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FOCUS: GLOBAL HEALTH AND DEVELOPMENT

Alcohol and Hospitalized Road Traffic Injuries in the Philippines

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Each year, there are approximately 1.24 million deaths due to road traffic injuries, the majority of which occur in low- and middle-income countries. Since 2008, 35 countries have passed legislation to implement road safety strategies. However, many countries have yet to pass comprehensive legislation while others lack adequate enforcement of current policies. The annual global mortality rate due to road trauma remains unacceptably high and reflects the need for governments to prioritize the passage and implementation of road safety legislation.

Alcohol is a leading risk factor for road trauma globally and the leading cause of death and disability in the Western Pacific region. Despite the overwhelming evidence that strict enforcement of drunk-driving policies can lead to a drastic reduction in alcohol-related road incidents, many countries in the Western Pacific lack sufficient data that could facilitate the design of appropriate drunk-driving interventions.

This paper provides an analysis of the current status of policies and attitudes related to alcohol and road injuries throughout the Western Pacific region, with a specific focus on the Philippines. Following the passage of drunk-driving legislation in 2013, a medical records review of alcohol-related road trauma patients in Manila Doctors Hospital was conducted. The findings of this pilot project further highlight the pervasive problem of missing or unreliable data regarding alcohol's role in road trauma. Assessing the burden of drunk driving is an important step in designing effective interventions and systematically changing attitudes about driving under the influence.

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†Abbreviations: RTI, road traffic injury; BAC, Blood Alcohol Content; MDH, Manila Doctors Hospital; ER, emergency room; PRSAP, Philippine Road Safety Action Plan; RA10586, Republic Act 10586; LTO, Land Transportation Office (Philippines); AIS, Abbreviated Injury Score; ISS, Injury Severity Score; GCS, Glasgow Coma Scale; ICD 10, International Classification of Disease (10th Revision); Y91, ICD code related the observation/clinical judgment of alcohol intoxication and alcohol misuse.

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INTRODUCTION

About 1.24 million people die each year as a result of road traffic injuries (RTI†), which are the eighth leading cause of global deaths. This burden disproportionately affects low- and middle-income countries and takes major social and financial tolls on individuals, families, and communities. At the national level, road traffic injuries can cost low- and middle-income countries an estimated US $100 billion each year [1]. Middle-income countries such as the Philippines are particularly impacted due to rapid increase in motor vehicle use. The road traffic fatality rate for middle-income countries is 20.1 per 100,000 compared with 8.7 per 100,000 in high-income countries [1]. Despite high rates of road injuries in these countries, road traffic interventions have not been widely prioritized in public health agendas. According to the 2013 WHO Global Status Report on Road Safety, 34 countries currently have no drunk-driving legislation and about half of all countries lack sufficient data on alcohol-related road trauma [1]. In low and middle-income countries where legislation does exist, there is a failure or lack of capacity to enforce drink driving policies [2]. In many Western Pacific countries, data on the correlation between alcohol and road trauma remains limited [1,2]. While road traffic injuries are preventable and the evidence for effective strategies is strong, road-related trauma and mortality rates are steadily increasing in many low resource settings [1].

ALCOHOL AND ROAD TRAUMA IN THE WESTERN PACIFIC REGION

Overview

Road traffic injuries affect people all throughout their lives, but the biggest impact is on the young and economically active years. In the Western Pacific region, they are the number one cause of death of people aged 15-49. Seventy-seven percent of traffic deaths occur among men, and half of all deaths occur among vulnerable road users, including pedestrians, motorcyclists, and bicyclists [1]. In the Western Pacific, there are 18.5 deaths per 100,000 due to road traffic injuries, 36 percent of which are motorcycle related deaths and 25 percent are pedestrian deaths. Currently, Australia is the only country in the region that has a comprehensive legislative plan addressing the five major risk factors for road injury — speeding, helmets, seatbelts, child restraints, and drunk driving [3].

