Road Injury & Major Trauma Program

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Road Injury in Australia 1992

by
S. Bordeaux and P.J. O'Connor

AUSTRALIAN INSTITUTE OF
HEALTH & WELFARE

NATIONAL INJURY SURVEILLANCE UNIT

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Author(s):
Bordeaux S. and O'Connor P.J.

Performing Organisation:
AIHW National Injury Surveillance Unit
Mark Oliphant Building
Laffer Drive
Bedford Park S.A. 5042

Sponsor: As above

Abstract:

This report contains information on road injury hospital separations and deaths for 1992. It presents tabulations and limited descriptive commentary on a range of factors including age, sex, road user type, nature and body region of injury, injury severity, length of stay in hospital and State.

Data on hospital separations was provided by State health authorities either directly or through the Australian Institute of Health and Welfare. Fatality data was provided by the Australian Bureau of Statistics. Some of the more interesting findings are highlighted below:

1. Between 1991 and 1992 there was a 5% increase in the number of road fatalities. The largest increase occurred in Queensland (up 16%). Passenger fatalities increased (16%) particularly for females (29%). The number of hospital admissions with high 'threat to life' (ISS 15+) injuries increased by 22%.

2. Females gained increasing prominance in deaths and high 'threat to life' (TTL) injuries (up 14% for fatalities and up 50% for high TTL injuries between 1991 and 1992). A 31% increase in fatalities of young females (20-24 yrs.) was noted. Critical injuries were up by 61%, severe injuries were up by 40% and serious injuries were up by 18%. The proportion of severe and critical injuries for females was particularly elevated for vehicle occupants and pedestrains.

3. Between 1991 and 1992 little change was observed in the number of serious, severe and critical head injuries nor in serious and severe spinal injuries. However, in the critical injury category spinal injury increased substantially from 17 cases in 1991 to 81 cases in 1992). Spinal injury was predominantly a feature of motorised transport (vehicle occupants and motorcyclists).

4. Injury to motorcyclists severe enough to be admitted to hospital was overwhelmingly a male phenomenon. In the high crash risk population of young males (15-29 yrs), the number of motorcyclists exceeded the number of drivers by a third in hospital separations.

FOREWORD

This report presents information on road injury hospital separations and fatalities for the calendar year 1992. It is the third report in a series prepared by the Australian Institute of Health and Welfare, National Injury Surveillance Unit (NISU) to monitor road injury at national level. The first report provided information for the calendar year 1990 (O'Connor, 1993). In future years, the information will be published as a component of NISU's reporting of all injury deaths and hospitalisations rather than as a separate report, the emphasis being on tabulated data rather than interpretive commentary. Interpretive commentary on road injury issues will be published from time to time in NISU's Australian Injury Prevention Bulletin.

Data on hospital separations was provided by State health authorities either directly or through the Australian Institute of Health & Welfare. Fatality data was provided by the Australian Bureau of Statistics. All data analysis was undertaken at NISU. The scope of the data analysis was restricted to records with an ICD-9 'external cause' code of E-810 to E-819 (Motor vehicle traffic accidents) or E-826 (Pedal cycle accidents).

The report is a series of tabulations with descriptive commentary and a few figures and diagrams. The tabulations present information on a range of factors including age, sex, road user type, nature and body region of injury, injury severity, length of stay in hospital and State.

The ability to present national data on road deaths and, in particular, hospital separations due to road injury is subject to data availability. New systems and the establishment of a national hospital separations data base should allow more timely information in the future. Information like this will enable a better targeting of safety problems. For example, information on the rate of head injury in road crashes in Australia will enable development of goals for a targeted level of reduction of such injury. The information can also be used to monitor the effectiveness of road injury prevention programs and to influence priority setting eg. information on the apparent severity of pedestrian injury and lower limb injuries and high separation rates for young male motorcyclists may lead to a shift in priorities in treatment and prevention.

Requests for further information should be addressed to:

Assistant Director
Road Injury & Major Trauma Program
AIHW National Injury Surveillance Unit
Australian Institute of Health and Welfare
Mark Oliphant Building
Laffer Drive
Bedford Park S.A. 5042
Australia.

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SUMMARY OF MAIN FINDINGS

1. In 1992 thirteen in every 100,000 Australians were killed in road crashes and more than 200 in every 100,000 were admitted to hospital. Vehicle occupants accounted for 45% of hospital separations and 68% of fatalities. Young males (15-29 yrs.) accounted for 30% of fatalities and hospital separations.

2. Between 1991 and 1992 there was a 5% increase in the number of road fatalities. The largest increase, based on State of death registration, occurred in Queensland (up 16%). Passenger fatalities increased (16%) particularly for females (29%). Nearly half of the increase in female passenger deaths was due to an increase in the number of 50-69 year old females killed (increased from 39 in 1991 to 72 in 1992).

3. The number of hospital separations with high 'threat to life' (ISS 15+) injuries jumped 22% between 1991 and 1992*.

4. Females gained increasing prominance in deaths and high 'threat to life' (TTL) injuries (up 14% for fatalities and up 50% for high TTL injuries between 1991 and 1992). A 31% increase in fatalities of young females (20-24 yrs.) was noted. Critical injuries were up by 61%, severe injuries were up by 40% and serious injuries were up by 18%. The proportion of severe and critical injuries for females was particularly elevated for vehicle occupants and pedestrains.

5. Head injuries declined by 10% between 1991 and 1992. However, little change was observed in the number of serious, severe and critical head injuries. The spinal injury rate did not decline from 1991 to 1992 and actually increased substantially in the critical injury category (from 17 cases in 1991 to 81 cases in 1992). Spinal injury was predominantly a feature of motorised transport (vehicle occupants and motorcyclists).

6. Injury to motorcyclists severe enough to be admitted to hospital is overwhelmingly a male phenomenon. In the high crash risk population of young males (15-29 yrs), the number of motorcyclists exceeded the number of drivers by a third in hospital separations.

7. Pedestrians had the highest average length of stay in hospital (11 days v. 7-8 days for vehicle occupants and motorcyclists and 4 days for pedal cyclists).

* Note: Interpretation of changes in the level of separations from year to year is complicated by uncertainties about: the impact of hospital policy (eg. impact of casemix funding); variations in coding rules and practice over time; and features of the mapping software used to assign severity. The severity mapping software, which uses ICD-9-CM codes as the input data, has certain features, particularly inadequacies in the assignment of severity codes to head injuries, which could magnify or diminish the impact on the severity distribution of a change in the distribution of ICD-9-CM codes whether due to a change in injury occurence or other factors.

INTRODUCTION

This report presents information on road injury hospital separations and fatalities for the calendar year 1992. It is the third report in a series prepared by the National Injury Surveillance Unit (NISU) to monitor road injury at national level. The first report provided information for the year 1990 [16].

Data on hospital separations was provided by State health authorities either directly for this project or under more general arrangements with the Australian Institute of Health & Welfare. Fatality data was provided by the Australian Bureau of Statistics. All data analysis was undertaken at NISU. Analysis was restricted to records with an ICD-9 'external cause' code between E-810 to E-819 (Motor vehicle traffic accidents) or E-826 (Pedal cycle accidents).

The report is a series of tabulations with some descriptive commentary and a few figures and diagrams. The tabulations present information on road injury hospital separations and deaths on a range of variables including age, sex, road user type and State. Separations data is also presented on the basis of injury severity according to the Abbreviated Injury Scale (AIS), the Injury Severity Score (ISS) and body region associated with the most severe injury and length of stay in hospital. The AIS is a 6 point "threat to life" scale applied to individual injuries ranging from 1 "Minor" to 6 "Maximum (currently untreatable)". The ISS is calculated by adding together the squares of the highest AIS rating for each of the three most severely injured body regions and is an indicator of threat to life of multiple injuries typically sustained by road trauma victims (see Appendix D). In section 2 case numbers and percentages, population based crude rates and percentage change in number between 1991 and 1992 are all presented. In later sections, the percentage change 1991-1992 is omitted. Crude rates for 1991 and 1992 are calculated on the basis of the estimated resident population (ERP) from the 1991 Census [2]. Age specific rates are presented in two tables (Tables 3 & 4) using the 1992 ERP.

The report is divided into a number of sections. Section 1 presents an overview of information on frequencies and rates, simple breakdowns and trends by age, sex, road user type, nature of injury, external cause, body region, injury severity and State. Later sections provide a selection of detailed breakdowns using three variables, organised on the basis of the pair of variables which remains fixed across the tables in each section. For example, in Section 2 variables are cross tabulated by the age/sex pair of variables whereas in Section 3 variables are cross tabulated by the road user type/sex pair. Within all sections, parallel information is presented on hospital separations and fatalities, with the hospital information presented first. There are a few instances where a tabulation is presented for either hospital separations or fatalities but not for both. Where the tabulation of fatality data is missing, the reason for this is that one of the variables being considered is not available in the ABS fatality data (e.g. injury severity and length of stay in hospital). Where the tabulation of hospital separation data is missing (for State in Sections 2-5), the reason for this is that the State data may not be readily comparable across all levels of injury severity, a matter which is discussed in Appendix B.

In Section 1 the left page presents tabular information while the right page presents a diagram and basic descriptive commentary for a particular variable. In later sections this format is retained except that the right page diagram is replaced by a tabulation of rate data.

In reading the tables and figures the following technical factors should be kept in mind.

- Repeat admissions and transfers: some road injuries lead to more than one separation, either at the same hospital or at another. The degree of double counting within jurisdictions has not been assessed definitively. However, a study conducted in one Australian State found that 8% of road injury hospital separations had a prior separation from the same injury event or were duplicate records.[17] The utilisation of hospital separations data for the assessment of injury incidence requires further study. The interested reader is referred to an article on this topic by Smith et al.[18]

- Differences between States and Territories in road injury hospital separation rates may be due to several factors, including differences in hospital admission practices and data recording practices as well as differences in the incidence of road injury. See Appendix B for a discussion of these issues.

- Some hospitals in New South Wales report a sample of separations and these records must be weighted by a sample factor when generating the State total. As a result of the weighting procedure the cell counts within each table may not sum exactly to the margin totals.

- Percentage and rate calculations are subject to rounding errors.

- To facilitate comparison of the 1992 tables with the 1991 tables presented in the previous edition of this report, States for which information was available in 1992 but not 1991 have been excluded from comparison tables. Information was not available from the Northern Territory at the time of preparation of the present report.

- Care must be taken when making comparison of 1992 data with that reported in previous editions of this report due to slight changes in some of the table specifications. The reader should consult the 'Technical Notes' in each edition.

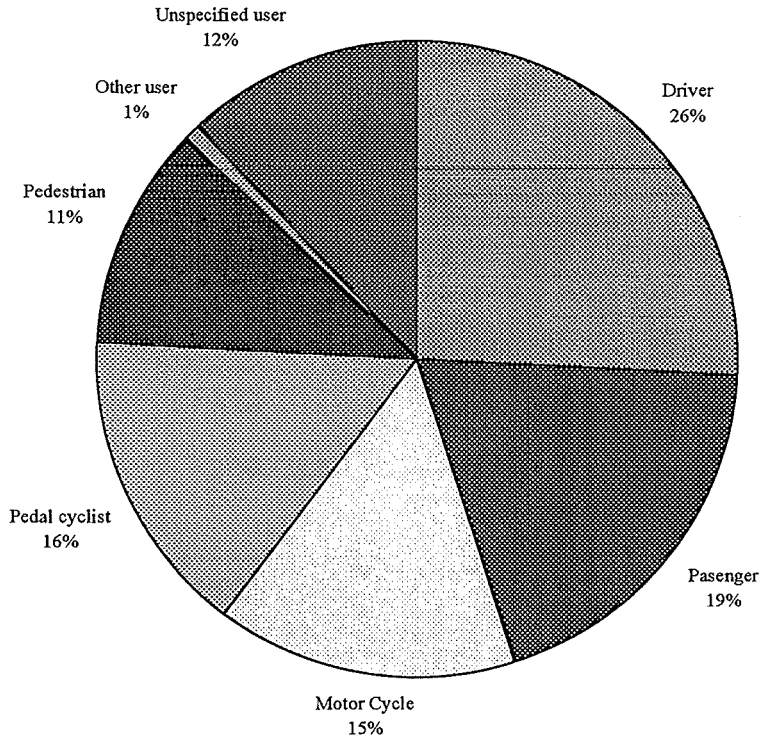
SECTION 1: Road Injury Separations and Fatalities - Overview

1.1 Road User Type

Table 1. Road injury hospital separations by road user type & sex, Australia excluding NT, 1991-1992
(Case number, Rate per 100,000 pop. & % change in case number 1991-1992)

	1991 Counts	Percent	Crude rate per 100,000	1992 Counts	Percent	Crude rate per 100,000	% change in case number 1991-1992
Males							
Driver	5486	23.1	64.3	5755	24.7	66.7	4.9
Passenger	3083	13.0	36.1	3221	13.8	37.4	4.5
Motor Cycle	5005	21.1	58.7	4894	21.0	56.7	-2.2
Pedal cyclist	4232	17.8	49.6	4269	18.3	49.5	0.9
Pedestrian	2482	10.5	29.1	2473	10.6	28.7	-0.4
Other user	190	0.8	2.2	205	0.9	2.4	7.9
Unspecified user	3231	13.6	37.9	2515	10.8	29.2	-22.2
Total	23709	100.0	278.0	23333	100.0	270.6	-1.6
Females							
Driver	3012	25.2	35.1	3359	28.4	38.6	11.5
Passenger	3611	30.2	42.0	3484	29.4	40.1	-3.5
Motor Cycle	550	4.6	6.4	448	3.8	5.2	-18.5
Pedal cyclist	1267	10.6	14.8	1257	10.6	14.5	-0.8
Pedestrian	1458	12.2	17.0	1528	12.9	17.6	4.8
Other user	95	0.8	1.1	97	0.8	1.1	2.1
Unspecified user	1979	16.5	23.0	1673	14.1	19.2	-15.5
Total	11972	100.0	139.4	11847	100.0	136.3	-1.0
Persons							
Driver	8498	23.8	49.6	9113	25.9	52.6	7.2
Passenger	6694	18.8	38.1	6705	19.1	38.7	0.2
Motor Cycle	5555	15.6	32.5	5342	15.2	30.9	-3.8
Pedal cyclist	5499	15.4	32.1	5526	15.7	31.9	0.5
Pedestrian	3940	11.0	23.0	4002	11.4	23.1	1.6
Other user	285	0.8	1.7	302	0.9	1.7	6.0
Unspecified user	5210	14.6	30.4	4188	11.9	24.2	-19.6
Total	35681	100.0	208.4	35179	100.0	203.2	-1.4

Figure 1. Road injury hospital separations by road user type, Australia excluding NT, 1992 (% based on case number)



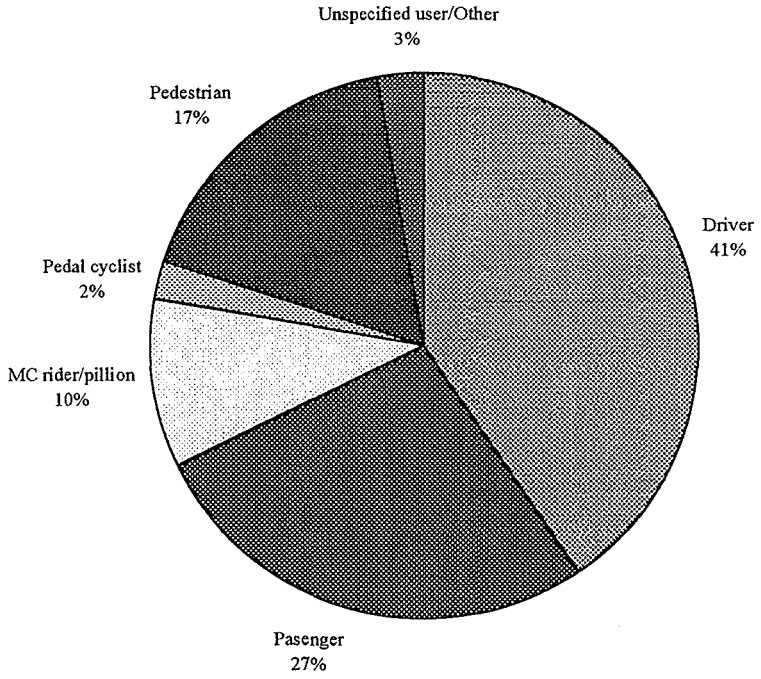
Main Points

- The downward trend in the number of hospital separations for road injury observed between 1990 & 1991 (-9%)[15] slowed in the period 1991 to 1992 (-1%). Indeed if the trends in the 'unspecified' and 'other' categories were excluded, a 2% increase in separations over all remaining road user types can be calculated. Whichever of these figures is used, they both indicate that there was very little change in the number of separations from 1991 to 1992.
- The downward trends in separations observed for all specified road user types (except motorcyclists) between 1990 & 1991 were reversed between 1991 and 1992. The largest increase in separations from 1991 to 1992 occurred for motor vehicle drivers (up 7%).
- Motor vehicle occupants (drivers and passengers) accounted for 45% of all injury hospital separations.
- There was a marked increase in the number of female drivers (12%) compared to male drivers (5%) between 1991 & 1992, while the number of female passenger separations fell by 4% and male passenger separations rose by 5%.

Table 2. Road fatalities by road user type & sex, Australia, 1991-1992
(Case number, Rate per 100,000 & % change in case number 1991-1992)

	1991 Counts	Percent	Crude rate per 100,000	1992 Counts	Percent	Crude rate per 100,000	% change in case number 1991-1992
Males							
Driver	670	43.9	7.8	675	43.8	7.7	0.7
Passenger	285	18.7	3.3	299	19.4	3.4	4.9
Motor Cycle	229	15.0	2.7	209	13.6	2.4	-8.7
Pedal cyclist	54	3.5	0.6	45	2.9	0.5	-16.7
Pedestrian	245	16.0	2.8	268	17.4	3.1	9.4
Other user	1	0.1	0.0	4	0.3	0.0	300.0
Unspecified user	43	2.8	0.5	40	2.6	0.5	-7.0
Total	1527	100.0	17.7	1540	100.0	17.7	0.9
Females							
Driver	244	38.5	2.8	241	33.4	2.7	-1.2
Passenger	249	39.3	2.9	320	44.4	3.6	28.5
Motor Cycle	14	2.2	0.2	13	1.8	0.1	-7.1
Pedal cyclist	9	1.4	0.1	5	0.7	0.1	-44.4
Pedestrian	105	16.6	1.2	121	16.8	1.4	15.2
Other user	0	0.0	0.0	1	0.1	0.0	
Unspecified user	13	2.1	0.1	20	2.8	0.2	53.8
Total	634	100.0	7.3	721	100.0	8.2	13.7
Persons							
Driver	914	42.3	5.3	916	40.5	5.2	0.2
Passenger	534	24.7	3.1	619	27.4	3.5	15.9
Motor Cycle	243	11.2	1.4	222	9.8	1.3	-8.6
Pedal cyclist	63	2.9	0.4	50	2.2	0.3	-20.6
Pedestrian	350	16.2	2.0	389	17.2	2.2	11.1
Other user	1	0.0	0.0	5	0.2	0.0	400.0
Unspecified user	56	2.6	0.3	60	2.7	0.3	7.1
Total	2161	100.0	12.5	2261	100.0	12.9	4.6

Figure 2. Road fatalities by road user type, Australia, 1992
(% based on case number)



Main Points

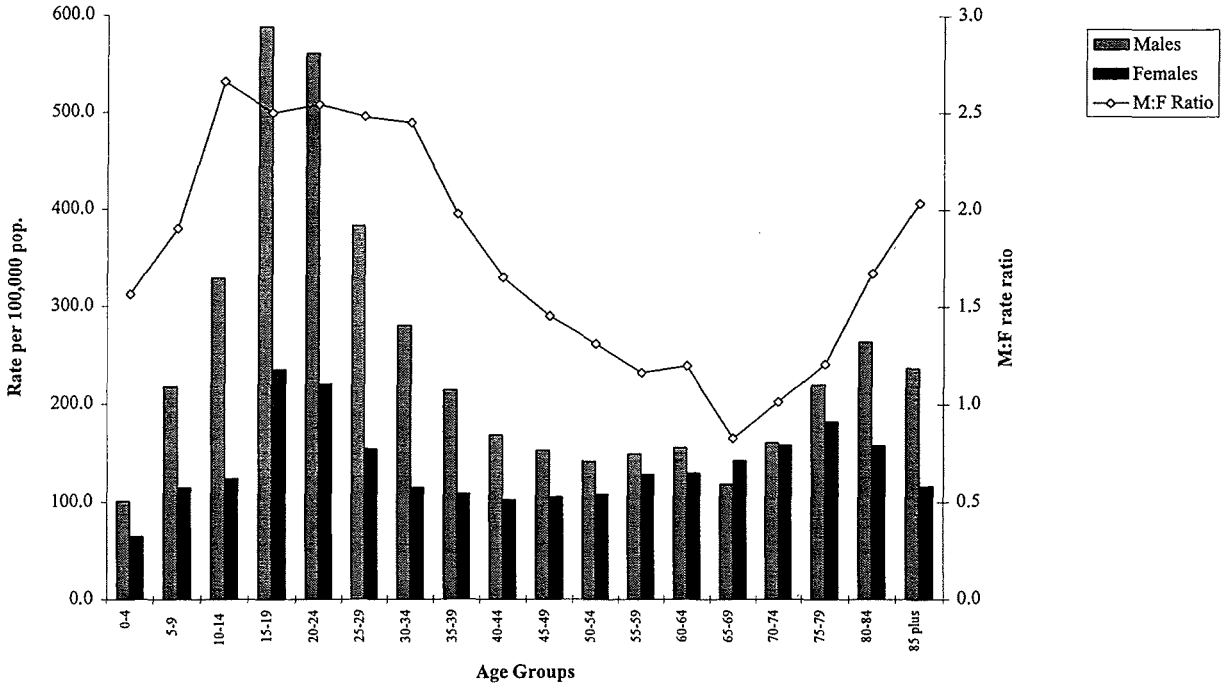
- Road fatalities increased by 5% between 1991 & 1992, compared to a 9% decrease between 1990 & 1991[15].
- Occupants of motor vehicles accounted for over two thirds of all road fatalities in 1992. Drivers comprised the greatest proportion (41%) with passengers contributing 27%.
- Occupant fatalities increased by 6% (< 1% for drivers and 16% for passengers) and female fatalities increased by 13%, with the largest increase being for female passengers (up 28.5%).
- While the number of pedal cyclist hospital separations remained static from 1991 to 1992 (< 1%), there was a large reduction in pedal cyclist fatalities (down 20%).
- The downward trend in road user fatalities observed for all road user types between 1990 to 1991 was generally not continued from 1991 to 1992, with the exception of motorcyclists and pedal cyclists who experienced the very similar levels of reduction (motorcyclists down 9% 1991-1992 v. 6% 1990-1991 and pedal cyclists down 21% 1991-92 v. 22% 1990-91).

