

PEDESTRIAN CASUALTIES
RESULTING FROM COLLISIONS WITH
CYCLISTS ON FOOTPATHS

by

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Pedestrian Casualties Resulting from Collisions with Cyclists on Footpaths

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Abstract:

A study to estimate the incidence of pedestrian casualties following collisions with cyclists on the footpath was undertaken to gauge the extent to which this is an issue affecting the formulation of footpath cycling policy. To this end, hospital records on admitted patients and casualty registers for those treated in hospital emergency departments were examined at seven major Melbourne hospitals and the Geelong Hospital.

Results showed that this particular problem was of very small proportions. It was noted, however, that the issues of less severe injuries and pedestrian amenity were not covered by this study; they represent factors which could receive consideration in the formulation of policy.

Key Words:

pedestrian, cyclist, footway, accident rate, injury, survey, Victoria

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Contents

1.0 INTRODUCTION	1
2.0 PREVIOUS FINDINGS	1
3.0 THE CURRENT STUDY.....	4
4.0 RESULTS	5
5.0 CONCLUSION	6
REFERENCE	6
ATTACHMENT A DATA COLLECTION SUMMARY	7

Figures

FIGURE 1	DAILY PEDESTRIAN PASSING RATES (PER KILOMETRE OF ROAD) BY CYCLIST AGE GROUP AND ROAD CLASS.....	2
FIGURE 2	DAILY PEDESTRIAN PASSING RATES (PER KILOMETRE OF ROAD) BY CYCLIST AGE GROUP AND LAND USE 3	3
FIGURE 3	RISK OF CYCLIST/PEDESTRIAN (ON FOOTPATH) ACCIDENTS (PER 10,000,000 PEDESTRIANS PASSED) BY AGE GROUP AND ROAD CLASS.....	4

PEDESTRIAN CASUALTIES RESULTING FROM COLLISIONS WITH CYCLISTS ON FOOTPATHS

1.0 INTRODUCTION

Previous research has demonstrated the lower risk of casualty accident involvement (per unit cycling time) associated with cycling on the footpath, relative to on-road cycling (Drummond & Jee, 1988). However, the study method meant that there was an outstanding issue of relevance to cycling policy formulation to be resolved by further investigation of hospital records, namely the estimated incidence of pedestrian casualties following collisions with cyclists on the footpath. This is a potential disbenefit from the possible legalisation of footpath cycling and it is thus important that the current size of the problem be identified in order to estimate the nett safety outcome of legalised footpath cycling.

This report outlines the previous method and findings as they relate to the current exercise, describes the additional steps implemented to supplement the available information and details the results of further data collection.

2.0 PREVIOUS FINDINGS

Drummond and Jee (1988) present data on two aspects of this problem. The first relates to the potential for pedestrian-cyclist conflict on the footpath by showing estimated pedestrian passing rates (per kilometre of road). Figures 1 and 2 present daily pedestrian passing rates by road class and land use respectively. By way of explanation, Figure 1 shows that cyclists aged under 11 years pass an average of just under 40 pedestrians for every kilometre of footpath along arterial roads each day (defined as between the hours of 8am and 6pm).

Figure 1 demonstrates that the potential for conflict is greatest on footpaths along arterial roads for all cyclists age groups (cyclists aged under 11 years pass almost 3 times as many cyclists on arterial footpaths than on non-arterial footpaths, those aged 11-17 years over 9 times as many and adult cyclists over 8 times as many). Figure 2 shows that the greatest potential for conflict occurs in shopping areas with the teenage cyclist group having the highest daily passing rate of almost 115 pedestrians per kilometre of footpath in shopping areas.

It is difficult to place these figures into context as, within defined categories, they represent average rates over the whole footpath network. Thus, the highest daily rate of 115 pedestrians passed per kilometre of commercial footpath by the teenage cyclist group can be interpreted as meaning that a total of 11 to 12 pedestrians an hour are passed by all teenage cyclists cycling in every one kilometre stretch of commercial footpath. However, at certain locations and/or certain times of day or days of week, this passing rate could be several times higher and compensated for by a number of other locations having no interaction between cyclists and pedestrians on the footpath.