Alcohol is a major risk factor for road incident and subsequent trauma. It is the leading risk factor of disease, disability, and premature mortality in the Western Pacific and the third leading risk factor globally [4]. Alcohol causes almost 4 percent of all global annual deaths, many of which are injury-related. Studies have estimated that 10 to 18 percent of emergency room patients present with alcohol-related trauma [5,6]. Alcohol as a risk factor for road injuries is a growing concern, particularly for low resource countries where alcohol consumption is pervasive. Alcohol as a risk factor for road injuries is a growing concern, particularly for low-resource countries where alcohol consumption is pervasive and effective interventions are not widely implemented [7,8].

Alcohol in the Western Pacific — Attitudes and Practices

Certain attitudes regarding alcohol consumption can contribute to the practice of drunk driving. In rural Australian communities where the rate of alcohol-related injury is higher than in urban settings, alcohol consumption is often viewed as an important social practice and positively reinforced as a form of cultural capital [9]. Drinking often and in high quantities is considered integral to rural culture. Not being able to hold one's liquor can result in lowered social standing, while those who do not drink at all are viewed as non-normative and face social exclusion. Although problematic drinking behavior may be acknowledged, it is often viewed as individual weakness rather than a risk associated with alcohol itself.

In addition to reinforcing a sense of cultural belonging and identity, alcohol can also

be used as a tool of self-expression, conflict resolution, and emotional release. In Micronesia, social norms rigidly govern what is considered acceptable behavior. Alcohol provides Micronesians, primarily young males, an escape from cultural restrictions and an outlet to communicate frustrations or negative feelings. Intoxicated persons are perceived as temporarily disabled and thus not at fault for their actions. Alcohol consumption gives Micronesians license to act outside the confines of conventional behavior and the opportunity to freely display aggression or other strong emotions they would otherwise not express [10,11].

Even when the correlation between alcohol and road injury is acknowledged, there is often a gap between awareness and practice. One study in Vietnam showed that despite widespread acceptance that alcohol consumption can lead to traffic incidents and trauma, nearly 45 percent of respondents still reported drinking and driving [12]. Another study in Macao, China, demonstrated that young people often believe they are in control of their driving even after drinking. Such perceptions fuel a sense of invulnerability regarding the intention to drink and drive [13].

In the Philippines, alcohol consumption is positively associated with camaraderie and communal bonding and used as a device for stress relief [14]. Extensive marketing of alcohol is often targeted toward Filipino youth through media, print, and even provision of free alcohol from alcohol companies [15]. The positive portrayal of alcohol consumption in the media coupled with the accessibility of alcohol has worked to normalize alcohol consumption in everyday life, especially for young males. A 2003 assessment of substance use in the Philippines showed that nearly 30 percent of adults in Manila approved of taking one or two alcoholic drinks several times a week, while the same proportion approved of adults taking five or more alcoholic drinks each weekend. Furthermore, nearly 25 percent of survey respondents in Manila viewed the regular use of alcohol (one or two drinks several times a week) as having little to no risk [16]. Such attitudes and societal norms reflect the need for multifaceted, culturally appropriate approaches to combat alcohol-related road trauma.

Interventions in the Western Pacific Region

Numerous interventions have been proven effective in reducing alcohol impairment among road users. Implementing and enforcing mandatory blood alcohol limits has been shown to reduce the number of alcohol-related traffic incidents. A BAC limit of .05 g/dl for adult drivers and .02 g/dl for young drivers and motorcyclists is considered best practice, along with BAC testing for all fatally injured drivers [1,17]. Enforcing BAC limits and minimum age drinking laws is most effective when coupled with other measures such as random breath testing and mass media campaigns [17,18]. Despite wide acceptance of the efficacy of such interventions, many low- and middle-income countries either have no drunk-driving laws at all or implement laws based on standards less objective and less reliable than BAC. Even when strict legislation is in place, there is often poor enforcement of these policies [1]. A study in Vietnam demonstrated that despite rigorous BAC limits and severe penalties for offenders, there is a lack of manpower and equipment to conduct roadside checks [19]. Failure to enforce current drunk-driving legislation contributes to an underreporting of road incidents and the likelihood that offenders will not be penalized.

