Injuries, and particularly road traffic injuries (RTIs), constitute a serious public health challenge. Besides the physical consequences of trauma, disablement and death, many victims and families may be predisposed to psychosocial trauma and other health consequences, such as alcohol and illicit drug abuse. The impact also extends to communities and society at large, since RTIs are a drain on scarce resources, hamper economic development and further perpetuate poverty.

Globally, injuries account for more than 5 million deaths each year, of which more than one-fifth are attributable to RTIs (Murray & Lopez, 1996). A conservative estimate of the number of associated injuries is 10 million (World Bank Group, undated). Estimates for 1998 indicate that RTIs are the ninth leading cause of all disability adjusted life years (DALYs) lost and account for 2.8% of global disability. By 2020 it is expected that RTIs will be the third leading cause of all DALYs lost worldwide (Murray, Lopez, Mathers & Stein, 2001). Low- and middle-income countries experience a disproportionately higher burden and account for about 85% of the deaths and 90% of the DALYs lost globally (Krug, Sharma & Lozano, 2000). The cost of these injuries to the economy is enormous - crude estimates indicate that the cost as a percentage of a country's GDP ranges from 1% in 'developing' countries to 2% in 'highly motorised' countries (Jacobs, Aaron-Thomas & Astrop, 2000).

In South Africa injuries accounted for 12% of all deaths in 2000 (Bradshaw et al., 2003). The MRC-UNISA National Injury Mortality Surveillance System (NIMSS)\(^2\) revealed that in 2001 approximately one-quarter (27%) of all injury-related deaths occurred as a result of road traffic accidents (Matzopoulos, 2002). Compared globally, South Africa's road traffic death rate of 11.7 per 100 million kilometres travelled is the fifth highest in the world (International Road Federation, 1991). The National

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\(^2\) The National Injury Mortality Surveillance System (NIMSS) produces and disseminates descriptive epidemiological information that is readily available from documentation that arises from medico-legal post-mortem investigations. In 2001, 32 mortuaries in 6 different provinces contributed their data to this system. These cases accounted for between 32% and 39% of all non-natural mortality in South Africa. In 2001, a total of 25 361 cases were included in the system, of which 6454 were traffic-related.
Department of Transport (NDoT) indicated that in 2001 the South African traffic burden translated to 512,000 crashes, which resulted in 7900 road traffic deaths and 150,000 injuries (NDoT, 2002; NDoT, 2003a). The cost of this carnage to the South African economy was estimated at approximately R13.8 billion (NDoT, 2002).

In terms of cost of traffic crashes to the economy, the KwaZulu-Natal province (KZN) rated among the highest in the world. Using the “human capital” method, KZN’s cost of traffic crashes to the economy was 4.5% of the GNP, which was similar to that of the USA (Jacobs, Aaron-Thomas & Astrop, 2000). In South Africa the disability burden is also massive. Road traffic collisions were ranked as the fourth highest cause of premature mortality, accounting for 489,979 years of life lost (YLL) in 2000 (Bradshaw et al., 2003).

An overview of the epidemiology of RTIs in the South African context is presented using data from the MRC-UNISA Crime, Violence and Injury Lead Programme (CVILP), the University of Natal Interdisciplinary Accident Research Centre (UNIARC) and the NDoT. Information on populations at risk, temporal and spatial characteristics, vehicles and their associated challenges, and high-risk driving behaviours are presented. Based on this overview, general and focused public health intervention strategies are discussed.

**POPULATIONS AT RISK**

In 2001 the NIMSS revealed that pedestrians accounted for the largest percentage of traffic-related deaths (40%), followed by about one-quarter ‘unspecified’ traffic deaths and nearly one-fifth passenger deaths (Figure 1). The distributions by gender, age and ‘race’ are presented below. The overall distributions for these variables among the motorist population were not available and population risks are therefore not presented.

**Figure 1.** Traffic-related deaths by user category, NIMSS, 2001 (N=6454)

There were 3.2 male road traffic deaths for every female death; further breakdown by user category and gender showed that the highest male to female ratio occurred

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3 See Selected Glossary for definition.
among cyclists (16.3:1) and the lowest among passengers (1.7:1). The male to female ratio among drivers was 8.6:1.

