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Recommendations to improve young and novice driver safety in the State of Qatar

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ABSTRACT

Introduction: Young driver behavior and safety are key concerns in Qatar, where they are disproportionately represented amongst road victims and fatalities. This paper summarizes the proceedings of a workshop, entitled "Enhancing the Safety of Young and Novice Drivers in Qatar", held as a pre-conference workshop of the 24th World Congress of the International Traffic Medicine Association (ITMA) in Doha, Qatar.

Methods: A guided discussion was conducted amongst a selected multi-sectoral group of 50 stakeholders, representing Law Enforcement, Health, Society and Education, Transport, and Road Safety. Each group discussed the best evidence and local realities of young driver safety in the State of Qatar. Using a modified Delphi approach, key areas were identified and prioritized; consensus recommendations were obtained and summarized.

Results: Based on the stakeholders' discussions a list of twelve key recommendations has been developed and its elements have been classified in order of priority. These recommendations are supported by relevant published evidence as well as expert opinion and have been shared with the relevant authorities to inform future policies.

Conclusions: This article summarizes the workshop presentations and the twelve key recommendations that arose from the discussions and put them forward to the concerned authorities. It should be emphasized that the concerned authorities concerned need to take action on at least the top three recommendations (GDL, improved police enforcement, and improved licensing and training), but also to prioritize all other recommendations that can be easily addressed such as improved roads and auditing and risk-based insurance.

Keywords: novice drivers, police enforcement, recommendations, road safety, traffic medicine, young drivers

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INTRODUCTION

Road traffic injury (RTI) rates have been decreasing steadily since 2006 but are still the leading cause of death for the population of Qatar, from ages 1 to 45 years[1–3]. Young drivers, defined as less than 30 years of age, have been identified by various researchers as the highest risk population for RTI and motor vehicle crashes (MVC) in Qatar[2,4–11]. There is also a preponderance of data that shows the disproportionate mortality risk is predominantly borne by male and native young drivers[12].

There is consistent evidence that young male drivers are more likely to 1) have more traffic violations than females and older drivers[6,12]; 2), be involved in a four-wheel-drive crash[6,9,12]; 3), avail of the ambulance, emergency department, or trauma services for RTI[10]; 4), sustain severe injury and death on ejection from a vehicle and be involved in all forms of motor vehicle crashes[9,10]; and, 5) use a mobile phone while driving[6,13], though some studies, in a different cultural context, debate phone use between genders among university students in the United States[14]. Furthermore, native, non-expatriate, young drivers have 1) a ten-fold increased risk of death from an RTI when compared to the general population[2]; 2) a ten-fold increased risk of trauma center admission for an RTI, when compared to the general population[10]; 3) an 8-fold increased risk for ambulance utilization for an RTI, when compared to the general population[10]; 4) an 11-fold increased risk for emergency department attendance for an RTI when compared to the general population[10]; 5) a 4-fold increased risk for being unrestrained in a rollover crash when compared to expatriate rollover crash victims[9,15]; and, 6) 2.3 times less likelihood of using a seatbelt when compared to expatriate university students[7]. The above facts were key in prompting the ITMA conference scientific committee to convene a special workshop and look more closely at the issues, involving all possible stakeholders, and proposing potential solutions to minimize future loss of lives and debilitating injuries.

THE WORKSHOP

The workshop planning committee, appointed by the National Traffic Safety Committee, arranged the program (Appendix A) and identified participants (Appendix B). The goal of the workshop was to identify issues facing young and novice drivers in Qatar, create guidelines, and establish achievable and sustainable strategies that encourage safer road transport systems for more effective change in the region. The workshop drew on the expertise of professionals from Qatari government agencies, non-governmental organizations, international organizations, as well as academic and medical research institutions.

Professor Brian Fildes, Adjunct Professor at the Monash University Accident Research Centre, Australia, opened the workshop by describing the global burden and statistics of young driver risks. Three speakers then highlighted issues facing young and novice drivers in Qatar and offered some suggestions as to how international best practices could be adopted to meet the needs of a rapidly developing country. Dr. Rafael Consunji, Director of the Hamad Injury Prevention Program at the Hamad Medical Corporation, Qatar, shared statistics from the Trauma Department and described some of the causes in his presentation entitled '*The Disproportionate Risk of Young Drivers for Road Traffic Injury and Fatality in Qatar: Evidence for Policy*. Dr. Susan Dun, from Northwestern University in Qatar, discussed local attitudes and practices, while Dr. Hans-Yngve Berg, a Senior Road Safety Analyst from the Swedish Transport Agency, outlined effective global approaches to managing young driver risks based on international gold standards.