Drunk-driving policies vary throughout the Western Pacific region. As of 2013, countries such as Brunei Darussalam, China, Japan, and Tonga have BAC limits ranging from .0 to .08 g/dl and report consistent enforcement of drunk-driving legislation. Other countries including Cambodia, People's Democratic Republic of Lao, and Vietnam have BAC limits ranging from .05 to .08 g/dl (with some regional limits of .0 in Vietnam for drivers of all vehicles except motorcycles, for which the limit is .05) and provisions for random breath testing and/or police checkpoints, but limited enforcement

of these regulations. Still other countries including the Marshall Islands, Papua New Guinea, the Solomon Islands, and Vanuatu have legislation against drunk driving, but do not specify any BAC limits. In addition, many of these countries have limited capacity to enforce drink driving laws [1].

ALCOHOL AND ROAD TRAUMA IN THE PHILIPPINES

Current Policies

In the Philippines, road traffic injuries rank fourth among all causes of mortality and are the second leading cause of injury-related deaths after assault [20]. In 2010, the estimated road traffic death rate was 9.1/100,000, and in 2006, there were 1,185 reported deaths and 5,870 injury reports. Three hundred seventy-one deaths were reported in Metro Manila, 51 percent of which were pedestrian deaths [6,21]. In 2003, 24.6 percent of males and 8.3 percent of females who used alcohol in the Philippines had at least 60 grams (six standard drinks) or more of pure alcohol at least once a week. Classified as heavy episodic drinking in the WHO Global Status Report on Alcohol and Health, this pattern of consumption in particular is associated with serious health consequences and heightened risk of injury [6]. In conjunction with the Decade of Action for Road Safety, the government launched the Philippine Road Safety Action Plan in 2011. The goal of the PRSAP is to reduce the traffic accident rate by 50 percent by 2020 [22,23]. Activities of this Safety Action Plan include researching and supporting drunk-driving legislation, recognizing current gaps in road safety, and improving trauma care. As part of implementing the PRSAP, the Act Penalizing Persons Driving Under the Influence of Alcohol, Dangerous Drugs, and Other Similar Substances (Republic Act 10586), was signed into law in May 2013. This new legislation definitively sets the BAC limit at .05 g/dl and allows for the use of chemical and confirmatory tests to determine presence of alcohol in drivers and mandatory testing of drivers involved in motor vehicle crashes [24]. In accordance with this new law and with the PRSAP, this project will work toward identifying gaps in road safety data in order to heighten awareness and advocate for strengthened enforcement [23].

Although alcohol consumption is prevalent in low- and middle-income countries such as the Philippines, not much is known about the individual risks associated with quantities of alcohol consumed, drinking patterns, and the situations and social contexts in which people drink [5]. There is an urgent need for an improved body of data in order to fully implement existing policies and to provide tools with which new, effective prevention strategies can be designed [1].

In the Philippines, drunk driving has not been commonly cited as a traffic violation by the LTO because until RA 10586, there were no mechanisms to define it. Despite its growing concern, incidents involving alcohol remain largely underreported and offenders are usually not apprehended. As a result, motorists remain undeterred from driving under the influence of alcohol.

The status of drunk-driving legislation in the Philippines provides an example of the need to more closely monitor and evaluate the role of alcohol in road injuries. Emergency rooms can provide valuable data about the involvement of alcohol in road trauma. The following case study presents a retrospective review of medical records examining the role of alcohol in patients presenting to a Metro Manila hospital with road injuries. This pilot study endeavors to facilitate a more extensive and objective process of gathering important, more accurate information. Sufficient data on the role of alcohol in road trauma can be used to further prevention and control measures with an emphasis on legislation, public awareness, and law enforcement in the Philippines and ultimately throughout the region.

Case Study: Manila Doctors Hospital

In October 2013, the principal investigator conducted a small pilot project at Manila Doctors Hospital in Metro Manila. The purpose of this project was to assess the

role of alcohol in road trauma in this facility by examining by examining the medical records of a random sample of road injury patients. This pilot project was conducted at the Manila Doctors Hospital Department of Emergency Medicine. MDH is a private tertiary hospital in the Ermita district of Metro Manila with a bed capacity of 300. MDH was selected for this study because it was easily accessible and willing to participate in the records review process.