The age distribution by user category for 2001 showed that pedestrian deaths peaked among the 30- to 34-year age group. Furthermore, more than one-third (39.5%) of infant (<1 year) and more than half (56.4%) of childhood (1 to 14 years) traffic-related deaths were the result of pedestrian injuries. Passenger deaths were almost equally as high in all age groups from 20 to 34 years, but among children the 5- to 9-year group was most at risk. Driver deaths peaked in the 25- to 29-year age group and cyclist deaths peaked equally among the 15- to 19- and 20- to 24-year age groups.

The highest percentage of pedestrian deaths was recorded among coloureds and blacks (55% and 44.3% respectively), while the highest percentage of cyclist and driver deaths was among whites (11.7% and 38.6% respectively). Driver, passenger and unspecified cases were equally distributed among Asians, each accounting for about one-quarter of their deaths.

**TEMPORALITY**

Results from the NIMSS showed that when the time and day of death was known, cases peaked between 17h00 and 22h00 and the highest percentages were recorded on Saturdays (22.9%), followed by Sundays (18.1%) and Fridays (16.1%). Furthermore, significantly more deaths occurred on Saturdays than on Sundays ($\chi^2=45.35, p<0.001$). These results should, however, be interpreted with caution since they reflect the time and day of death rather than that of the actual injury. Nonetheless, when the nature of medical treatment was known (in 4349 cases), only about one-third (36.0%) were transported to a treatment facility, which may suggest that most deaths were almost instantaneous. The data on time and day of death therefore provide a relatively reliable proxy for the actual time of injury.

Overall, traffic deaths peaked during June (9.9%) followed by September (9.1%) and March (9.9%). However, deaths in June were not significantly different from September ($\chi^2=2.34, p=0.12$). Figure 2 shows that in 2001, pedestrian deaths peaked in March, June, September and October. Passenger deaths peaked in June and low percentages...
were recorded in July and November. Driver deaths declined from February to April and from June to August, after which they increased to a peak in November. The highest percentage of cyclist deaths was recorded in May, and unspecified traffic cases in June.

**INTER-CITY AND PROVINCIAL COMPARISONS**

For 2001 the NIMSS allowed for fatal traffic rates to be calculated for five cities, in which full coverage was achieved. These cities were Durban, Cape Town, Port Elizabeth, East London and Pretoria. Pretoria had the highest traffic fatality rate of 42 deaths per 100,000 population, followed by Durban and East London (both at 39 deaths per 100,000 population). Based on the source data for the rate calculations, the difference between Pretoria and Durban was statistically significant ($\chi^2=4.34, p=0.04$), while the rates for Pretoria and East London were similar ($\chi^2=1.60, p=0.21$). The highest pedestrian fatality rate was recorded for Cape Town (22 deaths per 100,000 population) followed by Durban (15 deaths per 100,000 population), and the difference was statistically significant ($\chi^2=38.40, p<0.001$). With driver deaths, Pretoria had the highest rate (7/100,000 population) followed by East London (5/100,000 population) and the difference was not statistically significant ($\chi^2=2.05, p=0.15$).

Figure 3 shows the total number of injuries for both fatal and non-fatal cases by province for 2001 (NDoT, 2003a). Gauteng had the highest number of injuries followed by KZN and Western Cape. However, Gauteng had the lowest percentage of fatal cases (3.8%). The highest percentage of fatal cases was recorded in Mpumulanga (8.4%), followed by Northern Cape (7.7%) and Free State (7.3%). The difference between Gauteng and Mpumulanga in the proportion of fatal cases was statistically significant ($\chi^2=402.06, p<0.001$) but for Mpumulanga and the Northern Cape the proportion was not statistically different ($\chi^2=2.05, p=0.15$).

