

# INJURY AND SAFETY MONITOR

E D I T O R I A L

*Richard Matzopoulos and Anesh Sukhai*  
MRC-UNISA Crime, Violence & Injury Lead Programme

Collisions between pedestrians and road vehicles present a major public health challenge. Globally, more than one-third of the 1.17 million people killed and the 10 million people injured annually in road traffic collisions are pedestrians.<sup>1</sup> Traffic injuries are set to increase in developing countries as car ownership increases and insufficient efforts are made to protect those not in cars.<sup>2</sup>

In South Africa, the National Injury Mortality Surveillance System (NIMSS) revealed that in 2001, 27% of all injury deaths were transport-related and 94% of those deaths occurred on our roads.<sup>3</sup> The large number of pedestrian fatalities, which accounted for just over half of all deaths where the road user category was specified (i.e. drivers, passengers, pedestrians, cyclists or motorcyclists),<sup>3</sup> was a significant contributor to a road death rate that was double the world rate.<sup>4</sup> Despite this, road planning and traffic safety have focused predominantly on cars and the needs of car owners, at the expense of public transport, non-motorised vehicles and pedestrians.

The Crime, Violence and Injury Lead Programme (CVI), co- directed by the Medical Research Council (MRC) and the University of South Africa's (UNISA) Institute for Social and Health Sciences, advocates the public health approach to injury prevention, which provides a systematic method to define the mechanics and environment that give rise to injury events; to identify risk factors and specific groups at risk; to develop and test strategies and interventions; and to adopt and implement effective strategies. The CVI, in partnership with the Indian Institute of Technology, conducts an annual injury control and traffic safety training course aimed at the Directorates of Law Enforcement and Traffic Management, police officers, traffic and road planners and engineers, policy analysts, behavioural scientists, medical professionals, emergency services, biomedical engineers and community activists.

The CVI is currently conducting an exploratory study of road rage, aggressive driving and other hazardous driving behaviour among Durban motorists,<sup>5</sup> and together with the Council for Scientific and Industrial Research (CSIR), Drive Alive and 3M, has already researched the utility of reflective materials in school uniforms to enhance pedestrian visibility and hence reduce the risk of pedestrians being unsighted in low- visibility conditions.<sup>6</sup> The study inferred that reflective clothing could be successfully introduced in low-income communities, particularly among children younger than 10 years, but that there were several challenges including the need to use passive rather than active reflectors, to develop marketing strategies that impact on children's desire to wear reflective materials and to address the costs of reflective materials.

The starting point for any effective prevention strategy is with the collection of accurate and reliable information about specific injury events. While earlier research by one of the CVI's predecessors, the MRC's National Trauma Research Programme, firmly established that the large number of intoxicated pedestrians on our roads was an  $\emptyset$

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## EDITOR

Richard Matzopoulos  
CRIME, VIOLENCE & INJURY LEAD PROGRAMME (CVI), MEDICAL RESEARCH COUNCIL (MRC)

## EDITORIAL SUPPORT

Sandra Marais  
CVI, MRC  
Garth Stevens  
CVI, UNISA INSTITUTE FOR SOCIAL AND HEALTH SCIENCES  
Leverne Gething (leverne@eject.co.za)  
WHIZZ @ WORDS

## PRODUCED BY

SHARED SERVICES  
PO BOX 19070, TYGERBERG 7505

## DESIGN AND LAYOUT

Iulius Toma  
MRC STUDIO

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important contributor to the high incidence of motor-vehicle pedestrian fatalities,<sup>7</sup> the large number of child pedestrian fatalities clearly indicates that alcohol is not the only factor. The 2001 NIMSS dataset revealed that one-fifth of all pedestrian fatalities were among children and young adults below the age of 20 years, and that among children aged 5 to 14 years motor vehicle pedestrian collisions were the single largest cause of injury-related death.<sup>3</sup>

In this issue of the *Injury and Safety Monitor* we have decided to review the status of pedestrian injuries in South Africa with a specific focus on children. The first two articles describe some of the NIMSS findings pertaining to child pedestrian injuries, one looking at the national perspective and the other focusing on a single city, Cape Town. The articles demonstrate the utility of the NIMSS data for describing risk factors and specific groups at risk, as well as providing a framework for monitoring and evaluating our prevention efforts. The third article, *Paediatric Pedestrian Carnage*, reviews data from several different sources as well as a selection of prevention strategies. We have also included an insert comprising two non-scientific articles that we hope will prompt some debate among our readership. *Car Wars* is an article from March 2003 which we have reprinted with permission from *The Guardian*. It describes the pedestrian-focused public transport policy in Bogota, Colombia. The second article is an interview that was conducted with a local manufacturer of reflective

clothing, in which we discuss some of the marketing challenges in the South African environment that were raised in the pedestrian visibility study.<sup>5</sup>

With pedestrian intervention programmes the childhood component is frequently overlooked. This may be due to a lack of reliable information on childhood injuries, or because the risk factors for adult pedestrian injuries, such as alcohol abuse, provide more obvious intervention targets. We hope that this edition of the *Injury and Safety Monitor* will stimulate some debate on the rights of pedestrians, and children in particular, to a safe environment in which to work and play.