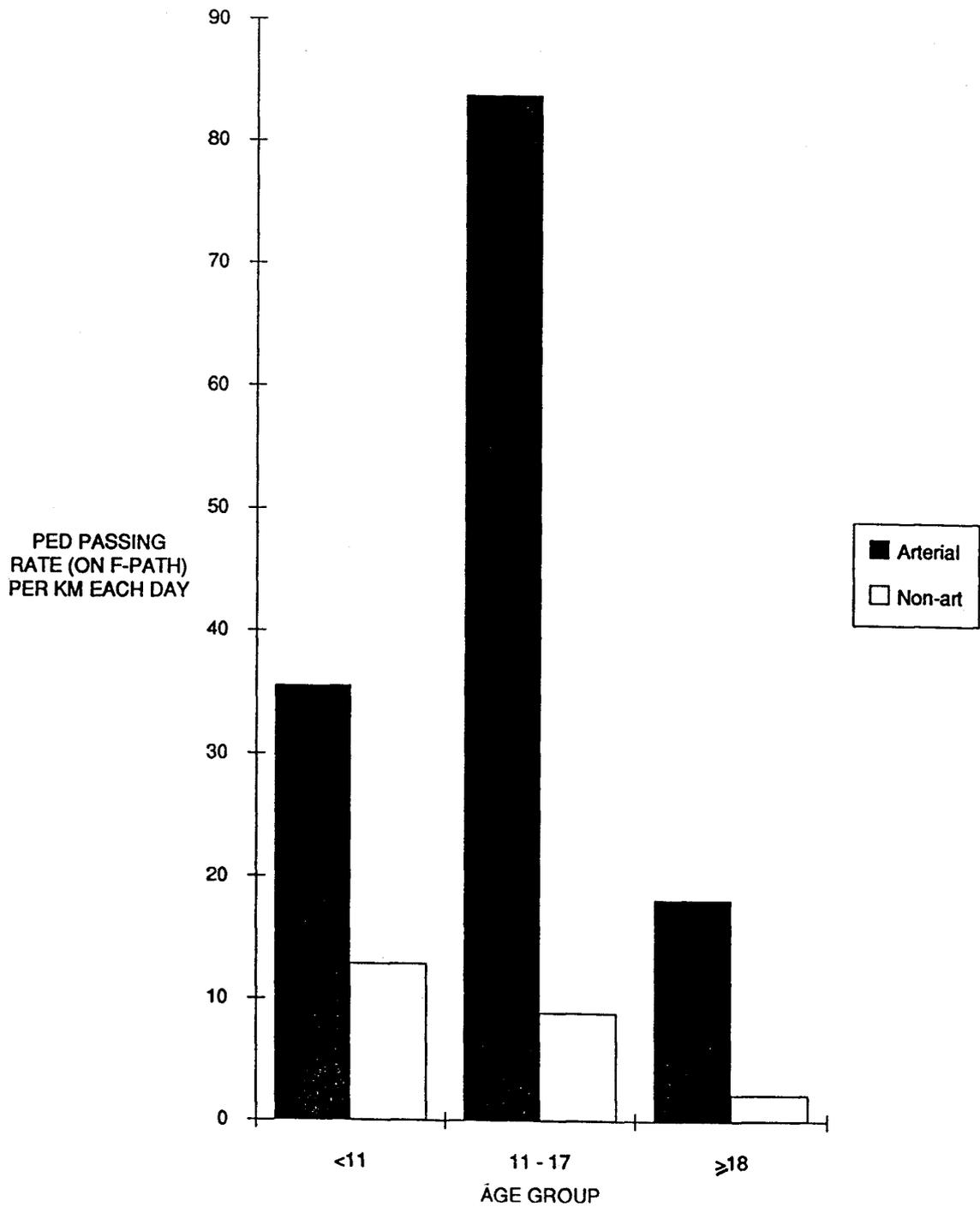


Figure 1 Daily pedestrian passing rates (per kilometre of road) by cyclist age group and road class