1.2 Age and Sex

Table 3. Road injury hospital separations by age & sex, Australia excluding NT, 1991-1992
(Case number, Rate per 100,000 pop. & % change in rate 1991-1992)

	1991 Counts	Percent	Age specific rate per 100,000 pop.	1992 Counts	Percent	Age specific rate per 100,000 pop.	% change in rate 1991-1992
Males							
0-4 years	669	2.8	103.9	651	2.8	100.5	-3.2
5-14 years	3363	14.2	263.7	3503	15.0	273.1	3.6
15-19 years	4294	18.1	620.8	3952	16.9	587.7	-5.3
20-24 years	4132	17.4	591.2	4024	17.2	560.6	-5.2
25-29 years	2749	11.6	396.2	2615	11.2	382.7	-3.4
30-39 years	3329	14.0	238.0	3436	14.7	248.6	4.5
40-49 years	1921	8.1	147.3	1941	8.3	161.3	9.6
50-59 years	1177	5.0	148.1	1182	5.1	145.2	-1.9
60-69 years	961	4.1	140.5	944	4.0	138.0	-1.8
70 or more	1102	4.6	214.0	1086	4.7	202.4	-5.4
Unspecified	12	0.1					
Total	23709	100.0	278.0	23333	100.0	270.6	-2.7
Females							
0-4 years	395	3.3	64.6	396	3.3	64.4	-0.4
5-14 years	1527	12.8	126.3	1450	12.2	119.2	-5.6
15-19 years	1750	14.6	265.6	1504	12.7	235.4	-11.4
20-24 years	1471	12.3	215.9	1539	13.0	220.6	2.2
25-29 years	1069	8.9	155.3	1049	8.9	154.3	-0.6
30-39 years	1498	12.5	110.1	1545	13.0	111.6	1.4
40-49 years	1150	9.6	101.6	1212	10.2	103.6	1.9
50-59 years	900	7.5	117.3	922	7.8	117.4	0.1
60-69 years	972	8.1	135.2	974	8.2	136.2	0.7
70 or more	1235	10.3	162.1	1255	10.6	159.1	-1.8
Unspecified	7	0.1	0.1	0			
Total	11972	100.0	139.4	11847	100.0	136.3	-2.2
Persons							
0-4 years	1064	3.0	84.8	1047	3.0	82.9	-2.2
5-14 years	4889	13.7	196.8	4953	14.1	198.2	0.7
15-19 years	6043	16.9	447.4	5456	15.5	416.0	-7.0
20-24 years	5604	15.7	406.0	5563	15.8	393.0	-3.2
25-29 years	3817	10.7	276.2	3663	10.4	268.7	-2.7
30-39 years	4827	13.5	174.9	4981	14.2	180.0	2.9
40-49 years	3070	8.6	126.0	3153	9.0	132.8	5.4
50-59 years	2077	5.8	132.9	2105	6.0	131.6	-1.0
60-69 years	1933	5.4	137.8	1918	5.5	137.1	-0.5
70 or more	2337	6.5	183.0	2340	6.7	176.6	-3.5
Unspecified	19	0.1	0.1	0			
Total	35681	100.0	208.4	35179	100.0	203.2	-2.5

Figure 3. Road injury hospital separations by age & sex, Australia excluding NT, 1992
(Age specific rate per 100,000 pop. & Male:Female rate ratio)



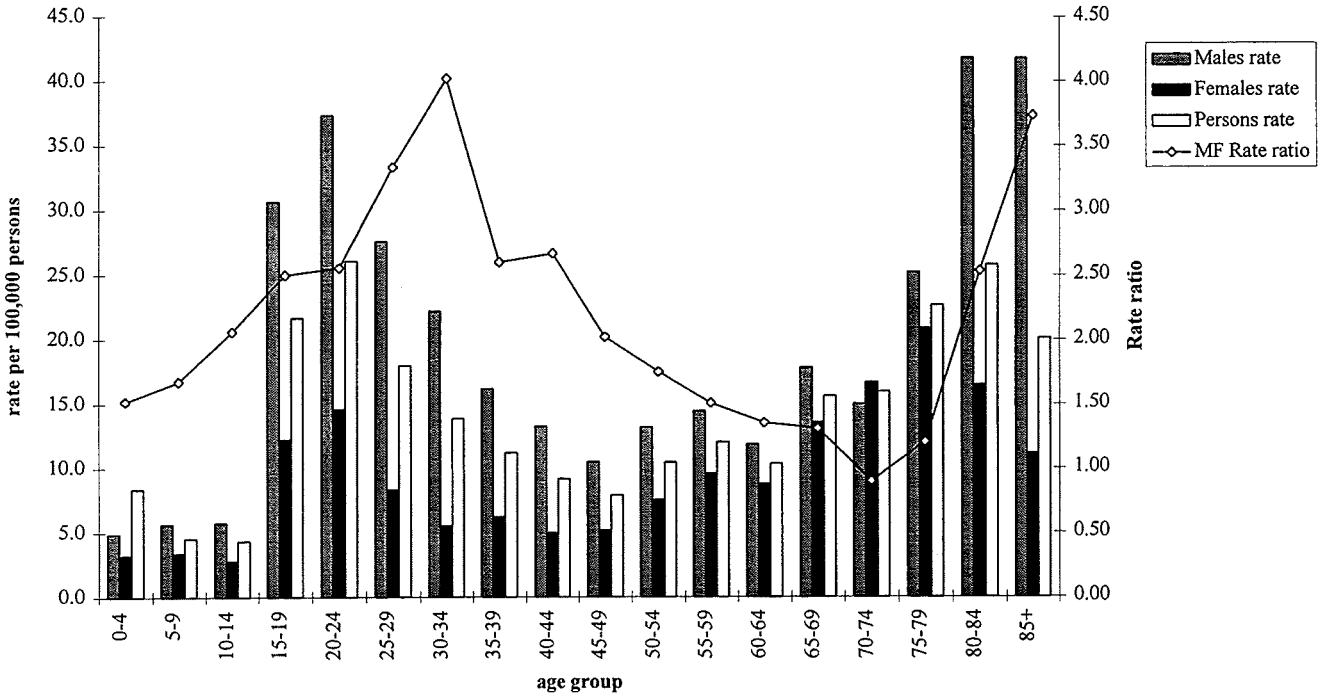
Main Points

- In 1992, young males aged 15-19 and 20-24 years had age specific separation rates of nearly 600 per 100,000 of population and collectively accounted for just under one quarter (24%) of all road injury hospital separations. Males of all ages accounted for two thirds of all road injury separations.
- The crude separation rate for person decreased slightly between 1991 & 1992 (down 2.5%). The greatest reduction occurred in females aged 15-19 years (down 7%).
- In 1992 the age specific hospital separation rate for persons decreased steadily from ages 25-29 years until ages 60-69 years when the rate began to rise again. As for 1991[15], the increase in separation rate of females occurred at about age 50 years while the corresponding increase for elderly males occurred at approximately 70 years.
- As observed in 1991, the total separation rate for males in 1992 was twice that of females, and was higher for all age groups, except the age group 60-69 years, peaking at a male:female ratio (of the rates) of 2.7:1 for the age group 10-14 years.

Table 4. Road fatalities by age & sex, Australia, 1991-1992
(Case number, Rate per 100,000 pop. & % change in rate 1991-1992).

	1991 Counts	Percent	Age specific rate per 100,000	1992 Counts	Percent	Age specific rate per 100,000	% change in rate 1991-1992
Males							
0-4 years	26	1.7	4.0	32	2.1	4.9	22.4
5-14 years	71	4.6	5.5	74	4.8	5.7	3.6
15-19 years	246	16.1	35.2	208	13.5	30.6	-13.0
20-24 years	261	17.1	36.9	271	17.6	37.3	1.1
25-29 years	189	12.4	26.9	191	12.4	27.6	2.6
30-39 years	222	14.5	16.1	270	17.5	19.3	19.8
40-49 years	141	9.2	11.9	146	9.5	12.0	0.6
50-59 years	117	7.7	14.6	113	7.3	13.8	-5.7
60-69 years	110	7.2	16.0	101	6.6	14.7	-8.2
70 or more	144	9.4	27.9	134	8.7	24.9	-10.7
Total	1527	100.0	17.7	1540	100.0	17.7	-0.3
Females							
0-4 years	15	2.4	2.4	20	2.8	3.2	32.5
5-14 years	31	4.9	2.5	38	5.3	3.1	21.8
15-19 years	67	10.6	10.1	79	11.0	11.2	11.1
20-24 years	77	12.1	11.2	103	14.3	14.6	30.7
25-29 years	70	11.0	10.0	57	7.9	8.3	-17.5
30-39 years	80	12.6	5.8	82	11.4	5.9	0.8
40-49 years	49	7.7	4.3	60	8.3	5.1	18.4
50-59 years	53	8.4	6.9	67	9.3	8.5	23.5
60-69 years	71	11.2	9.8	80	11.1	11.1	13.3
70 or more	121	19.1	15.9	135	18.7	17.1	7.8
Total	634	100.0	7.3	721	100.0	8.2	12.4
Persons							
0-4 years	41	1.9	3.2	52	2.3	4.1	26.1
5-14 years	102	4.7	4.1	112	5.0	4.4	9.2
15-19 years	313	14.5	22.9	287	12.7	20.7	-9.7
20-24 years	338	15.6	24.2	374	16.5	26.1	7.9
25-29 years	259	12.0	18.5	248	11.0	18.0	-2.9
30-39 years	302	14.0	11.0	352	15.6	12.6	14.7
40-49 years	190	8.8	8.2	206	9.1	8.6	5.1
50-59 years	170	7.9	10.8	180	8.0	11.2	3.4
60-69 years	181	8.4	12.9	181	8.0	12.9	0.3
70 or more	265	12.3	20.7	269	11.9	20.3	-2.2
Total	2161	100.0	12.5	2261	100.0	12.9	3.4

Figure 4. Road fatalities by age & sex, Australia, 1992
(Age specific rate per 100,000 pop & M:F rate ratio)



Main Points

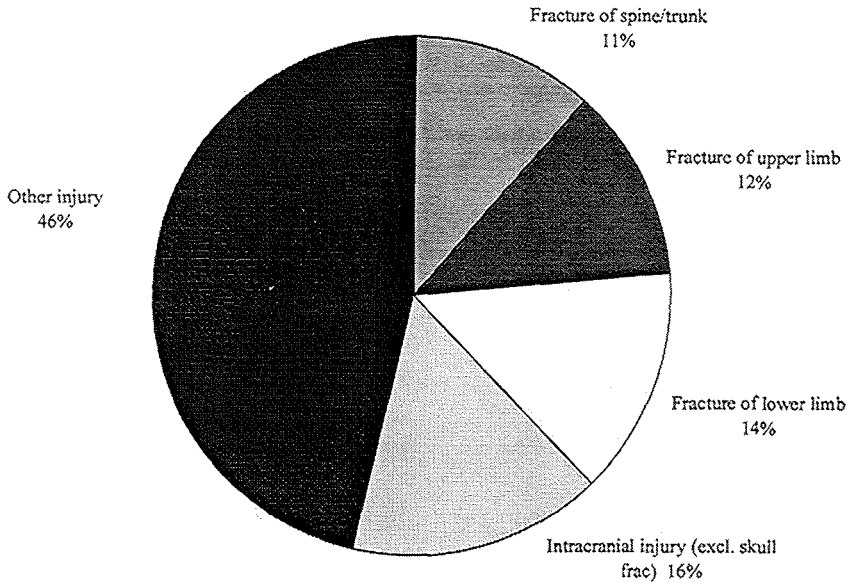
- There was a slight increase in the total fatality rate (up 3.4%) due principally to a moderate increase in the female rate (up 12%). Fatality rate rises, evident for most age groups, were generally more pronounced for females. A 31% increase in the female rate for 20-24 year olds was notable.
- The male and female rates both peaked at age 20-24 years.
- Figure 4 shows that the age specific rate for males was highest at age 80-84 years and 85+ years, whereas the female rate was highest at age 75-79 years after which it decreased substantially.

1.3 Nature of Injury

Table 5. Road injury hospital separations by nature of injury (principal diagnosis) & sex, Australia excluding NT, 1991-1992
(Case number, Rate per 100,000 pop. & % change in case number 1991-1992)

	1991 Count	Percent	Crude rate per 100,000	1992 Count	Percent	Crude rate per 100,000	% change in case number 1991-1992
Persons							
Fracture of skull	2210	6.2	12.9	2050	5.8	11.8	-7.2
Fracture of neck & trunk	3989	11.2	23.3	3976	11.3	23.0	-0.3
Fracture of upper limb	4312	12.1	25.2	4299	12.2	24.8	-0.3
Fracture of lower limb	5337	15.0	31.2	4976	14.1	28.7	-6.8
Dislocation	722	2.0	4.2	668	1.9	3.9	-7.5
Sprains & strains	851	2.4	5.0	849	2.4	4.9	-0.2
Intracranial injury	5944	16.7	34.7	5581	15.9	32.2	-6.1
Internal injury of chest/abdomen/pelvis	1230	3.4	7.2	1267	3.6	7.3	3.0
Open wound head/neck/trunk	2569	7.2	15.0	2449	7.0	14.1	-4.7
Open wound upper limb	741	2.1	4.3	690	2.0	4.0	-6.9
Open wound lower limb	1244	3.5	7.3	1128	3.2	6.5	-9.3
Injury To blood vessels	65	0.2	0.4	61	0.2	0.4	-6.2
Superficial injury	745	2.1	4.4	728	2.1	4.2	-2.3
Contusion with intact skin	1813	5.1	10.6	1882	5.3	10.9	3.8
Crushing injury	66	0.2	0.4	63	0.2	0.4	-4.5
Foreign body thru orifice	12	0.0	0.1	9	0.0	0.1	-25.0
Injury nerves & spinal cord	224	0.6	1.3	225	0.6	1.3	0.4
Other	3606	10.1	21.1	4278	12.2	24.7	18.6
Group Total	35681	100.0	208.4	35179	100.0	203.2	-1.4

Figure 5. Road injury hospital separations by nature of injury (principal diagnosis) & sex , Australia excluding NT, 1992
(% based on case number)



Main Points

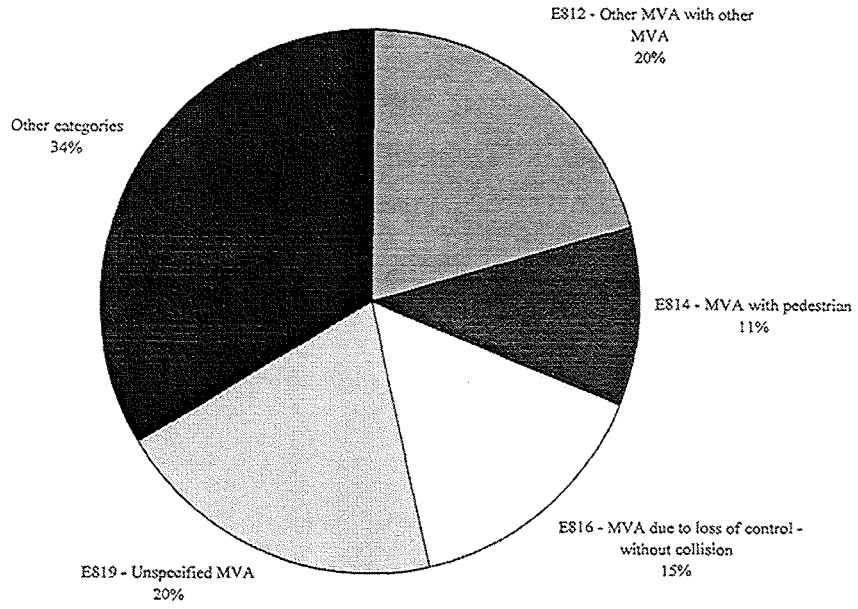
- Intercranial injury (excluding skull fracture) was the most frequently occurring injury (16%), followed by fracture of the lower limb (14%), fracture of the upper limb (12%) and fracture of the spine and trunk (11%).
- Between 1991 and 1992 there was a reduction in the number of separations across most injury types. One of the three exceptions was injury to the nerves or spinal cord, which remained steady. When the injury types having more than 2,000 cases were considered (excluding 'other'), it was found that the largest reduction in separations between 1991 and 1992 occurred for fracture of the skull and lower limb (both down 7%) and intracranial injury (down 6%), continuing trends in these injury types noted in earlier reports[15 16].

1.4 External Cause

Table 6. Road injury hospital separations by external cause, Australia excluding NT, 1991-1992
(Case number, Rate per 100,000 pop. & % change in case number 1991-1992)

	1991 Count	Percent	Crude rate per 100,000	1992 Count	Percent	Crude rate per 100,000	% change in case number 1991-1992
Persons							
Mv acc. with train	51	0.1	0.3	55	0.2	0.3	7.8
Re-entrant mv acc. with other motor vehicle	105	0.3	0.6	103	0.3	0.6	-1.9
Other mv acc. with other motor vehicle	6720	18.8	39.3	7205	20.5	41.6	7.2
Mv accident with other (non-motor) vehicle	1972	5.5	11.5	1947	5.5	11.2	-1.3
Mv accident with pedestrian	3740	10.5	21.8	3744	10.6	21.6	0.1
Other mv with collision on highway	2219	6.2	13.0	2468	7.0	14.3	11.2
Mv acc. due to loss of control - without collision	5014	14.1	29.3	5325	15.1	30.8	6.2
Noncollision mv traffic acc. while boarding/alighting	361	1.0	2.1	374	1.1	2.2	3.6
Other noncollision mv traffic acc.	1852	5.2	10.8	1987	5.6	11.5	7.3
Unspecified motor vehicle accident	8777	24.6	51.3	7068	20.1	40.8	-19.5
Pedal cycle accident	4869	13.6	28.4	4904	13.9	28.3	0.7
Group Total	35681	100.0	208.4	35179	100.0	203.2	-1.4

Figure 6. Road injury hospital separations by external cause, Australia excluding NT, 1992
(% based on case number)



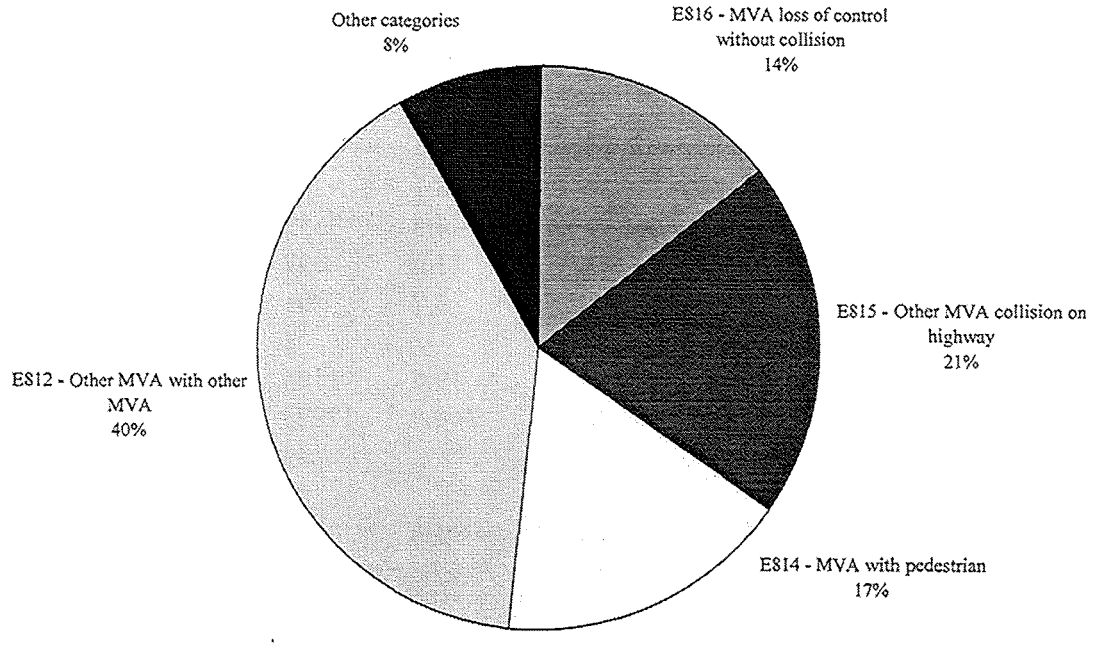
Main Points

- 19% of the hospital separations for road injury received their injuries in collisions between motor vehicles. Loss of control of motor vehicles was the cause of a further 15% of separations. Collisions of motor vehicles with pedestrians accounted for 11% of separations.
- The number of separations due to collisions between motor vehicles increased by 7% between 1991 and 1992.
- Hospital separations due to pedal cycle accidents (not involving collision with motorised vehicles) remained static between 1991 and 1992(< 1%). However, as noted earlier, the number of fatalities of pedal cyclists dropped by 21%.

Table 7. Road fatalities by external cause, Australia, 1991-1992
(Case number, Rate per 100,000 pop. & % change in case number 1991-1992)

	1991 Count	Percent	Crude rate per 100,000	1992 Count	Percent	Crude rate per 100,000	% change in case number 1991-1992
Persons							
Mv acc. with train	33	1.5	0.2	23	1.0	0.1	-30.3
Re-entrant mv acc. with other motor vehicle	5	0.2	0.0	24	1.1	0.1	380.0
Other mv acc. with other motor vehicle	789	36.5	4.6	900	39.8	5.1	14.1
Mv accident with other (non-motor) vehicle	59	2.7	0.3	49	2.2	0.3	-16.9
Mv accident with pedestrian	347	16.1	2.0	386	17.1	2.2	11.2
Other mv with collision on highway	456	21.1	2.6	467	20.7	2.7	2.4
Mv acc. due to loss of control - without collision	390	18.0	2.3	318	14.1	1.8	-18.5
Noncollision mv traffic acc. while boarding/alighting	6	0.3	0.0	2	0.1	0.0	-66.7
Other noncollision mv traffic acc.	17	0.8	0.1	31	1.4	0.2	82.4
Unspecified motor vehicle accident	52	2.4	0.3	51	2.3	0.3	-1.9
Pedal cycle accident	7	0.3	0.0	10	0.4	0.1	42.9
Group Total	2161	100.0	12.5	2261	100.0	12.9	4.6

Figure 7. Road fatalities by external cause, Australia, 1992
(% based on case number)



Main Points

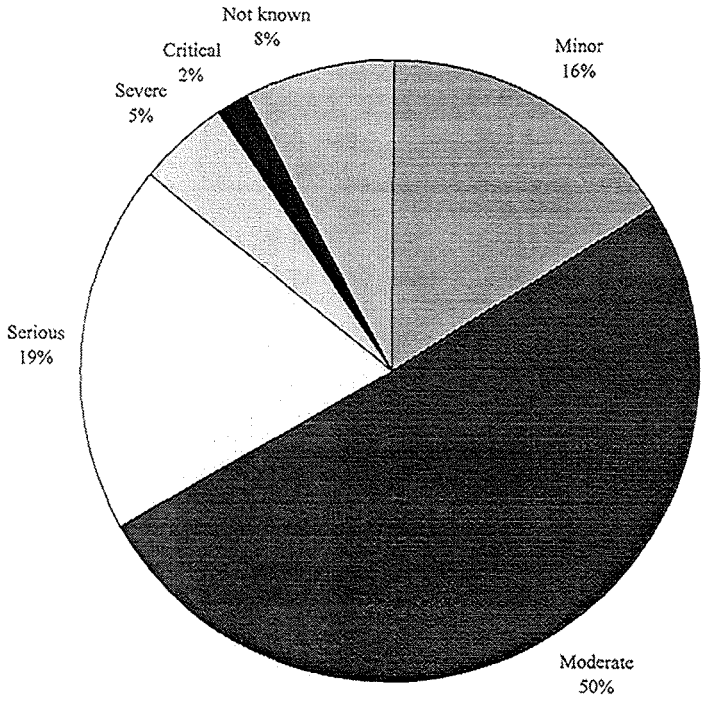
- 37% of road fatalities were due to collisions between motor vehicles. The number of deaths due to this cause increased by 14% between 1991 and 1992. Collisions of motor vehicles with pedestrians accounted for 16% of fatalities. The number of fatalities from this cause increased by 11% between 1991 and 1992.
- Pedal cycle accidents (not involving collision with motorised vehicles) were the cause of very few deaths.