Clearly, a new culture needs to be instilled – one that accepts child pedestrians as equals on the road. This will afford pedestrians greater respect and priority from other road users as well as from the various agencies that are instrumental in enhancing traffic safety. Interagency partnerships should be fostered at all levels in order to pool expertise and develop a co-ordinated response to this challenge. It is comforting to know that some priority will be given to this issue with the country's Road to Safety 2001 to 2005 strategy. This includes a National Pedestrian Action Plan that proposes a variety of pedestrian safety education and hazardous location upgrade programmes. It remains to be seen whether these interventions will materialise and if childhood pedestrians receive their due attention.

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# A Profile of Childhood Pedestrian Fatalities in South Africa, 2001

Anesh Sukhai

MRC-UNISA Crime, Violence & Injury Lead Programme

## Introduction

The National Injury Mortality Surveillance System (NIMSS) produces and disseminates descriptive epidemiological information that is readily available from documentation that arises from medico-legal postmortem investigations. In 2001 we had 32 mortuaries in 6 different provinces that contributed their data to this system. These cases accounted for between 32% and 39% of all non-natural mortality in South Africa.

The concept of "childhood" or "children" is not standardised and may refer to different age groups in

different contexts. For this paper, children or childhood injuries refer to all "non-adult" cases and include the more conventional 0 to 14-year child group and the adolescent age group from 15 to 19 years. Trauma profiles differ not only between adults and children, but also markedly between the different child age groups, and these profiles have important implications for intervention.

## NIMSS results

Childhood injuries accounted for 3130 (14.4%) of all non-natural mortality, 1519 (19.0%) of all

unintentional injury deaths and 425 (20.7%) of all pedestrian deaths. Among childhood deaths, 55.7% were unintentional. Pedestrian injuries contributed to 28.0% of these unintentional childhood deaths.

## Overall Cause of Death by Age Group

Table 1 shows the number of pedestrian deaths and pedestrian deaths as a percentage of all injury deaths for the different child age groups for 2001. Pedestrian injury was the single largest cause of death among children in the 5-9 and 10-14 year age groups. The highest percentage of pedestrian deaths was recorded

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in the 5-9 year age group and accounted for more than one-third of their non-natural deaths.

## Time of Injury and Death

Deaths among the 5-9 year age group peaked at 17h00 followed by 16h00, and among the 10-14 year age group deaths peaked at 18h00 followed by 14h00. Among the older 15-19 year age group deaths peaked equally at 20h00 and 21h00 followed by slightly fewer and an equal number of cases at 17h00 and 18h00.

**Table 1: Pedestrian Death by Child Age Group, NIMSS 2001**

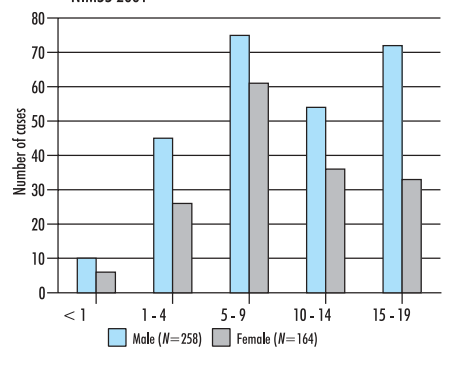
|  | < 1 | 1-4  | 5-9  | 10-14 | 15-19 |
|--|-----|------|------|-------|-------|
| Number of pedestrian deaths  | 16  | 71   | 138  | 94    | 106   |
| Percentage - Pedestrian deaths as a percentage of all injury deaths within age group | 4.7 | 14.7 | 36.0 | 26.5  | 7.9   |
| Ranking - Leading cause ranking within age group                                     | 5   | 3    | 1    | 1     | 3     |

## Age and Gender of Victim

Figure 1 shows the distribution of childhood pedestrian deaths by age and gender of victim for 2001.

Overall, males accounted for 61.1% of all childhood pedestrian deaths with an M:F ratio of 1.6:1. The largest M:F ratio was among the 15-19 year age group (2.1:1) and the smallest was among the 5-9 year group (1.2:1).

**Figure 1: Age and Gender of Childhood Pedestrian Death, NIMSS 2001**



## Population group<sup>†</sup> of Victim

Blacks constituted the bulk of child pedestrian deaths (81.8%), and the NIMSS data indicated that this proportion was consistent with the overall proportional non-natural mortality for this group. However, within the different population groups, Blacks had the highest proportion of childhood pedestrian deaths (21.9%) followed by Coloureds (17.3%).

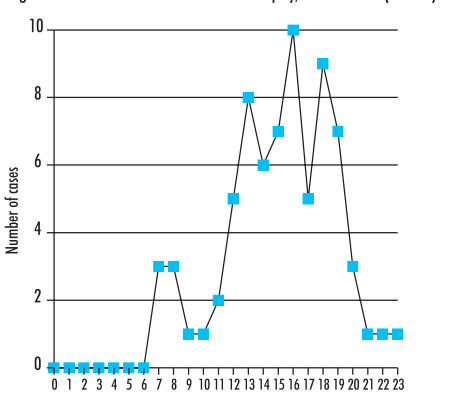
## Scene of Injury

The scene of injury was known in 420 of childhood pedestrian deaths, and 405 (96.4%) occurred on the road/pavement followed by 6 (1.4%) that occurred in the immediate vicinity of the home.

