

Overcoming Barriers to Pedestrian Safety.

By

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Abstract

Large proportions of the Australian and New Zealand road tolls are pedestrians (around 13% in Australia and 10% in New Zealand) and pedestrians make up a much larger proportion of the global road toll, with many countries recording over half their toll as pedestrians (e.g., Peru 78%, Mozambique 68%, Congo 59%, Bangladesh 54%). Furthermore, pedestrians are not as readily addressed within the safe systems approach as are vehicle occupants, because of the lack of physical protection and consequently much lower impact speeds at which death or serious injury are likely. This paper considers the barriers to more effective management of pedestrian safety and amenity. These include: (1) the 'roads are built for cars' mentality; (2) perceived costs of pedestrian safety treatments versus economic gains of vehicular traffic movement; (3) the absence of consideration of pedestrian waiting time in benefit cost analyses of road management policy; (4) ongoing expansion of vehicle capacity on roads; (5) victim blaming; and (6) data collection problems created in the likely scenario of interviewing an uninjured driver able to put his/her point of view versus a deceased or severely injured pedestrian unable to speak. Solutions are offered in terms of focused research, policy changes, reconsideration of benefits cost ratio factors, better speed management and engineering of roads and roadsides to accommodate pedestrians.

Keywords: pedestrian safety, road environment, driver attitudes, victim blaming, crash data, safe systems, benefit cost analysis, speed management.

Introduction.

From the perspective of many road safety activities, pedestrians are the neglected victims: more likely to be blamed in collisions and less likely to be appropriately accommodated within the road transport system. Yet, pedestrians are a major part of the global road toll. Table 1 provides the proportion of the road toll who are pedestrians for selected countries representing each region, with pedestrians being over one in three of their road deaths in many countries. As has been observed before, lower income countries tend to have higher proportions of pedestrians in their tolls (e.g., Oxley et al, 2011).

Pedestrian casualties are not improving at the rate of the rest of the road toll in Australia or New Zealand. From Table 2, in Australia pedestrian deaths have not improved at the rate of the road toll overall. If we consider the toll of all users except pedestrians, then the improvement from 2007 to 2011 is 21.16%, which means pedestrian deaths have improved at

about one third the rate of all other road users combined. Thus pedestrians have moved from 12.7% of the 2007 toll to 14.7% in 2011. In New Zealand, pedestrian deaths have improved at a slightly better rate than the toll, with 10.7% of the 2007 being pedestrians versus 9.3% of the 2010 toll. However, pedestrian injuries have increased both as a percentage of the toll (5.4% to 6.9%) and in absolute numbers (868 to 967).

Table 1: Percentage of the road related death toll who are Pedestrians, by Country.

Region	Country	% pedestrians in toll	Source (b)	
Australia and the Pacific	Australia	15	BITRE, 2011	
	Cook Islands	40		
	Fiji	25		
	Kiribati	6		
	New Zealand	9		NZ Minsitry of Transport, 2011
	Papua New Guinea	39		
	Tonga	44		
Africa	Congo	59		
	Ethiopia	55		
	Ghana	42		
	Kenya	47		
	Mozambique	68		
	Niger	33		
	South Africa	39		
	Uganda	35		
Asia	Cambodia	13		
	China	26		
	Indonesia	15		
	Japan	32		
	Korea (Republic of)	37		
	Malaysia	10		
	Myanmar	30		
	Thailand	8		
Central Asia& Subcontinent	Bangladesh	54		
	India	13		
	Kazakhstan	16		
	Sri Lanka	33		
Eastern Europe	Albania	40		
	Belarus	40		
	Hungary	23		
	Poland	35		
	Romania	11		
	Russia	36		
	Slovakia	34		
	Ukraine	56		
Middle East and Gulf	Bahrain	29		
	Egypt	20		
	Iran	33		
	Israel	32		
	Jordan	25		
	United Arab Emirates	28		
	Canada	13		
North America	Mexico	21		
	USA	11		
	Argentina	19		
South & Central America	Bolivia	35		
	Brazil	28		
	Chile	40		
	Ecuador	43		
	Guatemala	23		

	Peru	78	
	Venezuela	25	
Western Europe	France	12	
	Germany	14	
	Greece	16	
	Italy	13	
	Netherlands	12	
	Spain	15	
	Sweden	12	
	United Kingdom	22	Dept. for Transp. Statistics, 2011

(a) Source for all countries not otherwise specified is WHO (2009)

Table 2: Deaths by road user type by year, Australia (Data source: BITRE, 2011).