1.5 Injury Severity (maximum AIS)

Table 8. Road injury hospital separations by injury severity (max. AIS) & sex, Australia excluding Qld & NT, 1991-1992
(Case number, Rate per 100,000 pop. & % change in case number 1991-1992)

	1991			1992			
	Counts	Percent	Crude rate per 100,000	Counts	Percent	Crude rate per 100,000	% change 1991-1992
Male							
Minor	2854	15.5	40.5	2719	15.2	38.3	-4.7
Moderate	9585	52.1	136.1	9280	51.8	130.6	-3.2
Serious	3488	19.0	49.5	3552	19.8	50.0	1.8
Severe	801	4.4	11.4	897	5.0	12.6	12.0
Critical	258	1.4	3.7	291	1.6	4.1	12.8
Maximum				1	0.0	0.0	0
Not known	1396	7.6	19.8	1184	6.6	16.7	-15.2
Group Total	18382	100.0	260.9	17923	100.0	252.2	-2.5
Female							
Minor	1806	19.1	25.4	1703	17.9	23.7	-5.7
Moderate	4796	50.7	67.4	4583	48.1	63.8	-4.4
Serious	1470	15.5	20.7	1730	18.1	24.1	17.7
Severe	286	3.0	4.0	400	4.2	5.6	39.9
Critical	82	0.9	1.2	132	1.4	1.8	61.0
Maximum	0	0	0	0	0	0	0
Not known	1021	10.8	14.4	983	10.3	13.7	-3.7
Group Total	9461	100.0	133.0	9532	100.0	132.8	0.8
Persons							
Minor	4660	16.7	32.9	4422	16.1	31.0	-5.1
Moderate	14381	51.6	101.6	13863	50.5	97.0	-3.6
Serious	4958	17.8	35.0	5282	19.2	37.0	6.5
Severe	1087	3.9	7.7	1297	4.7	9.1	19.3
Critical	340	1.2	2.4	423	1.5	3.0	24.4
Maximum				1	0.0	0.0	0
Not known	2417	8.7	17.1	2167	7.9	15.2	-10.3
Group Total	27844	100.0	196.7	27455	100.0	192.2	-1.4

Figure 8. Road injury hospital separations by injury severity (max. AIS), Australia excluding Qld & NT, 1992
(% based on case number)



Main Points

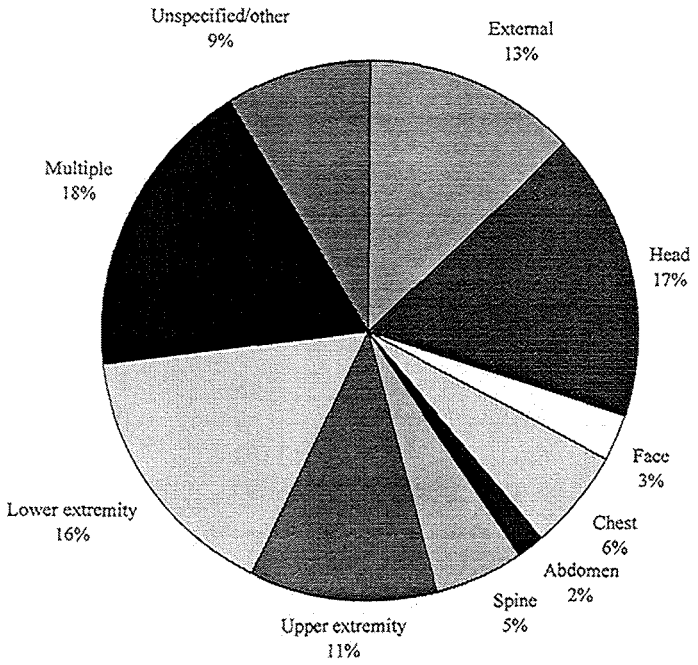
- Between 1991 and 1992 the number of hospital separations having severe and critical injuries increased by about a fifth, due principally to a substantial increase in the number of females with these injuries (for females, severe injury was up 40% and critical injury was up 61%). This increasing trend contrasts with trends reported in earler reports.[15 16]
- Minor and moderately severe injuries accounted for just over two thirds of all hospital separations and decreased, collectively, by 4% between 1991 and 1992.

1.6 Body Region of Most Severe Injury

Table 9. Road injury hospital separations by body region of most severe injury & sex, Australia excluding Qld & NT, 1991-1992
(Case number, Rate per 100,000 pop. & % change in case number 1991-1992)

	1991			1992			
	Counts	Percent	Crude rate per 100,000	Counts	Percent	Crude rate per 100,000	% change in case number 1991-1992
Male							
External	2241	12.2	31.8	1845	10.3	26.0	-17.7
Head	3332	18.1	47.3	3055	17.0	43.0	-8.3
Face	527	2.9	7.5	433	2.4	6.1	-17.8
Chest	941	5.1	13.4	883	4.9	12.4	-6.2
Abdomen	338	1.8	4.8	335	1.9	4.7	-0.9
Spine	870	4.7	12.3	832	4.6	11.7	-4.4
Upper extremity	2314	12.6	32.8	2430	13.6	34.2	5.0
Lower extremity	3067	16.7	43.5	2712	15.1	38.2	-11.6
Multiple	3335	18.1	47.3	4198	23.4	59.1	25.9
Unspecified/other	1417	7.7	20.1	1198	6.7	16.9	-15.5
Group Total	18382	100.0	260.9	17923	100.0	252.2	-2.5
Female							
External	1314	13.9	18.5	1049	11.0	14.6	-20.2
Head	1474	15.6	20.7	1253	13.1	17.5	-15.0
Face	220	2.3	3.1	169	1.8	2.4	-23.2
Chest	759	8.0	10.7	730	7.7	10.2	-3.8
Abdomen	148	1.6	2.1	162	1.7	2.3	9.5
Spine	581	6.1	8.2	591	6.2	8.2	1.7
Upper extremity	867	9.2	12.2	1178	12.4	16.4	35.9
Lower extremity	1351	14.3	19.0	1160	12.2	16.2	-14.1
Multiple	1712	18.1	24.1	2245	23.6	31.3	31.1
Unspecified/other	1035	10.9	14.6	993	10.4	13.8	-4.1
Group Total	9461	100.0	133.0	9532	100.0	132.8	0.8
Persons							
External	3556	12.8	25.1	2894	10.5	20.3	-18.6
Head	4806	17.3	33.9	4308	15.7	30.2	-10.4
Face	748	2.7	5.3	602	2.2	4.2	-19.5
Chest	1700	6.1	12.0	1613	5.9	11.3	-5.1
Abdomen	486	1.7	3.4	497	1.8	3.5	2.3
Spine	1451	5.2	10.2	1423	5.2	10.0	-1.9
Upper extremity	3180	11.4	22.5	3608	13.1	25.3	13.5
Lower extremity	4418	15.9	31.2	3872	14.1	27.1	-12.4
Multiple	5047	18.1	35.6	6443	23.5	45.1	27.7
Unspecified/other	2452	8.8	17.3	2191	8.0	15.3	-10.6
Group Total	27844	100.0	196.7	27455	100.0	192.2	-1.4

Figure 9. Road injury hospital separations by body region of most severe injury, Australia excluding Qld & NT, 1992
(% based on case number)



Main Points

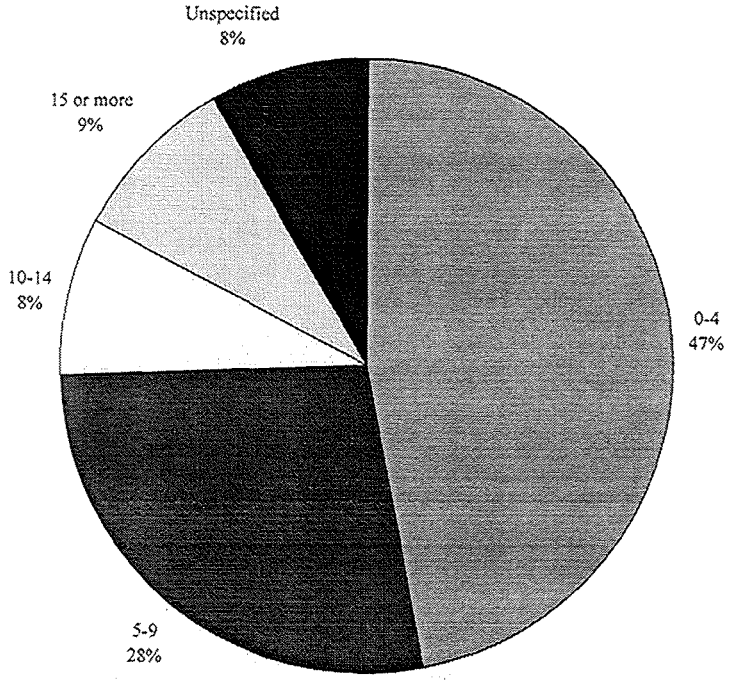
- The assessment of body region of most severe injury (or body regions in the case of multiple injuries at the same level of severity) indicated that head injuries accounted for 17% of all road injury hospital separations in 1992, down 10% from 1991 and accelerating the downward trend of 3% observed for 1990-1991[15]. The reduction in head injuries was greatest for females (down 15% v. -8% for males).
- Injury to the lower extremities accounted for 14% of separations, down 12% from 1991. Injury to the upper extremities accounted for 13% of separations, up 14% from 1991. The directions, but not the extent, of the trends for these injuries matched those observed in an earlier report [15].
- When multiple injuries were assessed it was found that there was a marked increase in the number of these injuries from 1991 to 1992 (up 28%), reversing the large decrease observed for 1990-1991 (-4.3%)[15].
- Little change was observed in the number of spinal injuries from 1991 to 1992 (-2%), compared with a small increase (5%) from 1990-1991[15].

1.7 Injury Severity

Table 10. Road injury hospital separations by Injury Severity Score (ISS) & sex, Australia excluding Qld, WA & NT, 1991-1992
(Case number, Rate per 100,000 pop. & % change in case number 1991-1992)

	1991 Count	Percent	Crude rate per 100,000	1992 Count	Percent	Crude rate per 100,000	% change in case number 1991-1992
Males							
0-4	8012	50.7	128.8	7335	47.0	116.9	-8.4
5-9	4322	27.4	69.5	4405	28.2	70.2	1.9
10-14	1146	7.3	18.4	1252	8.0	20.0	9.2
15-19	600	3.8	9.6	641	4.1	10.2	6.8
20-24	261	1.7	4.2	321	2.1	5.1	23.0
25-29	259	1.6	4.2	302	1.9	4.8	16.6
30-34	82	0.5	1.3	63	0.4	1.0	-23.2
35-39	39	0.2	0.6	66	0.4	1.1	69.2
40-44	18	0.1	0.3	10	0.1	0.2	-44.4
45-64	6	0.0	0.1	9	0.1	0.1	50.0
65-75	1	0.0	0.0	1	0.0	0.0	0.0
Unspecified	1046	6.6	16.8	1191	7.6	19.0	13.9
Total	15792	100.0	253.8	15597	100.0	248.7	-1.2
Females							
0-4	4319	53.2	68.6	3920	46.5	61.7	-9.2
5-9	2055	25.3	32.6	2216	26.3	34.9	7.8
10-14	524	6.5	8.3	755	8.9	11.9	44.1
15-19	224	2.8	3.6	358	4.2	5.6	59.8
20-24	119	1.5	1.9	137	1.6	2.2	15.1
25-29	80	1.0	1.3	147	1.7	2.3	83.8
30-34	19	0.2	0.3	26	0.3	0.4	36.8
35-39	15	0.2	0.2	18	0.2	0.3	20.0
40-44	8	0.1	0.1	15	0.2	0.2	87.5
45-64	5	0.1	0.1	6	0.1	0.1	20.0
65-75	0			0			
Unspecified	755	9.3	12.0	840	10.0	13.2	11.3
Total	8122	100.0	128.9	8437	100.0	132.8	3.9
Persons							
0-4	12331	51.6	98.5	11255	46.8	89.1	-8.7
5-9	6377	26.7	50.9	6621	27.5	52.4	3.8
10-14	1670	7.0	13.3	2007	8.4	15.9	20.2
15-19	824	3.4	6.6	999	4.2	7.9	21.2
20-24	380	1.6	3.0	458	1.9	3.6	20.5
25-29	338	1.4	2.7	449	1.9	3.6	32.8
30-34	101	0.4	0.8	89	0.4	0.7	-11.9
35-39	54	0.2	0.4	84	0.3	0.7	55.6
40-44	26	0.1	0.2	25	0.1	0.2	-3.8
45-64	11	0.0	0.1	15	0.1	0.1	36.4
65-75	1	0.0	0.0	1	0.0	0.0	0.0
Unspecified	1801	7.5	14.4	2031	8.5	16.1	12.8
Total	23915	100.0	191.0	24033	100.0	190.3	0.5

Figure 10. Road injury hospital separations by Injury Severity Score (ISS), Australia excluding Qld, WA & NT, 1992
(% based on case number)



Main Points

- Between 1991 and 1992 there was a 22% increase in the number of high threat to life[4 5 6] (i.e. ISS 15+) separations, reversing the 1990-1991 trend[15]. The increasing trend in the number of high threat to life separations was particularly strong for females (up 50% v. 12% for males). However, it was also noted that males outnumbered females in that category in the ratio of about 2.7:1.
- The number of separations in the lowest ISS range (0-4), which accounted for half of all road injury separations, decreased by 9%, continuing the reduction observed from 1990 to 1991 (down 12%).

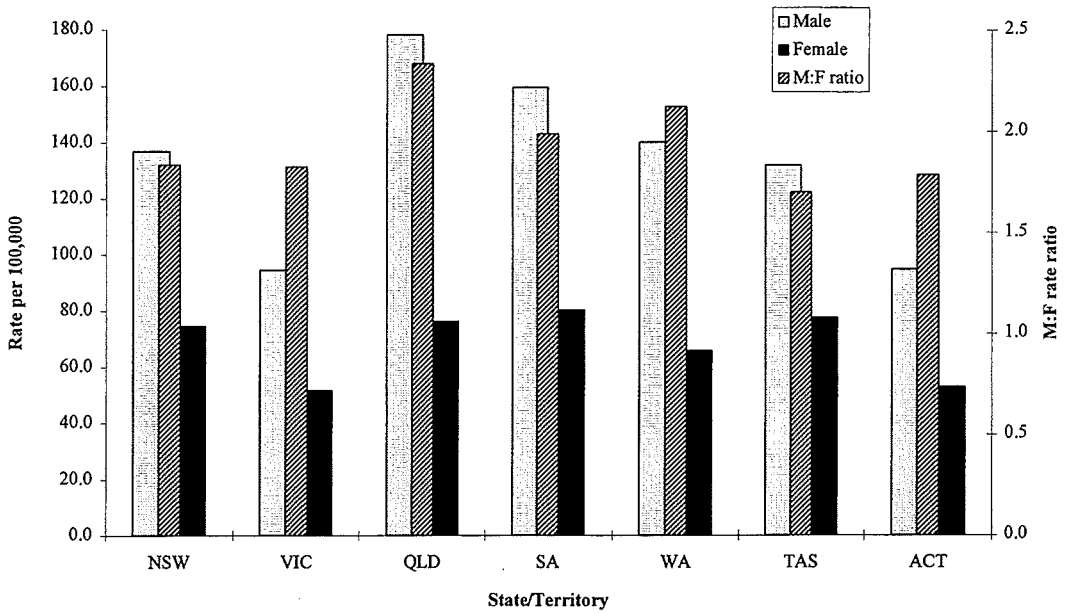
1.8 State

Table 11. Road injury hospital separations by State & sex, Australia, 1991-1992
(Case number, Rate per 100,000 pop. & % change in case number 1991-1992)

	1991			1992			
	Count	Percent	Crude rate per 100,000	Count	Percent	Crude rate per 100,000	% change in case number 1991-1992
Male							
NSW	8084	33.7	137.0	8160	35.0	136.9	0.9
VIC	4243	17.7	96.0	4208	18.0	94.6	-0.8
QLD	5326	22.2	179.9	5410	23.2	178.5	1.6
SA	2498	10.4	172.7	2329	10.0	159.9	-6.8
WA	2572	10.7	157.2	2326	10.0	140.4	-9.6
TAS	647	2.7	138.6	621	2.7	132.2	-4.0
NT	274	1.1	165.6	**	**	**	**
ACT	338	1.4	116.8	279	1.2	94.8	-17.5
Total	23982	100.0	138.8	23333	100.0	134.8	-2.7*
Female							
NSW	4139	34.2	70.2	4444	37.5	74.6	7.4
VIC	2195	18.1	49.7	2302	19.4	51.7	4.9
QLD	2511	20.8	84.8	2315	19.5	76.4	-7.8
SA	1298	10.7	89.7	1170	9.9	80.3	-9.9
WA	1330	11.0	81.3	1095	9.2	66.1	-17.7
TAS	334	2.8	71.6	365	3.1	77.7	9.3
NT	124	1.0	74.9	**	**	**	**
ACT	165	1.4	57.0	156	1.3	53.0	-5.5
Total	12096	100.0	70.0	11847	100.0	68.4	-2.2*
Persons							
NSW	12224	33.9	207.2	12603	35.8	213.7	3.1
VIC	6438	17.8	145.6	6510	18.5	147.3	1.1
QLD	7837	21.7	264.7	7725	22.0	260.9	-1.4
SA	3796	10.5	262.5	3499	9.9	241.9	-7.8
WA	3902	10.8	238.5	3421	9.7	209.1	-12.3
TAS	981	2.7	210.2	986	2.8	211.2	0.5
NT	398	1.1	240.5	**	**	**	**
ACT	503	1.4	173.9	435	1.2	150.4	-13.5
Total	36079	100.0	208.7	35179	100.0	203.5	-2.5*

* Excludes NT from comparison.

Figure 11. Road injury hospital separations by State & sex, Australia excluding NT, 1992
(Crude rate per 100,000 pop.)



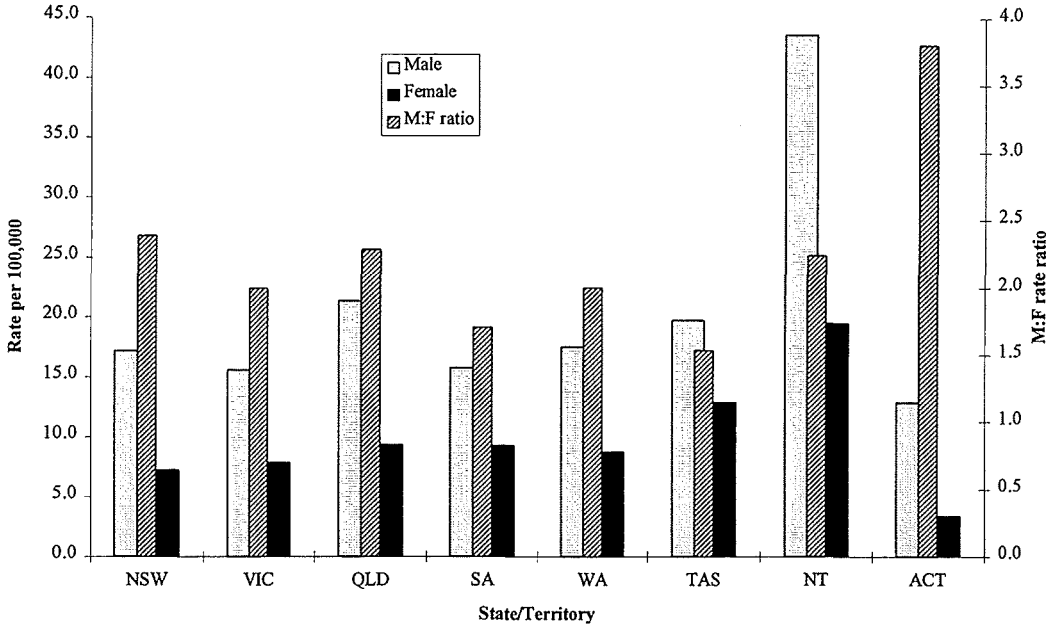
Main Points

- Small increases in road injury separations from 1991 to 1992 were observed in New South Wales (3%), Victoria (1%) and Tasmania (0.5%). All other States experienced a decrease in separations over that period. The largest fall was in the Australian Capital Territory (-13.5%), followed by Western Australia (-12.3%), Queensland (-10%) and South Australia (-7.8%).
- The male to female comparison for each State highlights the rise in female road injury separations in NSW (7.4%), Victoria (4.9%) Tasmania (9.3%).The male to female separation ratio was more than 1.5:1 for all States and Territories.

Table 12. Road fatalities by State & sex, Australia, 1991-1992
(Case number, Rate per 100,000 pop. & % change in case number 1991-1992)

	1991			1992			
	Count	Percent	Crude rate per 100,000	Count	Percent	Crude rate per 100,000	% change in case number 1991-1992
Male							
NSW	461	30.2	15.7	509	33.1	17.2	10.4
VIC	366	24.0	16.7	344	22.3	15.6	-6.0
QLD	284	18.6	19.1	324	21.0	21.3	14.1
SA	141	9.2	19.6	114	7.4	15.8	-19.1
WA	154	10.1	18.7	146	9.5	17.5	-5.2
TAS	61	4.0	26.4	46	3.0	19.7	-24.6
NT	45	2.9	51.9	38	2.5	43.6	-15.6
ACT	15	1.0	10.4	19	1.2	12.9	26.7
Total	1527	100.0	17.7	1540	100.0	17.7	0.9
Female							
NSW	207	32.6	7.0	214	29.7	7.2	3.4
VIC	159	25.1	7.1	173	24.0	7.8	8.8
QLD	117	18.5	7.9	142	19.7	9.4	21.4
SA	51	8.0	7.0	67	9.3	9.3	31.4
WA	50	7.9	6.1	73	10.1	8.8	46.0
TAS	20	3.2	8.5	30	4.2	12.9	50.0
NT	21	3.3	26.6	17	2.4	19.5	-19.0
ACT	9	1.4	6.2	5	0.7	3.4	-44.4
Total	634	100.0	7.3	721	100.0	8.3	13.7
Persons							
NSW	668	30.9	11.3	723	32.0	12.1	8.2
VIC	525	24.3	11.9	517	22.9	11.6	-1.5
QLD	401	18.6	13.5	466	20.6	15.4	16.2
SA	192	8.9	13.3	181	8.0	12.4	-5.7
WA	204	9.4	12.5	219	9.7	13.2	7.4
TAS	81	3.7	17.4	76	3.4	16.2	-6.2
NT	66	3.1	39.9	55	2.4	32.9	-16.7
ACT	24	1.1	8.3	24	1.1	8.2	0.0
Total	2161	100.0	12.5	2261	100.0	12.9	4.6

Figure 12. Road fatalities by State & sex, Australia, 1992
(Crude rate per 100,000 pop.)



Main Points

- New South Wales recorded the highest proportion of road fatalities in 1992 (32%). The number of road fatalities in that State increased by 8.2% from 1991 to 1992. In Victoria, which recorded almost 23% of fatalities nationally in 1992, the number of road fatalities was down by 1.5% compared to 1991.
- Comparison of 1991-1992 trends in road fatalities by sex across states revealed inconsistent patterns. In the most populated state (NSW) male fatalities increased three times as much as female fatalities. However, in most of the other states (Vic, Qld, SA, WA, Tas) there was evidence of a disproportionate increase in female deaths compared to male deaths. Overall, male fatalities increased by less than 1% while female fatalities increased by 13.7%.
- Most States had a male to female fatality ratio of about 2:1.
- Little consistency was observed in the separation and fatality trends from state to state.