Figure 2 shows the distribution of childhood pedestrian *injuries* by hour of day and Figure 3 the distribution of childhood pedestrian *deaths* by hour of day, for 2001. The time of *injury* was recorded for relatively few cases and hence these data are supplemented with time of *death* data to achieve a more reliable profile for the time of *injury*.

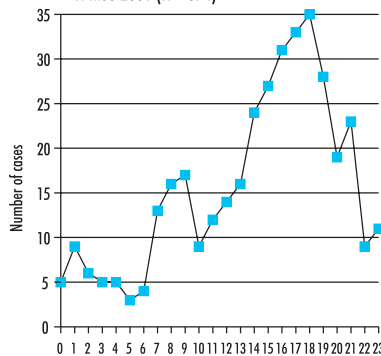
While the nature of medical treatment was known in 280 cases, only 80 (28.6%) were transported to a treatment facility. This may suggest that most deaths were almost instantaneous. Therefore, extrapolation of data on time of *death* provides a relatively reliable proxy for the actual time of *injury*. Time of *injury* was only available for 73 (17.2%) of childhood pedestrian deaths and for these known cases, most occurred between 13h00 and 19h00. This distribution was similar for the 374 cases recorded for the time of *death*.

**Figure 2: Time of Childhood Pedestrian Injury, NIMSS 2001 (N=73)**



Additionally, the NIMSS revealed the following distribution for time of day by age group. Among the 5-9 year age group, most *injuries* occurred at 16h00 followed by an equal number of cases at 13h00 and

**Figure 3: Time of Childhood Pedestrian Death, NIMSS 2001 (N=374)**



14h00. Injuries in the 10-14 year age group peaked at 15h00. Cases in the 15-19 year age group peaked even later at 18h00 but also had relatively high proportions of cases at 16h00 and 17h00.

## Day and Month of Death

Data on the day and month of *injury* was not recorded and therefore the day and month of *death* is used as a proxy. Besides, as mentioned previously, only about one-quarter of childhood pedestrian deaths received hospital care, suggesting that most deaths were almost instantaneous.

Figure 4 shows the distribution of childhood pedestrian deaths for each day of the week in 2001. Saturday had the highest number of childhood pedestrian deaths and weekends (Sat & Sun) accounted for more than one-third (36.1%) of cases. While the 5-9 year age group recorded the highest number of cases on a Sunday (32 cases), the 10-14 and 15-19 year age groups recorded the highest number of deaths on a Saturday (18 and 29 cases, respectively).

**Figure 4: Day of Childhood Pedestrian Death, NIMSS 2001 (N=424)**

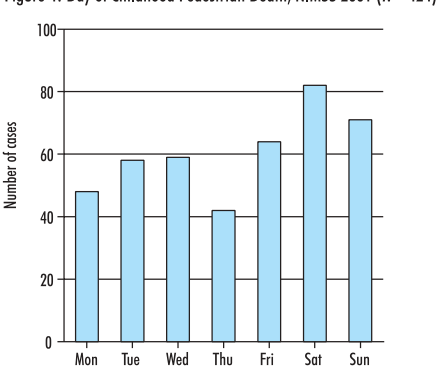
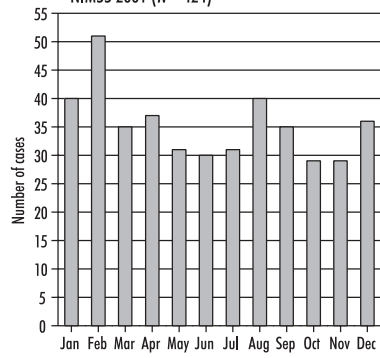


Figure 5 shows the distribution of childhood pedestrian deaths for each month in 2001. The highest number of cases was recorded in February, and the 0

<sup>†</sup> The concept of 'population group' and its constituents i.e. 'Asian', 'Black', 'Coloured' and 'White', are social constructs and are not meant to signify any inherent genetic or biological differences between these groups. Instead, they are used as demographic markers where such profiling allows for identifying vulnerable populations in order to plan and implement effective prevention and intervention programmes.

Figure 5: Month of Childhood Pedestrian Death, NIMSS 2001 (N=424)



summer months from December to February accounted for nearly one-third (30.0%) of all cases. During mid-year, there was also a smaller peak in cases during the winter month of August.

### Inter-city Comparisons

The NIMSS has full mortality coverage for five cities (Durban, Cape Town, Port Elizabeth, East London and Pretoria) and one province (Mpumalanga). Of these six 'areas', Durban recorded the highest number of cases, followed closely by Cape Town. Their cases represented approximately one-fifth each of all childhood pedestrian deaths.

### Implications for Prevention

The NIMSS provides valuable temporal data on time, day and month of pedestrian deaths, which highlight specific times when childhood pedestrians are at increased risk of injury and death.

