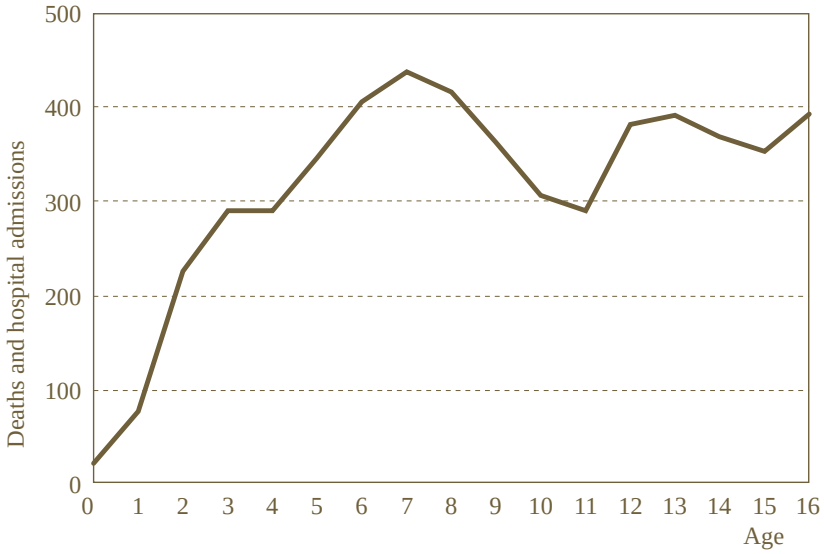
Federal Office of Road Safety

PEDESTRIAN CASUALTIES: CHILDREN IN EARLY SCHOOL YEARS

Fig.1 Age of young pedestrians killed or admitted to hospital, 1989 - 1994



Between 1989 and 1994, 195 children aged 5 to 12 years were killed crossing or walking beside roads in Australia. A further 4,500 children were admitted to hospital as a result of being struck by a car and it is estimated that over 10,000 received minor injuries as a result of a pedestrian crash. Using our roads as a pedestrian poses a significant health risk for young children. This monograph investigates trends in pedestrian fatalities among children of primary school age.

With commencement of their schooling from age five or six, children begin to undertake independent pedestrian travel and increase their exposure to road injury or death. Crash statistics show that the youngest school age pedestrians are those most at risk. From the age of seven years, casualties tend to decrease as children become more familiar with the skills required to cross a road (see Figure 1). However the number of road casualties increases again from the age of eleven years, presumably when the amount of travel connected with the transition to high school and independent social activities begins to increase.

Each year about 25 to 30 children of primary school age (those aged 5 to 12) are killed whilst pedestrians on Australian roads. A further 600 to 700 are admitted to hospital. FORS' road crash data point to characteristic patterns in these events which should help identify specific intervention measures to augment the broad initiatives currently being developed for protecting vulnerable road users through the introduction of lower speed limits in specific urban zones, expanded road safety audits and increased involvement of school communities in students' road safety.

Collision patterns

FORS collects comprehensive information about fatal road crashes, based on material used by coroners investigating those crashes. A detailed review of child pedestrian crashes in 1992 (the most recent year for which comprehensive information is available) gives cause for serious concern about the understanding of traffic by pedestrians at this age.

There were 31 pedestrian fatalities aged 5 to 12 in 1992. For 28 of these cases sufficient information is available to gauge responsibility for the crash, and in 24 of these the child appears to have been solely at fault. The child's actions leading to the collision commonly displayed a lack of awareness of prevailing traffic conditions. In two of these cases the child was disobeying signs or lights at pedestrian crossings. In the cases where the driver was at fault, excessive vehicle speed was a major causal factor.

Table 1 Number of fatal collisions in 1992 involving pedestrians aged 5 to 12, by road type and speed limit at site of collision

	60 km/h	75-80 km/h	90+ km/h
Urban arterial	5	2	1
Urban highways	1	0	1
Other urban roads	15	2	0
Rural highways	0	0	2
Other rural roads	0	0	2
All fatal collisions	21	4	6

About two thirds of those killed were males, which is consistent with the pattern seen amongst all road fatalities. The deaths generally occurred on low speed minor urban roads, although a disturbing number occurred on arterials and highways in urban areas, as is evident in Table 1.