SECTION 2: Road Injury Separations and Fatalities - Age and Sex

2.1 Road User Type

Table 13a. Road injury hospital separations, road user type by age & sex, Australia excluding NT, 1992
(Case number & row percentage)

	0-4 yrs	5-14 yrs	15-19 yrs	20-24 yrs	25-29 yrs	30-49 yrs	50-69 yrs	70 + yrs	Total
Males									
Driver	1	17	796	1127	722	1786	864	441	5755
	0.0	0.3	13.8	19.6	12.5	31.0	15.0	7.7	100.0
Passenger	207	444	706	611	318	565	217	153	3221
	6.4	13.8	21.9	19.0	9.9	17.5	6.7	4.8	100.0
Motor Cycle	13	235	1055	1318	818	1242	178	35	4894
	0.3	4.8	21.6	26.9	16.7	25.4	3.6	0.7	100.0
Pedal cyclist	185	2093	722	303	196	535	175	61	4269
	4.3	49.0	16.9	7.1	4.6	12.5	4.1	1.4	100.0
Pedestrian	185	534	255	203	206	482	363	244	2473
	7.5	21.6	10.3	8.2	8.3	19.5	14.7	9.9	100.0
Other user	21	28	50	15	21	43	23	4	205
	10.2	13.7	24.4	7.3	10.2	21.0	11.2	2.0	100.0
Unspecified user	39	152	367	447	334	724	306	147	2515
	1.6	6.0	14.6	17.8	13.3	28.8	12.2	5.8	100.0
Total	651	3503	3952	4024	2615	5376	2126	1086	23333
	2.8	15.0	16.9	17.2	11.2	23.0	9.1	4.7	100.0
Females									
Driver	1	9	357	565	376	1193	598	260	3359
	0.0	0.3	10.6	16.8	11.2	35.5	17.8	7.7	100.0
Passenger	137	340	587	441	251	630	623	475	3484
	3.9	9.8	16.8	12.7	7.2	18.1	17.9	13.6	100.0
Motor Cycle	4	41	82	98	85	103	22	13	448
	0.9	9.2	18.3	21.9	19.0	23.0	4.9	2.9	100.0
Pedal cyclist	99	679	119	68	62	146	67	17	1257
	7.9	54.0	9.5	5.4	4.9	11.6	5.3	1.4	100.0
Pedestrian	115	291	151	103	75	217	266	310	1528
	7.5	19.0	9.9	6.7	4.9	14.2	17.4	20.3	100.0
Other user	9	13	11	9	3	20	14	18	97
	9.3	13.4	11.3	9.3	3.1	20.6	14.4	18.6	100.0
Unspecified user	31	77	198	255	197	447	307	162	1673
	1.9	4.6	11.8	15.2	11.8	26.7	18.4	9.7	100.0
Total	396	1450	1504	1539	1049	2757	1897	1255	11847
	3.3	12.2	12.7	13.0	8.9	23.3	16.0	10.6	100.0
Persons									
Driver	2	26	1153	1692	1098	2979	1463	701	9113
	0.0	0.3	12.7	18.6	12.0	32.7	16.1	7.7	100.0
Passenger	344	784	1293	1052	569	1195	840	628	6705
	5.1	11.7	19.3	15.7	8.5	17.8	12.5	9.4	100.0
Motor Cycle	17	276	1137	1416	903	1345	200	48	5342
	0.3	5.2	21.3	26.5	16.9	25.2	3.7	0.9	100.0
Pedal cyclist	284	2772	841	370	258	681	242	78	5526
	5.1	50.2	15.2	6.7	4.7	12.3	4.4	1.4	100.0
Pedestrian	300	825	406	306	281	700	629	555	4002
	7.5	20.6	10.1	7.6	7.0	17.5	15.7	13.9	100.0
Other user	30	41	61	24	24	63	37	22	302
	9.9	13.6	20.2	7.9	7.9	20.9	12.3	7.3	100.0
Unspecified user	70	229	565	703	530	1171	612	309	4189
	1.7	5.5	13.5	16.8	12.7	28.0	14.6	7.4	100.0
Total	1047	4953	5456	5563	3663	8134	4023	2340	35179
	3.0	14.1	15.5	15.8	10.4	23.1	11.4	6.7	100.0

Table 13b. Road injury hospital separations, road user type by age & sex, Australia excluding NT, 1992
(Rate per 100,000 pop.)

	0-4 yrs	5-14 yrs	15-19 yrs	20-24 yrs	25-29 yrs	30-49 yrs	50-69 yrs	70+ yrs	Total
Males									
Driver	0.2	1.3	118.4	157.0	105.7	69.1	57.7	82.2	66.7
Passenger	32.0	34.6	105.0	85.1	46.5	21.9	14.5	28.5	37.4
Motor Cycle	2.0	18.3	156.9	183.6	119.7	48.0	11.9	6.5	56.7
Pedal cyclist	28.6	163.2	107.4	42.2	28.7	20.7	11.7	11.4	49.5
Pedestrian	28.6	41.6	37.9	28.3	30.1	18.6	24.2	45.5	28.7
Other user	3.2	2.2	7.4	2.1	3.1	1.7	1.5	0.7	2.4
Unspecified user	6.0	11.9	54.6	62.3	48.9	28.0	20.4	27.4	29.2
Total	100.5	273.1	587.7	560.6	382.7	207.9	141.9	202.4	270.6
Females									
Driver	0.2	0.7	55.9	81.0	55.3	46.7	39.9	33.0	38.6
Passenger	22.3	28.0	91.9	63.2	36.9	24.7	41.5	60.2	40.1
Motor Cycle	0.7	3.4	12.8	14.0	12.5	4.0	1.5	1.6	5.2
Pedal cyclist	16.1	55.8	18.6	9.7	9.1	5.7	4.5	2.2	14.5
Pedestrian	18.7	23.9	23.6	14.8	11.0	8.5	17.7	39.3	17.6
Other user	1.5	1.1	1.7	1.3	0.4	0.8	0.9	2.3	1.1
Unspecified user	5.0	6.3	31.0	36.5	29.0	17.5	20.5	20.5	19.2
Total	64.4	119.2	235.4	220.6	154.3	107.9	126.4	159.1	136.3
Persons									
Driver	0.2	1.0	87.9	119.5	80.6	58.0	48.8	52.9	52.6
Passenger	27.2	31.4	98.6	74.3	41.7	23.2	28.0	47.4	38.7
Motor Cycle	1.3	11.0	86.7	100.0	66.2	26.2	6.7	3.6	30.9
Pedal cyclist	22.5	110.9	64.1	26.1	18.9	13.2	8.1	5.9	31.9
Pedestrian	23.8	33.0	31.0	21.6	20.6	13.6	21.0	41.9	23.1
Other user	2.4	1.6	4.7	1.7	1.8	1.2	1.2	1.7	1.7
Unspecified user	5.5	9.2	43.1	49.7	38.9	22.8	20.4	23.3	24.2
Total	82.9	198.2	416.0	393.0	268.7	158.2	134.2	176.6	203.2

Main Points

- The number of male separations exceeded female separations in most age/road user type categories. Notable exceptions were female passengers and pedestrians in the age groups 50-69 and 70+, where females outnumbered males.
- The number of separations of male motor cyclists aged 15-29 years - the known high risk age group - exceeded the number of male drivers in that age group by a third. This characteristic was first reported in the Australian road safety literature in the previous edition of the present report, based on 1991 data and published in 1995[15]. Injury to motorcyclists severe enough to be admitted to hospital is overwhelmingly a male phenomenon.
- Hospital separations due to pedal cycle accidents were most likely to involve children aged 5-14 yrs (50% of all pedal cycle accidents) who accounted for 8% of the total number of road injury hospital separations. In that age group, males were three times more likely to be involved than females.
- The highest separation rates for persons involved drivers aged 20-24 years (119.5), pedal cyclists aged 5-14 years (110.9) and motor cyclists aged 20-24 years (100).

Table 14a. Road fatalities, road user type by age & sex, Australia, 1992
(Case number & row percentage)

	0-4 yrs	5-14 yrs	15-19 yrs	20-24 yrs	25-29 yrs	30-49 yrs	50-69 yrs	70+ yrs	Total
Males									
Driver	0	3	64	122	89	222	123	52	675
	0.0	0.4	9.5	18.1	13.2	32.9	18.2	7.7	100.0
Passenger	22	29	64	62	26	60	26	10	299
	7.4	9.7	21.4	20.7	8.7	20.1	8.7	3.3	100.0
Motor Cycle	0	3	42	49	47	61	5	2	209
	0.0	1.4	20.1	23.4	22.5	29.2	2.4	1.0	100.0
Pedal cyclist	0	13	6	6	0	7	8	5	45
	0.0	28.9	13.3	13.3	0.0	15.6	17.8	11.1	100.0
Pedestrian	10	25	27	23	22	55	47	59	268
	3.7	9.3	10.1	8.6	8.2	20.5	17.5	22.0	100.0
Other user	0	1	1	0	0	2	0	0	4
	0.0	25.0	25.0	0.0	0.0	50.0	0.0	0.0	100.0
Unspecified user	0	0	4	9	7	9	5	6	40
	0.0	0.0	10.0	22.5	17.5	22.5	12.5	15.0	100.0
Total	32	74	208	271	191	416	214	134	1540
	2.1	4.8	13.5	17.6	12.4	27.0	13.9	8.7	100.0
Females									
Driver	0	1	24	48	26	73	42	27	241
	0.0	0.4	10.0	19.9	10.8	30.3	17.4	11.2	100.0
Passenger	15	21	49	36	22	42	72	63	320
	4.7	6.6	15.3	11.3	6.9	13.1	22.5	19.7	100.0
Motor Cycle	0	2	0	6	1	3	1	0	13
	0.0	2.0	0.0	6.0	1.0	3.0	1.0	0.0	13.0
Pedal cyclist	0	2	0	2	0	0	0	1	5
	0.0	40.0	0.0	40.0	0.0	0.0	0.0	20.0	100.0
Pedestrian	5	12	5	8	2	23	26	40	121
	4.1	9.9	4.1	6.6	1.7	19.0	21.5	33.1	100.0
Other user	0	0	1	0	0	0	0	0	1
	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0
Unspecified user	0	0	0	3	6	1	6	4	20
	0.0	0.0	0.0	15.0	30.0	5.0	30.0	20.0	100.0
Total	20	38	79	103	57	142	147	135	721
	2.8	5.3	11.0	14.3	7.9	19.7	20.4	18.7	100.0
Persons									
Driver	0	4	88	170	115	295	165	79	916
	0.0	0.4	9.6	18.6	12.6	32.2	18.0	8.6	100.0
Passenger	37	50	113	98	48	102	98	73	619
	6.0	8.1	18.3	15.8	7.8	16.5	15.8	11.8	100.0
Motor Cycle	0	5	42	55	48	64	6	2	222
	0.0	2.3	18.9	24.8	21.6	28.8	2.7	0.9	100.0
Pedal cyclist	0	15	6	8	0	7	8	6	50
	0.0	30.0	12.0	16.0	0.0	14.0	16.0	12.0	100.0
Pedestrian	15	37	32	31	24	78	73	99	389
	3.9	9.5	8.2	8.0	6.2	20.1	18.8	25.4	100.0
Other user	0	1	2	0	0	2	0	0	5
	0.0	20.0	40.0	0.0	0.0	40.0	0.0	0.0	100.0
Unspecified user	0	0	4	12	13	10	11	10	60
	0.0	0.0	6.7	20.0	21.7	16.7	18.3	16.7	100.0
Total	52	112	287	374	248	558	361	269	2261
	2.3	5.0	12.7	16.5	11.0	24.7	16.0	11.9	100.0

Table 14b. Road fatalities, road user type by age & sex, Australia, 1992 (Rate per 100,000 pop.)

	0-4 yrs	5-14 yrs	15-19 yrs	20-25 yrs	25-29 yrs	30-49 yrs	50-69 yrs	70+ yrs	Total
Males									
Driver	0.0	0.2	9.4	16.8	12.9	8.5	8.2	9.7	7.7
Pasenger	3.4	2.2	9.4	8.5	3.8	2.3	1.7	1.9	3.4
Motor Cycle	0.0	0.2	6.2	6.7	6.8	2.3	0.3	0.4	2.4
Pedal cyclist	0.0	1.0	0.9	0.8	0.0	0.3	0.5	0.9	0.5
Pedestrian	1.5	1.9	4.0	3.2	3.2	2.1	3.1	11.0	3.1
Other user	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0
Unspecified user	0.0	0.0	0.6	1.2	1.0	0.3	0.3	1.1	0.5
Total	4.9	5.7	30.6	37.3	27.6	15.9	14.2	24.9	17.7
Females									
Driver	0.0	0.1	3.7	6.8	3.8	2.8	2.8	3.4	2.7
Pasenger	2.4	1.7	7.6	5.1	3.2	1.6	4.8	8.0	3.6
Motor Cycle	0.0	0.2	0.0	0.8	0.1	0.1	0.1	0.0	0.1
Pedal cyclist	0.0	0.2	0.0	0.3	0.0	0.0	0.0	0.1	0.1
Pedestrian	0.8	1.0	0.8	1.1	0.3	0.9	1.7	5.1	1.4
Other user	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Unspecified user	0.0	0.0	0.0	0.4	0.9	0.0	0.4	0.5	0.2
Total	3.2	3.1	12.2	14.6	8.3	5.5	9.8	17.1	8.2
Persons									
Driver	0.0	0.2	6.6	11.9	8.3	5.7	5.5	6.0	5.2
Pasenger	2.9	2.0	8.5	6.8	3.5	2.0	3.3	5.5	3.5
Motor Cycle	0.0	0.2	3.2	3.8	3.5	1.2	0.2	0.2	1.3
Pedal cyclist	0.0	0.6	0.5	0.6	0.0	0.1	0.3	0.5	0.3
Pedestrian	1.2	1.5	2.4	2.2	1.7	1.5	2.4	7.5	2.2
Other user	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Unspecified user	0.0	0.0	0.3	0.8	0.9	0.2	0.4	0.8	0.3
Total	4.1	4.4	21.7	26.1	18.0	10.7	12.0	20.3	12.9

Main Points

- A substantial increase in female passenger deaths from 1991 to 1992 (up 29%) was noted on page 7. Comparison of Table 14a with the same table in the previous edition of this report[15], based on 1991 data, showed that nearly half of that increase was due to an increase in the number of 50-69 year olds killed (increased from 39 in 1991 to 72 in 1992).
- The number of fatalities for males exceeded female fatalities in all categories except passengers aged 50 or more years. The male to female fatality ratio for all age groups for 1992 was just over 2:1.
- Young male drivers (aged 15-29 years) accounted for 12% of the total fatalities.
- In contrast to the hospital separations data, which showed that young male motorcyclists exceed by one third the number of young male drivers, in the fatality data there were twice as many young male drivers.
- While the number of separations for pedestrians and pedal cyclists were similar (4002 and 5526 respectively), pedestrian fatalities (389) were much more frequent than pedal cycle fatalities (50). Pedal cycle fatalities were most likely to be males aged 5-14 years, and pedestrian fatalities were most likely to be adults aged 30 years or more.

2.2 Injury Severity (maximum AIS)

Table 15a. Road injury hospital separations, injury severity (max. AIS) by age & sex, Australia excluding QLD & NT, 1992

	0-4 yrs	5-14 yrs	15-19 yrs	20-24 yrs	25-29 yrs	30-49 yrs	50-69 yrs	70+ yrs	Total
Male									
Minor	103	392	457	487	310	619	226	123	2719
	3.8	14.4	16.8	17.9	11.4	22.8	8.3	4.5	100.0
Moderate	274	1672	1548	1534	1012	2098	777	365	9280
	3.0	18.0	16.7	16.5	10.9	22.6	8.4	3.9	100.0
Serious	65	343	537	686	393	919	408	201	3552
	1.8	9.7	15.1	19.3	11.1	25.9	11.5	5.7	100.0
Severe	26	83	176	130	109	184	110	79	897
	2.9	9.3	19.6	14.5	12.2	20.5	12.3	8.8	100.0
Critical	10	31	68	55	26	60	29	11	290
	3.4	10.7	23.4	19.0	9.0	20.7	10.0	3.8	100.0
Maximum	1	0	0	0	0	0	0	0	1
	100	0	0	0	0	0	0	0	100
Not known	38	100	178	188	132	332	140	76	1184
	3.2	8.4	15.0	15.9	11.1	28.0	11.8	6.4	100.0
Group Total	517	2622	2964	3079	1982	4213	1690	856	17923
	2.9	14.6	16.5	17.2	11.1	23.5	9.4	4.8	100.0
Female									
Minor	89	215	209	239	144	453	220	134	1703
	5.2	12.6	12.3	14.0	8.5	26.6	12.9	7.9	100.0
Moderate	147	651	548	559	324	1067	740	547	4583
	3.2	14.2	12.0	12.2	7.1	23.3	16.1	11.9	100.0
Serious	48	129	248	197	172	388	333	215	1730
	2.8	7.5	14.3	11.4	9.9	22.4	19.2	12.4	100.0
Severe	11	26	51	42	26	99	72	73	400
	2.75	6.5	12.75	10.5	6.5	24.75	18	18.25	100
Critical	3	16	20	18	37	13	14	11	132
	2.3	12.1	15.2	13.6	28.0	9.8	10.6	8.3	100.0
Maximum	0	0	0	0	0	0	0	0	0
Not known	23	46	105	187	126	275	151	70	983
	2.3	4.7	10.7	19.0	12.8	28.0	15.4	7.1	100.0
Group Total	321	1083	1181	1242	830	2296	1529	1050	9532
	3.4	11.4	12.4	13.0	8.7	24.1	16.0	11.0	100.0
Persons									
Minor	192	607	667	726	454	1073	446	257	4422
	4.3	13.7	15.1	16.4	10.3	24.3	10.1	5.8	100.0
Moderate	421	2323	2096	2092	1337	3166	1516	912	13863
	3.0	16.8	15.1	15.1	9.6	22.8	10.9	6.6	100.0
Serious	113	472	785	883	565	1308	741	416	5282
	2.1	8.9	14.9	16.7	10.7	24.8	14.0	7.9	100.0
Severe	37	109	227	172	135	283	182	152	1297
	2.9	8.4	17.5	13.3	10.4	21.8	14.0	11.7	100.0
Critical	13	47	88	73	63	73	43	22	422
	3.1	11.1	20.9	17.3	14.9	17.3	10.2	5.2	100.0
Maximum	1	0	0	0	0	0	0	0	1
	100	0	0	0	0	0	0	0	100
Not known	61	146	283	375	258	608	290	146	2167
	2.8	6.7	13.1	17.3	11.9	28.1	13.4	6.7	100.0
Group Total	838	3705	4145	4321	2811	6510	3219	1905	27455
	3.1	13.5	15.1	15.7	10.2	23.7	11.7	6.9	100.0

Table 15b. Road injury hospital separations, injury severity (max. AIS) by age & sex, Australia excluding QLD & NT, 1992
(Rate per 100,000 pop.)

	0-4 yrs	5-14 yrs	15-19 yrs	20-24 yrs	25-29 yrs	30-49 yrs	50-69 yrs	70+ yrs	Total
Male									
Minor	19.4	37.4	83.4	82.4	54.8	29.0	18.2	27.7	38.3
Moderate	51.5	159.7	282.4	259.7	178.9	98.3	62.5	82.1	130.6
Serious	12.2	32.8	97.9	116.1	69.5	43.1	32.8	45.2	50.0
Severe	4.9	7.9	32.1	22.0	19.3	8.6	8.9	17.8	12.6
Critical	1.9	3.0	12.4	9.3	4.6	2.8	2.3	2.5	4.1
Maximum	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not known	7.1	9.6	32.5	31.8	23.3	15.6	11.3	17.1	16.7
Group Total	97.1	250.4	540.6	521.2	350.3	197.4	136.0	192.6	252.2
Female									
Minor	17.6	21.6	40.1	41.6	25.6	21.5	17.6	20.3	23.7
Moderate	29.0	65.5	105.3	97.4	57.6	50.6	59.2	82.8	63.8
Serious	9.5	13.0	47.6	34.3	30.6	18.4	26.6	32.5	24.1
Severe	2.2	2.6	9.8	7.3	4.6	4.7	5.8	11.1	5.6
Critical	0.6	1.6	3.8	3.1	6.6	0.6	1.1	1.7	1.8
Maximum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not known	4.5	4.6	20.2	32.6	22.4	13.0	12.1	10.6	13.7
Group Total	63.4	108.9	226.9	216.4	147.4	108.8	122.3	159.0	132.8
Persons									
Minor	18.5	29.7	62.4	62.3	40.2	25.3	17.9	23.3	31.0
Moderate	40.5	113.8	196.1	179.6	118.4	74.6	60.8	82.5	97.0
Serious	10.9	23.1	73.4	75.8	50.1	30.8	29.7	37.6	37.0
Severe	3.6	5.3	21.2	14.8	12.0	6.7	7.3	13.8	9.1
Critical	1.3	2.3	8.2	6.3	5.6	1.7	1.7	2.0	3.0
Maximum	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not known	5.9	7.2	26.5	32.2	22.9	14.3	11.6	13.2	15.2
Group Total	80.7	181.5	387.8	371.0	249.0	153.4	129.1	172.4	192.2

Main Points

- On page 19 it was observed that the number of hospital separations having severe and critical injuries increased by about a fifth, due principally to a substantial increase in the number of females with these injuries (severe injury was up 40% and critical injury was up 61%). Comparison of Table 15a with the same table in the previous edition of this report[15], based on 1991 data, indicated that the increase in these injuries was spread across most age groups and was greatest in the 30-39 and 70+ age groups [†].
- The male rates in the severe to critical injury levels were two to three times higher than the female rates.

[†] Note: Table 15a in the earlier report included separations for the Northern Territory. However, there were only a small number of cases (10) in the severe to critical categories in that State in 1991. Even if all of these cases were restricted to one age group, the pattern reported in the text would not be unduly affected.

2.3 Body Region of Most Severe Injury

Table 16a. Road injury hospital separations, body region of most severe injury by age & sex, Australia excluding QLD & NT, 1992 (Case number & row percentage)

	0-4 yrs	5-14 yrs	15-19 yrs	20-24 yrs	25-29 yrs	30-49 yrs	50-69 yrs	70+ yrs	Total
Male									
External	59	297	278	348	236	406	142	79	1845
	3.2	16.1	15.1	18.9	12.8	22.0	7.7	4.3	100.0
Head	176	615	652	490	280	545	196	101	3055
	5.8	20.1	21.3	16.0	9.2	17.8	6.4	3.3	100.0
Face	17	56	88	94	54	89	26	9	433
	3.9	12.9	20.3	21.7	12.5	20.6	6.0	2.1	100.0
Chest	3	18	76	93	65	274	221	133	883
	0.3	2.0	8.6	10.5	7.4	31.0	25.0	15.1	100.0
Abdomen	3	91	62	46	41	54	25	13	335
	0.9	27.2	18.5	13.7	12.2	16.1	7.5	3.9	100.0
Spine	11	19	110	171	116	265	96	44	832
	1.3	2.3	13.2	20.6	13.9	31.9	11.5	5.3	100.0
Upper extremity	78	643	371	382	229	489	179	59	2430
	3.2	26.5	15.3	15.7	9.4	20.1	7.4	2.4	100.0
Lower extremity	65	390	456	505	297	629	252	118	2712
	2.4	14.4	16.8	18.6	11.0	23.2	9.3	4.4	100.0
Multiple	67	390	691	756	531	1128	412	223	4198
	1.6	9.3	16.5	18.0	12.6	26.9	9.8	5.3	100.0
Unspecified/other	38	102	179	195	133	333	141	77	1198
	3.2	8.5	14.9	16.3	11.1	27.8	11.8	6.4	100.0
Group Total	517	2622	2964	3079	1982	4213	1690	856	17923
	2.9	14.6	16.5	17.2	11.1	23.5	9.4	4.8	100.0
Female									
External	51	154	127	139	90	221	149	117	1049
	4.9	14.7	12.1	13.3	8.6	21.1	14.2	11.2	100.0
Head	75	197	233	200	107	266	107	68	1253
	6.0	15.7	18.6	16.0	8.5	21.2	8.5	5.4	100.0
Face	15	22	28	32	16	39	14	3	169
	8.9	13.0	16.6	18.9	9.5	23.1	8.3	1.8	100.0
Chest	3	10	33	42	40	206	240	156	730
	0.4	1.4	4.5	5.8	5.5	28.2	32.9	21.4	100.0
Abdomen	7	33	21	21	16	33	19	12	162
	4.3	20.4	13.0	13.0	9.9	20.4	11.7	7.4	100.0
Spine	4	14	82	80	95	193	96	28	591
	0.7	2.4	13.9	13.5	16.1	32.7	16.2	4.7	100.0
Upper extremity	52	243	142	126	85	246	178	106	1178
	4.4	20.6	12.1	10.7	7.2	20.9	15.1	9.0	100.0
Lower extremity	45	168	130	123	87	233	182	192	1160
	3.9	14.5	11.2	10.6	7.5	20.1	15.7	16.6	100.0
Multiple	45	194	279	289	165	583	393	297	2245
	2.0	8.6	12.4	12.9	7.3	26.0	17.5	13.2	100.0
Unspecified/other	24	48	106	189	128	276	152	70	993
	2.4	4.8	10.7	19.0	12.9	27.8	15.3	7.0	100.0
Group Total	321	1083	1181	1242	830	2296	1529	1050	9532
	3.4	11.4	12.4	13.0	8.7	24.1	16.0	11.0	100.0
Persons									
External	110	451	405	487	326	627	291	196	2894
	3.8	15.6	14.0	16.8	11.3	21.7	10.1	6.8	100.0
Head	251	812	885	690	387	811	303	169	4308
	5.8	18.8	20.5	16.0	9.0	18.8	7.0	3.9	100.0
Face	32	78	116	126	70	128	40	12	602
	5.3	13.0	19.3	20.9	11.6	21.3	6.6	2.0	100.0
Chest	6	28	109	135	105	480	461	289	1613
	0.4	1.7	6.8	8.4	6.5	29.8	28.6	17.9	100.0
Abdomen	10	124	83	67	57	87	44	25	497
	2.0	24.9	16.7	13.5	11.5	17.5	8.9	5.0	100.0
Spine	15	33	192	251	211	458	192	72	1423
	1.1	2.3	13.5	17.6	14.8	32.2	13.5	5.1	100.0
Upper extremity	130	886	514	508	314	735	357	165	3609
	3.6	24.5	14.2	14.1	8.7	20.4	9.9	4.6	100.0
Lower extremity	110	558	586	628	384	862	433	310	3872
	2.8	14.4	15.1	16.2	9.9	22.3	11.2	8.0	100.0
Multiple	112	584	970	1045	696	1712	805	519	6443
	1.7	9.1	15.1	16.2	10.8	26.6	12.5	8.1	100.0
Unspecified/other	62	150	285	384	261	610	292	147	2191
	2.8	6.8	13.0	17.5	11.9	27.8	13.3	6.7	100.0
Group Total	838	3705	4145	4321	2811	6510	3219	1905	27455
	3.1	13.5	15.1	15.7	10.2	23.7	11.7	6.9	100.0

Table 16b. Road injury hospital separations, body region of most severe injury by age & sex, Australia excluding QLD & NT, 1992
(Rate per 100,000 pop.)