The NIMSS data suggest that age is directly proportional to time of injury and death, that is, older age groups are at greater risk at later times in the day. This could be explained by their different school hours and also relates to older school children playing on the roads or running errands like going to the local shop. Data have also shown that children are at heightened risk during weekends and particularly during the

summer months. Interventions aimed at these risks are discussed using the universal public health approach for interventions commonly referred to as the 4 "E's". Generally, passive intervention strategies such as environmental modification and engineering are advocated as being more successful than other active measures.

### Education

Research has shown that safety education among pedestrians can equip them to cross the road more safely by improving their knowledge of the road-crossing task, their observation of the traffic environment and their behaviour on the roads.<sup>1</sup> However, this should be seen as a long-term intervention strategy, especially in light of the many physical and cognitive limitations among younger children. Road safety education should as far as possible be built into the school teaching curriculum and should be emphasised before weekends and particularly before major holidays such as Christmas. Parents need to be responsible and ensure that they themselves are adequately educated on the subject. Adequate opportunities for doing so need to be made available to parents. Parents should also ensure that their children receive adequate supervision, especially during the times when they are at increased risk of injury.

### Environmental Modification

The majority of childhood pedestrians killed were either Black or Coloured, possibly a reflection of the location of a high proportion of these children in low-income environments. They may be more likely to use unsafe routes to and from school and often lack safe play areas. Injury prevention efforts should include a focus on general socio-economic and environmental upliftment, especially in these low-income areas. Specific target areas that should be explored include speed control measures or traffic calming in areas with a high concentration of children, measures that

enhance the separation of motorists and pedestrians, and the use of under/over passes in areas where schools are located across busy roads.

### Engineering

Generally, biomechanics and crash engineering have focused on protecting vehicle occupants with scant attention to the pedestrians that are killed by these vehicles. Recently, European automotive manufacturers have proposed safer car fronts to protect pedestrians in crashes. These measures include pop-up bonnets, windscreen airbags and energy-absorbing bumpers.<sup>2</sup> Support for these design initiatives should be encouraged from all sectors and at all levels.

### Enforcement

South Africa is reputed to implement first-class legislation but with inadequate enforcement thereof. Good driver conduct and greater respect for childhood pedestrians should be a national priority. Therefore, appropriate legislation needs to be enforced more rigorously, especially in areas with high concentrations of children.

### Conclusion

The NIMSS results provide evidence of distinct patterns to childhood pedestrian deaths. The challenge then lies in capitalising on this valuable information and channelling the necessary resources accordingly. Importantly, although mortality data are useful in highlighting the extreme nature of these childhood pedestrian injuries, policy and prevention initiatives should also take cognisance of the huge non-fatal component that may have different profiles to those highlighted in this paper.

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# Pedestrian Fatalities among children and adolescents in Cape Town, 2001

Megan Prinsloo,

MRC-UNISA Crime, Violence and Injury Lead Programme

## Introduction

The National Injury Mortality Surveillance System (NIMSS) provides full coverage for the two Cape Town mortuaries, namely Salt River and Tygerberg, and captures all non-natural deaths for the Cape Town sub-structures, excluding Helderberg. The term "childhood" or "children" as referred to in this paper includes the more conventional 0 to 14 year age group, as well as the adolescent age group of 15 to 19 years.

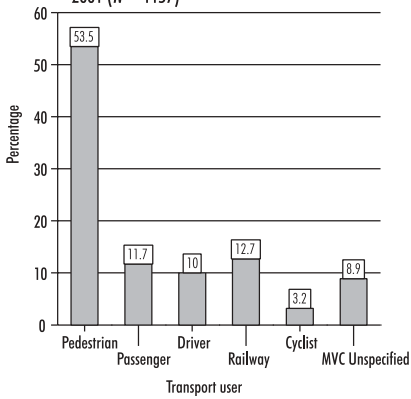
There were 4717 non-natural deaths recorded by the NIMSS for Cape Town in 2001. Of these cases, 1626 (34.5%) were fatal unintentional injuries, of which 1157 (71.2%) were road traffic injuries. Figure 1 shows these fatal road traffic injuries by user category, with pedestrian deaths accounting for nearly 54% or 619 of these cases.

Figure 2 shows the percentage and number of fatal road traffic injuries among children and

adolescents between the ages of 0 to 19 years, of which 81 (59.6%) were pedestrian deaths. The 81 pedestrian deaths accounted for 13.1% of all

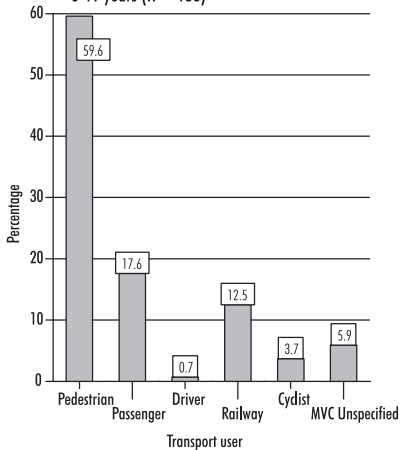
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Figure 1: Transport-related Deaths by User Category, 2001 (N= 1157)



pedestrian deaths in Cape Town for 2001. The analysis that follows will focus specifically on these childhood pedestrian deaths.