Dr. Dun's position as the lead for qualitative research in studying key behaviors and attitudes of young Qatari male drivers conducted culturally contextualized focus group discussions among 18-25-year-old male Qatari drivers, run by a fully-trained Qatari male, in national dress, using the local dialect[16,17]. Her research led to the identification of the following key themes or attitudes towards seatbelt use and driving: 1) Sensation Seeking – young Qatari male drivers equated good driving skills and/or techniques with being able to perform stunt driving; 2) Culture – stunt driving is deeply embedded in their culture, i.e. 'normal' activity for the groom before the wedding, and police often do not penalize them for such practices on the road; 3) Difficult Audience [overconfidence] – they do not need the seatbelt because they are good drivers. Using a seatbelt signifies poor driving skills and/or a passenger's lack of trust in a driver; 4) Incorrect Beliefs – the participants strongly believed that the dangers of wearing seatbelts are more than the benefits, citing rollovers and ease of leaving a car that crashes and/or burns; 5) Fatalism – a strong belief that, if one gets into a crash, it is "God's will" and/or that one's end has already been written and no amount of intervention can change that; and, 6) Message Reactance – the participants actively 'turn off' or ignore dramatic or sad advertisements or

messaging that show the adverse effects of unsafe road practices. Dr. Dun summarised that key themes must be the focus of any programs or interventions aimed at this high-risk population and that her team is conducting focus groups to create a locally acceptable mass media campaign that will address each of these themes.

Dr. Berg shared the Swedish experience with young driver training. He started with the concept that "*a safe driver is not only skilled but also sensible and wise*". He emphasized the importance of the "*hierarchical competence approach to the task of driving*" that seeks to combine both age and experience with the necessary technical skills needed for safe driving. Lastly, he enumerated the important triad – curricula, tests, and training – that they use as a foundation for efforts to improve the safety of young drivers in Sweden.

Attendees were then divided into five separate discussion groups centered around the main congress themes: Law Enforcement, Health, Society and Education, Transportation, and Road Safety. Led by a representative of the ITMA Congress Scientific Committee, each group was tasked to identify five recommendations within their theme and then justify each recommendation to the workshop audience for further discussion.

Professor Fildes concluded the workshop and informed the attendees that all recommendations would be collated and presented to the congressional delegation in an opening day presentation followed by the preparation of a white paper for the Qatar National Traffic Safety Committee.

WORKSHOP RESULTS

In agreement with global road safety standards, the recommendations discussed are summarised in Table 1. Three of the five groups reported more than the maximum top recommendations. Most attendees commented on the need for a graduated licensing system (GLS) for young drivers aged 16 years up until full licensing, more effective pre-licensing training requirements such as night-time curfews, and passenger restrictions. Other recommendations introduced the concept of vehicle safety measures, such as improved crashworthiness and autonomous driver assistance systems, improved policing, licensing regulations, education, risk-based insurance policies, deterrents for offenders, and the need for more research concerning crash data.

The information collated in Table 1 has been further analyzed, regrouped, and prioritized into 12 key recommendations which are presented with relevant evidence and justification when available.

Recommendation 1: Graduated driver licensing

A wealth of literature exists to review and summarise the effectiveness of Graduated Driver Licensing (GDL) on reducing road traffic injuries in young drivers although the magnitude of the effect varies[18]. More restrictive programs appear to result in greater fatality reduction. A review conducted by the Transport Research Laboratory concluded that the evidence for the effectiveness of GDL to reduce novice driver collisions is compelling. GDL appears to be most effective for those who are at initially the highest risk, such as young males[19], hence it would be a beneficial system to adopt in Qatar where the prevalence of road traffic injuries is significant amongst young male drivers[5,12].