	0-4 yrs	5-14 yrs	15-19 yrs	20-24 yrs	25-29 yrs	30-49 yrs	50-69 yrs	70+ yrs	Total
Male									
External	11.1	28.4	50.7	58.9	41.7	19.0	11.4	17.8	26.0
Head	33.1	58.7	118.9	82.9	49.5	25.5	15.8	22.7	43.0
Face	3.2	5.3	16.1	15.9	9.5	4.2	2.1	2.0	6.1
Chest	0.6	1.7	13.9	15.7	11.5	12.8	17.8	29.9	12.4
Abdomen	0.6	8.7	11.3	7.8	7.2	2.5	2.0	2.9	4.7
Spine	2.1	1.8	20.1	28.9	20.5	12.4	7.7	9.9	11.7
Upper extremity	14.7	61.4	67.7	64.7	40.5	22.9	14.4	13.3	34.2
Lower extremity	12.2	37.2	83.2	85.5	52.5	29.5	20.3	26.6	38.2
Multiple	12.6	37.2	126.0	128.0	93.8	52.8	33.2	50.2	59.1
Unspecified/other	7.1	9.7	32.6	33.0	23.5	15.6	11.3	17.3	16.9
Group Total	97.1	250.4	540.6	521.2	350.3	197.4	136.0	192.6	252.2
Female									
External	10.1	15.5	24.4	24.2	16.0	10.5	11.9	17.7	14.6
Head	14.8	19.8	44.8	34.8	19.0	12.6	8.6	10.3	17.5
Face	3.0	2.2	5.4	5.6	2.8	1.8	1.1	0.5	2.4
Chest	0.6	1.0	6.3	7.3	7.1	9.8	19.2	23.6	10.2
Abdomen	1.4	3.3	4.0	3.7	2.8	1.6	1.5	1.8	2.3
Spine	0.8	1.4	15.8	13.9	16.9	9.1	7.7	4.2	8.2
Upper extremity	10.3	24.4	27.3	22.0	15.1	11.7	14.2	16.0	16.4
Lower extremity	8.9	16.9	25.0	21.4	15.5	11.0	14.6	29.1	16.2
Multiple	8.9	19.5	53.6	50.3	29.3	27.6	31.4	45.0	31.3
Unspecified/other	4.7	4.8	20.4	32.9	22.7	13.1	12.2	10.6	13.8
Group Total	63.4	108.9	226.9	216.4	147.4	108.8	122.3	159.0	132.8
Persons									
External	10.6	22.1	37.9	41.8	28.9	14.8	11.7	17.7	20.3
Head	24.2	39.8	82.8	59.2	34.3	19.1	12.2	15.3	30.2
Face	3.1	3.8	10.9	10.8	6.2	3.0	1.6	1.1	4.2
Chest	0.6	1.4	10.2	11.6	9.3	11.3	18.5	26.2	11.3
Abdomen	1.0	6.1	7.8	5.8	5.0	2.0	1.8	2.3	3.5
Spine	1.4	1.6	18.0	21.5	18.7	10.8	7.7	6.5	10.0
Upper extremity	12.5	43.4	48.1	43.6	27.8	17.3	14.3	14.9	25.3
Lower extremity	10.6	27.3	54.8	53.9	34.0	20.3	17.4	28.1	27.1
Multiple	10.8	28.6	90.8	89.7	61.7	40.3	32.3	47.0	45.1
Unspecified/other	6.0	7.3	26.7	33.0	23.1	14.4	11.7	13.3	15.3
Group Total	80.7	181.5	387.8	371.0	249.0	153.4	129.1	172.4	192.2

Main Points

It was noted on page 21 that head injuries declined by 10% between 1990 and 1991, accelerating the downward trend of 3% observed for 1990-1991. Comparison of Table 16a with the same table in the previous edition of this report[15], based on 1991 data, showed that the proportional distribution of these cases across the age groups was similar in 1991 and 1992 indicating a fairly even reduction in head injuries across the age groups for both males and females ‡.

‡ Note: Table 16a in the earlier report included separations for the Northern Territory.

2.4 State

Table 17a. Road fatalities, State by age & sex, Australia, 1992
(Case number & row percentage)

	0-4 yrs	5-14 yrs	15-19 yrs	20-25 yrs	25-29 yrs	30-49 yrs	50-69 yrs	70+ yrs	Total
Male									
NSW	6	16	69	81	64	140	86	47	509
	1.2	3.1	13.6	15.9	12.6	27.5	16.9	9.2	100.0
VIC	9	20	44	63	40	85	48	35	344
	2.6	5.8	12.8	18.3	11.6	24.7	14.0	10.2	100.0
QLD	8	21	48	54	34	97	30	32	324
	2.5	6.5	14.8	16.7	10.5	29.9	9.3	9.9	100.0
SA	2	5	6	28	14	30	16	13	114
	1.8	4.4	5.3	24.6	12.3	26.3	14.0	11.4	100.0
WA	7	6	28	27	24	30	20	4	146
	4.8	4.1	19.2	18.5	16.4	20.5	13.7	2.7	100.0
TAS	0	4	6	10	6	12	5	3	46
	0.0	8.7	13.0	21.7	13.0	26.1	10.9	6.5	100.0
NT	0	0	3	7	9	15	4	0	38
	0.0	0.0	7.9	18.4	23.7	39.5	10.5	0.0	100.0
ACT	0	2	4	1	0	7	5	0	19
	0.0	10.5	21.1	5.3	0.0	36.8	26.3	0.0	100.0
AUST	32	74	208	271	191	416	214	134	1540
	2.1	4.8	13.5	17.6	12.4	27.0	13.9	8.7	100.0
Female									
NSW	3	11	25	29	7	47	47	45	214
	1.4	5.1	11.7	13.6	3.3	22.0	22.0	21.0	100.0
VIC	4	5	18	28	12	34	32	40	173
	2.3	2.9	10.4	16.2	6.9	19.7	18.5	23.1	100.0
QLD	5	10	14	23	12	27	30	21	142
	3.5	7.0	9.9	16.2	8.5	19.0	21.1	14.8	100.0
SA	2	6	8	4	9	12	17	9	67
	3.0	9.0	11.9	6.0	13.4	17.9	25.4	13.4	100.0
WA	3	2	11	13	14	16	5	9	73
	4.1	2.7	15.1	17.8	19.2	21.9	6.8	12.3	100.0
TAS	1	2	2	3	1	3	12	6	30
	3.3	6.7	6.7	10.0	3.3	10.0	40.0	20.0	100.0
NT	2	2	0	3	2	3	3	2	17
	11.8	11.8	0.0	17.6	11.8	17.6	17.6	11.8	100.0
ACT	0	0	1	0	0	0	1	3	5
	0.0	0.0	20.0	0.0	0.0	0.0	20.0	60.0	100.0
AUST	20	38	79	103	57	142	147	135	721
	2.8	5.3	11.0	14.3	7.9	19.7	20.4	18.7	100.0
Persons									
NSW	9	27	94	110	71	187	133	92	723
	1.2	3.7	13.0	15.2	9.8	25.9	18.4	12.7	100.0
VIC	13	25	62	91	52	119	80	75	517
	2.5	4.8	12.0	17.6	10.1	23.0	15.5	14.5	100.0
QLD	13	31	62	77	46	124	60	53	466
	2.8	6.7	13.3	16.5	9.9	26.6	12.9	11.4	100.0
SA	4	11	14	32	23	42	33	22	181
	2.2	6.1	7.7	17.7	12.7	23.2	18.2	12.2	100.0
WA	10	8	39	40	38	46	25	13	219
	4.6	3.7	17.8	18.3	17.4	21.0	11.4	5.9	100.0
TAS	1	6	8	13	7	15	17	9	76
	1.3	7.9	10.5	17.1	9.2	19.7	22.4	11.8	100.0
NT	2	2	3	10	11	18	7	2	55
	3.6	3.6	5.5	18.2	20.0	32.7	12.7	3.6	100.0
ACT	0	2	5	1	0	7	6	3	24
	0.0	8.3	20.8	4.2	0.0	29.2	25.0	12.5	100.0
AUST	52	112	287	374	248	558	361	269	2261
	2.3	5.0	12.7	16.5	11.0	24.7	16.0	11.9	100.0

Table 17b. Road fatalities, State by age & sex, Australia, 1992
(Rate per 100,000 pop.)

	0-4 yrs	5-14 yrs	15-19 yrs	20-25 yrs	25-29 yrs	30-49 yrs	50-69 yrs	70+ yrs	Total
Male									
NSW	0.2	0.5	2.3	2.7	2.2	4.7	2.9	1.6	17.2
VIC	0.4	0.9	2.0	2.9	1.8	3.9	2.2	1.6	15.6
QLD	0.5	1.4	3.2	3.6	2.2	6.4	2.0	2.1	21.3
SA	0.3	0.7	0.8	3.9	1.9	4.1	2.2	1.8	15.8
WA	0.8	0.7	3.4	3.2	2.9	3.6	2.4	0.5	17.5
TAS	0.0	1.7	2.6	4.3	2.6	5.2	2.1	1.3	19.7
NT	0.0	0.0	3.4	8.0	10.3	17.2	4.6	0.0	43.6
ACT	0.0	1.4	2.7	0.7	0.0	4.7	3.4	0.0	12.9
AUST	0.4	0.8	2.4	3.1	2.2	4.8	2.5	1.5	17.7
Female									
NSW	0.1	0.4	0.8	1.0	0.2	1.6	1.6	1.5	7.1
VIC	0.2	0.2	0.8	1.2	0.5	1.5	1.4	1.8	7.7
QLD	0.3	0.7	0.9	1.5	0.8	1.8	2.0	1.4	9.4
SA	0.3	0.8	1.1	0.5	1.2	1.6	2.3	1.2	9.1
WA	0.4	0.2	1.3	1.6	1.7	1.9	0.6	1.1	8.9
TAS	0.4	0.8	0.8	1.3	0.4	1.3	5.1	2.5	12.7
NT	2.5	2.5	0.0	3.8	2.5	3.8	3.8	2.5	21.3
ACT	0.0	0.0	0.7	0.0	0.0	0.0	0.7	2.0	3.4
AUST	0.2	0.4	0.9	1.2	0.6	1.6	1.7	1.5	8.2
Persons									
NSW	0.2	0.5	1.6	1.8	1.2	3.1	2.2	1.5	12.1
VIC	0.3	0.6	1.4	2.0	1.2	2.7	1.8	1.7	11.6
QLD	0.4	1.0	2.0	2.5	1.5	4.1	2.0	1.7	15.4
SA	0.3	0.8	1.0	2.2	1.6	2.9	2.3	1.5	12.4
WA	0.6	0.5	2.4	2.4	2.3	2.8	1.5	0.8	13.2
TAS	0.2	1.3	1.7	2.8	1.5	3.2	3.6	1.9	16.2
NT	1.2	1.2	1.8	6.0	6.6	10.8	4.2	1.2	32.9
ACT	0.0	0.7	1.7	0.3	0.0	2.4	2.0	1.0	8.2
AUST	0.3	0.6	1.6	2.1	1.4	3.2	2.1	1.5	12.9

Main Points

- The increasing trend in male fatalities in NSW noted on page 27, was restricted to the 20+ age group. The disproportionate increase in female deaths in some states, noted on page 27, was not uniformly distributed across the age groups and there was little similarity between the states in the age groups where the increases were apparent.

SECTION 3: Road Injury Separations and Fatalities - Road User Type and Sex

3.1 Injury Severity (maximum AIS)

Table 18a. Road injury hospital separations, injury severity (max. AIS), by road user type & sex, Australia excluding QLD & NT, 1992
(Case number & column percentage)

	Driver	Passenger in motor vehicle	Motor cycle rider/pillion	Pedal cyclist	Pedestrian	Other road user	Unspecified	Total
Male								
Minor	806	500	349	485	262	26	291	2719
	16.4	18.6	9.7	15.8	12.7	16.0	20.5	15.2
Moderate	2388	1131	1950	2038	1002	91	681	9280
	48.5	42.0	54.3	66.3	48.6	55.8	48.0	51.8
Serious	976	610	953	347	476	26	165	3552
	19.8	22.7	26.5	11.3	23.1	16.0	11.6	19.8
Severe	289	188	143	85	157	6	29	897
	5.9	7.0	4.0	2.8	7.6	3.7	2.0	5.0
Critical	96	57	39	28	61	2	7	290
	2.0	2.1	1.1	0.9	3.0	1.2	0.5	1.6
Maximum	0	1	0	0	0	0	0	1
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not known	365	204	160	94	102	12	247	1184
	7.4	7.6	4.5	3.1	5.0	7.4	17.4	6.6
Group Total	4920	2691	3593	3076	2060	163	1419	17923
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Female								
Minor	525	504	46	174	167	19	267	1703
	18.0	16.8	13.3	19.6	12.7	23.5	26.9	17.9
Moderate	1504	1201	185	594	697	39	364	4583
	51.6	40.1	53.6	66.9	53.0	48.1	36.7	48.1
Serious	436	746	88	74	279	14	93	1730
	15.0	24.9	25.5	8.3	21.2	17.3	9.4	18.1
Severe	106	174	12	11	74	0	23	400
	3.6	5.8	3.5	1.2	5.6	0.0	2.3	4.2
Critical	55	32	3	2	34	1	5	132
	1.9	1.1	0.9	0.2	2.6	1.2	0.5	1.4
Maximum	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
Not known	286	341	11	33	64	8	240	983
	9.8	11.4	3.2	3.7	4.9	9.9	24.2	10.3
Group Total	2912	2998	345	888	1315	81	992	9532
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Persons								
Minor	1331	1005	395	659	429	45	558	4422
	17.0	17.7	10.0	16.6	12.7	18.4	23.1	16.1
Moderate	3891	2332	2135	2632	1699	130	1045	13863
	49.7	41.0	54.2	66.4	50.3	53.3	43.3	50.5
Serious	1412	1356	1041	421	755	40	257	5282
	18.0	23.8	26.4	10.6	22.4	16.4	10.7	19.2
Severe	395	362	155	96	231	6	52	1297
	5.0	6.4	3.9	2.4	6.8	2.5	2.2	4.7
Critical	151	89	42	30	95	3	12	422
	1.9	1.6	1.1	0.8	2.8	1.2	0.5	1.5
Maximum	0	1	0	0	0	0	0	1
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not known	651	544	171	127	166	20	487	2167
	8.3	9.6	4.3	3.2	4.9	8.2	20.2	7.9
Group Total	7831	5689	3938	3964	3376	244	2411	27455
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 18b. Road injury hospital separations, injury severity (max. AIS), by road user type & sex, Australia excluding QLD & NT, 1992 (Rate per 100,000 pop.)

	Driver	Passenger in motor vehicle	Motor cycle rider/pillion	Pedal cyclist	Pedestrian	Other road user	Unspecified	Total
Male								
Minor	11.3	7.0	4.9	6.8	3.7	0.4	4.1	38.3
Moderate	33.6	15.9	27.4	28.7	14.1	1.3	9.6	130.6
Serious	13.7	8.6	13.4	4.9	6.7	0.4	2.3	50.0
Severe	4.1	2.6	2.0	1.2	2.2	0.1	0.4	12.6
Critical	1.4	0.8	0.5	0.4	0.9	0.0	0.1	4.1
Maximum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not known	5.1	2.9	2.3	1.3	1.4	0.2	3.5	16.7
Group Total	69.2	37.9	50.6	43.3	29.0	2.3	20.0	252.2
Female								
Minor	7.3	7.0	0.6	2.4	2.3	0.3	3.7	23.7
Moderate	20.9	16.7	2.6	8.3	9.7	0.5	5.1	63.8
Serious	6.1	10.4	1.2	1.0	3.9	0.2	1.3	24.1
Severe	1.5	2.4	0.2	0.2	1.0	0.0	0.3	5.6
Critical	0.8	0.4	0.0	0.0	0.5	0.0	0.1	1.8
Maximum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not known	4.0	4.7	0.2	0.5	0.9	0.1	3.3	13.7
Group Total	40.6	41.8	4.8	12.4	18.3	1.1	13.8	132.8
Persons								
Minor	9.3	7.0	2.8	4.6	3.0	0.3	3.9	31.0
Moderate	27.2	16.3	14.9	18.4	11.9	0.9	7.3	97.0
Serious	9.9	9.5	7.3	2.9	5.3	0.3	1.8	37.0
Severe	2.8	2.5	1.1	0.7	1.6	0.0	0.4	9.1
Critical	1.1	0.6	0.3	0.2	0.7	0.0	0.1	3.0
Maximum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not known	4.6	3.8	1.2	0.9	1.2	0.1	3.4	15.2
Group Total	54.8	39.8	27.6	27.7	23.6	1.7	16.9	192.2

Main Points

- On page 34 it was observed that the number of hospital separations having severe and critical injuries increased by about a fifth, due principally to a substantial increase in the number of females with these injuries (severe injury was up 40% and critical injury was up 61%). Comparison of Table 18a with the same table in the previous edition of this report[15] , based on 1991 data, showed that the proportion of separations with these high severity injuries was particularly elevated for females as occupants of motor vehicles and as pedestrians [§].
- The number of severe and critical injuries were highest for vehicle occupants. The number of severe and critical separations increased for all road user types between 1991 and 1992, with the greatest increase being for passengers of motor vehicles and pedal cyclists.

[§] Note: Table 18a in the earlier report included separations for the Northern Territory.

3.2 Body Region of Most Severe Injury

Table 19a. Road injury hospital separations, body region of most severe injury, by road user type & sex, Australia excluding QLD & NT, 1992

(Case number & row percentage)

	Driver	Passenger in motor vehicle	Motor cycle rider/pillion	Pedal cyclist	Pedestrian	Other road user	Unspecified	Total
Male								
External	500	333	348	289	156	20	199	1845
	27.1	18.0	18.9	15.7	8.5	1.1	10.8	100.0
Head	809	526	354	624	475	33	234	3055
	26.5	17.2	11.6	20.4	15.5	1.1	7.7	100.0
Face	137	70	30	109	36	4	48	433
	31.6	16.2	6.9	25.2	8.3	0.9	11.1	100.0
Chest	466	127	124	44	56	5	61	883
	52.8	14.4	14.0	5.0	6.3	0.6	6.9	100.0
Abdomen	79	65	64	93	21	1	12	335
	23.6	19.4	19.1	27.8	6.3	0.3	3.6	100.0
Spine	299	186	171	62	40	8	66	832
	35.9	22.4	20.6	7.5	4.8	1.0	7.9	100.0
Upper extremity	419	319	541	839	107	19	186	2430
	17.2	13.1	22.3	34.5	4.4	0.8	7.7	100.0
Lower extremity	459	245	872	404	525	32	174	2712
	16.9	9.0	32.2	14.9	19.4	1.2	6.4	100.0
Multiple	1381	614	927	515	541	29	191	4198
	32.9	14.6	22.1	12.3	12.9	0.7	4.5	100.0
Unspecified/other	370	206	162	97	102	12	249	1198
	30.9	17.2	13.5	8.1	8.5	1.0	20.8	100.0
Group Total	4920	2691	3593	3076	2060	163	1419	17923
	27.5	15.0	20.0	17.2	11.5	0.9	7.9	100.0
Female								
External	286	338	40	107	112	16	150	1049
	27.3	32.2	3.8	10.2	10.7	1.5	14.3	100.0
Head	380	324	45	154	240	8	102	1253
	30.3	25.9	3.6	12.3	19.2	0.6	8.1	100.0
Face	44	45	7	30	7	2	34	169
	26.0	26.6	4.1	17.8	4.1	1.2	20.1	100.0
Chest	330	311	9	9	26	3	42	730
	45.2	42.6	1.2	1.2	3.6	0.4	5.8	100.0
Abdomen	47	63	5	22	14	1	10	162
	29.0	38.9	3.1	13.6	8.6	0.6	6.2	100.0
Spine	216	237	12	6	26	3	91	591
	36.5	40.1	2.0	1.0	4.4	0.5	15.4	100.0
Upper extremity	268	385	38	296	101	5	85	1178
	22.8	32.7	3.2	25.1	8.6	0.4	7.2	100.0
Lower extremity	233	262	94	113	347	29	82	1160
	20.1	22.6	8.1	9.7	29.9	2.5	7.1	100.0
Multiple	821	685	84	117	378	6	153	2245
	36.6	30.5	3.7	5.2	16.8	0.3	6.8	100.0
Unspecified/other	286	348	11	34	64	8	242	993
	28.8	35.0	1.1	3.4	6.4	0.8	24.4	100.0
Group Total	2912	2998	345	888	1315	81	992	9532
	30.5	31.5	3.6	9.3	13.8	0.8	10.4	100.0
Persons								
External	786	671	388	396	268	36	349	2894
	27.2	23.2	13.4	13.7	9.3	1.2	12.1	100.0
Head	1189	850	399	778	715	41	336	4308
	27.6	19.7	9.3	18.1	16.6	1.0	7.8	100.0
Face	181	115	37	139	43	6	82	602
	30.1	19.1	6.1	23.1	7.1	1.0	13.6	100.0
Chest	796	438	133	53	82	8	103	1613
	49.3	27.2	8.2	3.3	5.1	0.5	6.4	100.0
Abdomen	126	128	69	115	35	2	22	497
	25.4	25.8	13.9	23.1	7.0	0.4	4.4	100.0
Spine	515	423	183	68	66	11	157	1423
	36.2	29.7	12.9	4.8	4.6	0.8	11.0	100.0
Upper extremity	688	704	579	1135	208	24	271	3609
	19.1	19.5	16.0	31.4	5.8	0.7	7.5	100.0
Lower extremity	692	507	966	517	872	61	257	3872
	17.9	13.1	24.9	13.4	22.5	1.6	6.6	100.0
Multiple	2202	1299	1011	632	919	35	344	6443
	34.2	20.2	15.7	9.8	14.3	0.5	5.3	100.0
Unspecified/other	656	553	173	131	166	20	491	2191
	29.9	25.2	7.9	6.0	7.6	0.9	22.4	100.0
Group Total	7831	5689	3938	3964	3376	244	2411	27455
	28.5	20.7	14.3	14.4	12.3	0.9	8.8	100.0

Table 19b. Road injury hospital separations, body region of most severe injury, by road user type & sex, Australia excluding QLD & NT, 1992

(Rate per 100,000 pop.)

