and evaluation of action plans at central and regional levels.) Involved stakeholders include the Ministry of Equipment, Transport, Logistics and Water; the Ministry of Interior; the Ministry of Health; the Ministry of Justice; the Ministry of Higher Education and Scientific Research; and the Royal Moroccan Gendarmerie.

NARSA began leading multisectoral road safety efforts in January 2020 by implementing the National Road Safety Strategy 2016–2026. The Strategy was developed through a consultative process with all road stakeholders prior to the inauguration of NARSA. The Agency currently acts as a coordinator on all levels within central government, and between regional and local authorities, stakeholders and civil society organizations.

NARSA conducted a detailed evaluation of the 2004–2013 national road safety strategy, revised the Road Traffic Code and signed agreements with local stakeholders in 12 Moroccan cities where high crash and fatality rates were recorded, with a view to improving road safety at the local level.

NARSA interventions promoting safer roads and mobility have included the construction of cycle paths, the building of pedestrian bridges and pedestrian safety barriers near schools, and improvements in road signage, with a particular focus on high crash-risk sections of road.

To improve vehicle safety, technical inspection centres were audited, and a decision was made to equip school and public transport vehicles with seatbelts for all passenger seats.

NARSA enhanced enforcement measures against dangerous road behaviours such as speeding, drink driving, mobile phone use while driving and transporting children under the age

of 10 in front seats. Morocco's government also launched a wide-ranging public awareness campaign on road safety and safe behaviour. Speed enforcement equipment was acquired, and bicycle and motorcycle helmets distributed. NARSA also ran awareness-raising projects in collaboration with civil society, and provided training and technical support to more than 300 NGOs.

Under pillar 5 – post-crash response – NARSA oversaw the expansion of the national ambulance fleet, and greater use of emergency medical helicopter services to reach isolated areas. New medical emergency units and rehabilitation centres were established, and mobile, peripheral emergency and recovery services were created, strengthening the capacity of medical and nursing staff working in emergency services. A number of civil protection workers were also hired and trained.

Growing public awareness of, and engagement with, Morocco's road safety efforts is reflected in radio campaigns and TV broadcasts, and on social media. More than 500 000 people now follow NARSA's Facebook page, and the charter of good behaviour on the NARSA website has been signed by more than 63 000 citizens.

The Agency also provides training on improving road safety in urban areas, and the construction of road education spaces for children, the popularity of which reflects the level of awareness of the importance of road safety among local communities and elected officials.

Morocco has also been working with international partners to identify road safety best practices, and instigated an annual National Road Safety Day on February 18 to express a collective will to fight for road safety for all.

Oman: wide-ranging road safety measures bring change for the better

In 2009, his late Majesty Sultan Qaboos Bin Said gave a speech on road safety, heralding a review of traffic laws and executive regulations by the government of the Sultanate of Oman. A nationwide plan to improve road safety across the Sultanate was subsequently put in place, led by the National Committee for Road Safety (NCRS) and supported by the Royal Omani Police (ROP). The NCRS is fully funded by the government and enjoys strong political backing.

Since 2012, the peak year for road traffic crashes in Oman, a number of large-scale interventions have been implemented, mitigating the impact of crashes on individuals, families, communities and the government. They include building new road systems incorporating expressways and flyovers.

A government report identified speeding as a major cause of 50% of fatal crashes in Oman, and attributed 15% of all crashes to vehicle defects. Ineffective first aid and emergency response, and limited access to ambulances, further compounded the problem.

Between 2011 and 2012, the National Centre for Statistics and Information (NCSI) reported a 6.3% increase in road traffic crashes, a 1.6% increase in reported injuries and an almost 8% increase in fatalities. By 2012, the crash fatality rate had reached 31.4 per 100 000, with 1139 fatalities reported.

At the time, Oman's National Research Council (TRC) identified the mishandling and transportation of the injured to medical facilities, the absence of first aid at crash sites and limited access to professional pre-hospital medical care as among the key challenges facing road safety management. In addition, there was a degree of community resistance to changing patterns of road use behaviour, particularly around the introduction of speed cameras and increased fines. To counter this, the NCRS initiated large-scale traffic-awareness campaigns on different media platforms. The Directorate General of Traffic evaluated these campaigns, concluding they had successfully helped change people's behaviour and attitudes.

Coordination between stakeholders was also identified as a problem, with the number of stakeholders complicating the forging of a consensus on proposed legal amendments. The NCRS's response was to assign the ROP as focal point to establish effective coordination between stakeholders.

The NRSC designed and implemented large-scale, government-funded interventions based on the recommendations of the TRC's studies. These included changes to traffic laws, increases in fines, more police patrols and modifications to the road system. Public awareness campaigns were undertaken, and public-private partnerships developed with the oil and gas sector for road safety advocacy and promotion.

As a result, between 2012 and 2019 the total number of fatalities fell by almost 55%, despite a 70% increase in the number of registered vehicles and a 71% increase in licensed drivers. A significant decrease was also recorded in post-crash injury complications.