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**Figure 3.** Total injuries (fatal and non-fatal) by province, Arrive Alive, 2001 ($N=159\,949$)

<table>
<thead>
<tr>
<th>Province</th>
<th>Number of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>GP (Gauteng)</td>
<td>50000</td>
</tr>
<tr>
<td>KZN (KwaZulu Natal)</td>
<td>45000</td>
</tr>
<tr>
<td>WC (Western Cape)</td>
<td>35000</td>
</tr>
<tr>
<td>EC (Eastern Cape)</td>
<td>25000</td>
</tr>
<tr>
<td>MP (Mpumalanga)</td>
<td>15000</td>
</tr>
<tr>
<td>NW (North West Province)</td>
<td>10000</td>
</tr>
<tr>
<td>FS (Free State)</td>
<td>5000</td>
</tr>
<tr>
<td>NP (Northern Province)</td>
<td>4000</td>
</tr>
<tr>
<td>NC (Northern Cape)</td>
<td>3000</td>
</tr>
</tbody>
</table>

Key:
- GP: Gauteng Province
- KZN: KwaZulu Natal
- WC: Western Cape
- EC: Eastern Cape
- MP: Mpumalanga
- NW: North West Province
- FS: Free State
- NP: Northern Province
- NC: Northern Cape
CHALLENGES

Current estimates are that there are approximately 6 million licensed drivers and about 6.73 million licensed and registered vehicles on South Africa’s roads. The vehicle types include 57.4% passenger vehicles, 17.8% light commercial vehicles, 3.8% minibus taxis, 3.4% heavy commercial vehicles and 0.4% buses (NDoT, 2002). However, estimates in 1992 for the number of collisions per vehicle type per 100 million kilometres travelled include a staggering 1106 for minibus taxis followed by 916 for passenger vehicles, 571 for buses, 429 for heavy commercial vehicles and 396 for light commercial vehicles (NDoT, 1998a). However, the figures above should be viewed with caution since they do not indicate a vehicle’s contribution to the collision and generally the recording of traffic collisions is subject to reporting bias, including underreporting, duplication and misclassification. Estimates for 1998 showed that minibuses and buses had the highest number of fatalities per 100 million vehicle kilometres travelled (17 and 11 respectively) (NDoT, 2002). This is mainly because of the larger number of occupants that are transported in these vehicles. However, these rates do not take into account the relatively larger number of collateral deaths that occur among persons in other vehicles and pedestrians, as is typical with heavy vehicle collisions. Some of the key challenges posed by these vehicle types are discussed below.

Minibus taxis

The minibus industry constitutes the bulk of public transport and is often characterised by substandard vehicles, overloading and other high-risk driving behaviour, such as speeding and ‘reckless driving’. Generally, the contribution of substandard vehicles to traffic collisions is debatable since drivers may drive with greater caution. But when substandard vehicles are overloaded and travel at excessive speeds, it can be expected that the risk of collision and injury would increase. Increasing growth of the minibus taxi industry and greater competition further exacerbates the situation. Most commuters rely heavily on this mode of transport and are therefore at increased risk of injury and death.

The Minibus Taxi Recapitalisation Project is a current initiative (started in 1996) to formalise the South African minibus taxi industry. However, the project is yet to be implemented.

Heavy commercial vehicles

In 1996, 58 904 heavy commercial vehicles were weighed at weighbridges in South Africa. One-third were found to be overloaded (NDoT, 1998b). The present pattern does not seem much different, since in KZN alone 42 291 (29%) were found to be overloaded in 2001 (NDoT, 2003b). It is estimated that these illegally overloaded heavy vehicles are responsible for 60% of the damage to the road network in South Africa, which costs the taxpayer some R550 million per year (NDoT, 1998b). Although human behaviour plays the largest role in traffic collisions, deteriorating and hazardous road conditions caused mainly by illegal overloading also compromises road safety. The enormous cost to the economy of repairing road networks adds to the drain on available resources for road safety initiatives.

Compliance with safety regulations is also a problem among this sector. An amended Road Traffic Act of 1996 compels operators to display retro-reflective materials on
all heavy commercial vehicles within certain specifications. A UNIARC survey was conducted to gauge compliance with these regulations at three of the country’s toll plazas and one heavy-vehicle checkpoint. These sites were selected to be representative of the heavy vehicle sector in the country using different highways, and represented the three major cities of Cape Town, Pretoria and Durban. Results indicated that of 1000 heavy commercial vehicles, 57.9% were in breach of these regulations (Haarhof, 2002).