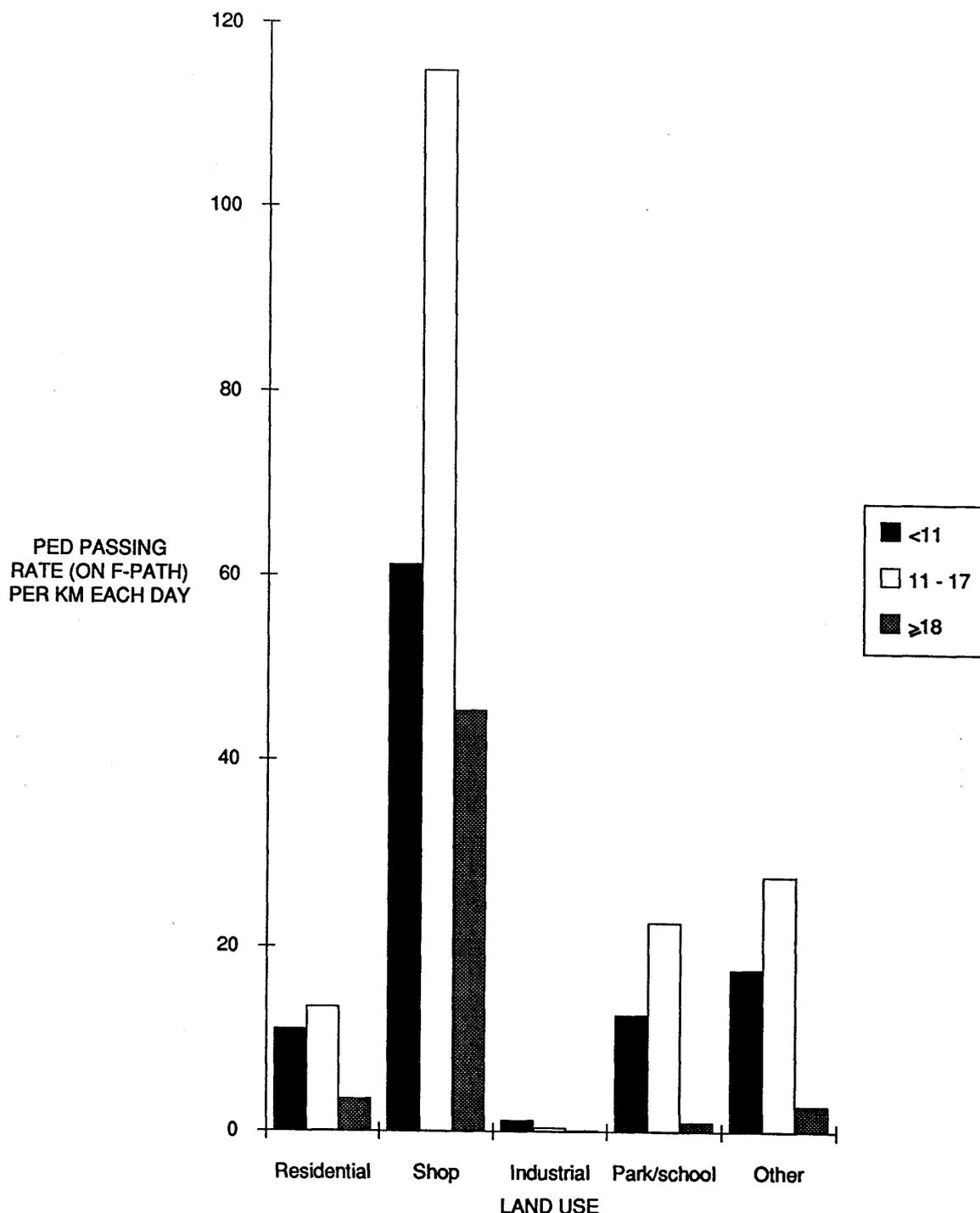


Figure 2 Daily pedestrian passing rates (per kilometre of road) by cyclist age group and land use

The other data presented were in the form of risk estimates, in which the above exposure data were combined with appropriate (Police reported) casualty accident data. However, it is known that there is substantial underreporting of accidents involving cyclists and pedestrians (refer Drummond & Jee (1988), Section 4.0). At the time, interrogation of hospital records was undertaken to determine whether there was differential underreporting by road and footpath; this additional data collection used cyclists as the unit of analysis (it was subsequently shown that the road/footpath risk ratio was comparable regardless of whether Police reported or hospital based accident data were used). It was possible that, of all possible accident configurations, pedestrians injured as the result of collisions with

cyclists on the footpath are most under-reported and that the figure presented below (Figure 3) may have substantially underestimated the risk of footpath cycling to pedestrians. This was pointed out in the original report; as the figure was based on an annual average of only 2.5 casualty accidents, it was also pointed out that the under-reporting problem would need to be very substantial for this to approach the magnitude of other bicycle accident types.

The figure shows that only cyclists in the two older age groups were involved in such (Police reported) accidents and that such accidents were confined to the non-arterial environment.