Improvements to the vehicle inspection regime, including the introduction of new technologies, have helped reduce the number of crashes resulting from faulty vehicles by 56% compared to 2012. As more professional paramedics attended crash scenes there was a notable decrease in post-crash injury complications. In addition, driver training programmes have significantly improved.

To support pillar 1 of the Decade of Action for Road Safety 2011–2020 – road safety management – relevant legislation was revised, and the number of police patrols and automated speed cameras increased.

To promote pillar 2 – safer roads and mobility – Oman developed a geographic identification system for road crashes (iMAAP), and replaced 26 intersections with five flyovers and three tunnels. Oman also opened two new express ways, the Muscat Express (54 km) and Al Batina Express (266 km).

As regards pillar 3 – safer vehicles – the number of vehicle inspection stations were increased from 10 to 60, and two mobile centres for traffic services were established. Under pillar 4 – safer road users – defensive driving courses began to be made available, beginning in 2010, and an annual traffic safety competition was introduced in 2013.

To help improve post-crash response, an advanced emergency medical service was established, and 35 advance life support stations were opened, operating 24/7. Oman also

began deploying emergency aero-medical coverage.

The success of Oman's road safety strategy has been noted by many countries. Oman now plans to build on its successful road safety strategy by increasing the involvement of nongovernmental organizations in designing and directing of road safety initiatives, particularly those involving young people. Oman is also investing and promoting the use of public transport, cycling and walking as part of its holistic approach to addressing road safety.

Pakistan: a new national strategy to combat road crashes

Pakistan is working to address road safety issues in the country through strong political commitment, an emphasis on collaboration between key stakeholders and a holistic strategy combining research and action.

A National Road Safety Strategy was formulated in response to alarming statistics. Someone is killed or badly injured in a road traffic crash somewhere in the country every five minutes, and the economic cost of such crashes has reached somewhere between 3% and 5% of GDP.

Pakistan's Ministry of Communications reached out to all road safety stakeholders to determine the best ways to combat road traffic fatalities. The stakeholder consultations, led by the Ministry of Communications with the technical support of NTU International, and funded by Asian Development Bank, resulted in the National Road Safety Strategy 2018–2030, a holistic, nationwide approach to road safety in Pakistan.

Road crash data were analysed from the National Transport Research Centre, the Ministry of Communications, the National Highway and Motorway Police, the National Highway Authority and provincial stakeholders. Data shared by these agencies, supplemented by road crash surveys, were used to identify key factors contributing to road crash fatalities in Pakistan.

It emerged that 70% of fatalities occurred due to motorcyclists and their passengers not wearing helmets, or wearing substandard helmets, and lax use of seatbelts among users of other vehicles. The data also highlighted inadequacies within vehicle inspection and license issuing procedures. National steering committee meetings were held during which the findings were discussed with all stakeholders, and concrete recommendations were framed based on technical inputs to inform further action. Subsequent meetings and consultations were then held with stakeholders at the federal and provincial levels, and workshops and training sessions convened.

As a result of these preparations, the National Road Safety Strategy 2018–2030 was formulated with unanimous consent from project stakeholders. Its stated goal is “to create a safe and sustainable road network across Pakistan as part of the Government’s commitment to bring a better quality of life to the people of the country”.

The Strategy sets ambitious targets for all 5 UN road safety pillars, and addresses the growing need for actions to minimize road use.

Under pillar 1 – road safety management – the targets include saving at least 6000 lives that would otherwise have been lost by 2030, halving the fatalities on CAREC corridors during the same period and reducing the number of multivehicle fatal crashes on motorways and national highways.

Under pillar 2 – safer roads and mobility – the 2030 target is for more than 75% of travel on the existing national highway network to take place on roads that meet exacting technical standards. To this end, all new national and provincial highway construction will have a higher safety rating than existing roads.

National highways carrying more than 50 000 vehicles per day will have at least a 3-star rating standard for all road users, and sections of the national highway network passing through linear settlements must have a minimum 4-star standard for motorcyclists, pedestrians and bicyclists. Pakistan has a cadre of internationally accredited road safety auditors who will check that the regulations are being met.

Under pillar 3 – safer vehicles – new and used vehicles will be required to meet or exceed UN vehicle technical regulations.

Under pillar 4 – safer road users – road infrastructure and speed limits will protect vulnerable road users in cities with populations over 1 million people, and a driver licencing system will be introduced that meets international good practice standards and takes into consideration Pakistan's road environment. A target has been set of close to 100% for seatbelt-wearing among drivers and passengers on motorways and national highways, and for the wearing of strapped helmets for riders and passengers of motorcycles.

As regards pillar 5 – post-crash response – all provinces and territories of Pakistan will have a professional, government-regulated emergency medical system.

Pakistan's National Road Safety Strategy 2018–2025 underlines the fact that sustainable improvement in road safety requires cooperation between the government, industry and the public. While government agencies play a principal role in delivering a safer road transport system, the strategy emphasises that a collaborative approach is required across all aspects of the road transport sector. Everyone has a role to play in improving road safety in Pakistan.

