



Pedestrian and Cyclist Safety National Conference

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Vulnerable Road Users: Pedestrian and Cycle injuries in the ACT

A/Prof Drew Richardson M.B., B.S.(Hons), F.A.C.E.M., Grad. Cert. M. E.

Emergency Department, The Canberra Hospital

NRMA-ACT Road Safety Trust Chair of Road Trauma and Emergency Medicine

The Australian National University

Jen Moran, Medical Student, Australian National University

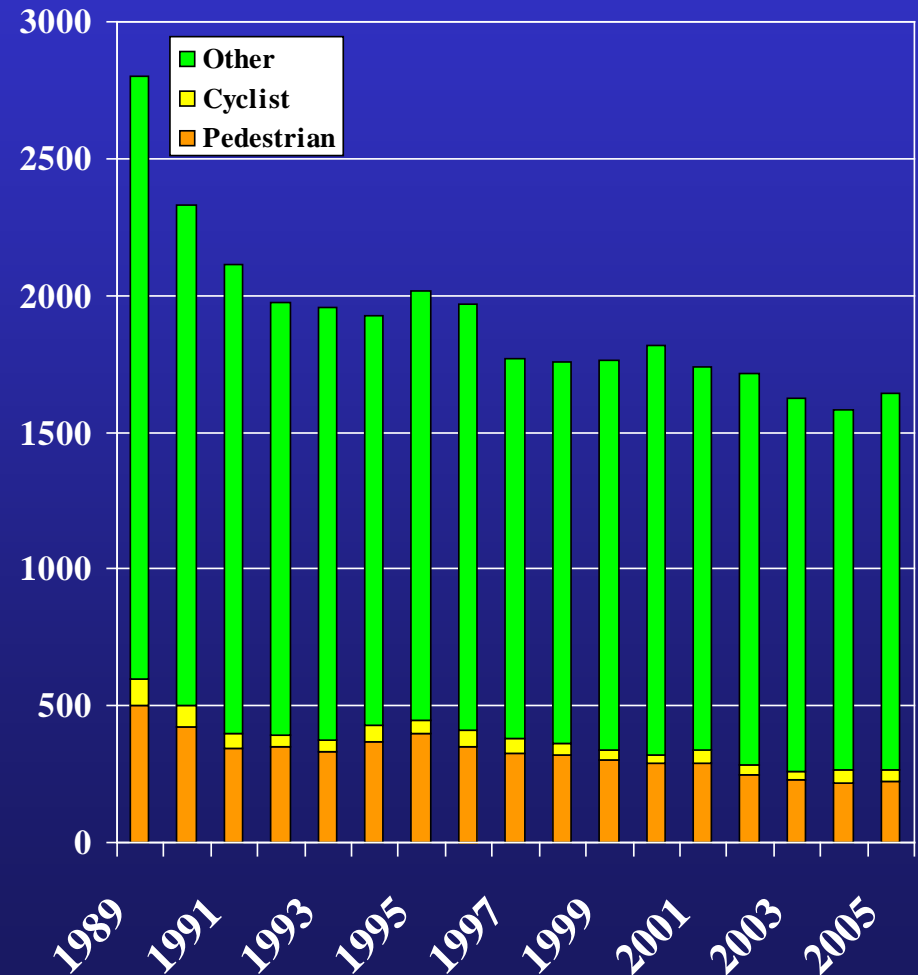
Ms Caroline Paini R.N., Emergency Department, The Canberra Hospital



Vulnerable Road Users

Annual Road Fatalities - Australia

- The good news is that we are getting better
- From a peak of 22% of road deaths in 1994, vulnerable road users now make up only 16% of a much smaller total
- Statistically safe to conclude improvement