<i>Year</i>	<i>Driver</i>	<i>Passenger</i>	<i>Pedestrian</i>	<i>Motorcyclist</i>	<i>Cyclist</i>	<i>Total (a)</i>
2007	785	336	204	237	41	1,603
2008	671	302	189	245	28	1,437
2009	708	330	194	224	31	1,488
2010	635	284	170	224	38	1,352
2011	581	286	189	200	35	1,292
<i>Change from 2001 to 2011 (%)</i>	-26.99	-14.88	-7.35	-15.61	-14.63	-19.40

(a) Includes deaths of unknown road user type

Pedestrian safety is one of the largest challenges to the implementation of safe system principles. The speed limits required to protect pedestrians are lower than others, and the environment in which pedestrian issues are most likely to arise are the most developed, congested and expensive per square metre. Thus, engineering treatments are more expensive and difficult.

This paper describes a number of reasons for the disproportionately low level of road safety investment in the pedestrian problem compared with the extent of the death and trauma. The key reasons described are:

- (1) the 'roads are built for cars' mentality;
- (2) in low and middle income countries pedestrians are likely to be poorer than car owners and drivers, while road safety policy decisions are likely to be made by wealthier (car owning) managers;
- (3) perceived costs of pedestrian safety treatments versus economic gains of vehicular traffic movement;
- (4) the absence of consideration of pedestrian waiting time in benefit cost analyses of road management policy;
- (5) ongoing expansion of vehicle capacity on roads;
- (6) victim blaming; and
- (7) data collection problems at crashes which favour the drivers perspective.

Each is considered in turn.

1. The ‘roads are built for cars’ mentality

A strong cultural mindset remains that roads are built for cars. In a direct sense this is typically true- they are. The problem lies in the mindset which has accompanied this developmental drive: the mindset that roads should not be shared with others (especially users without motor power) or if shared the car must maintain priority. Thus for example, where there is a need to accommodate bicycles, this is often done at the expense of pedestrians rather than cars, with footpaths transformed into shared bicycle/pedestrian paths (see Figure 1). The net road safety benefits or dis-benefits of these shared paths, in terms of assessment of both the possible improved safety for cyclists versus the increased risk for pedestrians remains to be effectively assessed. Where cyclists are accommodated on roads this is often via a meagre 1 metre wide lane between parked cars and the traffic lane, serving the purpose of not allowing cyclists to slow the vehicular traffic by occupying the road proper, thus allowing car to pass, often at the risk of the cyclist (for example, see Figure 2).



Figure 1: Shared cycle pedestrian path, Australia



Figure 2: On road cycle path, allowing cars to pass cyclists without being delayed

Pedestrian facilities such as signalised crossings at traffic signal controlled intersections are often not provided. For example, see Figure 3 which shows pedestrians crossing away from a major signalised intersection in Pretoria (South Africa) at a major pedestrian crossing point close to the inner city because there is no signal phase for pedestrians.



Figure 3: Pedestrian crossing a busy road in Pretoria, South Africa, near a major signalised intersection with no pedestrian facilities.

Even where pedestrian facilities are provided at signalised intersections, they are often operated with preference for vehicular traffic, even when this creates risk for pedestrians. For example, in Australia the guidelines on timing of the pedestrian crossing phase typically allow for pedestrians to walk at 1.2m/s despite the evidence that this is too fast for many pedestrians to cross in the time allowed (Job et al., 1997, 1998).