Occupied Palestinian territory (oPt): better data for road traffic safety

Improved data collection and analysis has been the principal focus of road traffic safety efforts in oPt in recent year. A new information technology, data collection and data management system covering almost 2.8 million people in the West Bank was launched in 2017. Public hospitals and other health facilities have committed to reporting data via the system, vastly improving record-keeping and analysis.

In 2015, a situational analysis was conducted by the Palestinian National Institute of Public Health (PNIPH), assisted by WHO, looking at the health sector's electronic medical record data system and police data. The analysis revealed under-reporting of available data, and weak data quality, largely due to weak feedback systems and outdated case definitions. A list of recommendations, outlined in the table below, was agreed by road safety stakeholders to address the identified challenges.

Challenge

Recommended action

1. **Review forms used in road crashes**

Adopt standard case definitions for crash-related deaths and injuries

Revise data collection forms and develop guidelines for completing them

2. **Establish necessary infrastructure**

Establish a data warehouse for the registry

Organize a multisectoral working group for the registry

3. **Quality assurance**

Establish quality assurance mechanisms

Implement a feedback system

Organize capacity-building training exercises

4. **Data utilization**

Improve registry data utilization

Work on updating other relevant registries

The Road Traffic Accidents Information System (RTA-IS) was launched by the Palestinian Ministry of Health and the PNIPH to address pillar 1 of the Decade of Action for Road Safety 2011–2020 – road safety management. The RTA e-registry was on track to be fully functional by 2020, with a marked improvement in both the quality and quantity of data.

In 2018, the Ministry of Health also developed a digital tool integrating electronic medical records at government hospitals with the RTA e-registry.

The new RTA data form is now part of the national Electronic Patient Record, and the form includes all the data elements recommended by WHO. All 12 public hospitals in oPt have said they are committed to filling in the new RTA form, with compliance varying from 30% to 90%.

The quality of reported RTA data increased by 38% from 2017 to 2019, and compliance by emergency rooms in hospitals with automatic linkage to the RTA e-registry increased by 40%. The reporting date is in real time, matching the date of crashes. Some 75% of nongovernmental health facilities are committed to reporting on RTA, and the quality of reported RTA data increased by 23.4% from 2017 to 2019. There is also a feedback system to monitor cases and inform health facilities on quality and performance.

Despite the initial success, the data project still faces a number of challenges that are hampering progress. They include a lack of incentives for care providers to fill in RTA forms in a timely manner, heavy workloads in emergency departments, lack of training and follow-up, and high turnover rates among data-entry and RTA e-registry personnel.

The PNIPH now plans to work closely with the police sector to address all requirements for data exchange related to public health, and to facilitate linkage with Ministry of Health data which can then be stored in national data warehouses. With more workforce training and capacity-building, and an integration of insurance and registration departments at NGO hospitals, the data project will support future efforts to improve road traffic safety in oPt.

Qatar: long-term changes in road safety

Qatar's road traffic fatality rate fell from 14 per 100 000 population in 2013 to 10 per 100 000 in 2016, thanks to its road safety strategy. The strategy included enforcing seatbelt wearing, more stringent driver licensing, improvements to public transport, construction of pedestrian crossings and cycling facilities, and improvements to the road system. A target of 6 fatalities per 100 000 by 2022 was then set, only to be exceeded in 2019, when the rate fell to 5.48 per 100 000.

Traffic injury is a leading cause of premature death in Qatar. Between 2008 and 2010, an average of 220 deaths and 550 serious injuries were caused each year, with Qataris aged between 15 and 44 – predominantly male teenagers and young men – at particular risk.

Road safety was included in Qatar's strategic vision – the National Vision 2030 – published in

2008. The vision placed significant emphasis on human, social and environmental development. The National Development Strategy (2011), and National Road Safety Strategy (2013), also articulated the role of traffic safety in achieving security and stability, and maintaining public safety.

Since the National Road Safety Strategy was launched in 2013, a number of transformative actions and schemes have been implemented, contributing to Qatar's much-improved road safety performance. Progress was reviewed through a documentation of road safety efforts undertaken by the Ministry of Public Health with the support of WHO.

Qatar's commitment to adopting a safe system approach to traffic safety as outlined in the 2011 National Development Strategy, political commitment at the highest levels, and coordination between involved agencies, underlie Qatar's traffic safety successes.

Qatar is steadily moving towards decarbonizing transport, with the spotlight firmly on delivering a safe and sustainable transport system ready for the FIFA World Cup in 2022. The opening of the Doha Metro system is the most significant change in Qatar's transport infrastructure; supplemented by investment in walking, cycling and a broader range of public transport measures, it represents a major step forward.

Under pillar 1 – road safety management – Qatar established the National Traffic Safety Committee. The Committee's thematic working groups support multi-agency coordination, aided by strong research facilities and data systems for effective tracking and monitoring of performance across a range of indicators.