Figure 2: Transport-related Deaths by User Category, 0-19 years (N= 136)

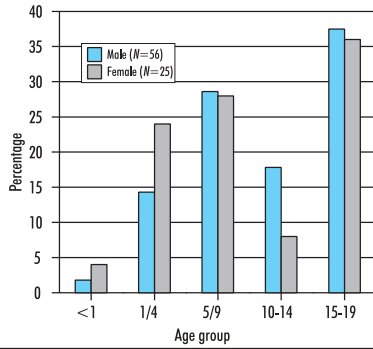


## Age and Gender of Pedestrian Fatalities

Males accounted for 69.1% of all childhood pedestrian deaths recorded for Cape Town in 2001. The M:F ratio was 2.2:1 and an overall childhood age breakdown showed that 80.2% of pedestrian victims were among the school-going ages of 5 to 19 years, and about one-fifth were younger than 5 years.

Figure 3 shows an age breakdown by gender for childhood pedestrian deaths. Bearing in mind the difference between male and female pedestrian victims, the figure shows that a larger percentage of females younger than 5 years died as a result of pedestrian injuries. During the first years of schooling, between the ages of 5 to 9 years, both genders had a similar percentage of pedestrian deaths. Among the 10

Figure 3: Pedestrian Deaths by Age and Gender (N= 81)



to 14 year age group, a higher percentage of male pedestrians were killed compared to females. For both genders the highest percentages of pedestrian victims were recorded among the 'older' age group of 15 to 19 years.

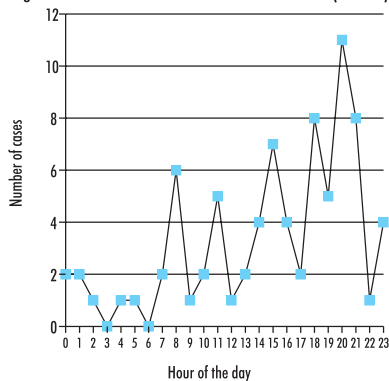
## Scene of Injury and Medical Treatment prior to Death

The scene of injury was recorded as having occurred on the road or pavement for 80 (98.8%) of the cases. Of the 81 pedestrian victims, 4.9% received emergency care at the scene and 21% were hospitalised prior to death. The remaining 74.1% received no medical treatment prior to death and this may indicate that death was almost instantaneous for these victims. It cannot be confirmed whether death was instantaneous for the majority of these cases and any data on time, day and month of death should be interpreted cautiously.

## Time of Death

Figure 4 shows peaks in childhood pedestrian deaths at 08h00 and 11h00 in the morning, at 15h00 in the afternoon, and at 18h00, 20h00 and 21h00 in the evening.

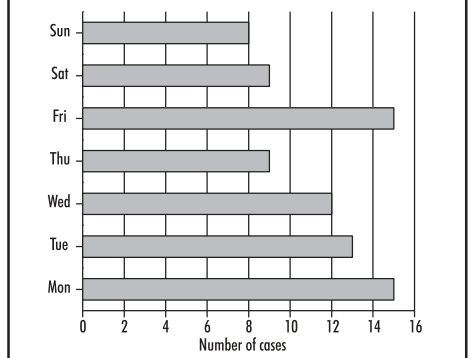
Figure 4: Time of Death for Childhood Pedestrians (N= 80)



## Day of Death

Figure 5 shows the distribution of childhood pedestrian deaths for the days of the week in 2001. The highest number of deaths occurred on a Wednesday and Sunday. More than a third (34.6%) of pedestrian deaths occurred over weekends (Saturday & Sunday).

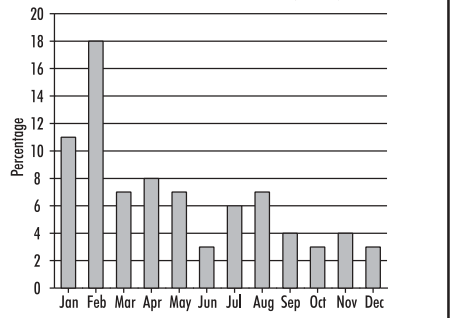
Figure 5: Day of Death for Childhood Pedestrians (N= 81)



## Month of Death

More than a third (35.8%) of pedestrian deaths occurred in January and February, when children return to school from summer holidays. Figure 6 shows a peak in pedestrian deaths during February and smaller peaks were seen in April, which is usually the Easter holiday period, and during the winter month of August.

Figure 6: Month of Death for Childhood Pedestrians (N= 81)



## Discussion

The results seem to indicate that pedestrian deaths for Cape Town were particularly high among children aged 5 to 9 years and adolescents in the 15 to 19 year age group.

Children among the ages of 5 to 9 years are all exposed to traffic risks, but haven't yet acquired road safety skills. Previous research identified certain physical and cognitive limitations of young children's performance and behaviour in traffic.<sup>1</sup>

**Size:** A small child's view of the road is often obscured ☹

when standing on the pavement near parked cars.