The pilot was conducted from 11-21 October 2013 by one principal investigator and involved a retrospective review of 156 road injury medical records dating from January 2013 to September 2013. Using an estimated population proportion of .7 and a confidence interval of 95 percent, a sample size of 156 was calculated. Because ER records at MDH are not computerized or logged/organized by injury type, the sample was collected by sorting through individual records month by month (about 80 to 100 records per month in total; in all, approximately 21,000 records). For the purposes of this project, alcohol-related road trauma was defined as an injury or injuries that resulted from RTI occurring when one or more persons involved were under the influence of alcohol. The sample of records included any patient who had presented to the ER with road traffic related injuries within the designated time frame. RTIs included any injuries caused by or involving motorized vehicles (cars, taxis, jeepneys, motorcycles, buses, trains, trucks, vans, etc.), non-motorized vehicles (bicycles, pedicabs, etc.), and pedestrians. Injuries were categorized by type, severity, and whether they were intentional (deliberately inflicted by a person) or unintentional (a direct result of the road incident).

After a sample was obtained, all relevant records were reviewed and data was collected. A sample data collection form can be found in Appendix A. Patients were assigned an ID number and categorized by month to maintain confidentiality and anonymity. Information regarding the type of road user, injuries suffered, and assessments of alcohol involvement were examined for each record. The investigator determined injury severity by assessing the specific injuries sustained (fracture, abrasion, contusion, etc.) against the Abbreviated Injury Scale (AIS). These numbers were added to calculate a total Injury Severity Score (ISS). When information was available and relevant, patients' levels of impaired consciousness were also assessed using the Glasgow Coma Scale (GCS). Both of these assessment tools can be found within the data collection form in Appendix A.

Only original copies of medical records were used, including intake forms, nurses' notes, consultation notes, orders for lab work and procedures, referrals, and discharge forms. Intake forms usually included patient information, brief medical and family history, review of medical systems, description of injury and how the injury occurred, and what systems were affected.

Chemical testing for blood alcohol content is not yet standard practice in Philippine medical facilities, and and no results of such testing were available in patient medical records. Clinical and observational methods were used instead to determine if the patients were intoxicated. For this pilot, the ICD-10 Y91 categories and other sources were used to create a comprehensive tool to determine the level of intoxication in records that indicated the patient had been intoxicated when presenting to the emergency room [5,25]. Table 1 summarizes the categories that were used to retrospectively determine levels of intoxication. Data was subsequently analyzed using excel.

Case Study Findings

The majority of patients presenting to MDH with RTI were young male car or motorcycle drivers. Approximately 65 percent of the patients included in the sample were male and 35 percent were female. The average age was 34, and and the most frequently occurring age was 24. The study highlighted the susceptibility of vulnerable road users. The highest proportion of road traffic injury was consistently due to motorcycle incidents followed by pedestrians and cars. Motorcycle injuries accounted for just over 40.4 per-

Table 1. Determining Alcohol Involvement by Level of Intoxication.

Y91 Category	Y91 Description	Project Description based on Y91 and other sources
Y91.0	**Mild intoxication**: Smell of alcohol on breath, slight behavioral disturbance in function and responses, or slight difficulty in coordination	**Mild intoxication** (50mg/dL): Smell of alcohol on breath, Exuberance/loss of emotional restraint/depressed mood, impairment of attention and/or judgment, conjunctival injection and/or flushed face
Y91.1	**Moderate intoxication**: Smell of alcohol on breath, moderate behavioral disturbance in function and responses, or moderate difficulty in coordination	**Moderate intoxication** (100mg/dL): All or any of mild intoxication symptoms PLUS impairment of speech (e.g. slurring), impairment of motor coordination, disturbances in behavioral response, disturbances in emotional responses, impaired ability to cooperate
Y91.2	**Severe intoxication**: Severe disturbances in functions and responses, severe difficulty in coordination, or impaired ability to cooperate	**Severe intoxication** (200mg/dL): All or any of mild/moderate intoxication symptoms PLUS horizontal gaze, nystagmus
Y91.3	**Very severe intoxication**: Very severe disturbance in functions and responses, very severe difficulty in coordination, or loss of ability to cooperate	**Very severe intoxication** (300mg/dL): All or any of mild/moderate/severe intoxication symptoms PLUS stuporous, heavy sleeping/heavy snoring
	Extremely severe intoxication: no Y91 category. Alcohol involvement, not specified	**Extremely severe intoxication** (400mg/dL): All or any of mild/moderate/severe/very severe intoxication symptoms PLUS irregular breathing, inhalation of vomit, comatose/inability to be aroused
Y91.4	**Alcohol involvement, not specified**	**Unknown/other**

cent of all the injuries in the sample. The proportion of RTI for car drivers and passengers was 14.1 percent, while the proportion of pedestrian injuries was 25.6 percent.