Under pillar 2 – safer roads and mobility – traffic black spots have been identified and robust road safety audit processes are being put in place. Public transport, pedestrian crossings, cycling facilities, cluster areas and school areas have received particular attention in development plans to further improve road safety and overall mobility.

On safer vehicles – pillar 3 – Qatar now has a set of parallel regulations through its membership of, and active participation in, the Gulf Cooperation Council's Standardisation Organization (GSO). An independent inspection process is implemented for all vehicles once they are 3 years old, with a wide range of checks on safety features. Increased levels of automation and use of

technology are a particular feature of Qatar's traffic safety programme: they have led to faster processing, reduced the need for human inputs and increased transparency.

Under pillar 4 – safer road users – Qatar's driver licencing regime has been redesigned to ensure a comprehensive examination process, with automated systems and digitalization used for stronger enforcement.

To promote post-crash response – pillar 5 – Qatar has developed a world-class post-crash care system. Emergency response, trauma care and rehabilitation services have been substantially developed to address survivability and improve patient outcomes. A single national emergency number with a unified emergency response procedure is in place, and paramedic services have used data insights and technological advances to improve the speed and safety of response.

Trauma care is now accredited by the Trauma Association of Canada. Based on the US model, which entails the trauma team being activated by pre-hospital responders and assuming responsibility for patients with multiple traumas, the average length of stay in trauma care has been reduced from 13 days to 4.

The trauma registry developed at Hamad General Hospital has been adopted as a national registry, and the Rehabilitation Institute, established in 2017, ensures that rehabilitation services are delivered in a timely way, including for road traffic injury patients. Therapeutic support continues beyond the point of discharge to reintegrate road traffic victims into society.

Since 2013, when the new strategy was launched, Qatar has reported a 37% reduction in fatalities despite 40% population growth during the same period and the number of vehicles more than doubling.

Committed to delivering long-term change to road safety across the country, Qatar is currently focusing on rehabilitating driving violators, strengthening speed management and increasing the impact of the insurance sector in attaining ambitious road safety targets.

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Saudi Arabia: translating political commitment into direct action on road safety

After years of tragically high road traffic death rates, Saudi Arabia's road safety record has improved markedly thanks to the government's deep political commitment to improving the sector – which has translated into action at ground and policy levels.

Saudi Arabia had one of the highest estimated death rates from road traffic crashes among high-income countries in 2016, at 28.8 per 100 000 people, significantly higher than the 24.1 per 100 000 average recorded by WHO in low-income countries.

Alongside the human costs, the social cost of road traffic injury, estimated at \$3.2 billion, represented 1.7% of Saudi Arabia's GDP. Statistics also revealed that younger adults were at greatest risk, and boys and men were 5.6 times more likely to die on the roads than girls and women.

In response, the Saudi Arabian government made road safety a strategic objective of Saudi Arabia Vision 2030.

Documentation of road safety efforts undertaken under Vision 2030 was carried out in 2019 by the Ministry of Health, with support from WHO. It examined eight strategic pillars and 18 initiatives relating to road safety. Saudi Arabia's strategy, based on intersectoral coordination mechanisms rooted in a safe system approach, was led and coordinated by the Ministerial Committee for Traffic Safety, chaired by the Ministry of Health.

One focus of the Committee was improving post-crash trauma care in Saudi Arabia, which was achieved via a national network of new regional trauma centres, the roll-out of a trauma registry and a fellowship study programme for trauma specialists. The Saudi Red Crescent Authority also adopted a scoop-and-run approach to prehospital trauma care, in which patients are transported as fast as possible to hospital without trying to stabilize them at the scene. This helped reduce the average time from call-out to attendance at crash sites from 17 minutes in 2017 to 14 minutes.

Laws on seatbelts, child restraints and helmet wearing for motorcyclists were strengthened, with enforcement relying more on artificial intelligence, and awareness-raising campaigns and education programmes for the public were rolled out. More stringent enforcement of seatbelt wearing has resulted in a 43% reduction in serious casualties from speed-related crashes, and an increase, from 33% to 97%, in driver seatbelt use rates at monitored sites. Black spot analysis and a partnership with the International Road Assessment Programme (iRAP) are also helping to create safer roads.

Public transport infrastructure is being strengthened, most notably public bus services in Mecca and Medina, and Riyadh's metro and rapid bus transit services. Black spots on the country's main road network have also been identified with a view to improving safety for all road users.

The result-focused strategy, which aligns with recommendations from global institutions, ensures that best practice interventions are applied, with great attention paid to research and evaluation.

Saudi Arabia is a participant in the Gulf Cooperation Council's Standardisation Organization (GSO), and addresses a wide range of vehicle safety features through GSO's standard 42. The Transport General Authority has also introduced requirements for mandatory protection for all vehicles above 3.5 tons, as well as tracking of goods and public service vehicles.