**Height of impact:** A small child's head and shoulders are at bumper or bonnet height and hence these parts of the body are particularly prone to injury upon impact.

**Speed and distance:** Young children's perception of the speed and distance of a moving vehicle are still inadequately developed.

**Attention:** Children find it difficult to concentrate on one particular thing for long periods of time. They also tend to be easily distracted by things of lesser importance in traffic situations.

**Peripheral vision:** Young children have limited peripheral vision, preventing them from observing movement or objects at the periphery of their visual fields.

**Auditory perception:** Young road users have difficulty in distinguishing between the sounds made by different types of vehicles and in deciding whether a vehicle is near or far.

One would consider the 15 to 19 year age group to be more aware of the dangers of traffic and to have acquired the necessary road-safety skills. However, the highest percentage of pedestrian deaths was recorded among this age group. Adolescents engaging in more risk-taking behaviour in comparison to young children could explain this finding. In addition, they are more likely to be on the road at dusk or at night and are therefore not clearly visible to other road users, who in turn may be speeding and unable to break or swerve

timously. Recording the time of injury for pedestrian victims would confirm whether this was in fact the case.

Considering that more than a third of childhood pedestrian deaths occurred over weekends may raise the question about drivers' competence in terms of alertness, speeding, reaction time, and blood alcohol level. The results also highlight the high proportion of pedestrian deaths occurring during the summer months, when children return to school after the holiday period.

In general, research has shown that the pedestrian problem could be attributed to poor traffic education, inadequate facilities for pedestrians, lack of effective law enforcement, walking being the cheapest means of transportation, taking the convenient instead of the safe crossing, and not being visually conspicuous at night.<sup>2</sup> Developing effective environmental, engineering, education and enforcement strategies should thus play a crucial role towards reducing traffic injury risks.

## Conclusion

Statistics for the year 2000 showed that pedestrians accounted for the largest percentage (39.7%) of all transport-related deaths in South Africa.<sup>3</sup> Yet many road safety campaigns are focused on vehicle occupants. The high-risk age groups and peak periods of pedestrian deaths which were highlighted by the NIMSS could be utilised to develop adequate

## Summary

- Pedestrian deaths accounted for 59.6% of transport-related deaths among children and adolescents aged 0 to 19 years
- 80.2% were of school-going age
- 28.4% were between the ages of 5 to 9 years
- The highest percentage (37%) was recorded among those aged 15 to 19 years
- 69.1% of victims were male
- More than a third (34.6%) of pedestrian deaths occurred over weekends
- 35.8% of childhood pedestrian deaths occurred during the summer months of January and February

intervention and prevention strategies, with the aim of reducing pedestrian injuries and fatalities not only in Cape Town, but throughout South Africa.

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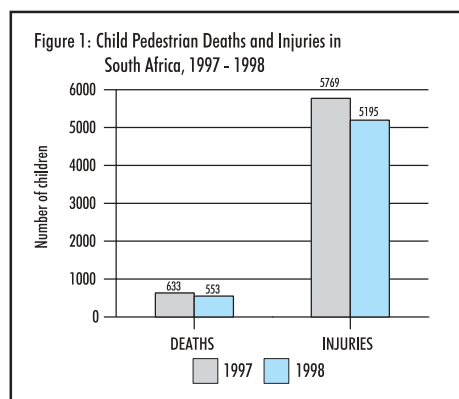
# Paediatric pedestrian carnage

Nelmarie du Toit,<sup>1</sup> A. B. van As<sup>2</sup>

<sup>1</sup> Child Accident Prevention Foundation of Southern Africa,  
<sup>2</sup> Red Cross War Memorial Children's Hospital

Road traffic injuries are the leading cause of death due to injury, the tenth leading cause of all deaths, and the ninth leading contributor to the burden of disease world wide.<sup>1</sup>

The National Injury Mortality Surveillance System (NIMSS) collates information directly from mortuaries in South Africa on deaths due to non-natural causes. Although the third annual report was limited to between 32% and 39% of all non-natural deaths, it provides an important profile on fatal injuries for 2000. The NIMSS report of 2001 reported pedestrian injuries as the most common external cause of death in the 5 - 14 year age groups and the third leading external cause of death in the 1 - 4 year age groups.<sup>2</sup>



The latest available statistics from Statistics South Africa reveal that 633 child pedestrians were killed in

South Africa during 1997 and 553 during 1998. This amounts to more than one child per day. Altogether 5769 were injured in 1997 and 5195 during 1998 (Figure 1). There was a slight decrease in both injuries and deaths. These statistics represent data from reported road traffic accidents only.<sup>3,4</sup>

Children of school-going age are at greatest risk, especially those between the ages of 5 and 9 years. Forty three per cent (1997 & 1998) of pedestrian deaths and injuries were from this age category (Figures 2 and 3).