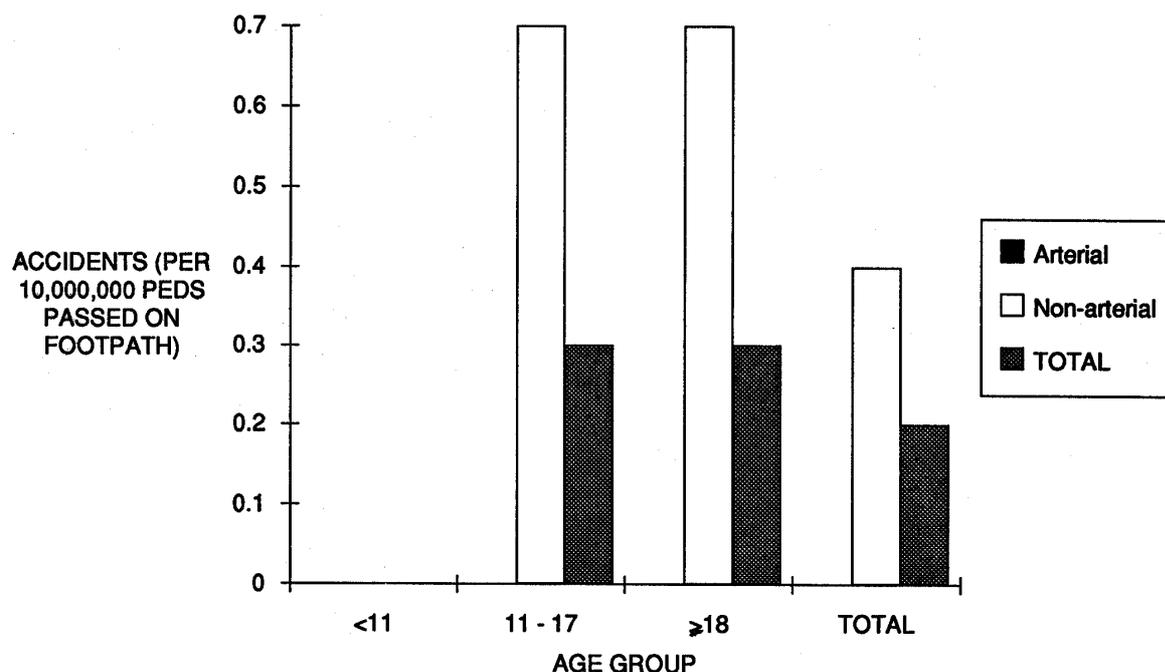


Figure 3 Risk of cyclist/pedestrian (on footpath) accidents (per 10,000,000 pedestrians passed) by age group and road class

3.0 THE CURRENT STUDY

As mentioned above, hospital records were examined to determine whether there was differential underreporting of bicycle accidents by road and footpath which would have affected the relative risk estimates (and consequent decisions on footpath cycling policy). Risk analysis of casualty accidents involving cyclists and pedestrians on the footpath was restricted to police reported accidents as there was no evidence for differential underreporting.

The current study was therefore set up to gauge the frequency with which pedestrians were treated and/or admitted to hospital. The method for this study was as follows;

- agreement was obtained from the following hospitals to participate in this study (for confidentiality purposes, the results section and Attachment A refers)
 - Alfred Hospital
 - Box Hill Hospital
 - Dandenong Hospital
 - Geelong Hospital

- Preston and Northcote Community Hospital
 - Royal Children's Hospital
 - Royal Melbourne Hospital
 - St Vincents Hospital
- permission to search the Casualty register for the period 1 April-20 December 1987 was obtained in order to identify relevant cases attending an Accident and Emergency Department but not admitted to hospital.
 - medical records administrators were requested to search for the "E" (external cause) code 826.0 in their admitted cases for the same period. This is the code for pedal cycle accident and incorporates accidents in which a pedal cyclist collides with a pedestrian.
 - the data collection process was undertaken by a Nursing Sister experienced in the interrogation of hospital records for such purposes.

4.0 RESULTS

Details of cases by hospital can be found in Attachment A. It can be seen from these summaries that there were only two (2) accidents involving a pedestrian-bicyclist collision on the footpath as a result of which the pedestrian was either treated and/or admitted to the hospitals in the study. These were obtained from Hospitals F and E respectively and involved;

- a pedestrian knocked over by a cyclist on the footpath outside a school ground at 3.45pm. The pedestrian was unconscious for 15 minutes and transported to hospital by ambulance where, after observation, she was allowed to go home.