The vehicle insurance sector has developed beyond the immediate reimbursement of financial settlements into a more integrated platform of support, while increased numbers of scientific papers examining various aspects of road safety are testament Saudi Arabia's growing academic and research capacity into the issues involved in creating safer roads.

The results of these road safety advances are palpable. Since 2016 there has been a 35.4% reduction in total road traffic deaths, and a 40% reduction in the death rate per 100 000 population.

More remains to be done. Traffic injury and deaths remain an important public health and development issue in Saudi Arabia, but by focusing on speed management, vehicle standards and inspection, driver behaviour and licensing, infrastructure and post-collision response, Saudi Arabia can look forward to a new future of road safety.

Somalia: modernizing the road development agency

One example of road safety efforts that took place in Somaliland is the modernization of the road development agency in the regions of Awdal, Marodi Jeeh, Sanaagh, Sool, Togdheer and Woqooyi, Galbeed. Since 2011, these regions have been working to reduce road traffic injuries.

Participation in the Global status report on road safety 2015 provided an opportunity for an in-depth review of existing traffic laws covering these regions, while a local review published on 6 April 2013 identified how existing laws aligned with international best practices on key risk factors including speed, seat belts and motorcycle helmets.

The estimated death rate of 25.4 per 100 000 people in 2013 was double the global average for the same year. WHO's Global status report on road safety 2015 also noted that road traffic deaths in the regions above were counted only at the scene of crash, which suggests the actual number of fatalities could be higher.

The 2015 Global status report identified a number of strengths regarding road safety, including the existence of a lead agency overseeing road safety management responsible for all institutional functions – coordination, legislation, monitoring and evaluation – of road safety, and with a budget allocation to carry out its functions.

There is also an emergency room-based injury surveillance system reporting fatal and nonfatal road traffic injuries which could contribute to the future improvement of road traffic data systems. An emergency access telephone number exists in the city of Hargeisa, Somaliland, and there are laws targeting speed, which can be modified by local authorities, and drink driving laws. Though there is no seat belt law, there are restrictions on children sitting in the front seats of vehicles.

In 2017, the transport and road development sector was nominated as the lead agency for road safety in the above-mentioned regions. This gave an opportunity to create an allocated budget and give priority to the issue of road safety. The Road Development Agency (RDA) of

Somaliland is responsible for road rehabilitation and construction; and guiding community contribution roads.

Challenges remain. Road safety strategy and transport policy need updating, which will require coordination between road safety stakeholders. Greater capacity in road safety needs to be built, guidelines for trauma case management developed, post-crash emergency response with fully equipped ambulances strengthened and road safety awareness raised.

With the endorsement of the Road Development Agency, improvements have been made to the process of issuing driving licenses to ensure new drivers possess necessary skills, and an institute for training official transport drivers, instructors of driving schools and traffic police has been established.

The import of right-hand drive vehicles has been suspended and annual vehicle inspections have begun. Speed governors now control the speed of public transport vehicles, large trucks and water tankers, road manuals have been drafted, and attempts are underway to ensure new roads have appropriate signs.

GPRS systems in official vehicles have halved the cost of fuel consumption by tracking the location of vehicles and reducing unnecessary movement, and increased safety by using a speed limitation system. Weighbridges are helping to extend the lifetime of roads by reducing the negative impact of overloaded trucks. Advocacy and awareness-raising measures include a radio talk show on road safety, and there are plans to participate in regional and global events such as African Road Safety Day, the Global UN Road Safety Week, and the World Day for Remembrance of Road Victims.

Plans are also underway to establish a road safety committee covering the regions mentioned above, which will bring together concerned stakeholders and consolidate efforts to reduce road crashes and ensure road safety for all.

Sudan: an ambitious road safety strategy

Sudan has focused heavily on promoting safer road user behaviour, and road safety awareness and education.

Sudan's Traffic Safety Coordination Council, and ambitious Road Safety Strategy 2011–2016, led by the Ministry of Interior, reduced the rates of serious road crashes in Sudan by 20%. Work then continued with the launch of Sudan's Road Safety Strategy 2017–2021, to further ameliorate the country's road safety situation.

The 2011–2016 strategy foregrounded the need to promote safer road user behaviour. It included setting up a joint committee between the Ministry of Education and the General Traffic Department which was given responsibility for establishing traffic safety awareness groups at a state level. The joint committee was also central to the second Road Safety Strategy 2017–2021, overseeing the mainstreaming of road safety in school curricula across the country, and promoting road safety research and conferences.

Sudan's Road Safety Strategy 2017-2021 aims to reduce road traffic crashes, improve road infrastructure safety specification, improve post-crash care and increase public awareness of road safety behaviour among all road users. To realize these goals, strategic planning and consultations with all road safety stakeholders in Sudan were held.

The multiple goals included ensuring successful coordination between traffic safety stakeholders and partners; covering national roads with communication and radar networks and training personnel in their use; promoting the use of technological advances in traffic procedures; connecting city networks with the national surveillance network using cameras; strengthening post-crash care capacities; rehabilitating and building roads to a high specification; increasing traffic control; and ensuring overall standards and specifications for all road safety functions.