**HIGH-RISK TRAFFIC BEHAVIOUR**

The crash process is often complex and multifactorial and may be viewed as a combination of various human, vehicle and environmental risk factors that interact to produce the event. In the South African context the contribution of driver, vehicle and road environment factors towards traffic collisions has been reported to be between 80% and 90%, 10% and 30%, and 5% and 15% respectively (NDoT, 2002). In the driver category, excessive speed and alcohol intoxication are most often implicated.

**Alcohol and illicit drugs**

In 2001, the NIMSS indicated that overall, more than half (53.6%) of all fatal traffic cases were alcohol-related and the mean blood alcohol concentration (BAC) was nearly four times the legal driving limit of 0.05 g/100 ml (Table 1). Pedestrians constituted the highest percentage of cases that tested positive for alcohol (62.5%). They also had the highest mean level of consumption at 0.20 g/100 ml. More than half (51.8%) of the drivers tested were positive for alcohol and the mean level of consumption was 0.17 g/100 ml.

Driving under the influence of alcohol is strongly associated with the risk of injury and death. A study in the USA showed that the relative risk of fatal crash involvement among adult drivers was 5-6 at 0.05 g/100 ml (the legal driving limit) and more than 80 at 0.15 g/100 ml (which was the approximate mean BAC of the NIMSS driver sample) (Zador, Krawchuk & Voas, 2000).

The use of illicit drugs among traffic users is also a serious and growing problem. Analysis of aggregate data (1999 to 2001 and including three cities) from the MRC-

![Road traffic injury](119)
UNISA Trauma and Drug study (TADS) showed that of all RTI cases tested, 35.0% were associated with at least one illicit drug and 22.1% used both alcohol and an illicit drug in combination. The drug used most often was cannabis (29.6% of all RTI cases tested). The highest drug-relatedness was found among pedestrians (47.1%), followed by drivers (31.8%) and passengers (24.8%). However, further research is needed on the role of illicit drugs in contributing to traffic collisions when the drugs are consumed in isolation and in combination with alcohol.

**Excessive speed**

Excessive speed for prevailing circumstances plays a role in approximately 30% of all crashes and about 50% in the case of heavy commercial and public passenger vehicles (NDoT, 2002). Furthermore, vulnerable road users are also exposed to a greater risk of being involved in a collision and in being injured. Besides increasing the probability of a collision occurring, resultant injuries are expected to be more severe with higher speeds. For example, studies undertaken internationally indicate that a reduction of average vehicle speed by 1 km/hr would result in a reduction of injury and crashes by about 3% (Finch, Kompfner, Lockwood & Maycock, 1994; Nilsson, 1981).

**Driver aggression**

Excessive speed and alcohol intoxication are the major contributors to road traffic collisions in South Africa (NDoT, 2002) and these high-risk behaviours are also related to aggressive tendencies behind the wheel, as found in a study on driver aggression and other high-risk driving behaviour in South Africa (Sukhai, 2003). This was a cross-sectional descriptive study undertaken among a representative sample of motorists in the Durban Metropolitan Area with a total sample size of 1006 participants. Driver aggression was categorised into four subscales, with Group 1 constituting the mildest forms of aggressive behaviours and Group 4 the extreme behaviours, including rage and direct confrontation. Based on self-reporting, the prevalence of at least one aggressive driving behaviour that was experienced as a victim per aggression group ranged from 24% (Group 4) to 95% (Groups 2 and 3). From the perspective of perpetrating these behaviours, the prevalence ranged from 10% in Group 4 to 87% in Group 1.

Furthermore, just more than half of the motorists reported driving above the posted speed limits half the time that they had the opportunity to do so. About one-tenth of motorists acknowledged driving under the influence of alcohol and about half reported becoming more aggressive when they drove under the influence of alcohol. Relationships were established between driver aggression and other high-risk driving behaviours. All groups of driver aggression were positively related with driving above the speed limit (p<0.001, p=0.01, p=0.03 and p=0.001 respectively driver aggression Groups 1 to 4). However, only Group 1 behaviours were predicted by driving above the legal blood alcohol limit (p<0.001).