	Driver	Passenger in motor vehicle	Motor cycle rider/pillion	Pedal cyclist	Pedestrian	Other road user	Unspecified	Total
Male								
External	7.0	4.7	4.9	4.1	2.2	0.3	2.8	26.0
Head	11.4	7.4	5.0	8.8	6.7	0.5	3.3	43.0
Face	1.9	1.0	0.4	1.5	0.5	0.1	0.7	6.1
Chest	6.6	1.8	1.7	0.6	0.8	0.1	0.9	12.4
Abdomen	1.1	0.9	0.9	1.3	0.3	0.0	0.2	4.7
Spine	4.2	2.6	2.4	0.9	0.6	0.1	0.9	11.7
Upper extremity	5.9	4.5	7.6	11.8	1.5	0.3	2.6	34.2
Lower extremity	6.5	3.4	12.3	5.7	7.4	0.5	2.4	38.2
Multiple	19.4	8.6	13.0	7.2	7.6	0.4	2.7	59.1
Unspecified/other	5.2	2.9	2.3	1.4	1.4	0.2	3.5	16.9
Group Total	69.2	37.9	50.6	43.3	29.0	2.3	20.0	252.2
Female								
External	4.0	4.7	0.6	1.5	1.6	0.2	2.1	14.6
Head	5.3	4.5	0.6	2.1	3.3	0.1	1.4	17.5
Face	0.6	0.6	0.1	0.4	0.1	0.0	0.5	2.4
Chest	4.6	4.3	0.1	0.1	0.4	0.0	0.6	10.2
Abdomen	0.7	0.9	0.1	0.3	0.2	0.0	0.1	2.3
Spine	3.0	3.3	0.2	0.1	0.4	0.0	1.3	8.2
Upper extremity	3.7	5.4	0.5	4.1	1.4	0.1	1.2	16.4
Lower extremity	3.2	3.6	1.3	1.6	4.8	0.4	1.1	16.2
Multiple	11.4	9.5	1.2	1.6	5.3	0.1	2.1	31.3
Unspecified/other	4.0	4.8	0.2	0.5	0.9	0.1	3.4	13.8
Group Total	40.6	41.8	4.8	12.4	18.3	1.1	13.8	132.8
Persons								
External	5.5	4.7	2.7	2.8	1.9	0.3	2.4	20.3
Head	8.3	6.0	2.8	5.4	5.0	0.3	2.4	30.2
Face	1.3	0.8	0.3	1.0	0.3	0.0	0.6	4.2
Chest	5.6	3.1	0.9	0.4	0.6	0.1	0.7	11.3
Abdomen	0.9	0.9	0.5	0.8	0.2	0.0	0.2	3.5
Spine	3.6	3.0	1.3	0.5	0.5	0.1	1.1	10.0
Upper extremity	4.8	4.9	4.1	7.9	1.5	0.2	1.9	25.3
Lower extremity	4.8	3.5	6.8	3.6	6.1	0.4	1.8	27.1
Multiple	15.4	9.1	7.1	4.4	6.4	0.2	2.4	45.1
Unspecified/other	4.6	3.9	1.2	0.9	1.2	0.1	3.4	15.3
Group Total	54.8	39.8	27.6	27.7	23.6	1.7	16.9	192.2

Main Points

- It was noted on page 21 that head injuries declined by 10% between 1990 and 1991, accelerating the downward trend of 3% observed for 1990-1991. Comparison of Table 19a with the same table in the previous edition of this report[15], based on 1991 data, showed that the proportional distribution of these cases across road user types was similar in 1991 and 1992 indicating a fairly even ** reduction in head injuries across the road user types for both males and females ††.
- The head injury rates were highest for vehicle occupants, especially for males.
- Male motor cyclists had the highest rates of lower extremity hospital separations (12.3), and male pedal cyclists had the highest upper extremity rates (11.8).
- Vehicle occupants and motorcyclists had the highest rates of spinal injury. There was very little change in the rates of spinal injury of any road user type between 1991[15] and 1992.

** Slightly greater reductions in pedal cyclist head injuries and head injuries to unspecified road users were evident.

†† Note: Table 16a in the earlier report included separations for the Northern Territory.

3.3 State

Table 20a. Road fatalities, State by road user type & sex, Australia, 1992
(Case number & column percentage)

	Driver	Passenger in motor vehicle	Motor cycle rider/pillion	Pedal cyclist	Pedestrian	Other road user	Unspecified	Total
Male								
NSW	249	90	55	8	104	1	2	509
	36.9	30.1	26.3	17.8	38.8	25.0	5.0	33.1
Vic	127	57	72	13	68	2	5	344
	18.8	19.1	34.4	28.9	25.4	50.0	12.5	22.3
Qld	134	65	43	19	56	0	7	324
	19.9	21.7	20.6	42.2	20.9	0.0	17.5	21.0
SA	53	28	14	2	17	0	0	114
	7.9	9.4	6.7	4.4	6.3	0.0	0.0	7.4
WA	69	39	18	1	14	1	4	146
	10.2	13.0	8.6	2.2	5.2	25.0	10.0	9.5
Tas	22	7	2	2	2	0	11	46
	3.3	2.3	1.0	4.4	0.7	0.0	27.5	3.0
NT	14	8	2	0	5	0	9	38
	2.1	2.7	1.0	0.0	1.9	0.0	22.5	2.5
ACT	7	5	3	0	2	0	2	19
	1.0	1.7	1.4	0.0	0.7	0.0	5.0	1.2
Group Total	675	299	209	45	268	4	40	1540
	100	100	100	100	100	100	100	100
Female								
NSW	71	105	4	2	31	0	1	214
	29.5	32.8	30.8	40.0	25.6	0.0	5.0	29.7
Vic	64	69	4	0	31	0	5	173
	26.6	21.6	30.8	0.0	25.6	0.0	25.0	24.0
Qld	51	55	3	3	26	1	3	142
	21.2	17.2	23.1	60.0	21.5	100.0	15.0	19.7
SA	17	31	1	0	17	0	1	67
	7.1	9.7	7.7	0.0	14.0	0.0	5.0	9.3
WA	26	34	1	0	9	0	3	73
	10.8	10.6	7.7	0.0	7.4	0.0	15.0	10.1
Tas	9	17	0	0	1	0	3	30
	3.7	5.3	0.0	0.0	0.8	0.0	15.0	4.2
NT	2	7	0	0	4	0	4	17
	0.8	2.2	0.0	0.0	3.3	0.0	20.0	2.4
ACT	1	2	0	0	2	0	0	5
	0.4	0.6	0.0	0.0	1.7	0.0	0.0	0.7
Group Total	241	320	13	5	121	1	20	721
	100	100	100	100	100	100	100	100
Person								
NSW	320	195	59	10	135	1	3	723
	34.9	31.5	26.6	20.0	34.7	20.0	5.0	32.0
Vic	191	126	76	13	99	2	10	517
	20.9	20.4	34.2	26.0	25.4	40.0	16.7	22.9
Qld	185	120	46	22	82	1	10	466
	20.2	19.4	20.7	44.0	21.1	20.0	16.7	20.6
SA	70	59	15	2	34	0	1	181
	7.6	9.5	6.8	4.0	8.7	0.0	1.7	8.0
WA	95	73	19	1	23	1	7	219
	10.4	11.8	8.6	2.0	5.9	20.0	11.7	9.7
Tas	31	24	2	2	3	0	14	76
	3.4	3.9	0.9	4.0	0.8	0.0	23.3	3.4
NT	16	15	2	0	9	0	13	55
	1.7	2.4	0.9	0.0	2.3	0.0	21.7	2.4
ACT	8	7	3	0	4	0	2	24
	0.9	1.1	1.4	0.0	1.0	0.0	3.3	1.1
Group Total	916	619	222	50	389	5	60	2261
	100	100	100	100	100	100	100	100

Table 20b. Road fatalities, State by road user type & sex, Australia, 1992
(Rate per 100,000 pop.)

	Driver	Passenger in motor vehicle	Motor cycle rider/pillion	Pedal cyclist	Pedestrian	Other road user	Unspecified	Total
Male								
NSW	8.4	3.0	1.9	0.3	3.5	0.0	0.1	17.2
Vic	5.8	2.6	3.3	0.6	3.1	0.1	0.2	15.6
Qld	8.8	4.3	2.8	1.3	3.7	0.0	0.5	21.3
SA	7.3	3.9	1.9	0.3	2.4	0.0	0.0	15.8
WA	8.3	4.7	2.2	0.1	1.7	0.1	0.5	17.5
Tas	9.4	3.0	0.9	0.9	0.9	0.0	4.7	19.7
NT	16.1	9.2	2.3	0.0	5.7	0.0	10.3	43.6
ACT	4.7	3.4	2.0	0.0	1.4	0.0	1.4	12.9
Group Total	7.7	3.4	2.4	0.5	3.1	0.0	0.5	17.7
Female								
NSW	2.4	3.5	0.1	0.1	1.0	0.0	0.0	7.1
Vic	2.9	3.1	0.2	0.0	1.4	0.0	0.2	7.7
Qld	3.4	3.6	0.2	0.2	1.7	0.1	0.2	9.4
SA	2.3	4.2	0.1	0.0	2.3	0.0	0.1	9.1
WA	3.2	4.1	0.1	0.0	1.1	0.0	0.4	8.9
Tas	3.8	7.2	0.0	0.0	0.4	0.0	1.3	12.7
NT	2.5	8.8	0.0	0.0	5.0	0.0	5.0	21.3
ACT	0.7	1.4	0.0	0.0	1.4	0.0	0.0	3.4
Group Total	2.7	3.6	0.1	0.1	1.4	0.0	0.2	8.2
Person								
NSW	5.4	3.3	1.0	0.2	2.3	0.0	0.1	12.1
Vic	4.3	2.8	1.7	0.3	2.2	0.0	0.2	11.6
Qld	6.1	4.0	1.5	0.7	2.7	0.0	0.3	15.4
SA	4.8	4.1	1.0	0.1	2.3	0.0	0.1	12.4
WA	5.7	4.4	1.1	0.1	1.4	0.1	0.4	13.2
Tas	6.6	5.1	0.4	0.4	0.6	0.0	3.0	16.2
NT	9.6	9.0	1.2	0.0	5.4	0.0	7.8	32.9
ACT	2.7	2.4	1.0	0.0	1.4	0.0	0.7	8.2
Group Total	5.2	3.5	1.3	0.3	2.2	0.0	0.3	12.9

Main Points

- The Northern Territory had the highest fatality rate for vehicle occupants and pedestrians, especially for males. Victoria had the highest fatality rate for motorcyclists, especially in males, eclipsing the state with the next highest rate for males (Qld) by 18%.
- Comparison of fatality rates of the larger States (NSW, Vic, Qld) from 1991[15] to 1992 revealed that Queensland had the largest increase (up 14%), followed by New South Wales (up 7%) with Victoria recording a 2.5% fall in fatalities. In NSW and Qld the rate increases were particularly strong in vehicle occupants and pedestrians.

SECTION 4: Road Injury Separations and Fatalities - Body Region of Most Severe Injury and Sex

4.1 Injury Severity (maximum AIS)

Table 21a. Road injury hospital separations, injury severity (max. AIS) by body region of most severe injury & sex, Australia excluding Qld & NT, 1992

(Case number & row percentage)

	External	Head	Face	Chest	Abdomen	Spine	Upper extremity	Lower extremity	Multiple	Unspec.	Total
Males											
Minor	1169	0	170	44	0	129	133	56	1009	9	2719
	43.0	0.0	6.3	1.6	0.0	4.7	4.9	2.1	37.1	0.3	100.0
Moderate	672	2171	247	340	225	74	1914	1328	2308	2	9280
	7.2	23.4	2.7	3.7	2.4	0.8	20.6	14.3	24.9	0.0	100.0
Serious	3	219	17	388	28	512	352	1317	715	1	3552
	0.1	6.2	0.5	10.9	0.8	14.4	9.9	37.1	20.1	0.0	100.0
Severe	0	496	0	108	76	65	32	11	108	1	897
	0.0	55.3	0.0	12.0	8.5	7.2	3.6	1.2	12.0	0.1	100.0
Critical	1	168	0	3	6	52	0	0	59	1	290
	0.3	57.9	0.0	1.0	2.1	17.9	0.0	0.0	20.3	0.3	100.0
Maximum	0	1	0	0	0	0	0	0	0	0	1
	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
Unspecified	0	0	0	0	0	0	0	0	0	1184	1184
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0
Total	1845	3055	433	883	335	832	2430	2712	4198	1198	17923
	10.3	17.0	2.4	4.9	1.9	4.6	13.6	15.1	23.4	6.7	100.0
Females											
Minor	764	1	75	27	9	141	56	26	599	4	1703
	44.9	0.1	4.4	1.6	0.5	8.3	3.3	1.5	35.2	0.2	100.0
Moderate	284	923	89	437	99	37	809	663	1239	2	4583
	6.2	20.1	1.9	9.5	2.2	0.8	17.7	14.5	27.0	0.0	100.0
Serious	0	96	5	197	14	342	270	466	337	3	1730
	0.0	5.5	0.3	11.4	0.8	19.8	15.6	26.9	19.5	0.2	100.0
Severe	0	160	0	68	34	43	43	5	47	0	400
	0.0	40.0	0.0	17.0	8.5	10.8	10.8	1.3	11.8	0.0	100.0
Critical	0	73	0	1	6	29	0	0	22	1	132
	0.0	55.3	0.0	0.8	4.5	22.0	0.0	0.0	16.7	0.8	100.0
Unspecified	0	0	0	0	0	0	0	0	0	983	983
	0	0	0	0	0	0	0	0	0	100	100
Total	1049	1253	169	730	162	591	1178	1160	2245	993	9532
	11.0	13.1	1.8	7.7	1.7	6.2	12.4	12.2	23.6	10.4	100.0
Persons											
Minor	1934	1	245	71	9	270	189	82	1609	13	4422
	43.7	0.0	5.5	1.6	0.2	6.1	4.3	1.9	36.4	0.3	100.0
Moderate	957	3094	336	777	324	111	2723	1991	3547	4	13863
	6.9	22.3	2.4	5.6	2.3	0.8	19.6	14.4	25.6	0.0	100.0
Serious	3	315	22	585	42	854	622	1783	1052	4	5282
	0.1	6.0	0.4	11.1	0.8	16.2	11.8	33.8	19.9	0.1	100.0
Severe	0	656	0	176	110	108	75	16	155	1	1297
	0.0	50.6	0.0	13.6	8.5	8.3	5.8	1.2	12.0	0.1	100.0
Critical	1	241	0	4	12	81	0	0	81	2	422
	0.2	57.1	0.0	0.9	2.8	19.2	0.0	0.0	19.2	0.5	100.0
Maximum	0	1	0	0	0	0	0	0	0	0	1
	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
Unspecified	0	0	0	0	0	0	0	0	0	2167	2167
	0	0	0	0	0	0	0	0	0	100	100
Total	2894	4308	602	1613	497	1423	3609	3872	6443	2191	27455
	10.5	15.7	2.2	5.9	1.8	5.2	13.1	14.1	23.5	8.0	100.0

Table 21b. Road injury hospital separations, injury severity (max. AIS) by body region of most severe injury & sex, Australia excluding Qld & NT, 1992

(Rate per 100,000 pop.)

	External	Head	Face	Chest	Abdomen	Spine	Upper extremity	Lower extremity	Multiple	Unspec.	Total
Males											
Minor	16.5	0.0	2.4	0.6	0.0	1.8	1.9	0.8	14.2	0.1	38.3
Moderate	9.5	30.6	3.5	4.8	3.2	1.0	26.9	18.7	32.5	0.0	130.6
Serious	0.0	3.1	0.2	5.5	0.4	7.2	5.0	18.5	10.1	0.0	50.0
Severe	0.0	7.0	0.0	1.5	1.1	0.9	0.5	0.2	1.5	0.0	12.6
Critical	0.0	2.4	0.0	0.0	0.1	0.7	0.0	0.0	0.8	0.0	4.1
Maximum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unspecified	0	0	0	0	0	0	0	0	0	16.7	16.7
Total	26.0	43.0	6.1	12.4	4.7	11.7	34.2	38.2	59.1	16.9	252.2
Females											
Minor	10.6	0.0	1.0	0.4	0.1	2.0	0.8	0.4	8.3	0.1	23.7
Moderate	4.0	12.9	1.2	6.1	1.4	0.5	11.3	9.2	17.3	0.0	63.8
Serious	0.0	1.3	0.1	2.7	0.2	4.8	3.8	6.5	4.7	0.0	24.1
Severe	0.0	2.2	0.0	0.9	0.5	0.6	0.6	0.1	0.7	0.0	5.6
Critical	0.0	1.0	0.0	0.0	0.1	0.4	0.0	0.0	0.3	0.0	1.8
Unspecified	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.7	13.7
Total	14.6	17.5	2.4	10.2	2.3	8.2	16.4	16.2	31.3	13.8	132.8
Persons											
Minor	13.5	0.0	1.7	0.5	0.1	1.9	1.3	0.6	11.3	0.1	31.0
Moderate	6.7	21.7	2.4	5.4	2.3	0.8	19.1	13.9	24.8	0.0	97.0
Serious	0.0	2.2	0.2	4.1	0.3	6.0	4.4	12.5	7.4	0.0	37.0
Severe	0.0	4.6	0.0	1.2	0.8	0.8	0.5	0.1	1.1	0.0	9.1
Critical	0.0	1.7	0.0	0.0	0.1	0.6	0.0	0.0	0.6	0.0	3.0
Maximum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unspecified	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.2	15.2
Total	20.3	30.2	4.2	11.3	3.5	10.0	25.3	27.1	45.1	15.3	192.2

Main Points

- Comparison of Table 21b with the same table in an earlier report[15], based on 1991 data[‡‡], revealed that in the high severity categories (severe and critical) the female rates increased across all body regions.
- Also, spinal injuries, which as reported on page 43 had not declined over recent years, actually increased substantially in the critical injury category over the period 1991 to 1992 (from .1/100,000 to .6/100,000).

[‡‡] Note: Table 21b in the earlier report included separations for the Northern Territory. However, there were only a small number of cases (10) in the severe to critical categories in that state in 1991. Even if all of these cases were restricted to the head injury category, the pattern reported in the text would not be unduly affected.

SECTION 5: Road Injury Separations and Fatalities - Length of Hospital Stay and Sex

5.1 Road User Type

Table 22a. Road injury hospital separations, Road user type by length of hospital stay (days) & sex, Australia excluding NT, 1992
(Case number & row percentage)

	Mean stay	1 to 2 days	3 to 6 days	7 or more days	Total
Males					
Driver	7.7	2870	1236	1649	5755
		49.9	21.5	28.7	100.0
Passenger	7.0	1734	664	823	3221
		53.8	20.6	25.6	100.0
Motor Cycle	7.6	2159	1238	1496	4893
		44.1	25.3	30.6	100.0
Pedal cyclist	3.8	2956	808	505	4269
		69.2	18.9	11.8	100.0
Pedestrian	10.2	1088	486	899	2473
		44.0	19.7	36.4	100.0
Other user	4.8	121	42	42	205
		59.0	20.5	20.5	100.0
Unspecified user	4.9	1624	497	394	2515
		64.6	19.8	15.7	100.0
Total	6.8	12552	4971	5809	23333
		53.8	21.3	24.9	100.0
Females					
Driver	7.0	1704	775	880	3359
		50.7	23.1	26.2	100.0
Passenger	7.9	1719	765	999	3483
		49.4	22.0	28.7	100.0
Motor Cycle	8.2	217	98	133	448
		48.4	21.9	29.7	100.0
Pedal cyclist	3.5	929	190	138	1257
		73.9	15.1	11.0	100.0
Pedestrian	11.9	551	323	654	1528
		36.1	21.1	42.8	100.0
Other user	7.4	49	19	29	97
		50.5	19.6	29.9	100.0
Unspecified user	4.7	1063	331	278	1672
		63.6	19.8	16.6	100.0
Total	7.3	6233	2502	3279	11847
		52.6	21.1	26.4	100.0
Persons					
Driver	7.4	4574	2011	2529	9114
		50.2	22.1	27.7	100.0
Passenger	7.5	3453	1429	1822	6704
		51.5	21.3	27.2	100.0
Motor Cycle	7.6	2376	1336	1629	5341
		44.5	25.0	30.5	100.0
Pedal cyclist	3.7	3885	998	643	5526
		70.3	18.1	11.6	100.0
Pedestrian	10.9	1639	809	1553	4001
		41.0	20.2	38.8	100.0
Other user	5.7	170	61	71	302
		56.3	20.2	23.5	100.0
Unspecified user	4.8	2687	828	672	4187
		64.2	19.8	16.0	100.0
Total	7.0	18785	7473	8921	35179
		53.4	21.2	25.4	100.0

Table 22b. Road injury hospital separations, Road user type by length of hospital stay (days) & sex, Australia excluding NT, 1992
(Rate per 100,000 pop.)

	1 to 2 days	3 to 6 days	7 or more days	Total
Males				
Driver	33.3	14.3	19.1	66.7
Passenger	20.1	7.7	9.5	37.4
Motor Cycle	25.0	14.4	17.3	56.7
Pedal cyclist	34.3	9.4	5.9	49.5
Pedestrian	12.6	5.6	10.4	28.7
Other user	1.4	0.5	0.5	2.4
Unspecified user	18.8	5.8	4.6	29.2
Total	145.6	57.6	67.4	270.6
Females				
Driver	19.6	8.9	10.1	38.6
Passenger	19.8	8.8	11.5	40.1
Motor Cycle	2.5	1.1	1.5	5.2
Pedal cyclist	10.7	2.2	1.6	14.5
Pedestrian	6.3	3.7	7.5	17.6
Other user	0.6	0.2	0.3	1.1
Unspecified user	12.2	3.8	3.2	19.2
Total	71.7	28.8	35.8	136.3
Persons				
Driver	26.4	11.6	14.6	52.6
Passenger	19.9	8.3	10.5	38.7
Motor Cycle	13.7	7.7	9.4	30.8
Pedal cyclist	22.4	5.8	3.7	31.9
Pedestrian	9.5	4.7	9.0	23.1
Other user	1.0	0.4	0.4	1.7
Unspecified user	15.5	4.8	3.9	24.2
Total	108.5	43.2	51.5	203.2

Main Points

- Length of stay (bed days) is often used as an index of resource consumption for an episode of care. The average length of stay (ALOS) for total separations was 7 days, 0.4 days less than in1991[15], with pedestrian injuries recording the highest ALOS of almost 11 days. Pedal cycle injuries had the lowest ALOS of 3 to 4 days.
- There was little change from 1991[15] to 1992 in the ALOS of any road user type.
- There were no substantial sex differences in the ALOS of any road user type.