A planning board led by the Minister of Interior initiated the process with an extensive, nationwide analysis of the road safety situation which identified strengths, weaknesses, opportunities and threats to road safety. It was agreed early in the discussions that the strategy must be evidence-based, sustainable and aimed at developing local capacities, with involved stakeholders emphasizing the importance of guaranteeing the finance needed to pursue the strategy.

Sudan's Road Safety Strategy 2017–2021 is informed by the Sudan 25-year Strategy 2007–2031, the UN Sustainable Development Goals, the African Union Development Agenda, the Ministry of Interior's workplan, an evaluation of the first five-year Road Safety Strategy 2011–2016, the recommendations of the 2nd Ministerial Conference on Road Safety and the Brasilia Declaration, the recommendations of Sudan's National Conference on Prevention of Road Crashes and Sudan's global, regional, and national commitments on road safety.

The planning board aims to, among other things, maintain and refurbish road networks, install pedestrian sidewalks and crossings, rehabilitate hospitals and introduce ambulances. The strategy states that strong coordination between Sudan's road safety partners is a key requirement for the achievement of its objectives.

Under pillar 1 – road safety management – the strategy includes setting up a traffic data centre with back-up servers, expanding geolocation tracking services, increasing the number of speed radars in service and promoting scientific research and studies.

On safer roads and mobility – pillar 2 – the strategy commits to overhauling traffic black spots, rehabilitating half of Sudan's existing road network, including the provision of new traffic signs, repairs to all inner-city roads and the construction of more pedestrian sidewalks and crossings.

Under pillar 3 – safer vehicles – a national workshop for inspecting vehicle spare parts is planned, together with periodic inspections of warehouses to ensure that vehicle specifications are being met.

As regards pillar 4 – safer road users – traffic control rooms are planned in five states, traffic unit monitoring and surveillance will be improved and media campaigns to increase public awareness of road safety will be conducted.

Under pillar 5 – post-crash response – 389 ambulances will be brought into service, 5 hospitals will be renovated and 10 health centres on major roads will open. First-aid training for 8500 service provider staff members is to be made available, and road safety educational programmes rolled out.

Sudan's ambitious road traffic safety targets are underpinned by a strong political will to improve road safety for all.

Syria: the role of the health sector in the national road safety strategy

The Syrian Arab Republic has participated in successive WHO global status reports on road safety as part of its government's efforts to improve road safety despite all challenges. The 2013 report estimated the country's road traffic mortality at 22.9 per 100 000 population. One of the biggest challenges is the state of conflict in the country, which led to the closure of ambulance centres in 2012.

In response to UN General Assembly road safety resolutions, the government formed a National Technical Traffic Safety Committee led by the Minister of Transport. It includes representatives from the Ministry of Transport, the General Authority of Road Transport, the Ministry of Interior, Ministry of Local Administration, Ministry of Health, Ministry of Education, Ministry of Information, the Syrian Arab Red Crescent, the Syrian Society for the Prevention of Road Accidents, the Syrian Automobile Club, Damascus University and a number of other nongovernmental organizations.

The committee oversaw the development of a road traffic safety strategy which disseminates road safety recommendations to all levels of government, coordinates media campaigns and undertakes periodic reviews of legislation and recommendations aimed at improving traffic safety.

The Syrian Arab Republic's road traffic safety strategy is based on the five pillars identified in the Global Plan for the Decade of Action for Road Safety 2011–2020.

Ministry of Health efforts to strengthen ambulance centres on roads have been made in collaboration with the Ministry of Interior's Traffic Department and the Road Transport Authority, which operates under the Ministry of Transport.

In 2003, centres were established to ensure that ambulances were available on highways between governorates, able to provide rapid response and care by qualified personnel. By 2011, there were 28 ambulance centres across the country, serving the main roads between governorates. The centres were served by qualified staff and equipped with a communication system allowing for coordination with hospitals and with the relevant health directorates. Owing to the ongoing conflict, however, most of these centres were closed in 2012.

Three centres reopened in 2019, and plans are in place to rehabilitate others and retrain staff. Community initiatives have played an important role in supporting these centres.

The Ministry of Health secured accommodation for health personnel by setting up prefabricated rooms, in cooperation with other stakeholders, and made staff available by placing students in nursing schools in governorates where they could work for ambulance centres. Closed-circuit telephone lines were also secured, allowing communication and coordination with local hospitals.

The Ministry of Health has also issued guidance for mandatory first aid kits in cars and trucks, and guidance covering the transport of the injured, resuscitation and first-responder care.

Road safety awareness campaigns have included Traffic Department visits to schools in Damascus to raise children's awareness of road safety. The school campaign included posters explaining traffic safety rules and free gifts accompanied by traffic safety awareness leaflets.

The Syrian Society for the Prevention of Road Accidents played a major role in raising public awareness at a local level, issuing publications containing road safety messages.