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*The Trauma and Drug study (TADS) monitors substance abuse at sentinel trauma units throughout the country. A total of 1935 patients were included in the study from 1999 to 2001 from five sentinel sites in three cities, viz. Durban, Cape Town and Port Elizabeth. The TADS is discussed in further detail in chapter 8.*
DISCUSSION AND IMPLICATIONS FOR INTERVENTION

Historically, in South Africa as in many other countries traffic injuries have been viewed as ‘accidents’, which conferred a large degree of inevitability upon these incidents. Injury control (or containment of injuries after they occur) was prioritised, and much less attention was afforded to primary prevention (or pre-event action) and the upstream or root causes of these incidents. Consequently, these cases were not of priority on the public health agenda and injury prevention efforts suffered.

South Africa as a context for traffic trauma also influences the disproportionately high traffic statistics. Rapid urbanisation results in environments with high population densities and inadequate separation of people and vehicles. Informal developments create a particular challenge where immigrants are forced to cross roadways that do not have safe crossings and they may also be unfamiliar with ‘modernised’ traffic behaviour. High levels of crime and violence, increasing levels of motorisation and long travelling distances also contribute to this challenge. Hence it is imperative that injury prevention initiatives include general socio-economic and environmental upliftment, particularly among the low-income sector. Importantly, road safety planning needs to be well integrated into the initial stages of all town planning and other civil engineering projects.

The universal public health approach to interventions is applied specifically to some of the previously identified high-risk factors (substance abuse and speeding) and the high-risk pedestrian group. Generally, passive intervention strategies (environmental modification and engineering) allow for creating ‘forgiving’ transportation systems and are also advocated as being more successful than the active measures (education and enforcement).

PRIORITY AREAS FOR INTERVENTION

Alcohol and illicit drugs

Results from the NIMSS indicated that in 2001 more than half of all fatal traffic cases were alcohol-related, and that the mean levels of alcohol consumption were extremely high at nearly four times the legal driving limit. The obvious intervention strategy is to increase enforcement based on the epidemiological data previously presented. Generally, however, South Africa is criticised for implementing first-class legislation (for example, our new driving under the influence laws) but with inadequate enforcement of such legislation (Van der Spuy, 2000). Roadside testing for alcohol is generally concentrated only during the popular holiday seasons and besides, testing is conducted only on drivers showing more overt signs of intoxication. This was also confirmed by a UNIARC survey on drinking and driving habits. The study was conducted among 600 participants at bars, clubs and shebeens in the Durban Metropolitan Area and results indicated that 61% of respondents had not seen a roadblock for the entire year of 2000 (Watson, 2000). International experience such as in Australia has shown that alcohol screening among motorists should be frequent, routine and random in order to be effective (Homel, 1990). While the probability of getting caught should be higher to increase the effectiveness of laws, importantly the public need evidence to appreciate that the funds generated are being used for the benefit of the public, such as for road safety projects and not merely as a ‘revenue-raising’ initiative.
However, to effectively address high-risk traffic behaviours, education and awareness initiatives need to be integrated with behavioural science approaches (Sleet & Lonero, 2002). With impaired driving, an important component would be to provide reasonable alternatives. Alternatives to driving while impaired include spending the night at one's destination, designating a sober driver or using a safe ride home. The concepts of designated driver and safe ride programmes are popular among high-income countries, but unfortunately these are relatively unexplored among South African motorists. Although these programmes propagate the concepts of sensible drinking and harm reduction, the aim is not to accept and condone the consumption of alcohol. People are first encouraged not to drink and drive, and if they do drink, they should be reminded to limit their intake to within legal limits and are encouraged to designate a sober driver or to use a safe ride home. Besides providing alternatives to making informed choices, promotion of these concepts is very influential in reducing alcohol-impaired driving. When the US Department of Transportation launched the ‘Friends don’t let friends drive drunk’ campaign, nearly 80% took action to prevent a friend or loved one from driving drunk and 25% reported that they stopped drinking and driving as a result of the campaign (NHTSA, undated). Therefore such campaigns affect not only individuals but mobilise communities to take action against impaired driving. A new social norm is promoted - that drinking and driving is unacceptable, and this also helps to ‘legitimise’ the non-drinking option.