5.2 Body Region of Most Severe Injury

Table 23a. Road injury hospital separations, body region of most severe injury by length of hospital stay (days) & sex. Australia excluding QLD & NT, 1992 (case number & column percentage)

	Mean stay	1 to 2 days	3 to 6 days	7 or more days	Total
Male					
External	3.1	1282	385	178	1845
		13.5	10.0	3.9	10.3
Head	6.2	2115	403	537	3055
		22.3	10.4	11.7	17.0
Face	3.2	282	106	45	433
		3.0	2.7	1.0	2.4
Chest	6.9	308	293	282	883
		3.3	7.6	6.1	4.9
Abdomen	8.1	122	87	126	335
		1.3	2.3	2.7	1.9
Spine	11.9	278	238	316	832
		2.9	6.2	6.9	4.6
Upper extremity	2.8	1744	491	196	2430
		18.4	12.7	4.3	13.6
Lower extremity	11.1	699	707	1306	2712
		7.4	18.3	28.4	15.1
Multiple	9.0	1746	959	1493	4198
		18.4	24.9	32.5	23.4
Unspecified/other	3.2	891	187	120	1198
		9.4	4.8	2.6	6.7
Group Total	6.9	9467	3857	4598	17923
		100.0	100.0	100.0	100.0
Female					
External	3.7	717	202	129	1049
		14.6	10.1	5.0	11.0
Head	5.6	860	199	194	1253
		17.5	9.9	7.5	13.1
Face	2.5	119	36	14	169
		2.4	1.8	0.5	1.8
Chest	6.9	240	263	227	730
		4.9	13.1	8.7	7.7
Abdomen	10.3	60	34	68	162
		1.2	1.7	2.6	1.7
Spine	10.8	236	136	219	591
		4.8	6.8	8.4	6.2
Upper extremity	3.3	810	232	137	1178
		16.4	11.6	5.3	12.4
Lower extremity	13.0	267	263	631	1160
		5.4	13.1	24.2	12.2
Multiple	10.4	875	489	881	2245
		17.8	24.4	33.8	23.6
Unspecified/other	3.9	741	149	103	993
		15.0	7.4	4.0	10.4
Group Total	7.4	4925	2003	2604	9532
		100.0	100.0	100.0	100.0

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Table 23a. (continued)

Persons					
External	3.3	2000	587	307	2894
		13.9	10.0	4.3	10.5
Head	6.1	2975	602	731	4308
		20.7	10.3	10.1	15.7
Face	3.0	401	142	59	602
		2.8	2.4	0.8	2.2
Chest	6.9	548	556	509	1613
		3.8	9.5	7.1	5.9
Abdomen	8.8	182	121	194	497
		1.3	2.1	2.7	1.8
Spine	11.5	514	374	535	1423
		3.6	6.4	7.4	5.2
Upper extremity	3.0	2554	723	333	3609
		17.7	12.3	4.6	13.1
Lower extremity	11.7	966	970	1936	3872
		6.7	16.6	26.9	14.1
Multiple	9.5	2622	1448	2374	6443
		18.2	24.7	33.0	23.5
Unspecified/other	3.5	1632	336	223	2191
		11.3	5.7	3.1	8.0
Group Total	7.1	14392	5860	7202	27455
		100.0	100.0	100.0	100.0

Table 23b. Road injury hospital separations, body region of most severe injury by length of hospital stay (days) & sex, Australia excluding Qld & NT, 1992 (Rate per 100,000 pop.)

	1 to 2 days	3 to 6 days	7 or more days	Total
Male				
External	18.0	5.4	2.5	26.0
Head	29.8	5.7	7.6	43.0
Face	4.0	1.5	0.6	6.1
Chest	4.3	4.1	4.0	12.4
Abdomen	1.7	1.2	1.8	4.7
Spine	3.9	3.3	4.4	11.7
Upper extremity	24.5	6.9	2.8	34.2
Lower extremity	9.8	10.0	18.4	38.2
Multiple	24.6	13.5	21.0	59.1
Unspecified/other	12.5	2.6	1.7	16.9
Group Total	133.2	54.3	64.7	252.2
Female				
External	10.0	2.8	1.8	14.6
Head	12.0	2.8	2.7	17.5
Face	1.7	0.5	0.2	2.4
Chest	3.3	3.7	3.2	10.2
Abdomen	0.8	0.5	0.9	2.3
Spine	3.3	1.9	3.1	8.2
Upper extremity	11.3	3.2	1.9	16.4
Lower extremity	3.7	3.7	8.8	16.2
Multiple	12.2	6.8	12.3	31.3
Unspecified/other	10.3	2.1	1.4	13.8
Group Total	68.6	27.9	36.3	132.8
Persons				
External	14.0	4.1	2.1	20.3
Head	20.8	4.2	5.1	30.2
Face	2.8	1.0	0.4	4.2
Chest	3.8	3.9	3.6	11.3
Abdomen	1.3	0.8	1.4	3.5
Spine	3.6	2.6	3.7	10.0
Upper extremity	17.9	5.1	2.3	25.3
Lower extremity	6.8	6.8	13.6	27.1
Multiple	18.4	10.1	16.6	45.1
Unspecified/other	11.4	2.4	1.6	15.3
Group Total	100.7	41.0	50.4	192.2

Main Points

- The ALOS was highest for spinal and lower extremity injuries (both approximately 12 days).
- The ALOS for male spinal injuries fell from around 17 days in 1991 to around 12 days in 1992. Changes in the ALOS for other body regions were small for both males and females.

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APPENDIX A: TECHNICAL NOTES

1. Data Sources

Hospital separations

The tabulations of hospital separations data presented in this report were derived from unit record hospital morbidity data collections maintained by State and Territory Health Authorities. The scope of these collections is described in Cooper-Stanbury et al (1994). Data from the Northern Territory was not available at the time that the present report was being prepared.

The data requested was restricted to those cases for which an ICD-9 'external cause' code (World Health Organisation, 1977) related to a road crash (i.e. E810-819 and E826) was recorded in any field of the morbidity record.

Diagnosis data provided by the States and Territories had been classified according to the clinical modification to the ninth revision of the International Classification of Disease ie. ICD-9-CM (Commission on Professional and Hospital Activities, 1980).

The number of diagnoses contained in the available hospital morbidity data sets was restricted to primary diagnosis and a maximum of four secondary diagnoses. Road user status was coded on the basis of the 4th digit of the ICD-9 'external cause' code.

It should be noted that hospital separation data includes a small proportion of cases that die in hospital (1.4% of separations in 1991[15]). Analysis undertaken for the previous edition of this report[15] showed that deaths were not evenly distributed throughout the cells of the tabulations presented in the report. Rather they were distributed toward categories of high severity injury. For example, over 40% of the separations having injuries recorded as 'critical' using the Abbreviated Injury Scale died in hospital.

Fatalities

Unit record mortality data was supplied to the Institute of Health and Welfare by the Australian Bureau of Statistics. It included ICD-9 'external cause' codes. The fatality records selected for analysis were cases with cause of death 'external cause' codes E810 to E819 and E826 which occurred during 1991 and had been registered by the end of 1992.

Comparison of hospital separation data and ABS data for the previous edition of this report[15] revealed that about a quarter of the deaths from road injury that were recorded by the ABS occurred in hospital.

Population data

The population data used as the denominator for rate calculations was the 'estimated resident population' of Australia for 1991 and 1992 based on the 1991 Census of Population and Housing (Australian Bureau of Statistics, 1993).

2. Data Manipulation

Hospital morbidity data was processed using the ICDMAP software (MacKenzie et al, 1989) to produce Abbreviated Injury Scale codes and Injury Severity Scores on the basis of ICD-9-CM diagnosis codes. The software maps each ICD-9-CM code to an AIS-85 code. The software was developed using a modified Delphi technique to rate the ICD-9-CM to AIS-85 assignments and involved a panel from the Injury Scaling Committee of the American Association for Automotive Medicine. Unambiguous mapping of AIS-85 codes was possible for most ICD-9-CM codes.

The reliability of the mapping was lowest for injuries in the head/neck body region. Percent agreement amongst the panel members in the assignment of maximum AIS scores in the head/neck body region was 48% compared to 62% found in studies involving direct coding of AIS from hospital medical charts. Based on a number of studies by the authors (eg. MacKenzie et al, 1986; Steinwachs et al, 1987[19]), MacKenzie et al (1989) consider that the map "provides reasonably good information on severity that might otherwise be unavailable for large population based research and evaluation". The satisfactory performance of the map is supported by The Association for the Advancement of Automotive Medicine (see The Abbreviated Injury Scale, 1990 Revision).

The Injury Severity Score was calculated from the separate AIS scores for each case, using the method proposed by Baker et al (1974). ISS has been shown to predict probability of survival well , particularly for road injury (Bull, 1975) although other methods may be better for injury more generally (Copes et al, 1990).

The separation data collected by New South Wales was provided by some hospitals as a sample of records. New South Wales separation data contains therefore a sample weighting factor which must be applied to each record prior to data analysis. As a result of the weighting procedure the sum of the cell counts within some tables may not exactly match the margin totals.

3. Statistical Considerations

In this publication, population based rates have been computed for road injury hospital separations and fatalities. Just as a sample derived statistic is subject to chance variation, so too is a population parameter. Random variation in the number of hospital separations and fatalities experienced by populations has the potential to distort separation and mortality rates, particularly when the number of separations or deaths is small.

APPENDIX B: COMPARISON OF STATE MORBIDITY DATA

The number of hospital separations reported for a particular injury category within a particular jurisdiction may be influenced by a range of factors. Therefore care must be taken when comparing jurisdictions.

Factors that may influence separation rates include:

- the incidence of injury within the population
- more generally, differences in admission policy between States/Territories influenced by differences in the availability of emergency beds
- differences in data gathering and reporting procedures (e.g. definition of in-patients, exclusion of some or all private hospitals from the morbidity collection in some states, lack of electronic data processing capabilities in some hospitals, sampling of data in NSW)

To investigate these factors the previous edition of this report[15] compared road injury separation data across State in 1991 on the basis of injury severity. It was hypothesised that differences in rates of high severity injury would be more likely to reflect true differences in the incidence of road injury within the population while differences in the rates of low severity injury would be confounded to a greater degree by other factors such as differences in policy. The analysis undertaken in that report (see Appendix B, particularly Figures B1 and B2) tended to support the hypothesis of the investigation, with the ratio in most States/Territories trending toward the national ratio as severity increases, particularly in Victoria and South Australia.

This analysis was repeated in the present report. Figures B1 and B2 show that as severity increases, the variation between States and Territories generally reduces, supporting the hypothesis stated above. The large difference in the rate of hospital separations of Victoria and the other States shown in Table 11 disappears in the high severity group. Indeed it is apparent from Figure B2 that Victoria has a slightly higher rate of MAIS 4+ injuries (i.e. the critical and maximum injury, virtually non-survivable, groups) than the Australian total.

An implication of these finding is that State comparisons of road injury hospital separations may be most valid for the most severely injured cases (eg. maximum AIS 4+ or ISS 15+). For the purpose of such comparison, Appendix C provides a selection of State tables for cases with ISS 15+.

More work is required to measure and understand the factors which have an influence on hospital admission rates and the characteristics of separations (e.g. length of stay). Casemix based funding of hospitals is one factor which is likely to exert a strong influence, particularly at low severity levels. A report conducted under the Road Injury Information Program[§§] demonstrated a substantially higher average length of stay for road injury separations compared with other separations within a number of diagnosis related groups. Where a fixed payment is made on the basis of DRG there could be some pressure to reduce the length of stay of subgroups with a high average length of stay such as road injury separations. The influence of factors such as casemix need to be understood so that purer measures of injury incidence can be designed.

[§§] See O'Connor PJ & KPMG Management Consulting (1995) Examination of length of stay differences of vehicle injury and otehr separations within diagnosis related groups. Road Injury Information Program Report Series No. 5. National Injury Surveillance Unit. Adelaide.

APPENDIX B

Figure B1 Road injury hospital separations (by severity) & death registrations, States excluding NT, 1992: Age standardised rates

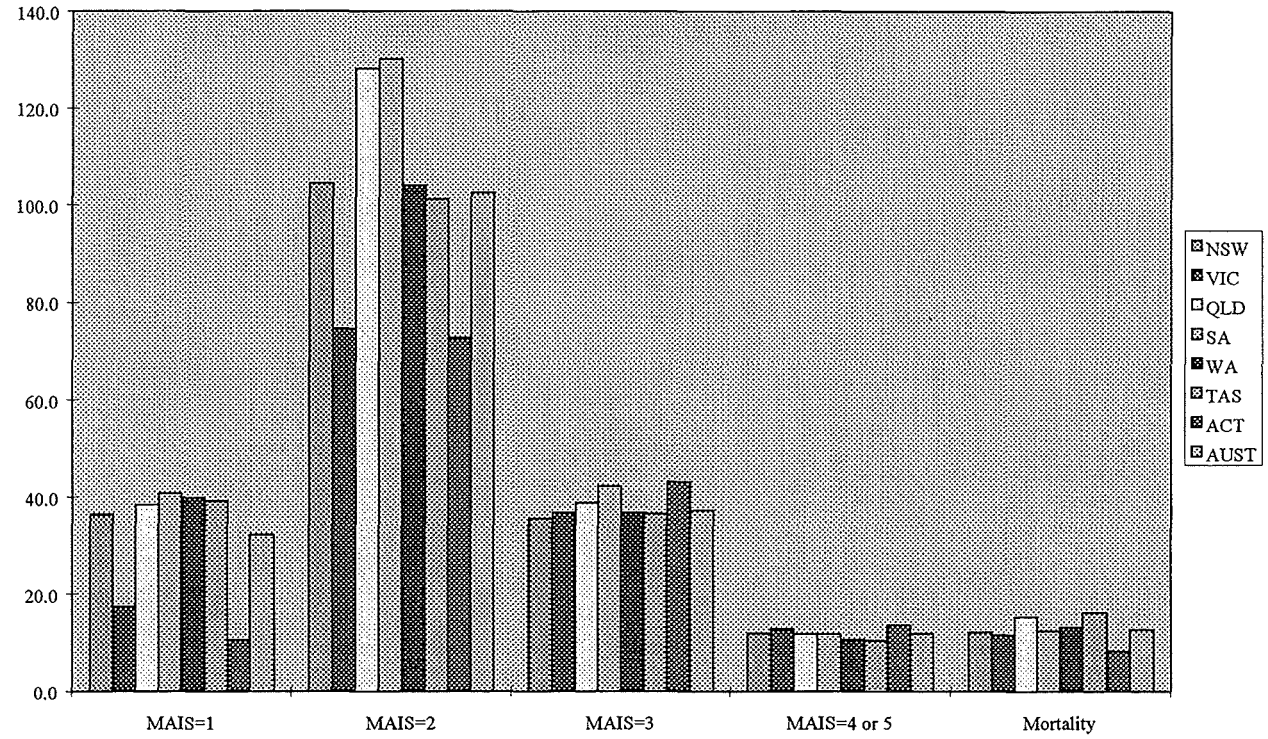
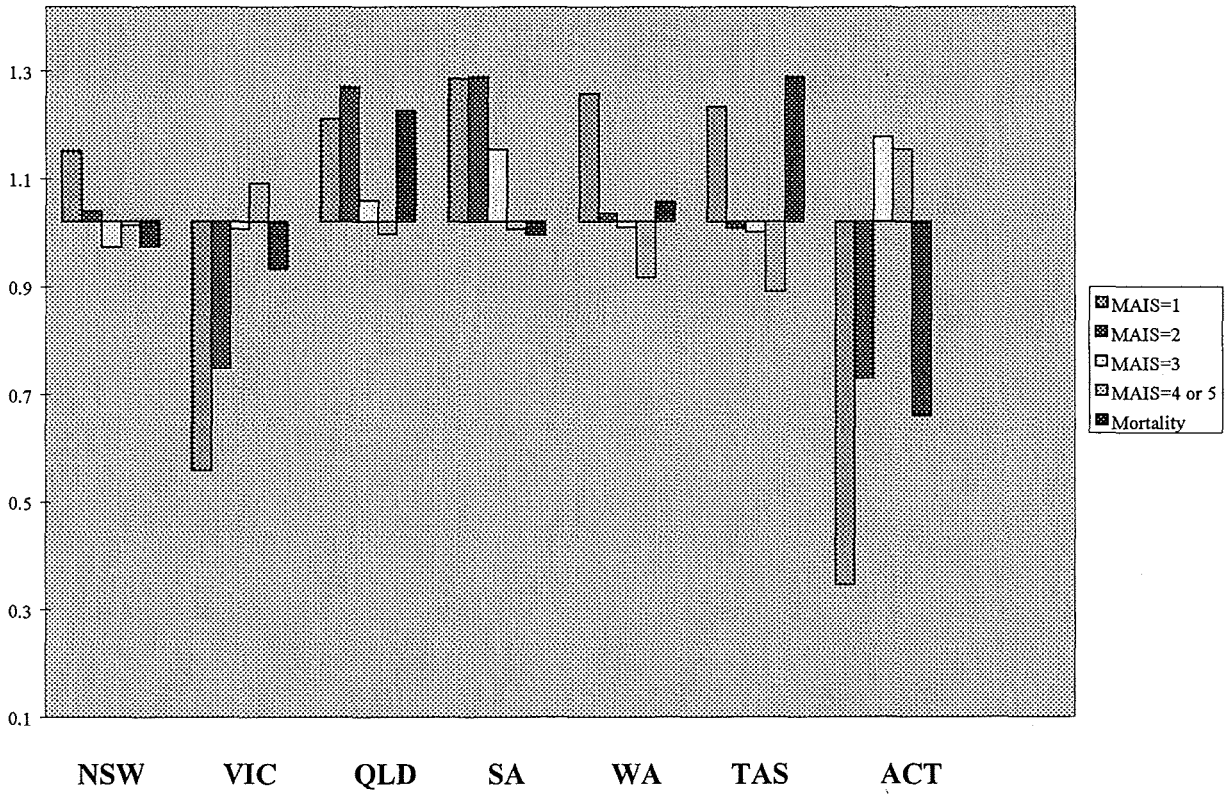


Figure B2 Road injury hospital separations (by severity) & death registrations, States excluding NT 1992: Standardised rate ratios



APPENDIX C - TABULATION OF SEPARATIONS DATA FOR CASES WITH AN INJURY SEVERITY SCORE (ISS) OF 15 OR MORE

Table C.1a Road injury hospital separations, State by age & sex, All separations with Injury Severity Score (ISS) of 15 or more, Australia excluding NT, 1992 (Case count & row percentage)

	0-4 yrs	5-14 yrs	15-19 yrs	20-24 yrs	25-29 yrs	30-49 yrs	50-69 yrs	70 + yrs	Total
Males									
NSW	15	60	112	99	61	168	87	49	651
	2.3	9.2	17.2	15.2	9.4	25.8	13.4	7.5	100.0
VIC	18	40	105	80	58	104	55	51	511
	3.5	7.8	20.5	15.7	11.4	20.4	10.8	10.0	100.0
QLD	8	30	58	59	46	72	35	13	321
	2.5	9.3	18.1	18.4	14.3	22.4	10.9	4.0	100.0
SA	1	16	33	24	24	52	17	7	174
	0.6	9.2	19.0	13.8	13.8	29.9	9.8	4.0	100.0
WA	3	11	33	44	25	41	18	6	181
	1.7	6.1	18.2	24.3	13.8	22.7	9.9	3.3	100.0
TAS	1	2	6	10	2	10	3	5	39
	2.6	5.1	15.4	25.6	5.1	25.6	7.7	12.8	100.0
ACT	0	7	8	10	6	6	1	0	38
	0.0	18.4	21.1	26.3	15.8	15.8	2.6	0.0	100.0
Total	46	166	355	326	222	453	216	131	1915
	2.4	8.7	18.5	17.0	11.6	23.7	11.3	6.8	100.0
Females									
NSW	9	18	42	34	19	89	65	40	316
	2.8	5.7	13.3	10.8	6.0	28.2	20.6	12.7	100.0
VIC	5	21	35	31	48	53	55	49	297
	1.7	7.1	11.8	10.4	16.2	17.8	18.5	16.5	100.0
QLD	7	18	18	13	16	28	27	19	146
	4.8	12.3	12.3	8.9	11.0	19.2	18.5	13.0	100.0
SA	2	2	7	6	1	14	14	11	57
	3.5	3.5	12.3	10.5	1.8	24.6	24.6	19.3	100.0
WA	2	4	12	10	6	16	6	6	62
	3.2	6.5	19.4	16.1	9.7	25.8	9.7	9.7	100.0
TAS	0	3	4	2	1	7	4	1	22
	0.0	13.6	18.2	9.1	4.5	31.8	18.2	4.5	100.0
ACT	0	1	1	2	1	3	4	3	15
	0.0	6.7	6.7	13.3	6.7	20.0	26.7	20.0	100.0
Total	25	67	119	98	92	210	175	129	915
	2.7	7.3	13.0	10.7	10.1	23.0	19.1	14.1	100.0
Persons									
NSW	24	78	154	133	80	257	152	89	967
	2.5	8.1	15.9	13.8	8.3	26.6	15.7	9.2	100.0
VIC	23	61	140	111	106	157	110	100	808
	2.8	7.5	17.3	13.7	13.1	19.4	13.6	12.4	100.0
QLD	15	48	76	72	62	100	62	32	467
	3.2	10.3	16.3	15.4	13.3	21.4	13.3	6.9	100.0
SA	3	18	40	30	25	66	31	18	231
	1.3	7.8	17.3	13.0	10.8	28.6	13.4	7.8	100.0
WA	5	15	45	54	31	57	24	12	243
	2.1	6.2	18.5	22.2	12.8	23.5	9.9	4.9	100.0
TAS	1	5	10	12	3	17	7	6	61
	1.6	8.2	16.4	19.7	4.9	27.9	11.5	9.8	100.0
ACT	0	8	9	12	7	9	5	3	53
	0.0	15.1	17.0	22.6	13.2	17.0	9.4	5.7	100.0
Total	71	233	474	424	314	663	391	260	2830
	2.5	8.2	16.7	15.0	11.1	23.4	13.8	9.2	100.0

Table C.1b Road injury hospital separations, State by age & sex, All separations with Injury Severity Score (ISS) of 15 or more, Australia excluding NT, 1992 (Rate per 100,000 pop)

	0-4 yrs	5-14 yrs	15-19 yrs	20-24 yrs	25-29 yrs	30-49 yrs	50-69 yrs	70 + yrs	Total
Males									
NSW	6.8	13.8	49.5	41.3	25.9	18.9	21.7	25.7	22.0
VIC	10.9	12.5	61.0	42.3	32.7	15.8	18.8	37.0	23.2
QLD	6.9	12.7	46.7	46.4	39.1	16.0	17.9	14.1	21.1
SA	2.0	15.5	61.5	40.4	41.9	24.1	17.2	13.6	24.1
WA	4.6	8.4	50.9	63.5	37.7	16.0	17.4	13.5	21.7
TAS	5.6	5.4	33.0	55.2	11.8	14.6	9.7	32.7	16.7
ACT	0.0	30.4	59.5	67.4	48.1	12.7	6.4	0.0	25.8
Total	7.1	12.9	52.8	45.4	32.5	17.5	19.0	24.4	22.2
Females									
NSW	4.3	4.4	19.6	14.6	8.2	10.2	16.1	14.1	10.6
VIC	3.2	6.9	21.4	16.7	26.7	8.1	18.6	23.7	13.2
QLD	6.4	8.1	15.2	10.5	13.7	6.3	14.2	14.8	9.7
SA	4.2	2.0	13.7	10.6	1.8	6.5	13.9	14.5	7.8
WA	3.2	3.2	19.5	15.0	9.2	6.4	6.0	9.4	7.5
TAS	0.0	8.4	23.3	11.3	5.8	10.2	12.8	4.5	9.3
ACT	0.0	4.5	7.7	13.9	8.0	6.3	25.9	43.1	10.2
Total	4.1	5.5	18.6	14.0	13.5	8.2	15.4	16.4	10.5
Persons									
NSW	5.5	9.2	35.0	28.2	17.1	14.6	18.9	18.8	16.2
VIC	7.2	9.8	41.7	29.6	29.7	11.9	18.7	29.0	18.2
QLD	6.7	10.5	31.3	28.7	26.5	11.2	16.1	14.5	15.4
SA	3.0	9.0	38.2	25.8	22.1	15.3	15.5	14.1	15.9
WA	4.0	5.9	35.6	39.7	23.5	11.2	11.8	11.0	14.7
TAS	2.8	6.9	28.3	33.6	8.8	12.4	11.2	15.9	13.0
ACT	0.0	17.8	33.9	41.1	27.9	9.5	16.1	25.8	18.0
Total	5.6	9.3	36.1	30.0	23.0	12.9	17.2	19.6	16.3

Main points

- The increasing trend in high threat to life injuries for females from 1991 to 1992, noted on page 23[***], was particularly strong in Victoria where the total rate went up from 6.3 in 1991[†††] to 13.2 in 1992. The trend in that state was strongest for those aged 25-29 years and 70+, where a three fold increases in rates were observed.
- An increasing trend in high threat to life male separations in Victoria was also notable (up from 17.2/100,000 in 1991[‡‡‡] to 23.2/100,000 in 1992).