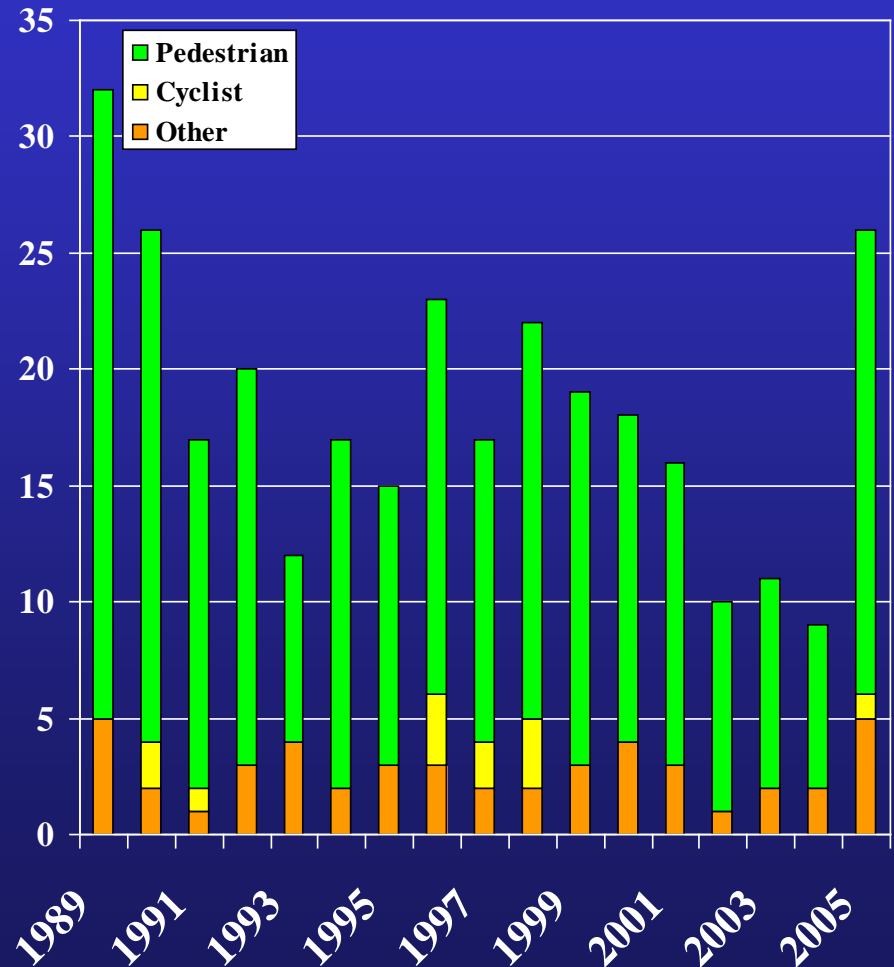


Source: ATSB

Situation in the ACT

Annual Road Fatalities - ACT

- No “smooth lines” on the graph – 2% of pop
- Small numbers mean high variability, difficulty with trends
- More detailed data is required to reach any conclusion at all
- 5y: 1/190 bike deaths
- 5y: 13/1404 pedestrian



Source: ATSB

Situation in the ACT

- **The Federal Police collect statistics on every crash in the ACT:**
 - **Site, Vehicles, Nature of Crash, Conditions**
 - **Some by Officers, some by public report**
- **Injuries according to international definitions**
 - **“Fatal”**
 - **“Admitted to Hospital”**
 - **“Required Medical Attention but not admitted”**
 - **“No Injury”**



Situation in the ACT

- **All serious trauma in the ACT is managed in one hospital – The Canberra Hospital (TCH)**
- **Minor injuries are managed in many centres**
- **TCH collects extensive medical data**
 - **Demographics, Diagnosis & Injury Codes, Procedures, Length of Stay, Clinical Outcome**



Flaws in existing measures

- **Significant operational constraints**
- **Unless Police attend, reliant on public report**
- **Unless Police attend hospital, reliant on estimation of injury at scene**
- **Little hospital record of crash details**
- **Hospital obliged to take Blood Alcohol, but not obliged to even note in which State crash occurred**



What do we know?

- **According to the Police database, over two years 2002-2003 there were:**
 - **23207 reported crashes**
 - **215 classified as “Struck Pedestrian” crashes (3 deaths)**
 - **10 classified one or more vehicles as bicycle (no deaths)**
 - **In 143, word “Bicycle” found in the free text notes**
- **This alone suggests gross under-reporting of bicycle injuries**
- **Same phenomenon seen with motorcycle crashes**
 - **Unless insurance involved, no incentive to report**

What do we know?

- **In the same period, The Canberra Hospital treated 74 struck pedestrians apparently from ACT**
- **Recorded 430 bicycle-related presentations, although occurrence on roadway not well documented, and 142 aged under 14**

Crash Type 2002 - 2003	Police Crashes	ED Presentation
Struck Pedestrian	215	74
Bicycle involved	153	430

AIM

- **To describe relevant findings of road trauma data matching and amalgamation in the ACT**
- **NRMA-ACT Road Safety Trust has funded amalgamation of Police and Hospital Databases covering 2001-2003**
- **Data on pedestrian and cyclist injuries 2002-3**