The TADS study indicated that a high percentage of traffic injuries were related to illicit drug use; also of concern was that many used illicit substances in combination with alcohol. The Drug Expert Recognition programme was developed by the Los Angeles Police Department with support from the Southern California Research Institute and was validated to show an accuracy of over 90% in determining impairment and also in correctly identifying the type of drug involved (Mynhardt & Van der Spuy, 2000). This programme was also piloted for use in the South African setting by the Council for Scientific and Industrial Research (CSIR) and South African Police Services (SAPS). Participants in the study were 54 detainees, and results indicated that 63% tested as impaired by alcohol, 54% by dagga, 30% by mandrax, 2% by LSD and 6% by opiates (NDoT, 2002). Full implementation of the South African Drug Expert Recognition Programme needs to proceed with urgency in order to detect and prosecute offenders and hence reduce the incidence of substance abuse in the traffic environment.

Besides the prosecution of alcohol- and drug-impaired road users, rehabilitation efforts are required at patient care facilities or upon prosecution to allow for early identification and treatment of substance abuse and to help prevent the recurrence of traffic collisions related to substance abuse. Furthermore, creating a safe and efficient public transport system together with formalising illegal drinking establishments, which will allow for people to drink closer to their homes, will go a long way in keeping intoxicated drivers and pedestrians off the road network (Watson, 2000).

**Excessive speed**

Here too, enforcement needs to be frequent and routine to deter potential offenders, and the public should be persuaded of the dangers of excessive speed. However, vehicle and road design are equally important. Community-wide traffic-calming
measures are needed, and application of relevant speed-limiting devices to all vehicles needs to be investigated. As far as possible, motorised and non-motorised vehicles, as well as vehicles with varying speeds need to be separated using appropriate engineering measures. Visibility and reaction times are seriously compromised at night and the need for lower speed limits should be investigated. Excessive speed was also shown to be positively related to driver aggression (Sukhai, 2003).

The psychological and emotional aspects of driving may need to be incorporated in the learner licensing process or in a potential graduated licensing system to address driver aggression and other hazardous driving behaviours. The graduated licensing system, which is used internationally, requires young drivers to demonstrate responsible driving behaviour in several phases before obtaining a final unrestricted licence. Such a system will also provide the necessary time-frame to address issues around stress and anger in the traffic environment.

Pedestrians
As in other developing countries (Afukaar, Antwi & Ofosu-Amaah, 2003; Khayesi, 1997; Odé, 1995), the hallmark of South Africa’s road traffic epidemiology is the disproportionately large pedestrian component. The NIMSS indicated that most pedestrian deaths were among the disadvantaged African and coloured populations, were higher among males, and peaked in the 30- to 34-year age group. The loss of males, especially in the economically active age group, means an increase in widows and orphans, which has great social and economic consequences for poor households and further perpetuates their poverty.

The NIMSS also revealed strong temporal patterns to pedestrian injuries. These occurred mainly in the evenings and during the winter months, which indicates that decreased visibility over these periods may be a significant factor in fatal road traffic crashes. A current initiative is being undertaken by the CVILP together with the CSIR, 3M and Drive Alive to pilot and evaluate the use of reflectorisation among child pedestrians.

Historically, road planning that was more relevant to industrial countries and which had a large focus on increasing mobility has been deployed in developing countries, resulting in scant attention to basic accessibility and to the pedestrian group (Wasike, 2001). A National Pedestrian Action Plan, which proposes a variety of pedestrian safety education and hazardous location upgrade programmes, has been developed as part of South Africa’s Road to Safety 2001 to 2005 strategy. It is hoped that these interventions will materialise and that child and adult pedestrians will receive due attention.