2. In low and middle income countries pedestrians are likely to be poorer than car owners and drivers, while road safety policy decisions are likely to be made by wealthier (car owning) people

In low and middle income countries, many people cannot afford to own or access a car. Making many journeys as pedestrians is a necessity. However, those in positions of power in transport and road safety policy are likely to have cars. Thus, pedestrians risk being overlooked as a key group to be accommodated in the road transport system. Even basics like footpaths may not exist (see Figure 4 and 5).

3. perceived costs of pedestrian safety treatments versus economic gains of vehicular traffic movement

Limited resources for road safety force choices. Pedestrian safety is often seen as not effectively amenable to engineering measures, but rather due to pedestrian behaviours (see points 6 or 7 below). In addition, provision of pedestrian amenity and safety often sits in conflict with traffic movement. Thus, provision



**Figure 4: Roads without footpaths
Shanghai, China.**



**Figure 5: Roads without footpaths
Georgetown, Malaysia.**

of pedestrian crossings which allow pedestrians right of way may be resisted in favour of traffic efficiency. Pedestrian zebra crossings may not be implemented, and scramble crossings are rarely operated because they reduce traffic throughput even though they provide greater safety for pedestrians, and the speed limit suggested by safe system principles for pedestrian safety (30km/h) is rarely implemented in most countries, although pedestrian safety has improved with better speed management in some countries (e.g., UK: Road Safety GB, 2011).

4. The absence of consideration of pedestrian waiting time in benefit cost analyses of road management policy.

In developed countries, pedestrians are often ignored in detailed analysis for development of policy on road safety and amenity. For example, in Australia, estimations of benefit from various options at intersections include a cost for waiting time for vehicles and their drivers, but no cost of pedestrian waiting time. Thus, policy which favours even very small improvement in traffic movement over extensive waiting time for large numbers of pedestrians will still produce a positive benefit in these analyses.

5. Ongoing expansion of vehicle capacity on roads

With limited space within congested urban environments, decisions to expand road space and traffic throughput must weigh up the costs to others. Often the decision is made to sacrifice pedestrian safety. For example, pedestrian safety may be compromised by removal of

median strips (and even pedestrian median fencing), both of which improve pedestrian safety, in order to allow for extra traffic lanes.

6. Victim blaming

Victim blaming is an important psychological reality. Unfortunately, this impacts on pedestrians, because in vehicle-pedestrian collisions pedestrians are the likely victims. Thus, pedestrian safety issues are often seen as behavioural issues, and pedestrian victims are often presented as heavily inebriated, despite this being around one in four pedestrian fatalities in Australia.

7. Data collection problems at crashes which favour the driver's perspective.

Police face an unenviable situation when attending fatal or serious injury pedestrian crashes, especially if there are no uninvolved witnesses. Typically, the pedestrian is unable to speak or provide their account of events, whereas the driver will be uninjured and able to provide their account. Furthermore, few among us are able to determine the speed of impact from the injuries to a pedestrian, and thus speed is extremely difficult to determine. These factors result in pedestrians being more likely to be seen as at fault.

Conclusions and Recommendations

Pedestrian safety is a major challenge for safe system principles, and the focus on avoiding injury for vulnerable road users amounts to a focus on avoiding crashes and thus exposure to traffic above low speeds. For many reasons, pedestrian safety is often not appropriately addressed. These issues would be improved by:

1. Provision of better basic facilities (footpaths) for pedestrians in many low and middle income countries;
2. Culture change to overcome the roads for cars mindset and victim blaming of pedestrians;
3. Decreased speeds to better protect pedestrians;
4. Inclusion of pedestrian waiting time in consideration of road policy;
5. Separation of pedestrians and traffic through fencing and provision of safe, preferably grade separated, crossings with no pedestrian access to the road, and urban planning for shopping centres which reduce traffic-pedestrian interactions compared with strip shopping developments.

Acknowledgements. The National Road Safety Council (NRSC) is funded by all the state and territory governments and the Commonwealth Government. The views expressed here are not necessarily those of the NRSC.

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