METHODS



- **Retrospective descriptive study of routinely collected Police and Hospital trauma data covering all road crashes in the ACT 2002-3**
- **Automated computer name matching and manual search/audit were used to identify the relevant crash record (if any within 7 days) for each injury case treated in The Canberra Hospital ED**
- **Data were de-identified after matching**

METHODS

- **Crashes were classified by the most severe outcome**
 - **Death**
 - **Admission to Hospital >7 days**
 - **Admission to Hospital <7 days**
 - **Admitted to Hospital Overnight**
 - **Seen in Emergency Department and Discharged**



Results - Cyclists

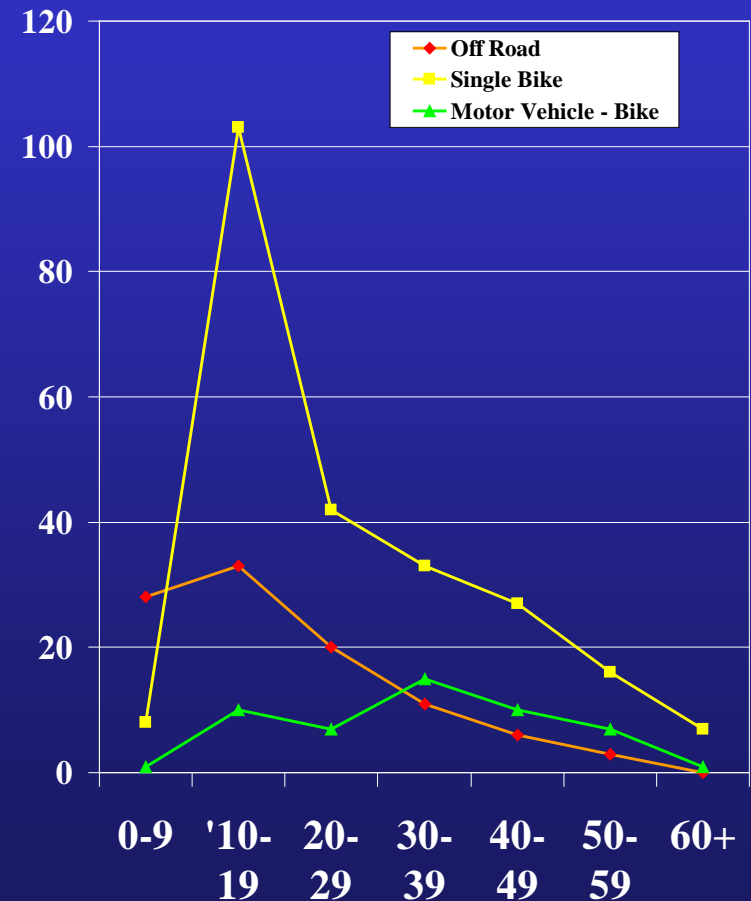
- **46 reported crashes matched to ED presentations**
- **47 patients, 2 presented twice**
- **1 (bike-bike) crash resulted in 2 patients**
- **Another 374 presentations by 365 patients, presumed to be one per crash**

Crash Type

Bicycle Crash Type 2002 - 2003	Presentations
Single Bike – likely on-road	236
Single Bike – Definite Off-Road	101
Motor Vehicle vs Bike	51
Struck Object	8
Struck Pedestrian	4
Other	23

Bicycle Age Distribution

- **The Off-Road vs On-Road difference is problematic**
- **Obvious that it is the children and young people involved in single-bike crashes**
- **Colliding with a vehicle is a disease of 30-50yo**
- **Exposure data useful**



Results - Pedestrians

- **Total 76 cases in hospital records**
- **3 actually happened in NSW**
- **66 were valid ACT pedestrian struck cases**
- **7 were not public roads (driveways, carparks)**
 - **4 Police Reports**
 - **3 admissions, 1 >7days**
- **1 Case not in hospital records**
 - **Death, taken to nearest hospital**

Pedestrian Deaths

- **3 on ATSB “FATALS”**
- **Small jurisdiction makes confidentiality hard**
- **Our reading is:**
 - **1 Female Minor genuine “Pedestrian Struck”**
 - **1 Male Intoxicated “Fall from Moving Vehicle”**
 - **1 Male “Suicide by Car”**
- **For these purposes, stay with higher authority**

Number of Fatalities
Between 01/01/2002 and 31/12/2003

		APR	JUN	DEC
		Sun	Tue	Wed
15:00 TO 15:59	19	1	0	0
	29	0	1	0
16:00 TO 16:59	13	0	0	1