[***] Note that Qld and WA were excluded from Table 10 but were included in Table C1b. Differences in the rates for 'Total' (male, female and person) between these tables reflect the differing table selection criteria.

[†††] See Table C1a in the earlier report.

[‡‡‡] See Table C1a in the earlier report.

Table C2a Road injury hospital separations, road user type by age & sex, All separations with Injury Severity Score (ISS) of 15 or more, Australia excluding NT, 1992 (Case count & row percentage)

	0-4 yrs	5-14 yrs	15-19 yrs	20-25 yrs	25-29 yrs	30-49 yrs	50-69 yrs	70 + yrs	Total
Males									
Driver	0	1	75	121	63	188	98	61	607
	0.0	0.2	12.4	19.9	10.4	31.0	16.1	10.0	100.0
Pasenger	23	45	96	64	36	68	30	18	380
	6.1	11.8	25.3	16.8	9.5	17.9	7.9	4.7	100.0
Motor Cycle	0	3	97	76	67	80	15	1	339
	0.0	0.9	28.6	22.4	19.8	23.6	4.4	0.3	100
Pedal cyclist	2	57	27	14	12	24	18	3	157
	1.3	36.3	17.2	8.9	7.6	15.3	11.5	1.9	100.0
Pedestrian	21	56	41	31	28	63	43	44	327
	6.4	17.1	12.5	9.5	8.6	19.3	13.1	13.5	100.0
Other user	0	0	7	0	1	3	2	0	13
	0.0	0.0	53.8	0.0	7.7	23.1	15.4	0.0	100.0
Unspecified user	0	4	12	20	15	27	10	4	92
	0.0	4.3	13.0	21.7	16.3	29.3	10.9	4.3	100.0
Total	46	166	355	326	222	453	216	131	1915
	2.4	8.7	18.5	17.0	11.6	23.7	11.3	6.8	100.0
Females									
Driver	0	0	26	36	49	78	57	29	275
	0.0	0.0	9.5	13.1	17.8	28.4	20.7	10.5	100.0
Pasenger	14	20	64	28	22	73	78	66	365
	3.8	5.5	17.5	7.7	6.0	20.0	21.4	18.1	100.0
Motor Cycle	0	0	7	4	7	2	0	1	21
	0.0	0.0	33.3	19.0	33.3	9.5	0.0	4.8	100.0
Pedal cyclist	2	11	2	3	1	8	4	0	31
	6.5	35.5	6.5	9.7	3.2	25.8	12.9	0.0	100.0
Pedestrian	8	32	16	17	10	18	22	29	152
	5.3	21.1	10.5	11.2	6.6	11.8	14.5	19.1	100.0
Other user	1	0	0	0	0	1	2	0	4
	25.0	0.0	0.0	0.0	0.0	25.0	50.0	0.0	100.0
Unspecified user	0	4	4	10	3	30	12	4	67
	0.0	6.0	6.0	14.9	4.5	44.8	17.9	6.0	100.0
Total	25	67	119	98	92	210	175	129	915
	2.7	7.3	13.0	10.7	10.1	23.0	19.1	14.1	100.0
Persons									
Driver	0	1	101	157	112	266	155	90	882
	0.0	0.1	11.5	17.8	12.7	30.2	17.6	10.2	100.0
Pasenger	37	65	160	92	58	141	108	84	745
	5.0	8.7	21.5	12.3	7.8	18.9	14.5	11.3	100.0
Motor Cycle	0	3	104	80	74	82	15	2	360
	0.0	0.8	28.9	22.2	20.6	22.8	4.2	0.6	100.0
Pedal cyclist	4	68	29	17	13	32	22	3	188
	2.1	36.2	15.4	9.0	6.9	17.0	11.7	1.6	100.0
Pedestrian	29	88	57	48	38	81	65	73	479
	6.1	18.4	11.9	10.0	7.9	16.9	13.6	15.2	100.0
Other user	1	0	7	0	1	4	4	0	17
	5.9	0.0	41.2	0.0	5.9	23.5	23.5	0.0	100.0
Unspecified user	0	8	16	30	18	57	22	8	159
	0.0	5.0	10.1	18.9	11.3	35.8	13.8	5.0	100.0
Total	71	233	474	424	314	663	391	260	2830
	2.5	8.2	16.7	15.0	11.1	23.4	13.8	9.2	100.0

Table C2b Road injury hospital separations, road user type by age & sex, All separations with Injury Severity Score (ISS) of 15 or more, Australia excluding NT, 1992 (Rate per 100,000 pop.)

	0-4 yrs	5-14 yrs	15-19 yrs	20-24 yrs	25-29 yrs	30-49 yrs	50-69 yrs	70 + yrs	Total
Males									
Driver	0.0	0.1	11.2	16.9	9.2	7.3	6.5	11.4	7.0
Passenger in motor vehicle	3.6	3.5	14.3	8.9	5.3	2.6	2.0	3.4	4.4
Motor cycle rider/pillion	0.0	0.2	14.4	10.6	9.8	3.1	1.0	0.2	3.9
Pedal cyclist	0.3	4.4	4.0	2.0	1.8	0.9	1.2	0.6	1.8
Pedestrian	3.2	4.4	6.1	4.3	4.1	2.4	2.9	8.2	3.8
Other road user	0.0	0.0	1.0	0.0	0.1	0.1	0.1	0.0	0.2
Unspecified	0.0	0.3	1.8	2.8	2.2	1.0	0.7	0.7	1.1
Total	7.1	12.9	52.8	45.4	32.5	17.5	14.4	24.4	22.2
Females									
Driver	0.0	0.0	4.1	5.2	7.2	3.1	3.8	3.7	3.2
Passenger in motor vehicle	2.3	1.6	10.0	4.0	3.2	2.9	5.2	8.4	4.2
Motor cycle rider/pillion	0.0	0.0	1.1	0.6	1.0	0.1	0.0	0.1	0.2
Pedal cyclist	0.3	0.9	0.3	0.4	0.1	0.3	0.3	0.0	0.4
Pedestrian	1.3	2.6	2.5	2.4	1.5	0.7	1.5	3.7	1.7
Other road user	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Unspecified	0.0	0.3	0.6	1.4	0.4	1.2	0.8	0.5	0.8
Total	4.1	5.5	18.6	14.0	13.5	8.2	11.7	16.4	10.5
Persons									
Driver	0.0	0.0	7.7	11.1	8.2	5.2	5.2	6.8	5.1
Passenger in motor vehicle	2.9	2.6	12.2	6.5	4.3	2.7	3.6	6.3	4.3
Motor cycle rider/pillion	0.0	0.1	7.9	5.7	5.4	1.6	0.5	0.2	2.1
Pedal cyclist	0.3	2.7	2.2	1.2	1.0	0.6	0.7	0.2	1.1
Pedestrian	2.3	3.5	4.3	3.4	2.8	1.6	2.2	5.5	2.8
Other road user	0.1	0.0	0.5	0.0	0.1	0.1	0.1	0.0	0.1
Unspecified	0.0	0.3	1.2	2.1	1.3	1.1	0.7	0.6	0.9
Total	5.6	9.3	36.1	30.0	23.0	12.9	13.0	19.6	16.3

Main points

- The increasing trend in high threat to life injuries for females from 1991 to 1992, noted on page 23[§§§], was particularly strong for drivers aged 25-29 years and passengers aged 15-19 years.
- High severity injury amongst motorcyclists was particularly frequent in 15-19 year olds. This group experienced a 37% increase in rate from 1991 to 1992 (up from 10.5/100,000 to 14.4/100,000). However, motorcyclist deaths were static over this period (see Table 14b).

[§§§] Note that Qld and WA were excluded from Table 10 but were included in Table C1b. Differences in the rates for 'Total' (male, female and person) between these tables reflect the differing table selection criteria.

Table C3a Road injury hospital separations, injury severity (max AIS) by age & sex, All separations with Injury Severity Score (ISS) of 15 or more, Australia excluding NT, 1992
(Case count & row percentage)

	0-4 yrs	5-14 yrs	15-19 yrs	20-24 yrs	25-29 yrs	30-49 yrs	50-69 yrs	70 + yrs	Total
Male									
Serious	3	26	72	106	68	158	56	27	516
	0.6	5.0	14.0	20.5	13.2	30.6	10.9	5.2	100.0
Severe	27	97	202	156	125	224	129	87	1047
	2.6	9.3	19.3	14.9	11.9	21.4	12.3	8.3	100.0
Critical	15	42	80	60	29	67	29	15	337
	4.5	12.5	23.7	17.8	8.6	19.9	8.6	4.5	100.0
Group Total	45	165	354	322	222	449	214	129	1900
	2.4	8.7	18.6	16.9	11.7	23.6	11.3	6.8	100.0
Female									
Serious	5	10	38	27	18	72	78	35	283
	1.8	3.5	13.4	9.5	6.4	25.4	27.6	12.4	100.0
Severe	16	36	57	50	33	116	76	82	466
	3.4	7.7	12.2	10.7	7.1	24.9	16.3	17.6	100.0
Critical	4	21	22	19	38	13	18	11	146
	2.7	14.4	15.1	13.0	26.0	8.9	12.3	7.5	100.0
Group Total	25	67	117	96	89	201	172	128	895
	2.8	7.5	13.1	10.7	9.9	22.5	19.2	14.3	100.0
Persons									
Serious	8	36	110	133	86	230	134	62	799
	1.0	4.5	13.8	16.6	10.8	28.8	16.8	7.8	100.0
Severe	43	133	259	206	158	340	205	169	1513
	2.8	8.8	17.1	13.6	10.4	22.5	13.5	11.2	100.0
Critical	19	63	102	79	67	80	47	26	483
	3.9	13.0	21.1	16.4	13.9	16.6	9.7	5.4	100.0
Group Total	70	232	471	418	311	650	386	257	2795
	2.5	8.3	16.9	15.0	11.1	23.3	13.8	9.2	100.0

Table C3b Road injury hospital separations, injury severity (max AIS) by age & sex, All separations with Injury Severity Score (ISS) of 15 or more, Australia excluding NT, 1992 (Rate per 100,000 pop.)

	0-4 yrs	5-14 yrs	15-19 yrs	20-24 yrs	25-29 yrs	30-49 yrs	50-69 yrs	70 + yrs	Total
Male									
Serious	0.5	2.0	10.7	14.8	10.0	6.1	3.7	5.0	6.0
Severe	4.4	8.0	31.6	22.4	18.4	8.8	8.6	11.0	12.0
Critical	2.3	3.3	11.9	8.4	4.2	2.6	1.9	2.8	3.9
Group Total	6.9	12.9	52.6	44.9	32.5	17.4	14.3	24.0	22.0
Female									
Serious	0.8	0.8	5.9	3.9	2.6	2.8	5.2	4.4	3.3
Severe	2.6	3.0	8.9	7.2	4.9	4.5	5.1	10.4	5.4
Critical	0.7	1.7	3.4	2.7	5.6	0.5	1.2	1.4	1.7
Group Total	4.1	5.5	18.3	13.8	13.1	7.9	11.5	16.2	10.3
Persons									
Serious	0.6	1.4	8.4	9.4	6.3	4.5	4.5	4.7	4.6
Severe	3.4	5.3	19.7	14.6	11.6	6.6	6.8	12.8	8.7
Critical	1.5	2.5	7.8	5.6	4.9	1.6	1.6	2.0	2.8
Group Total	5.5	9.3	35.9	29.5	22.8	12.6	12.9	19.4	16.1

Main points

- The increasing trend in high threat to life injuries for females from 1991 to 1992, noted on page 23[****], was particularly strong for critical injury in 25-29 year olds (up 211% from 1.8/100,000 to 5.6/100,000) and severe injury for the age group 70+ (up 121% from 4.7/100,000 to 10.4/100,000).

[****] Note that Qld and WA were excluded from Table 10 but were included in Table C1b. Differences in the rates for 'Total' (male, female and person) between these tables reflect the differing table selection criteria.

Table C4a Road injury hospital separations, body region of most severe injury by age & sex, All separations with Injury Severity Score (ISS) of 15 or more, Australia excluding NT, 1992
(Case count & row percentage)

	0-4 yrs	5-14 yrs	15-19 yrs	20-24 yrs	25-29 yrs	30-49 yrs	50-69 yrs	70 + yrs	Total
Male									
External	0	0	0	1	0	0	1	0	2
	0.0	0.0	0.0	50.0	0.0	0.0	50.0	0.0	100.0
Head	27	87	201	136	75	162	74	44	806
	3.3	10.8	24.9	16.9	9.3	20.1	9.2	5.5	100.0
Face	0	1	0	2	0	2	1	0	6
	0.0	16.7	0.0	33.3	0.0	33.3	16.7	0.0	100.0
Chest	1	9	20	20	17	48	42	32	189
	0.5	4.8	10.6	10.6	9.0	25.4	22.2	16.9	100.0
Abdomen	2	19	18	18	21	22	10	4	114
	1.8	16.7	15.8	15.8	18.4	19.3	8.8	3.5	100.0
Spine	4	6	22	39	31	54	19	8	183
	2.2	3.3	12.0	21.3	16.9	29.5	10.4	4.4	100.0
Upper extremity	6	3	6	9	4	9	8	4	49
	12.2	6.1	12.2	18.4	8.2	18.4	16.3	8.2	100.0
Lower extremity	0	5	6	14	4	10	3	1	43
	0.0	11.6	14.0	32.6	9.3	23.3	7.0	2.3	100.0
Multiple	6	36	82	86	70	142	56	36	514
	1.2	7.0	16.0	16.7	13.6	27.6	10.9	7.0	100.0
Unspecified/other	0	0	0	1	0	4	2	2	9
	0.0	0.0	0.0	11.1	0.0	44.4	22.2	22.2	100.0
Group Total	46	166	355	326	222	453	216	131	1915
	2.4	8.7	18.5	17.0	11.6	23.7	11.3	6.8	100.0
Female									
External	0	0	0	2	0	1	0	0	3
	0.0	0.0	0.0	66.7	0.0	33.3	0.0	0.0	100.0
Head	15	36	51	43	27	55	35	32	294
	5.1	12.2	17.3	14.6	9.2	18.7	11.9	10.9	100.0
Face	0	0	0	0	0	0	0	0	0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chest	2	2	5	4	2	27	45	31	118
	1.7	1.7	4.2	3.4	1.7	22.9	38.1	26.3	100.0
Abdomen	1	4	8	6	3	11	9	6	48
	2.1	8.3	16.7	12.5	6.3	22.9	18.8	12.5	100.0
Spine	0	3	4	10	34	39	18	8	116
	0.0	2.6	3.4	8.6	29.3	33.6	15.5	6.9	100.0
Upper extremity	1	6	10	2	9	5	10	9	52
	1.9	11.5	19.2	3.8	17.3	9.6	19.2	17.3	100.0
Lower extremity	0	1	4	1	1	4	5	1	17
	0.0	5.9	23.5	5.9	5.9	23.5	29.4	5.9	100.0
Multiple	6	15	36	29	14	64	51	41	256
	2.3	5.9	14.1	11.3	5.5	25.0	19.9	16.0	100.0
Unspecified/other	0	0	1	1	2	4	2	1	11
	0.0	0.0	9.1	9.1	18.2	36.4	18.2	9.1	100.0
Group Total	25	67	119	98	92	210	175	129	915
	2.7	7.3	13.0	10.7	10.1	23.0	19.1	14.1	100.0

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Table C4a (continued)

Persons									
External	0	0	0	3	0	1	1	0	5
	0.0	0.0	0.0	60.0	0.0	20.0	20.0	0.0	100.0
Head	42	123	252	179	102	217	109	76	1100
	3.8	11.2	22.9	16.3	9.3	19.7	9.9	6.9	100.0
Face	0	1	0	2	0	2	1	0	6
	0.0	16.7	0.0	33.3	0.0	33.3	16.7	0.0	100.0
Chest	3	11	25	24	19	75	87	63	307
	1.0	3.6	8.1	7.8	6.2	24.4	28.3	20.5	100.0
Abdomen	3	23	26	24	24	33	19	10	162
	1.9	14.2	16.0	14.8	14.8	20.4	11.7	6.2	100.0
Spine	4	9	26	49	65	93	37	16	299
	1.3	3.0	8.7	16.4	21.7	31.1	12.4	5.4	100.0
Upper extremity	7	9	16	11	13	14	18	13	101
	6.9	8.9	15.8	10.9	12.9	13.9	17.8	12.9	100.0
Lower extremity	0	6	10	15	5	14	8	2	60
	0.0	10.0	16.7	25.0	8.3	23.3	13.3	3.3	100.0
Multiple	12	51	118	115	84	206	107	77	770
	1.6	6.6	15.3	14.9	10.9	26.8	13.9	10.0	100.0
Unspecified/other	0	0	1	2	2	8	4	3	20
	0.0	0.0	5.0	10.0	10.0	40.0	20.0	15.0	100.0
Group Total	71	233	474	424	314	663	391	260	2830
	2.5	8.2	16.7	15.0	11.1	23.4	13.8	9.2	100.0

Table C4b Road injury hospital separations, body region of most severe injury by age & sex, All separations with Injury Severity Score (ISS) of 15 or more, Australia excluding NT, 1992 (Rate per 100,000 pop.)

	0-4 yrs	5-14 yrs	15-19 yrs	20-24 yrs	25-29 yrs	30-49 yrs	50-69 yrs	70 + yrs	Total
Male									
External	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0
Head	4.2	6.8	29.9	18.9	11.0	6.3	4.9	8.2	9.3
Face	0.0	0.1	0.0	0.3	0.0	0.1	0.1	0.0	0.1
Chest	0.2	0.7	3.0	2.8	2.5	1.9	2.8	6.0	2.2
Abdomen	0.3	1.5	2.7	2.5	3.1	0.9	0.7	0.7	1.3
Spine	0.6	0.5	3.3	5.4	4.5	2.1	1.3	1.5	2.1
Upper extremity	0.9	0.2	0.9	1.3	0.6	0.3	0.5	0.7	0.6
Lower extremity	0.0	0.4	0.9	2.0	0.6	0.4	0.2	0.2	0.5
Multiple	0.9	2.8	12.2	12.0	10.2	5.5	3.7	6.7	6.0
Unspecified/other	0.0	0.0	0.0	0.1	0.0	0.2	0.1	0.4	0.1
Group Total	7.1	12.9	52.8	45.4	32.5	17.5	14.4	24.4	22.2
Female									
External	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Head	2.4	3.0	8.0	6.2	4.0	2.2	2.3	4.1	3.4
Face	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chest	0.3	0.2	0.8	0.6	0.3	1.1	3.0	3.9	1.4
Abdomen	0.2	0.3	1.3	0.9	0.4	0.4	0.6	0.8	0.6
Spine	0.0	0.2	0.6	1.4	5.0	1.5	1.2	1.0	1.3
Upper extremity	0.2	0.5	1.6	0.3	1.3	0.2	0.7	1.1	0.6
Lower extremity	0.0	0.1	0.6	0.1	0.1	0.2	0.3	0.1	0.2
Multiple	1.0	1.2	5.6	4.2	2.1	2.5	3.4	5.2	2.9
Unspecified/other	0.0	0.0	0.2	0.1	0.3	0.2	0.1	0.1	0.1
Group Total	4.1	5.5	18.6	14.0	13.5	8.2	11.7	16.4	10.5
Persons									
External	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Head	3.3	4.9	19.2	12.6	7.5	4.2	3.6	5.7	6.4
Face	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Chest	0.2	0.4	1.9	1.7	1.4	1.5	2.9	4.8	1.8
Abdomen	0.2	0.9	2.0	1.7	1.8	0.6	0.6	0.8	0.9
Spine	0.3	0.4	2.0	3.5	4.8	1.8	1.2	1.2	1.7
Upper extremity	0.6	0.4	1.2	0.8	1.0	0.3	0.6	1.0	0.6
Lower extremity	0.0	0.2	0.8	1.1	0.4	0.3	0.3	0.2	0.3
Multiple	1.0	2.0	9.0	8.1	6.2	4.0	3.6	5.8	4.4
Unspecified/other	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.2	0.1
Group Total	5.6	9.3	36.1	30.0	23.0	12.9	13.0	19.6	16.3

Main points

- The increasing trend in high threat to life injuries for females from 1991 to 1992, noted on page 23[††††], was most notable for spinal and chest injuries (up 86% and 56% respectively), especially spinal injury in 25-29 year olds (up from .2/100,000 in 1991 to 5.0/100,000 in 1992).

[††††] Note that Qld and WA were excluded from Table 10 but were included in Table C1b. Differences in the rates for 'Total' (male, female and person) between these tables reflect the differing table selection criteria.

Hospital in-patient separation	The formal definition is "the administrative process by which a hospital records the completion of treatment and/or care and accommodation of a patient (discharge, transfer or death)" - see the National Health Data Dictionary (1993) AIH&W, Canberra.
ICD	International Classification of Diseases.
ICD-9-CM	Clinical modification of the ninth revision of the International Classification of Diseases. See Commission on professional and hospital activities (1980): the international classification of diseases, 9th revision - clinical modification, Ann Arbor.
ICD Map	Software which enables AIS codes to be mapped from ICD-9-CM codes. See MacKenzie, E.J., Steinwachs, D.M. and Shankar, B. (1989). Classifying Trauma Severity Based on Hospital Discharge Diagnosis. Validation of an ICD-9-CM to AIS-85 Conversion Table. Medical Care. Vol. 27, No. 4.
ISS	See "Injury Severity Score".
Injury Severity Score	The ISS is defined as the sum of the squares of the highest AIS for each of the three most severely injured body regions. It is the most widely used AIS-based measure for rating overall case severity that takes into account the combined effect of injuries to multiple body systems. For further information see Baker et al (1974) and Baker & O'Neill (1974).
Maximum AIS	Is the maximum value of the AIS for any patient. In this report, cases for which the maximum AIS was tied for two or more body regions were allocated to the 'multiple' body region category.
Mean length of stay	Is the average bed occupancy for a group of cases (ie. the total number of bed days for the group divided by the number of patients in the group). See "Bed occupancy".
Nature of injury	Refers to the details of anatomical injury coded according to chapter XVII of the International Classification of Diseases, Ninth revision, Volume 1 (1977) World Health Organisation, Geneva. (pp 473-546).
Principal diagnosis	The diagnosis or condition established after study to be chiefly responsible for occasioning the admission of the patient to hospital. It is coded according to ICD-9-CM in most States & Territories.
Road User type	Defines the road users use of the road at the time of injury: driver of a motor vehicle, passenger in a motor vehicle, a motorcycle rider, motorcycle passenger, pedal cyclist or pedestrian.