A group of youth representatives from the Syrian Automobile Club, the Syria Youth Imprint Foundation and the Ministry of Health's ambulance and emergency care service spearheaded an awareness campaign on road safety targeting 15 to 29-year-olds. The campaign stressed that it is possible to reduce the risk posed by road crashes by standardizing response efforts, including training in first aid, life-saving procedures and safe transport of the injured.

The Syrian Arab Republic is continuing collaborative, multisectoral national efforts to implement a national traffic safety strategy and strengthen partnerships between concerned stakeholders.

Tunisia: better data for road safety

Piloted in northern Tunisia, the Analysis of National Causes of Death for Action (ANACONDA) is a multisectoral effort, developed in 2015 and supported by WHO, to identify gaps in data relating to causes of death, and meet the need for reliable health indicators.

Some 44% of Tunisia's fatal crashes, and 55% of all road traffic crashes, occur in the northern region of the country, home to 50% of Tunisia's population. The pilot began in October 2019 and ended in February 2020, and ANACONDA is now being expanded to other regions.

ANACONDA was developed through a multisectoral partnership including the Ministry of Health's National Tunisian Public Health Institute (INSP) and Strategic Health Operations Centre (SHOC), and the National Road Safety Observatory of the Ministry of Interior.

Poor data quality was identified as a major challenge to Tunisia's efforts to improve road safety. Studies revealed a discrepancy between national reported data and WHO-estimated road traffic fatality data, a result of national data being gathered from different sources and the paucity of links between information systems. The absence of systematic coordination has led to inconsistent reported data. It is necessary to link national data systems – including health, police, civil registration and insurance data – to improve the accuracy of reporting.

Road traffic data in Tunisia is collected by the Ministries of Health and Interior, and by the insurance sector. The National Road Safety Observatory is responsible for collecting data from the police and national guard, and for developing mortality indicators attributable to road traffic crashes. The Ministry of Interior also collects road and crash environment data.

There are currently two information systems collecting data on deaths attributable to road traffic crashes within the Ministry of Health – the National Institute of Public Health (NIPH) cause-of-death information system, and the SHOC information system. The NIPH receives data from death certificates sent by civil registry offices, while SHOC receives data from the Health Ministry emergency departments on patients admitted to hospital facilities following road traffic crashes.

A data linkage project, coordinated by the Emergency Department of the General Directory of Health, includes the main stakeholders SHOC, NIPH and the National Road Safety Observatory.

Within the project, SHOC is responsible for collecting data from emergency services and hospital records, while NIPH collects data from health certificates issued by hospitals and private doctors. The Ministry of Interior-led National Road Safety Observatory is responsible for collecting police data. Both NIPH and the National Road Safety Observatory are also tasked with the design and coordination of the project, and technical support.

The data unification project aimed to address data discrepancies identified for the year 2017 by synchronizing data on road traffic fatalities from different sources. Based on the pilot in northern Tunisia, it employed a multisectoral approach towards integrating road traffic death data. The project was not intended to replace the existing system, but to facilitate data being relayed to a single unit which could ensure its quality.

Data collectors were trained to accurately fill collection forms containing road safety-related variables. The Interior Ministry also implemented a 30-day follow-up on road traffic crashes to address under-reporting of road traffic fatalities.

Using funds provided for the project and facilitated by the WHO Tunisia Country Office, a technical team was hired which included a statistical engineer, a data entry agent, a forensic medicine expert and several information technology personnel. The project has now completed synchronization of the data provided by the Ministry of Interior and the Ministry of Health, and initial reports show the quality of data has significantly improved, closing the gap between Tunisian road traffic fatality data and WHO estimates for 2017 data. A final report on data quality is in development.

A number of challenges were encountered during the course of the project. Numerous hospital and municipality visits were necessary in order to access missing data, and some core variables datasets were unavailable.

There were also technical challenges. Differences in the design of databases used complicated the synchronization process, and data from other sectors was sometimes unreliable. Human resource capacity capable of ensuring the sustainability of the data project is also in question.

The next phase of the project includes developing database software to replace the existing systems across all sectors. Stakeholders also plan to include insurance sector data in the unified database.

With the support of WHO, Tunisia plans to validate and document the data unification exercise, which will help guide future interventions in road safety management in other regions in Tunisia. The data unification project is eventually expected to extend to all regions of Tunisia, ensuring national data makes a significant contribution to overall road safety.

United Arab Emirates: government accelerators for the reduction of road traffic deaths

In 2010, the United Arab Emirates' federal government launched its National Vision 2021, which included a focus on road safety.

In October 2016, the United Arab Emirates's Council of Ministers issued a decision establishing Government Accelerators, an action mechanism aimed at speeding up the achievement of Vision 2021. The accelerator project is considered one of the first in the world to be adopted by a government rather than by the private sector, where it is a common practice to quicken action.