DataSource: Australian Transport Safety Bureau
Speed Limits: All
States: ACT
Crash Types: Pedestrian
Ages: All
Gender: All
Road Users: All
Hours of the day: All
Days of the week: All
Articulated Truck Involved: Either
Bus Involved: Either

Pedestrians

- **3 deaths, 29 admissions and 35 presentations consistent with expectations**
- **About 10 serious, 10 minor for each death**
- **High admission rate $29/67 = 43\%$**
 - **Compared to 22% for all road trauma in database**
- **High Acuity – 609 beddays - 29 patients**

Pedestrian Outcomes

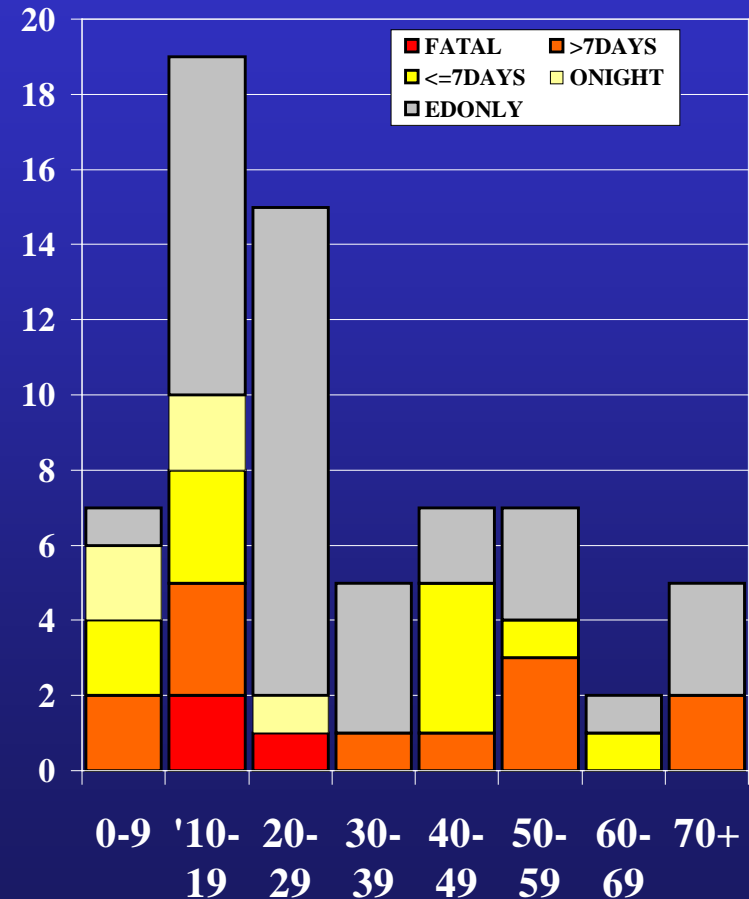
Pedestrian Trauma	Total	Police Report
Deaths (1 admission 1 day)	3	3
Admitted >7 days (mean 47)	12	?11
Admitted <7 days (mean 4)	11	11
Admitted Overnight	5	5
ED & Discharged (1 admitted private)	36	30
Total (1 Bicycle, Rest Motorised)	67	60

Outcomes

Crash Type 2002 - 2003	ED Only	0-1 Day	<=7d	>7d	Died
Single Bike – likely on-road	195	3	38	0	0
Single Bike – Off-Road	75	2	21	3	0
Motor Vehicle vs Bike	28	1	13	9	0
Struck Object	5	1	2	0	0
Struck Pedestrian	3	0	1	0	0
Other	14	3	6	0	0
BICYCLE TOTAL	320	10	81	12	0
Pedestrians	36	5	11	12	3