Four days later, the patient was admitted to hospital with headaches, nausea and vomiting. A brain scan revealed a haematoma in the right frontal lobe. The patient remained in hospital for one week; the final diagnosis reported headache and vomiting resolving, photophobia and loss of smell.

- 88 year old pedestrian was knocked over on footpath by pedal cyclist in the morning and admitted to Hospital E, later that day. X-rays revealed fracture of the femur which was treated surgically. Upon discharge to special accommodation, it was noted that the patient was ambulating reasonably well.

There were two further cases of possible relevance to the study in which the actual location could not be determined. The first involved a 10 year old pedestrian knocked over by a cyclist in the surrounds of the Public Housing High Rise Flats in Richmond. He was treated in the Accident and Emergency Department of Hospital A for a minor scalp laceration. The second case (Hospital H) involved a four year old child who, while running, collided with a friend on a bicycle and sustained a displaced fracture of the tibia and fibula. There were no data available on whether this accident happened on the footpath.

The risk analysis estimates, based on 1984/85 casualty accident data, showed an annual average for the study area (most of the metropolitan area) of 2.5; even if the current data reflected totally independent samples and were increased on a pro-rata basis to reflect total annual hospital coverage, the conclusion is that pedestrian casualties resulting from collisions with cyclists on the footpath are a relatively very small problem.

There are two further issues which should receive comment. The first is that, because of the study method, it was not possible to gauge the extent of less severe injuries to pedestrians which may be treated by a local doctor or at home. Whether these represent a significant cost associated with footpath cycling is a moot point.

The second issue concerns pedestrian amenity. There has been anecdotal evidence in the electronic and print media that the presence of cyclists (and skateboarders) on footpaths is of concern to pedestrians, especially elderly pedestrians. Any decisions on footpath cycling policy would need to address the issue of pedestrian amenity. In this regard, Figure 2 of this report showing the relatively high potential for conflict in commercial land use zones is of particular relevance.

5.0 CONCLUSION

A study to estimate the incidence of pedestrian casualties following collisions with cyclists on the footpath was undertaken to gauge the extent to which this is an issue affecting the formulation of footpath cycling policy. To this end, hospital records on admitted patients and casualty registers for those treated in hospital emergency departments were examined at seven major Melbourne hospitals and the Geelong Hospital.

Results showed that this particular problem was of very small proportions. It was noted, however, that the issues of less severe injuries and pedestrian amenity were not covered by this study; they represent factors which could receive consideration in the formulation of policy.

REFERENCE

Drummond, A.E. and Jee, F.M. (1988), *The Risks Of Bicyclist Accident Involvement*, Report No.2, Monash University Accident Research Centre, Melbourne

ATTACHMENT A

DATA COLLECTION SUMMARY

HOSPITAL A

- All treated cases where type of fall not specified in register were checked. One case of possible relevance to study was identified - see results section
- One pedestrian admitted as a result of a pedal cycle accident. This accident occurred on the roadway - pedestrian stepped off footpath into path of cyclist.

HOSPITAL B

- Casualty register does not specify reason for attendance
- One pedestrian admitted as a result of a pedal cycle accident which occurred on the roadway

HOSPITAL C

- One pedestrian casualty admission as a result of a pedal cycle accident identified in period (although the actual accident occurred before 1/4/87)
- this accident occurred on the roadway.

HOSPITAL D

- 214 histories identified (127 not admitted, 97 admitted)
- 210 histories obtained - none were relevant to study
- Verbal reports on the four missing histories indicated that none were relevant to study.

HOSPITAL E

- Casualty register showed one pedestrian treated as a result of pedal cycle accident. However, this accident occurred on the roadway (pedestrian stepped back into path of cyclist)
- One pedestrian admission as a result of a pedal cycle accident identified; this case was relevant to study (see results section).

HOSPITAL F

- A possible 504 pedestrian casualty cases were identified
- Casualty cards only were used for many of these cases. Of 150 cards found, none were relevant to study
- 107 cases admitted- unit records for all of these were checked. One case only was classified as a pedal cycle accident and was relevant to study (see results section).

HOSPITAL G

- No pedestrians admitted as a result of pedal cycle accident in period
- Casualty register indicated many types of "fall" (e.g. from horse, swing, skateboard etc). Records were checked for non-specific cases but none were applicable to study.

HOSPITAL H

- One admission as a result of a pedal cycle accident identified. The record was not specific as to location (see results section).