Recommendation 2: Improved police enforcement *(with enhanced demerit points for young drivers and drug testing)*

Greater and improved Police enforcement, especially through direct and visible roadside interventions, is a recommendation that was proposed by three out of five discussion groups. Police enforcement can be achieved in several passive and active ways. The passive methods are already extensively implemented in Qatar and include fixed and mobile surveillance and speed cameras, and occasional roadside monitoring by Police officers who take note of vehicle registration numbers of driving offenders. The active enforcement methods involve interactions between Police officers and drivers, and include road checkpoints, pulling driving offenders to the roadside to issue fines, give warnings, perform random breath testing (RBT), or simply educate drivers. Road checkpoints are an effective approach to check drivers' licenses, inspect vehicle safety, and encourage proper front and rear seatbelt use, including for children[20]. Seatbelt non-compliance and related mortality is a recognized problem in the Gulf Cooperation Council (GCC) countries[21] despite clear evidence that their compulsory usage by all passengers could reduce the number of deaths and severe injuries[22]. When partially fitted on a vehicle passenger, seatbelts often cause serious injuries in case of a road traffic collision[15,22,23].

Table 1. Summary of workshop recommendations per discussion group.

Key Recommendations \ Discussion Group	Law Enforcement	Health	Society and Education	Transport	Road Safety	Frequency
Graduated driver licensing	Yes		Yes	Yes	Yes	4
Improved police enforcement	Yes		Yes	Yes		3
Improved licensing and training	Yes	Yes	Yes			3
Safer vehicles (technology)	Yes		Yes		Yes	3
Driver fitness to drive		Yes			Yes	2
Improved roads and auditing				Yes	Yes	2
Risk-based insurance	Yes		Yes			2
Enhanced demerit points for young drivers (Combined with Improved police enforcement)	Yes	Yes				2
Improved data and research	Yes			Yes		2
Drug testing (Combined with Improved police enforcement)		Yes			Yes	2
Effective punishment	Yes					1
Improved young driver culture and attitudes		Yes				1
Better access to rehabilitation		Yes				1
Great focus on functional outcome (Combined with Driver fitness to drive)		Yes				1
Alternative transport options			Yes			1

There is evidence that roadside police enforcement attracts positive public feedback and media coverage[24], and in Norway, it is more effective at making drivers respect speed limitations than stricter sanctions[25]. In addition, although it is reported that cameras help reduce fatal and non-fatal crashes[26,27], Tay[28] determined that active or manned enforcement was even more effective at reducing the number of serious accidents. Although a societal and cultural taboo, driving under the influence of alcohol or drugs is not permitted in the GCC, it is sometimes the cause of RTI[3]. Whilst blood tests are commonly performed based on suspicions following an MVC, a pro-active approach of roadside RBT by the Police at high-risk times would be a beneficial deterrent as demonstrated in previous studies[29] and recommended in a recent study from the UAE[30].

Recommendation 3: Improved licensing and training

There have been several reviews performed evaluating the effectiveness of driver education and training on road safety, most of which show little support to traditional driver training[31–35]. However, caution should be taken when interpreting these findings as many studies introduce numerous confounding variables by way of design[36].

The value of driver education and training is in the role it plays in providing basic vehicle control skills and safety knowledge for new drivers[32,33,35]. To be more effective, numerous ways to improve

traditional driver education and training have been suggested. Encouraging more parental involvement under the direction and support of a professional instructor, increasing supervised practice, not offering time discounts for completing driver education, and individualizing driver training to the needs of the novice driver[32,37,38]. Likewise, training modules should focus on driver skills for managing distraction, overconfidence, self-assessment, acknowledgment of risk, and other skill deficiencies shown to be associated with collision rates. Taking this into consideration, those responsible for driving legislation should resist any pressure to lower current licensing ages and ensure the restrictions extend to driving motorized two-wheeled vehicles and off-road terrain vehicles.

For driver training and education to be effective in the State of Qatar, we suggest a multi-disciplinary investigation into young driver crashes is needed to identify causal factors associated with crash risk, especially those related to driver skill, inexperience, risky behaviors, as well as age-related and lifestyle influences. When these factors are known, a review of the current driver training and education programs should be implemented.