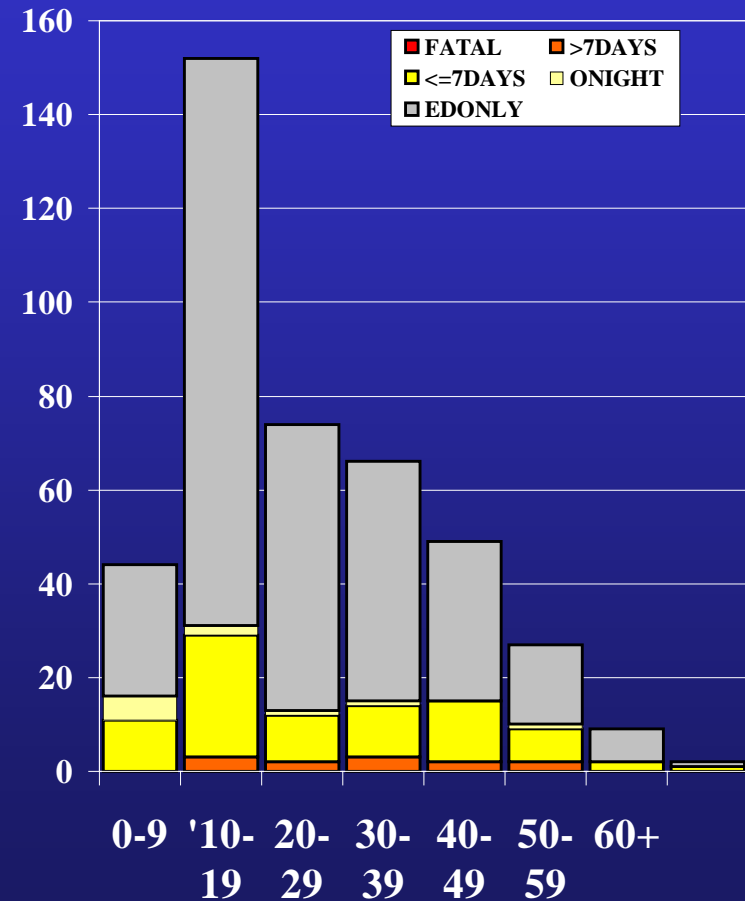
Outcomes by age - Pedestrians

- Despite small numbers, evidence of bimodal distribution of serious
- Unimodal distribution of crashes



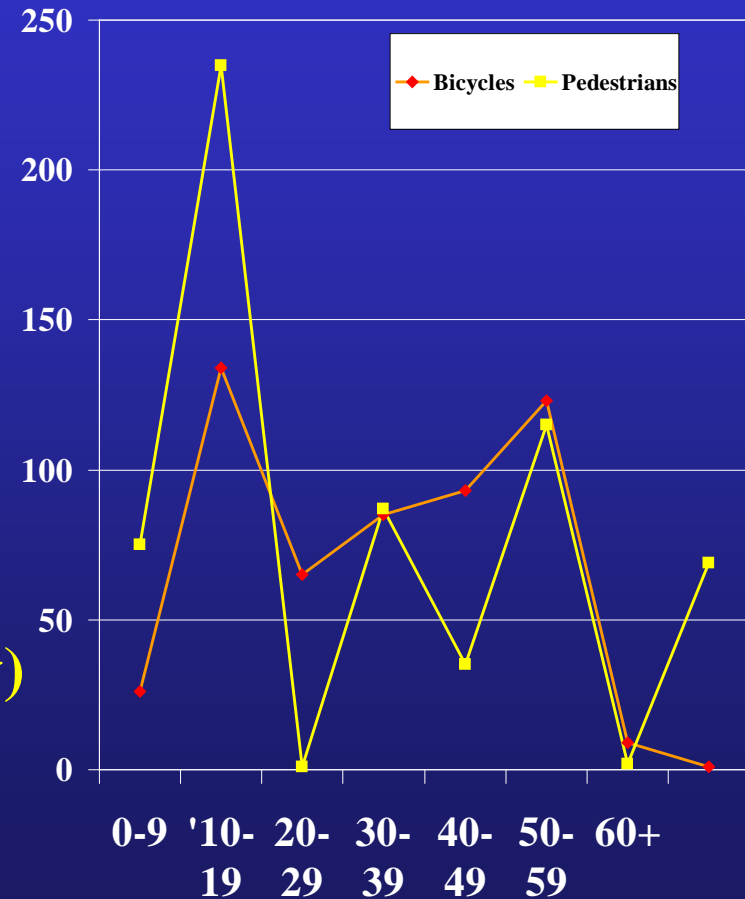
Outcomes by age - Bicycles

- People over 70 don't ride
- Strongly Unimodal incidence
- Although no fatalities, serious injury spread 10-60y



Burden of Injury – Bed-Days

- **Obvious limitation**
 - Deaths use few bed-days
- **Indicator of one cost to community**
- **Despite vast difference in raw numbers, bed day use similar between two groups**
 - Pedestrians 609 (mean 21 if any)
 - Cyclists 536 (mean 5 if any)



Conclusions

- **This study provides powerful methodology for describing the burden of road injury**
- **Vulnerable Road Users in hospital have similar outcome patterns to other road users**
 - **But longer LOS amongst the long stay patients suggests worse outcomes**
 - **Despite many more cyclists, “burden of injury comparable with pedestrians”**
- **Small numbers mean long time still needed for these groups**





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