Research indicates that children under the age of 8 years lack not only experience, but also overall maturity to cope satisfactorily in our traffic system. Our Ø

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Figure 2: Pedestrian Deaths in South Africa, 1997 - 1998

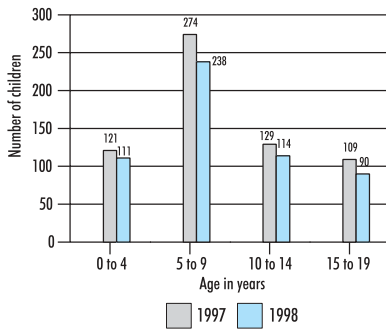
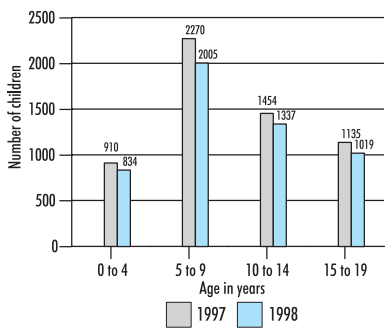


Figure 3: Pedestrian Injuries in South Africa, 1997 - 1998



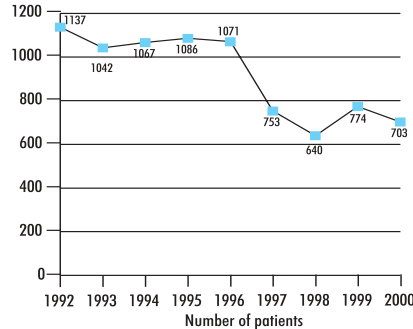
South African statistics confirm this. Approximately 49% of all child pedestrians killed in 1997 in South Africa were under the age of 8 years.

Children are called upon to manage the road environment alone at far too early an age. International research has proved beyond doubt that the reasons for pedestrian accidents are related to a lack of maturity and experience. Young children simply do not possess most of the skills or attributes necessary to survive in traffic. Physically they are at a disadvantage in trying to assess a traffic scene, because of their height and immature visual and hearing ability. On a cognitive level they have many limitations, namely: imprecise perception of speed, distance, movement and direction, poor attention span, impulsiveness, unpredictability and no real understanding of the abstract concepts of 'safe' versus 'dangerous'.

The Child Accident Prevention Foundation of Southern Africa (CAPFSA) keeps a database of all the injured patients that present to the Trauma Unit of the Red Cross War Memorial Children's Hospital. Over the past nine years 8273 children presented to the Trauma Unit as result of traffic-related injuries sustained as a pedestrian. Figure 4 shows trends in the number of pedestrian injuries seen at the hospital annually. The numbers increased steadily until 1997, when there was a sharp drop in the incidence of pedestrian injuries. This drop can be attributed to the new

Western Cape health system that was implemented that year. However, a gradual increase in pedestrian injuries has occurred in recent years.

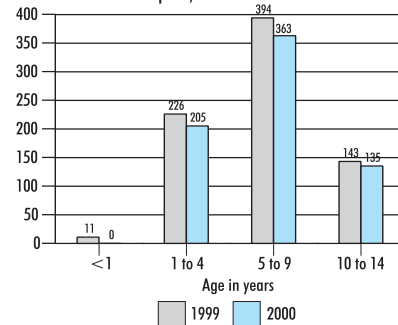
Figure 4: Pedestrian Injuries Treated at Red Cross Children's Hospital, 1992 - 2000



In-patient statistics from the Red Cross Children's Hospital in Cape Town reveal that 15% of injuries treated at its Trauma Unit are road traffic injuries. The Red Cross Children's Hospital Trauma Unit treats approximately half the paediatric patients from the Cape Peninsula. Additionally, it treats referred patients from outlying areas. In one study performed at this hospital the vast majority of injuries encountered occurred on residential streets, which children often perceive as an extension of their home territory.<sup>5</sup>

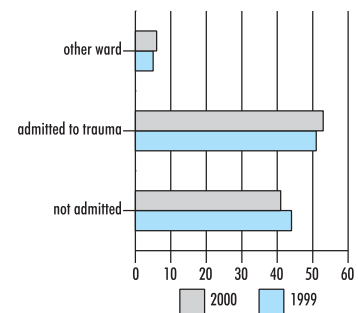
The age groups treated for pedestrian injuries amounted to 51% (1999) and 52% (2000) of children between 5 and 9 years (Figure 5). Children's safety on the road is the responsibility of all adults, parents, caregivers, drivers and all other road users. More than half of the patients were either admitted to the Trauma Unit, another ward or ICU (Figure 6).

Figure 5: Pedestrian Injuries by Age Groups at the Red Cross Children's Hospital, 1999 - 2000



In a study reported by Bass *et al.*<sup>5</sup> on pedestrian injuries at the Red Cross Hospital it was found that 44% of patients sustained soft-tissue injury while the remaining 56% suffered more severe lesions. Most of these indicated craniofacial injuries and orthopaedic injuries. Among the fatalities no less than 73% were

Figure 6: Pedestrian Admissions at Red Cross Children's Hospital, 1999 - 2000



due to major brain injury while 8% were from lesions of the heart and great vessels.<sup>5</sup>

## Strategies for prevention

Various international research studies reveal that the type of prevention programmes employed may be an important factor determining impact on pedestrian injuries. The traditional approaches of education, legislation (active measures) and environmental modification (passive measures) in pursuit of reducing both collisions and injury severity, deserve critical appraisal. Unless this is done, we are at risk of committing precious funding and scarce human resources to inappropriate strategies, as far as target population or the physical environment is concerned.