Recommendation 4: Safer vehicles *(technology)*

The development and adoption of technology to make vehicles safer is a recommendation that emerged within three out of five discussion groups. It may include collision prevention technology[39], driver attention and situational awareness monitoring[40], as well as engineering or structural design features that protect vehicle passengers and pedestrians by absorbing the force of a collision and minimizing passenger compartment intrusion[41]. Vehicle crash data comparing similar vehicles with and without currently available safety technology demonstrate that technology significantly contributes to reducing the risk of collision[42]. Extrapolating from US-based data, we can estimate that forward collision warning or mitigation, lane departure warning, side view assist, and adaptive headlights are preventative technological solutions that could help prevent around 20,000 crashes per year in Qatar and contribute to saving many lives. Other recommended mandatory basic features would be for all vehicles to be fitted with rear fog lights, speed limiters at least on passenger transport vehicles, and all types of trailers to have proper mandatory lighting and indicators.

Recommendation 5: Driver fitness to drive *(with a greater focus on the functional outcome)*

Driving is a complex task that requires a dynamic interaction of physical, visual, emotional, and cognitive skills, including higher executive, perceptual functions, and self-awareness[43–45]. Driving a vehicle skillfully and safely can be an overwhelmingly complex task for someone with physical, cognitive, or behavioral deficits[46,47]. A driver has a responsibility to recognize when to refrain from driving, adhere to medical treatment, and comply with the requirements of conditional or restrictive licensing[43]. Health care professionals have a responsibility to treat, monitor, and manage a person's condition whilst considering one's ability to drive and in cases of doubt, report to the driver licensing authority[43,45].

A driver without physical or cognitive impairment does not necessarily translate into being fit to drive. Although research in this area is scarce, an expatriate driver may lack the confidence, experienced, and knowledge of driving in a foreign country due to different driving styles and road rules[48].

For fitness to drive to be effectively assessed and managed in the State of Qatar, we suggest reviewing the medical requirements for driver capability along with the legal obligations for drivers, health professionals, and licensing authorities. A review of current conditional and restricted licenses is also needed. Furthermore, research is needed in the area of expatriate drivers whereby a mandatory learner's permit might need to be considered.

Recommendation 6: Improved roads and auditing

It is not uncommon for inappropriate road design or signage, or poor road condition to be a significant factor in the cause of MVCs[49]. These issues will result in the identification of geographical or circumstantial MVC "blackspots" if not addressed appropriately. Careful road planning and design, and safety auditing of roads conditions play an important role in traffic safety[11,50] and more particularly in reducing the number of accidents. Since speed is the most significant contributing factor to MVC[51], speed limits need to be appropriately chosen and enforced for each road taking into consideration several factors (e.g. visibility, number of lanes, the volume of traffic, merging traffic, potential queues at exit lanes, areas exposed to strong winds, etc). In addition to official road auditing by the relevant

government department and MVC causal investigations, which are valuable preventative measures, putting in place a system whereby the general public and drivers could report road defects or inappropriate road signage would help make roads safer more rapidly. If prompt repairs cannot be carried immediately, at least adequate road signage needs to be temporarily used to warn drivers of the potential danger, and the corresponding reduced speed limit needs to be enforced

Recommendation 7: Risk-based insurance

Two out of five groups discussed "risk-based insurance" also commonly referred to as Bolus-Malus Systems (BMS). There are several ways of implementing such a process depending on the intended objectives. It may be linked to vehicle engine displacement, engine power, vehicle value, and age, driver age, driver experience, monitored driving style and speed, yearly mileage, previous car insurance claims to profile[52–54]. It is to be noted that culture and economic development influence the adoption of either tougher, sophisticated, or basic BMS. The adoption of a tough BMS is a sign of a country's higher economic development and insurance market maturity. It is also a system that is proven to positively affect driving behavior because of the financial impact[53].

Recommendation 8: Improved data and research

Although research-based publications are emerging from Qatar about road-related injuries and fatalities, it is relatively limited and many other aspects of interest to road safety are either not monitored or not publicly reported. This highlights the need for greater collaboration between the various stakeholders whereby mutual sharing of information and data could contribute to new knowledge with regards to interrelations of regulations, policing, road infrastructure and networks, and road-related injuries. Very valuable lessons could be drawn from a greater collaborative approach and it could also help inform public awareness campaigns, to improve the prevention of RTI, and formulation of revised strategies with regards to policing or road design for example. Several countries in the world already have well-developed individual or joint road accidents databases[30].