The Ministry of Interior was the lead authority for this exercise, representing all traffic and licensing departments at the state level. It cooperated with the Ministry of Energy and Infrastructure, the Ministry of Health and Community Protection, the National Ambulance Service, the Roads and Transport Authority and local transport departments.

The mechanism provided a platform for government teams to overcome challenges and achieve ambitious goals within a short period of time by addressing four main areas – national indicators; programmes and services that contribute to accelerating the completion of projects; laws and policies; and leadership and innovation in the government sector that encourages integration between government agencies and the private sector.

The availability of customized, innovative workspaces, joint working teams staffed by leaders, trainers and supervisors with global competence, intensive, short-term programmes, quick and tangible results, and pioneering and innovative practices are among the most important characteristics of the Government Accelerators.

In terms of improving road safety, measures adopted included increasing traffic patrols by redistributing staff, applying a white points initiative (https://www.dubaipolice.gov.ae/wps/portal/home/miscellaneouslinks/whitepointssystem/accumulated_white_points), increasing the number of ambulance patrols and redistributing them to crash concentration points, increasing the number of radar and control devices on dangerous roads, launching a road safety awareness campaign in several languages and introducing engineering modifications to improve the level of traffic safety on the most dangerous roads.

The road safety accelerator resulted a 63% reduction of deaths on the United Arab Emirates's five most dangerous roads, three times the original target of 21%. The project also contributed to increasing the public's perception of safety on the roads. Opinion polls showed an increase in people's satisfaction rates from 96% in 2016 to 98% in 2017.

Many citizens from neighbouring countries visit the United Arab Emirates during the same period each year, contributing to a seasonal increase in the density of vehicles on the country's roads and the increased possibility of traffic crashes. Weather conditions also fluctuate, with rain and fog posing particular dangers. In response, a number of initiatives to improve road safety standards and increase awareness of the impact of local weather conditions on road safety were launched through social media.

The positive impact of interagency integration on national efforts to reduce deaths, and the benefits of specifying a time period of no more than 100 days to implement plans to improve traffic safety, were among the important lessons learned in the course of implementing the accelerator approach. Modern technologies such as artificial intelligence systems can also help in reducing death rates.

As the project demonstrated, an intense focus on road traffic issues can lead to positive changes in a short time and provide valuable lessons for future interventions to improve road safety.

Yemen: collating better data for road safety

Despite ongoing challenges, endeavours to improve road safety in Yemen are continuing. A study on developing a model for forecasting road traffic accident (RTA) fatalities in Yemen was launched in 2017. A collaborative effort between the University of Aden Faculty of Engineering, Al-Gumhoria Hospital in Aden and Zagreb University's Faculty of Traffic and Transport Sciences, the study aimed to identify the challenges facing road safety data surveillance and to provide more reliable estimates of road fatalities in Yemen.

Road traffic injuries continue to be a grave public health issue in Yemen. The Global Health Estimates reported road traffic injury among the 10 leading causes of death in Yemen in 2010, 2015 and 2019, with the age-standardized road traffic mortality rate increasing markedly across the three years.

The Global status report on road safety 2013 reported 2959 road traffic deaths in Yemen in 2010, while WHO estimated 5698 road traffic deaths for the same year. The data source for the lower figure was police records, which defined road traffic deaths as deaths at the scene of a crash while the internationally recommended definition is death within 30 days of the occurrence of a crash.

There is a need to strengthen road traffic data to better reflect the actual road traffic situation in Yemen. The study addressed this in two phases. The first phase involved mapping road traffic data sources, which included civil registration, police records, health records from both emergency and in-patient departments, death certificates and the Central Statistical Organization.

Phase two involved the modelling of road traffic deaths. Data from 1991 to 2010 were analysed and used to build and calibrate the model, which was then validated using data from 2011 to 2013. Annual fatalities were modelled as the dependent variable, while independent variables included population, number of vehicles, gross national product, gross domestic product and – as a proxy for income – real gross domestic product per capita.

The model thus developed is assumed to correctly predict future fatalities, and identify any gaps between reported and estimated figures.

Despite recent records showing a decreasing trend in fatalities per 10 000 vehicles, the study showed that between 1991 and 2010 the number of road traffic fatalities in Yemen actually increased from 1274 deaths to 2959.

The mapping process revealed some strengths for reporting road traffic deaths, including the availability of different data sources and the presence of an end-user department – the statistical department that compiles all statistics relating to road traffic deaths.

Weaknesses identified included a lack of capacity to collect data from different sources, the misclassification of cause of death, a low completion rate of death certificates, a lack of access to information and weak linkages between data sources.

The statistical model developed by the study can be used in the future as a tool to predict road traffic fatalities and so help improve the quality of reporting. Together with the process map, the model could serve as a guide for policy makers to review the accuracy of road traffic data-collection procedures and help inform positive policy change.

The findings of the process mapping identified current road traffic data system components that can serve as a foundation for more in-depth and comprehensive mapping in consultation with all relevant stakeholders. This will help better describe how the different systems operate, and to identify inefficiencies and bottlenecks in the process.

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