Injuries were classified as mild (small cuts, shallow lacerations, bruising); moderate (sprains/strains, deep lacerations and open wounds, mild burns); severe (fractures, dislocations, severe contusions, moderate burns); very severe (concussion/head trauma, loss of consciousness, broken bones, internal injuries/bleeding, severe burns, amputation, paralysis); other; and unknown. Injury severity was sometimes indicated in the medical records (i.e., minor abrasion), but the levels of severity were mostly interpreted by the project investigator based on the type of injury suffered, the location of the injury, how the patient presented at hospital, and what procedures the patient underwent when this information was available. Patients were assigned an ISS based on the type and severity of their injuries. The ISS was determined by the project investigator. They were not recorded on patient records. Scores were calculated by assessing the severity of each injury type suffered on an Abbreviated Injury Scale (AIS) of 1-6, 1 being minor and 6 being unsurvivable [26,27]. The minor nature of

most of the injuries suffered was reflected in the severity scores of the patients. The average ISS for patients who were negative for alcohol was 3.58, and the most frequently occurring ISS was 1. The lowest ISS was 1, and the highest was 25.

Impaired consciousness was also assessed using the GCS. The GCS uses eye, verbal, and motor responses to determine the level of head injury [26,28]. Unlike the ISS, GCS scores were sometimes indicated on the medical records, usually for patients suffering from any head or neck injury. Of the records that included GCS scores, only one of them (a pedestrian) scored less than 15. This patient's score was 11, indicating a moderate head injury. This patient had been clinically determined to be intoxicated.

Role of Alcohol

Of the 156 records reviewed, seven patients were clearly identified as being positive for alcohol intake. These were largely based on self-reporting of alcohol consumption and the smell of alcohol on breath. There was no mention of Y91 codes or any other standardized method of determining levels of intoxication. While some of the records indicated that patients had difficulty responding verbally or visually, had limited movement, speech impairment, or dizziness, it was not always clear whether these symptoms were due to injury or to the level of intoxication. Unless it was indicated on the medical records that such symptoms were most likely a result of injury, symptoms indicative of alcohol intake were used to assess the level of intoxication as per the criteria of Y91.

The amount of alcohol intake, when and where the patient was intoxicated, and past patterns of drinking were not recorded. Of the remaining 149 records, only two patient records specified a non-involvement of alcohol, meaning that 147 records did not make any mention of whether alcohol was involved or suspected of being involved. None of the cases (alcohol or non-alcohol) indicated intentional injury or involved any chemical testing to quantify BAC.

Of the seven patients who were positive for alcohol intake, six were male and one was female. Except for one male pedestrian, all of the patients were drivers of either a car or a motorcycle. Every alcohol(+) patient suffered multiple injuries, and injuries were generally more severe than alcohol(-) patients. While the average ISS for alcohol(-) patients was 3.58, the average ISS for alcohol(+) patients was 8.3.

Discussion and Recommendations

While some studies show that alcohol is present in up to 18 percent of ER injuries, the numbers from this small pilot study are comparatively quite low [4]. This could be due to several factors. Manila Doctors Hospital does not deal with many trauma patients because there is a nearby trauma care center in Philippine General Hospital. Because of this, there were not many RTI patients in general, and the ones who did present had less severe injuries than ones who might present to a trauma care center. Taking into account the fact that alcohol can heighten the risk of severe injuries, it may be that there would be a higher rate of alcohol in road injury patients at trauma facilities. Additionally, intoxicated drivers who may have injured pedestrians were not represented in this study. As such, the injuries suffered by pedestrians could have potentially been alcohol-related even if they had not themselves been the consumers of alcohol.