Recommendation 9: Effective punishment

To date, there is inadequate research to demonstrate that increased traffic enforcement reduced RTI and road death rates for young drivers. The best evidence, from studying current law enforcement strategies and their effect on speeding drivers in Maryland, USA, highlighted the need for better and more focused efforts to document the effect/s of different law enforcement strategies[55]. The same should apply to one of the highest-risk populations, young drivers. Although not an intervention, analysis of accurate data may help reinforce or abandon strategies implemented. Although driving rules and regulations are in place to act as safety measures for the benefit of all road users, including pedestrians, they are not followed by all drivers[6]. Non-compliance to the measures put in place, such as not wearing seatbelts and not respecting speed limits or distances between vehicles[7,15,49], annihilates their expected effect on limiting RTI and fatalities.

Police action needs to be backed up with more stringent legal and administrative support that dissuade potential and serial offenders from committing traffic violations. Previous studies have demonstrated that financial penalties do not have a significant effect on driving behavior as they may not be expensive enough in comparison to income and social status and that a different approach should be adopted such as displaying instantaneous vehicle speeds on the roadside or implementing a point system on driving licenses[30]. Both approaches have been reported as being efficient[56,57], however, the demerit point system is the most effective. This is probably due to the real inconvenience of having a driving license temporarily suspended until a rehabilitation test is completed or completely withdrawn, forcing the offender to retake the test after some time. The expiration of the penalty points should be after a substantial period (4 years or more) to not give the impression to offenders that it is ok to commit a few offenses per year as these get cancelled relatively quickly.

Recommendation 10: Improved young driver culture and attitudes

Risky attitudes (e.g. attention or thrill-seeking, impulsiveness, norm-defying personality, fatalism, etc) and lifestyle behaviors (e.g. alcohol use, etc) are reflected in one's driving practice (e.g. speeding, seatbelt non-compliance, tailgating, not indicating, etc)[3,12,16,58], often exceeding a young or novice drivers' ability to respond effectively in a critical situation.

A scarcely addressed risk factor is culture, more specifically a society's safety culture, where tolerance or engagement in risk while resisting safety interventions can propagate dangerous behaviors[3,11,17]. In an attempt to conform with perceived social norms, younger drivers are also greatly influenced by their peers[16,59,60]. Thus, a shift towards a safer driving culture in the attitudes of a community could in itself influence the decision-making process of an individual and the behaviors of peers.

Public education and media initiatives play a crucial role in fostering pro-safety attitudes and reinforcing enforcement practices[16,61]. Further research on young driver attitudes and culture-based behaviors along with the effectiveness of legislative, promotional, and educational influences will benefit our understanding of the factors associated with young and novice driver crash involvement and risk.

Recommendation 11: Better access to rehabilitation

Improving pre-hospital and hospital care systems have been shown to decrease fatality rates[62]. By improving post-crash care and rehabilitation services, the seriously injured can receive better care, recover faster, and be reintegrated back into the community and workforce. Key factors in establishing long-term improvement can be through improving data collection and reporting, identifying deficiencies and opportunities for improvement based on benchmarking services with global guidance.

Rehabilitation also extends to behaviors, such as inappropriate and risky behaviors displayed behind the wheel. Raising awareness and support in the community to condemn these behaviors is equally as important as improving post-care systems. Special training programs for road rule compliance and conduct should be developed as a compulsory requirement to one regaining their driving license.

Recommendation 12: Alternative transport options

One's travel behavior is usually controlled by a multitude of decisions regarding cost, time, effort, comfort, safety, location, availability of facilities, and environmental factors all of which should be taken into account when deciding the impact of public policies and infrastructure as they have a direct impact on road safety[63].

Other than the private motor vehicle, alternative modes of transportation may include public transport such as taxis, buses, trains, trams, ferries, and active transport, like walking and cycling. Although carpooling may have lost a little momentum, the recent emergence of app-based ride-sharing companies in the Middle Eastern market like Uber, Careem, and Easy Taxi, has added another dimension to public transportation.