To assist in identifying the environmental characteristics of child pedestrian fatalities, an analysis was undertaken of the 195 pedestrian deaths in this age group which occurred between 1989 and 1994. In general, there was nothing particularly threatening about the conditions at the time of the pedestrian fatality. These deaths predominantly occured:

- mid-block (64%)
- in daytime (84%)
- during fine weather (96%)
- on dry roads (92%)
- on straight roads (93%)

Also, as Table 2 demonstrates, about half of the deaths were the result of near side collisions with a child entering the roadway. This type of event typically presents little chance for avoidance by the driver of a vehicle travelling at 60 km/h. In many of these cases, the child emerged from in front of a parked vehicle.

Table 3 Activity* of pedestrians aged 5 to 12 at time of fatal collision, 1989 - 1994

	% of fatal collisions
Journey to school	7%
Journey home from school	27%
After school daytime activities	31%
Other activities on schooldays	12%
Activities on non school days	23%
All fatal collisions	**100%**

** Pedestrian activity has been estimated from time of day and date of crash*

Little information is available on which to gauge responsibility for collisions resulting in injury but not death. As with fatalities in this group, the 4,500 cases of hospital admission amongst pedestrians of early school age recorded between 1989 and 1994 predominantly occurred mid-block in daytime during fine weather on dry straight roads. As would be expected, the less serious collisions tended to occur at lower speeds than those causing fatalities: about 93 per cent occurred on roads with posted speed limits of 60 km/h or less.

The hazardous journey home from school

Table 3 shows that pedestrian fatalities among primary school age children most commonly occur during the journey home from school or during subsequent afternoon activities. Relatively few casualties occur during the journey to school. In fact, the number of deaths that occur on the way home from school is nearly four times higher than the number that occur on the way to school. While the trip home accounts for 27 per cent of fatalities, another 31 per cent are related to activities occuring after school but before nightfall. Thus, the majority of pedestrian deaths of primary school age children occurs in the three to four hours between the end of school and sunset. A similar pattern is seen amongst casualties resulting in injury but not death.

Figure 2 shows that collisions leading to serious casualty during the journey home from school typically involve younger children than those occurring during the journey to school. One possible explanation, which remains conjecture at this point, is that parents who accompany very young children to school are relying on a greater degree of independent travel for the journey home by these children, with unfortunate results.

Table 2 Types of fatal collision involving pedestrians aged 5 to 12, 1989 - 1994

	% of fatal collisions
Near side collision where child emerges from in front of parked vehicle	22%
Other near side collision with child entering the roadway	31%
Far side collision with child entering the roadway	36%
Child walking with/against traffic	6%
Child on footpath, median or driveway	1%
Other	3%
All fatal collisions	**100%**

Hazards faced after alighting from school buses in country areas

When comprehensive information was examined on each of the fatal crashes that occurred in 1992, it became apparent that young school age children in country areas face a significant hazard after alighting from school buses on their journey home from school.

Table 4 Location of fatal collisions in 1992 involving pedestrians aged 5 to 12 after alighting from school buses and during other activities

	Large cities*	Country urban centres	Rural areas
Fatalities after alighting from school bus	0	3	3
Fatalities during other activities	20	4	1

** Centres having population in excess of 100,000 persons*

Table 5 Speed limit at site of fatal collisions in 1992 involving pedestrians aged 5 to 12 after alighting from school buses and during other activities

	60 km/h	75-80 km/h	90+ km/h
Fatalities after alighting from school bus	2	0	4
Fatalities during other activities	19	4	2

In 1992 there were eleven deaths amongst 5 to 12 year old pedestrians journeying home from school and six of these deaths involved children who, moments before, had alighted from a school bus. In contrast, there were no cyclist deaths and no passenger deaths on the journey home from school, in rural areas.

Tables 4 and 5 show that all six deaths occurred in rural areas or in country urban centres. These commonly occurred on high speed roads: three on 100 km/h rural roads, one on a 100 km/h arterial in a large town, and two on 60 km/h roads in other country towns. In contrast, other pedestrian fatalities in this age group predominantly occurred on 60 km/h roads in large cities or, to a lesser extent, in country urban centres.