Several medical records contained incomplete clinical information that potentially could have been used to retrospectively ascertain if the patient was under the influence of alcohol. Parts of the records were often left blank (possibly either for lack of information or because it was not considered relevant at the time) or were missing. If intoxication had been determined at the time of admittance, it was noted on the intake form that the patient smelled of alcohol, patient reported recent intake of alcohol, or simply that there was an intake of alcohol but no mention of how this information was determined. In three of the seven alcohol(+) records, clinical signs of intoxication were listed, including gait ataxia, motor weakness,

impaired speech, vomiting, and dizziness. While these symptoms were used to evaluate levels of possible intoxication for the study, it was not always clear whether those symptoms were the result of the road trauma or from alcohol intake. As such, the levels of intoxication that are reported here may be inaccurate representations of actual levels of intoxication.

The absence of determined BAC, by police at the roadside and in hospital facilities, makes it difficult to ascertain how much of a role alcohol is playing in road injuries in the Philippines and other countries where BAC testing is unavailable or not standard practice. The inconsistency in reporting a definite presence or definite absence of alcohol on the medical records suggests that this factor may have been overlooked in some instances. That coupled with the human error of clinically determining intoxication, especially mild intoxication, means that the numbers of patients under the influence could realistically be much higher.

Regardless of these limitations, the small number of alcohol-positive patients who were observed in this study still serves to highlight the larger road safety issues in the Philippines; namely, that increased levels of intoxication are associated with increased injury severity and the number of injuries suffered. Additionally, it underscores the high risk of vulnerable road users, particularly motorcyclists and pedestrians. It also suggests that young male drivers may be some of the most at-risk road users. However, a larger sample in a facility that frequently deals with trauma patients is needed to more adequately assess the role that alcohol plays in road injuries. Further studies should also be completed to ensure greater accuracy in determining intoxication and the relationship of injury types and severity to levels of intoxication. A prospective study could also take into account drinking patterns and levels of consumption to further the knowledge base of why, where and how drink driving occurs.

The medical records review underscores the gaps in existing drunk-driving data. The inadequate information and overwhelming lack of reporting alcohol use illustrates the need for better data collection, which could be addressed by fully implementing and enforcing RA 10586. This pilot is an impetus for similar larger-scale studies that are expected to follow in the Metro Manila area, the operational implications of which are far-reaching. Under the oversight of the Department of Health, it is anticipated that the data collected on the role of alcohol in RTI in the Philippines would more clearly show the persistent issue of injuries caused by drunk driving. While it is impossible to determine whether testing BAC would have given a higher number of alcohol-positive patients in this pilot, the lack of information reported for patients who were determined to be intoxicated indicates a scarcity of data and strong potential for underreporting. Enforcing chemical testing for road trauma patients will provide a more accurate assessment of the role of alcohol in road injuries, allowing for the design and enforcement of more appropriate interventions. Although not necessarily representative of the rest of Manila, the Philippines, or the Western Pacific region, the case study illustrates the need for more strictly enforced drunk-driving legislation informed by a more complete and accurate body of data.

CONCLUSIONS AND OUTLOOK

Alcohol use and road safety should be public health priorities in low- and middle-income countries where the burden is high. In the Western Pacific region, attitudes about drunk driving and the cultural notions regarding alcohol and intoxication need to be taken into account when designing appropriate interventions. Setting legal BAC limits and minimum age drinking requirements and supporting strict penalties for offenders are all best practice interventions for combating drunk driving. However, these should be combined with effective strategies that deter drunk driving such as random breath testing and mass media campaigns that are culturally and regionally relevant. Too often, drunk-driving legislation remains ineffective because it is poorly enforced and does not

work to change cultural norms and attitudes about driving while intoxicated. Despite the progress made in designing and passing drunk-driving legislation, only 39 countries worldwide rate enforcement of drunk driving as "good," which suggests that enforcement of such laws requires improvement [1]. The collection and assessment of sufficient data on the role of alcohol in drunk driving can both give a more accurate overview of the burden of drunk driving and better inform appropriate interventions and methods of implementation.