To improve and encourage the use of alternative forms of transportation, data concerning travel behavior needs to be collected and analyzed. It is imperative that this research also engages the community in identifying their needs, barriers, and suggestions. Additional research is needed to investigate the effectiveness of incorporating intelligent transportation systems to alleviate transport issues and create safer transport systems.

CONCLUSIONS

Young and novice driver safety is a concern throughout the world as too many lives are lost or irreversibly changed due to human errors and non-compliance with basic safety principles. This present opinion paper, resulting from the ITMA young driver safety workshop, provides key recommendations to be implemented in Qatar regarding achievable and sustainable strategies that would encourage safer road transport systems. These recommendations are mostly based on an assessment of evidence showing the effectiveness of the proposed interventions to improve young driver safety and performance. Although we expect that these recommendations are applicable throughout the region and beyond, the results observed in one country may not be easily duplicated in another. Significant efforts and consultations must be exerted to ensure that cultural adaptation is in place before their widespread implementation. We would like to emphasize the need for the authorities concerned to take action on at least the top three recommendations (GDL. Improved police enforcement, and Improved licensing and training) but also to prioritize all other recommendations that can be easily addressed such as improved roads and auditing and risk-based insurance. Some of the recommendations will require funding and the development of new policies, which in turn may call for

further research to be conducted to gather more evidence. Data collected can be used to perform cost-benefit analysis with regards to recommendations that are being opposed by the general public or official entities. Aspects that form part of some of the recommendations, such as compulsory seatbelt for all adult and child passengers in any type of vehicle (front and back), can easily be implemented, however, they also need to be properly enforced to significantly decrease fatality rates. Joint efforts need to be made by the various parties concerned as the recommendations put forward identify a range of issues related mainly to law enforcement, insurance regulations, and road infrastructures. A collective effort could undoubtedly result in a significant reduction in the number of deaths and severe injuries caused by MVC in the State of Qatar, which would alleviate the heavy burden it puts on the healthcare system from the initial prehospital point of care right through to rehabilitation.

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Appendix A

Enhancing the Safety of Young and Novice Drivers in Qatar Workshop

The National Traffic Safety Committee

Sunday 15th November 2015

Dukhan Room, Sheraton Hotel
Doha, Qatar

Background: With rapid economic growth over the last decade, the State of Qatar has seen a dramatic increase in vehicles and traffic-related crashes as a consequence of the country's urbanisation. These increases, usually resulting in serious or devastating consequences, pose a huge burden on the economy, health system, the individual, and their families. As such, the prevention of road traffic crashes has been identified as a national public health priority, especially among young and novice road users in Qatar.

Qatar's strong political stance on improving road safety is reflected in Qatar's National Vision 2030 and the National Road Safety Strategy 2013-2022, which is committed to reducing the number of road traffic crashes resulting in death or major injury. This workshop will draw on the expertise of professionals in the fields of medicine, psychology, transport, engineering, traffic safety, law enforcement, and education to create guidelines and establish sustainable strategies that target a safer road transport system for the younger population in Qatar.

Objectives:

1. Convene an international and multi-disciplinary working group with expertise in young and/or novice drivers.
2. Present current statistics on young and novice driver road incidences and identify the extent of the problems facing the State of Qatar.
3. Acknowledge global best practices for driver safety in order to identify target areas for discussion.
3. Build on the commitment to the National Health Priorities by creating a list of achievable and sustainable recommendations.

Format: The workshop will be facilitated by a chairperson and two executive assistants. In alignment with the 24th World Congress of ITMA, the workshop will focus on five main themes (1) law enforcement, (2) transport, (3) road safety, (4) health, and (5) society and education. Each table will be supported by an administration assistant who can also act as a translator (Arabic/English).

Workshop Leadership:

1. Chair: Professor Brian Fildes, Monash University, Australia.
2. Executive Assistants: Dr. Lynda M. Murray and Dr. Rafael Consunji, Hamad Medical Corporation, State of Qatar.
3. Law enforcement. Led by Dr. Hassan Younis, Ministry of Interior, State of Qatar.
4. Transport. Led by Dr. Khalid Qaraqe, Texas A&M University of Qatar, State of Qatar.
5. Road safety. Led by Dr. Mohamed Kharbeche, Qatar University, State of Qatar.
6. Health. Led by Dr. Ruben Peralta, Hamad Medical Corporation, State of Qatar.
7. Society and education. Led by Dr. Rafael Consunji, Hamad Medical Corporation, State of Qatar.