Three of these deaths involved a child running across the road in front of a stationary bus being struck by a vehicle overtaking the bus. The other three deaths involved a child running across the road at the rear of a bus being struck by a vehicle travelling in the far lane.

Significantly, no child pedestrians were killed in 1992 after getting off buses at schools, demonstrating the benefits of heightened caution in these areas and measures typically in place there for traffic calming and safe road crossing. It may also be that parents less commonly accompany their children home from school than accompany them to school.

South Australian research[1] has demonstrated that minor reductions in the speed of general traffic flows substantially improves drivers' chances of avoiding collisions with pedestrians and greatly reduces injury severity where collision is not avoided. Although vehicle speed was not excessive in any of the fatal collisions in 1992 involving children who had alighted from a bus, lives may nevertheless have been saved had the degree of caution and traffic calming exercised in school zones been general practice around all stationary buses.

As would be expected, the risk faced by children who have alighted from school buses dissipates after they attain high school age. The comprehensive information available for 1992 indicates no fatalities in that year amongst pedestrians aged 13 to 16 who had alighted from a school bus.

Fig. 2 Age of young pedestrians killed or admitted to hospital by activity at time of crash, 1989 - 1994

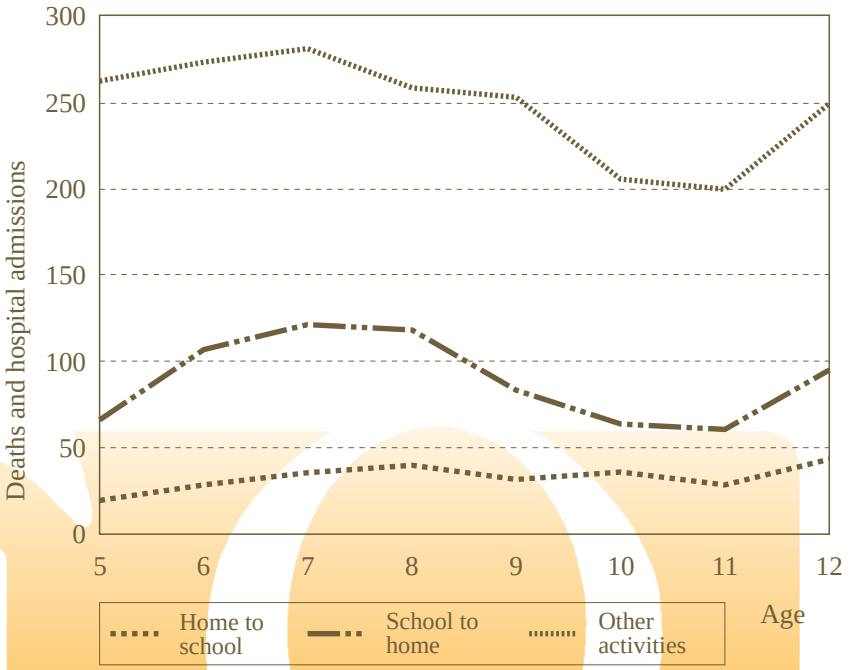
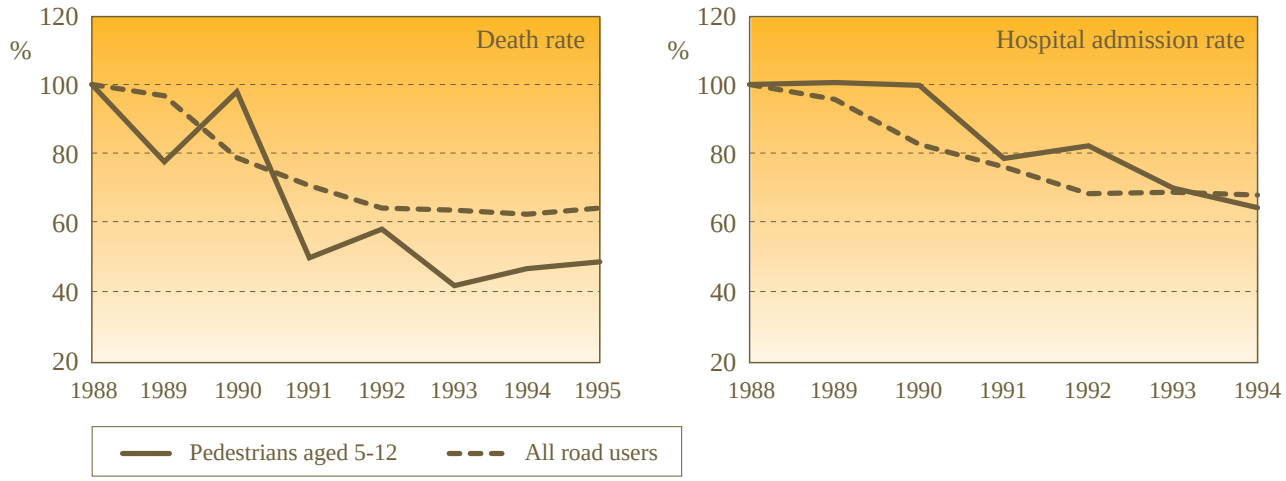