Several studies have shown that educational programmes have had limited success when applied in isolation. Programmes for alerting children to traffic safety have had some success and are certainly an important element in improving safety awareness. However, countries that have put a stronger emphasis on environmental change to control traffic flow have experienced greater reductions in child pedestrian injury and mortality rates.<sup>6</sup> According to Rivara (1990), pedestrian injuries are complex problems for which no single intervention will be completely effective. Prevention must be based on a multifaceted approach at local, state, and national levels and should include pedestrian skills programmes, parent education, legislation, environmental modifications and vehicle changes.<sup>7</sup>

An Australian study which examined child pedestrian injury rates in that country indicated that environmental changes may well affect traffic flow and reduce pedestrian risks. It was found that child pedestrian injuries tend to occur in situations of high traffic flow where large numbers of vehicles exceed speed limits, particularly on residential roads.<sup>8</sup> This study, as have others, indicated limits to the Ø

effectiveness of child educational programmes. Traffic-calming devices such as speed humps, speed restrictions and road narrowing appear to be more effective ways of controlling injury rates.

The question arises as to whether road safety education is wasted on young children. The situation may well be similar to the education of parents and drivers in the creation of a safer environment: while it may not significantly influence the immediate safety of young children, it does at least lay down the foundation for future safe behaviour on the road. The Road to Safety strategy 2001 - 2005 of the Department of Transport has identified six interlocking and overlapping focal areas requiring intervention with the ultimate aim of reducing traffic accidents. These are the following:

- Road environment quality;
  - Driver fitness;
  - Vehicle fitness;
  - Pedestrian safety and fitness (safe road usage by pedestrians);
  - Reform of regulatory and monitoring institutions;
  - Targeted communication campaigns to challenge public attitudes and behaviour, supported by private sector sponsorship; practical road safety training in schools and tertiary institutions;
- community road safety forums and programmes.

One of the focus areas is the pedestrian and it is hoped that the implementation of the strategy will assist in reducing pedestrian deaths and injuries in South Africa.<sup>9</sup>

There are currently a variety of pedestrian safety education programmes running at national and local level. Non-governmental organisations such as Drive Alive, Soul City, Centre for Education in Traffic Safety – Potchefstroom, CAPFSA and the Centre for Peace Action are also playing an important role in addressing the problem of pedestrian injuries in South Africa. The major role player in safety education is the Department of Transport, Traffic Safety Division with its Child in Traffic Programme and the Safety in Traffic Educational Programme (STEP) running in some schools.

The objectives of CAPFSA are to prevent and reduce fatal and serious injuries to children up to the age of 18 years. The prevention of road traffic injuries

is one of the focal points of CAPFSA's activities and has been so for several years. In this regard CAPFSA does not work in isolation but co-operates with other existing role-players such as the Department of Transport, and many others.

## Conclusion

Young children are particularly vulnerable as pedestrians, as is evident from the large numbers of children that die and are injured on our roads. There is no single solution to the problem of child pedestrian accidents in South Africa. We need a co-ordinated effort, focused on issues of concern to our communities.

It is common cause that schools are well placed to promote traffic safety, but parents also need to act as the primary role models for their children, and they should therefore also be made aware of the limitations children have in terms of handling the traffic situations safely. The parental role promoting traffic safety is absolutely essential for the success of educational programmes. In addition, adult supervision of children under the age of 8 years is of great importance in preventing them from suffering pedestrian injuries. CAPFSA is of the view that traffic safety education alone and in isolation will never solve the problem of pedestrian injuries. We need to combine education with passive prevention strategies and with engineering measures for calming traffic flow and creating a safe traffic environment. It is also of great importance to have safe traffic routes to school, to have safe play areas and to ensure maximal conspicuity of children in traffic.

It is futile to teach our children road safety and then grab them by the hand and rush across the road. Children will always follow examples, regardless of whether those are good or bad. They will only develop safe traffic habits when they are influenced to do so by our actions.

We have not been able to achieve a substantial reduction in the number of childhood pedestrian injuries and deaths. We are unlikely to do so unless statutory road safety campaigns acknowledge and address the specific hazards to which children are exposed. We should therefore constantly be aware of the limitations of the child pedestrian, provide the best possible supervision and be committed to being the best possible role model.

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We encourage readers, including organisations, wishing to submit contributions, to contact the Co-ordinating Editors:

### Sandra Marais:

MRC, Cape Town, Tel: (021) 938- 0216,  
E-mail: Sandra.marais@mrc.ac.za

### Garth Stevens:

UNISA - ISHS, Johannesburg,  
Tel: (011) 857-1142/3,  
E-mail: steveg@unisa.ac.za

For more information on the Crime, Violence and Injury Lead Programme (CVI) you may go to the following web pages: [www.unisa.ac.za/dept/ishs/](http://www.unisa.ac.za/dept/ishs/) and [www.mrc.ac.za/crime/crime](http://www.mrc.ac.za/crime/crime). We have designed and posted a request for information form onto our webpages for those agencies and individuals wishing to source information from CVI.