Program for the workshop:

Time	Agenda item	Presenter
14:00-14:20	Welcome and introductions. Lecture: Global burden.	Professor Brian Fildes, Monash University, Australia.
14:20-14:40	Lecture: Young driver problem in Qatar.	Dr. Rafael Consunji, Hamad Medical Corporation, State of Qatar.
14:40-15:00	Lecture: Local attitudes and practices.	Dr. Susan Dun, Northwestern University, State of Qatar.
15:00-15:20	Lecture: What works internationally.	Dr. Hans-Yngve Berg, The Swedish Transport Agency, Sweden.
15:20–15:40	Coffee Break and Prayer	
15:40-15:50	Introduction to workshop themes and discussion groups.	Professor Brian Fildes, Workshop Chairman. Monash University, Australia.
15:50-17:00	Each group will be asked to examine the relevant issues in Qatar and identify solutions.	Workshop participants
17:00-17:20	Coffee Break and Prayer	
17:20-18:35	Each group will report back on key issues and the five most relevant and achievable solutions.	Workshop theme leaders
18:35-19:00	Summarise findings and outline deliverables.	Professor Brian Fildes, Workshop Chairman. Monash University, Australia.
19:00	Workshop concludes	

Deliverables: A public proclamation of the importance of the findings will be presented during the first day of the 24th World Congress of ITMA and later to the National Traffic Safety Committee for consideration to pilot the implementation of initiatives and strategies in Qatar. Lastly, a White Paper will detail the main outcome from the workshop.

Appendix B

Workshop Participants (alphabetical order)

Dr. Abdullah Al Maniri
The Research Council of Oman, Sultanate of Oman

Dr. Abdullah. M. Alotaibi
Naif Arab University, Kingdom of Saudi Arabia

Mr. Ademola Gideon Ilori
Ministry of Interior, State of Qatar

Dr. Aisha Abeid
Ministry of Interior, State of Qatar

Mr. Ali Darwish K A Karbon
Hamad Medical Corporation, State of Qatar

Mr. Beshr Al-Hallack
Ministry of Interior, State of Qatar

Professor Brian Fildes
Monash University, Australia

Mr. Fadel Alsaadi
Ministry of Interior, State of Qatar

Dr. Ghassan Abu-Lebdeh
American University of Sharjah, United Arab Emirates

Professor Gordon Smith
University of Maryland, United States of America

Professor Guillaume Alinier
Hamad Medical Corporation, State of Qatar

Dr. Hans Edde Michael Kerkkamp
Hamad Medical Corporation, State of Qatar

Dr. Hans-Yngve Berg
Swedish Transport Agency, Sweden

Dr. Hassan Younis Salman
Ministry of Interior, State of Qatar

Dr. Henritte Wallen Warner
Swedish National Road and Transport Research Institute, Sweden

Mr. Inderson Mahanand Sewraj
Ras Laffan Emergency and Safety College, State of Qatar

Mr. Jamil Mujahed
JARA Transport Consultancy, Jordan

Dr. Jennifer Oxley
Monash University, Australia

Ms. Joanne Banfield
Sunnybrook Health Sciences Centre, Canada

Mr. Johannes Jacobus Wessels
Qatar Petroleum, State of Qatar

Dr. Junaid Ahmad Bhatti
Sunnybrook Health Sciences Centre, Canada

Dr. Khalid Abdulla Alyafei
Hamad Medical Corporation, State of Qatar

Dr. Khalid Ibrahim Al-Badr
Qatar Petroleum, State of Qatar

Dr. Khalid Khader
Qatar University, State of Qatar

Dr. Khalid Qaraqe
Texas A&M University of Qatar, State of Qatar

Professor Kim Jraiw
Public Works Authority, State of Qatar

Dr. Lars Englund
Swedish Transport Agency, Sweden

Mr. Lawrence Tallon
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Dr. Loua Asad Hanna Al Shaikh
Hamad Medical Corporation, State of Qatar

Dr. Lynda M. Murray
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Dr. Marie Claude Ouimet
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