Furthermore, biomechanics and crash engineering have focused largely on protecting vehicle occupants, with little attention to injuries sustained by pedestrians (Crandall, Bhalla & Madeley, 2002). Recently European automotive manufacturers have proposed safer car fronts to protect pedestrians in crashes; these include pop-up bonnets and windscreen airbags to soften the head impact and energy-absorbing bumpers to minimise lower-limb trauma (Crandall, Bhalla & Madeley, 2002). It is reported that pedestrian fatalities could be reduced by 20% if vehicles are required to comply with these recommendations.
A systematic review which included 15 controlled trials showed that safety education among child pedestrians can improve their knowledge of the road-crossing task and can change observed road-crossing behaviour, but there is no conclusive evidence that this reduces the risk of pedestrian-motor vehicle collisions (Duperrex, Bunn & Roberts, 2002). Furthermore, we cannot rely on pedestrians to always make the safest decisions in the traffic environment, particularly not children who have many physical and cognitive limitations. Hence, passive pedestrian protection is advocated. With rapid urbanisation the biggest challenge lies in providing adequate separation of people and vehicles, especially in the context of informal developments that often lie close to major roads. Good practice measures, for example, on the use of physical barriers and convenient overpasses and underpasses in such a setting, are urgently required to optimise the safety of all road users in these areas.

Importantly, a culture that accepts pedestrians as equal users of the traffic environment needs to be fostered. This will afford pedestrians greater respect and priority from other road users, and from the various disciplines that are instrumental in enhancing road traffic safety.

POLICY AND LEGISLATION

Road to Safety 2001 to 2005 is a current and promising strategy by the South African Department of Transport aimed at addressing the carnage on the country’s roads (NDoT, 2002). The strategic objective is to reduce crashes, deaths and injuries on South Africa’s roads by 5% year-on-year until 2005. The main focal areas identified by the five flagship programmes are: inefficiency; fraud and corruption in the driver licensing system and vehicle registration systems; the development of an operator code of conduct and fleet safety management system; combating overloading by freight and public passenger transport operators; and implementing community-driven pedestrian safety education and hazardous location upgrade programmes.

Although important, the above factors should not be overrated since there is no evidence that these issues have a major influence on traffic crash rates. Furthermore, greater urgency is required with other priority initiatives which, among others, include creating a safe and reliable public transport network, formalising appropriate laws to regulate the liquor industry, and the development of a graduated driver licensing system. The benefits of these measures are discussed above. Additionally, rail transportation needs to be promoted and reorganised in order to relieve the road network of congestion, large speed differentials and damage.

RESEARCH

The World Health Organisation’s 5-year strategy for RTI prevention identified poor-quality data as a major obstacle to improving road safety globally (Peden et al., 2001). South African traffic research is largely fragmented and therefore ‘champions’ are needed to initiate an integrated approach to road traffic safety. Optimal surveillance systems are crucial to provide good epidemiological data on the nature and extent of priority issues and to identify risk factors, trends and emerging priorities. This information will be vital to inform prevention and evaluation programmes, and policy initiatives.
In South Africa the under-reporting of traffic statistics is of serious concern. The NIMSS presently records 32% to 39% of the country’s non-natural mortality. However, during 2001, 6859 traffic cases were recorded, which represents 87% of that recorded by the NDoT. This indicates that there may be gross under-reporting of the country’s already inflated traffic statistics.

**CONCLUSION**

South Africa’s unacceptably high levels of RTIs suggest that road safety should be prioritised at all levels and especially on the public health agenda. As a basis, good quality data for informing intervention and policy initiatives, together with an acknowledgement of the magnitude of the problem by all role-players are required. Hence, a multidisciplinary response with interagency partnerships needs to be fostered to pool expertise and help develop a coordinated and integrated response to this challenge. People at grassroots level should be empowered and mobilised since they also have a valuable role to play.

Importantly, the upstream determinants in the South African context need to be prioritised to ensure that we move beyond addressing just the ‘symptoms’ of the traffic burden. The platform will then be set to influence value systems and foster a culture of responsible road usage that will challenge irresponsible traffic behaviour, and the ideology that these incidents are inevitable.

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