The Philippines provides and example of a Western Pacific country endeavoring to implement change through the passing of drunk-driving legislation. Improving the capacity to enforce current policies will play an essential role in decreasing alcohol-related road trauma. While many countries have put road safety measures in place, much more work needs to be done to precipitate a steady decrease in road injuries and deaths due to alcohol. Involving multiple sectors in the development of multifaceted approaches can enhance public awareness while guaranteeing more comprehensive strategies. Setting targets for reducing alcohol-related road injuries and deaths can sustain political and stakeholder support for road safety interventions and will ensure that countries and key agencies remain involved in essential data collection. Continuing to assess alcohol's role in road trauma will provide better tools for designing and enforcing effective policies in countries where legislative initiative has been slow, stagnant, or yet to take place.

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Appendix A. Data Collection Form, Case of Road Trauma Related Injury.

Registration or ID Number	

Age	**Gender**

Mode of Transport: How was injured person traveling?

Pedestrian	Non-motorized vehicle (bike, cart)	Motorcycle
Car	Pick-up, minibus, jeepney	Truck
Bus	Train/subway	Unknown
Other – specify		
All applicable codes:		

Type of Road User: What was the injured person doing?

Pedestrian	Driver	Passenger
Unknown	Other – specify:	
All applicable codes:		

Injuries Sustained

Fracture	Sprain/Strain	Cut or open wounds
Contusion/bruising	Burn	Concussion/head trauma
Internal injury	Broken bones	Unknown
Other – specify		
All applicable codes:		

Injury Type

Unintentional (direct result of traffic incident)	Intentional (deliberately inflicted on one person by another)	Medical case only	Medico-legal case
Other – specify			
All applicable codes:			

Severity of Injuries

Mild injuries (small cuts or lacerations, bruising)	Moderate injuries (sprain/strain, deep cuts or open wounds, mild burns)	Severe injuries (fractures, dislocations severe contusions, moderate burns)
Very severe injuries (concussion/loss of consciousness, broken bones, internal injury/bleeding, severe burns, amputation, paralysis)	Unknown	Other –specify
Other – specify:		
All applicable codes		

Injury Severity Score

Injury	Abbreviated Injury Scale (AIS)
Minor	1
Moderate	2
Serious	3
Severe	4
Critical	5
Unsurvivable	6

Region	Injury Description	AIS	ISS
Head and Neck			
Verbal response			
Motor response			
Total ISS (top three squared and added)			

Assessment of Impaired Consciousness (GCS Score)

Mild head injury	GCS of 13-15
Moderate head injury	GCS of 9-12
Severe head injury	GCS of 8 or less

Response	Condition	Score
Eye opening	Spontaneously To speech To pain None	4 3 2 1
Verbal response	Orientated Confused Inappropriate Incomprehensible None	5 4 3 2 1
Motor response	Obeys commands Localizes to pain Withdraws from pain Flexion to pain Extension to pain None	6 5 4 3 2 1
Total GCS		

Alcohol Use

Patient presented clinical signs of intoxication	

If Alcohol (1) then complete the following:

Assessment of Intoxication

Mild intoxication (50mg/dL): Smell of alcohol on breath, Exuberance/loss of emotional restraint/depressed mood, impairment of attention and/or judgment, conjunctival injection and/or flushed face	Moderate intoxication (100mg/dL): All or any of mild intoxication symptoms PLUS impairment of speech (e.g. slurring), impairment of motor coordination, disturbances in behavioural response, disturbances in emotional responses, impaired ability to cooperate	Severe intoxication (200mg/dL): All or any of mild/moderate intoxication symptoms PLUS horizontal gaze, nystagmus
Very severe intoxication (300mg/dL): All or any of mild/moderate/severe intoxication symptoms PLUS stuporous, heavy sleeping/heavy snoring	Extremely severe intoxication (400mg/dL): All or any of mild/moderate/severe/very severe intoxication symptoms PLUS irregular breathing, inhalation of vomit, comatose/inability to be aroused	Unknown
Other – specify:		

All applicable codes:

Patient Assessment

Status of intake and medical history	
Status of blood pressure	
Non-invasive procedures performed	
Laboratory testing for BAC performed	

If lab testing (1), then

Did blood test determine presence of alcohol?	

Results

Patient treated and sent home	Patient admitted to hospital, no surgery required	Patient admitted to hospital, surgery required
Patient referred to a specialist or another facility	Unknown	
Other – specify:		
All applicable codes:		