Fig. 3 Trends since 1988 in casualty rates for pedestrians aged 5 to 12 and all road users



Each point shows that year's rate of deaths or hospital admissions per 100,000 people in that age group expressed as a percentage of the corresponding rate in 1988.

Expectations for the future

The good news is that casualties have decreased substantially since the 1980s (see Figure 3). Pedestrian deaths per 100,000 children aged 5 to 12 have halved from 2.6 in 1988 to 1.3 in 1995. This represents a more substantial decrease than seen amongst all Australian road users (down 36%). Similarly, pedestrian hospital admissions per 100,000 children in this age group are estimated to be down 34 per cent (from 44 per 100,000 to 29 per 100,000), which is on a par with the decrease seen amongst all road users.

Further significant improvement is unlikely unless strong action is taken, and until then one can continue to expect each year about 25 to 30 deaths and 600 to 700 serious injuries amongst Australian pedestrians aged 5 to 12. An additional concern is that after years of decline in the national level of road trauma, the road toll increased in 1995. Although no clear trend has emerged for child pedestrians, an upswing has been noted amongst pedestrian casualties in general.

With this in mind, pedestrian safety has now been given greater priority in the National Road Safety Action Plan[2].

Implemented and guided by key road safety stakeholders from State, Territory and Federal road safety authorities, police, local governments and other organisations, the Plan provides a national framework for implementing road safety strategy. Actions targeted specifically at pedestrians and other vulnerable road users are:

- working towards the introduction of 50 km/h speed limits for certain urban zones
- expanding road safety audits to identify risky locations and utilising world's best practice to improve them
- working closely with P&C organisations and school communities to promote road safety including the Safe Travel to School awards and a conference on schools and road safety to be held later this year.

Individual State, Territory and local governments are targetting each of these areas. The review presented here should augment these broad plans by helping identify specific measures directed at pedestrians of primary school age. While road safety for young children is an issue for the relevant authorities, it is perhaps an even bigger issue for those responsible for the day-to-day wellbeing of children.

The role of parents and guardians is critical to the achievement of safer roads for all children.

A specific problem identified in this monograph is that of young country children being killed or injured whilst crossing the road after getting off school buses. While the number of lives involved is not large, these deaths and injuries are pre-eminently avoidable and the responsibility for the saving of these young lives lies with the local community.

It is the responsibility of parents, schools, local government and local bus companies to ensure that children are provided with safe crossing after alighting from buses in country areas. The first step is for all to be aware of the potential hazard and the second step is put in place action to remove that hazard.

References:

[1] *McLean AJ, Anderson RWG, Farmer MJB, et al. Vehicle travel speeds and the incidence of fatal pedestrian collisions (volume 1). Report CR146. Canberra: Federal Office of Road Safety, 1994.*

[2] *National Road Safety Action Plan 1996, published by Federal Office of Road Safety on behalf of the National Road safety Strategy Implementation Taskforce.*