Final report

Federal Office of Road Safety

Road Safety Research Grants 1994-95 (seeding grant)

Background work for "Road traffic injuries: determinants and outcomes".

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DEPARTMENT OF TRANSPORT AND REGIONAL DEVELOPMENT

FEDERAL OFFICE OF ROAD SAFETY

DOCUMENT RETRIEVAL INFORMATION

Title and Subtitle

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Abstract

This report constitutes a two-part project plan, first, for investigating the relationships between human and environmental determinants of motor vehicle crashes, and second, for investigating the characteristics of the injured patient, the injury and the post injury medical care that explain the variations in patient outcomes. It is the product of a considerable period of development and pretesting and outlines a process now ready for implementation

Key words

Injury, Epidemiology, Risk, Outcomes

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Road traffic injuries: determinants and outcomes is a project now ready for implementation. This report describes the methods, instruments and processes (developed with the support of the seeding grant from the Federal Office of Road Safety) with which the project will now proceed. A pilot study conducted at the Princess Alexandra hospital as part of the background work for the project is described in Appendix - 1.

There were essentially two stages in the development of the project plan Stage one involved the development and pre-testing of the research instruments. Copies of these instruments are included in the report. Stage two involved the development of data-collection protocols. These protocols have been developed and pre-tested in Princess Alexandra Hospital (PAH) and are described in the report. Hospital administration, specialist and PAH Ethics Committee approval has been sought and granted for the project's implementation. The background work for the project has thus been completed.

For ease of implementation the project is has been divided into two (Parts A & B). Part A is a proposal for a case-control study which will elucidate the relationship between human and environmental determinants of motor vehicle crashes The characteristics of 400 hospitalised drivers will be compared with a 400 population controls Cases will be identified and consented while in hospital and interviews will be conducted by telephone after discharge. Controls will be identified by means of a random digit dialling process and interviewed over the telephone Differences between the risk behaviour of cases and controls will be linked to the details of the crashes in order to identify important causal pathways amenable to harm minimisation strategies.

The aim of Part B of the project plan is to describe the true burden of motor vehicle-related injury in Australia and to facilitate improved secondary and tertiary prevention for this major public health problem. Data will be obtained from a cohort of injured drivers who will be followed-up over the duration of their recovery. Those characteristics of the injured patient, the injury and the post injury medical care that explain the variations in patient outcomes will be noted. Strategies which favourably affect the relevant variables to ensure improved outcomes will be identified. The data will also be used to construct an Injury Severity Scale where each injury is rated according to its threat to functional capacity.

The project appears to be one which will provide valuable information on aspects of motor vehicle crash injuries about which little definitive information is currently available.

PROJECT PART A

TITLE

The determinants of motor vehicle related, life-threatening injuries in Australia

GOAL

To elucidate the relationship between human and environmental determinants of motor vehicle crashes

RATIONALE

The last quarter of century has seen significant reductions in the number of deaths from motor vehicle accidents in Australia (Harrison and Dolinis 1995). However, despite the rate having halved since 1989, motor vehicle accidents still account for one third of all deaths from injury in this country. Furthermore, over the last two years the decline in the transport-related death rate has ceased. It is currently believed that a widening of the focus of motor vehicle accident research may be necessary to facilitate the continued reduction of this major public health problem.

In 1989, the Federal Office for Road Safety commissioned a review of the literature in order to identify the role of human factors in motor vehicle accidents. The report concluded that "more knowledge is required about what personal and social factors influence 'normal' driving behaviour". They added that further research "would need to include stricter methodological controls than those previously applied" (Grey et al 1989;142-3). In 1995, at the instigation of the Australian Commonwealth Department of Human Services and Health , the National Road Advisory Council and the Land Transport Safety Authority of New Zealand, a further review was conducted on the issue of driver risk perceptions and behaviours (Elliot and Shanahan 1995). This report concluded that "far more research is needed". In particular they noted that the future of road safety lies in the combination of crash details with crash data that is behaviourally orientated.

The ideal study design for identifying complex causal issues in rare health conditions in human subjects remains the case-control study. There have been no recent such studies, either nationally or internationally, which have used this methodology to address the issues identified above for people severely injured in motor vehicle accidents. This study aims to redress this gap in the literature. In particular, this study will seek to identify important links in the web of causation between details of the motor vehicle accidents that results in severe injury and the relevant aspects of the subjects risk behaviour that are amenable to harm minimisation interventions.

OBJECTIVES

To identify associations between

> time, person (and personal characteristics including general injury related knowledge, attitudes, risk appreciation, health care patterns) and place

and

> details of motor vehicle accident

and

> details of injury

and

> severity of injury and immediate outcome

2

METHODS

Study design: Case-control study

Setting: The Brisbane Southern Zone

Study Period: January 1997 to December 1997

Participants: *Cases:* Residents of the Greater Brisbane Region who are hospitalised for more than 24 hours or die from motor vehicle accidents during the study period; Sample size = approx. 400. *Controls:* A random sample of those from the same area who are licensed to drive (identified and interviewed by random digit dialling); Sample size = 400.

Study Variables: Age, sex, ethnicity, background health conditions, health status, personality type, driving type, markers of risk behaviour and perceptions, driving record, vehicle type, usual alcohol patterns, other drugs, exposures (kilometres driven, speed driven, hours at the wheel, other non-driving risk factors), Micro details of the crash (patient's version), details of injury sustained, severity of injury, whether and which health professional sort.

Instruments:

i) For the determinant variables

> General psychosocial questionnaire
> Driving history questions
> Donovan driving personality schedule
> Risk perception scale

ii) For the injury event details

> Direct questions; eg how it happened, what do you think caused it

iii) For the injury details in text from patient

> AIS identifier
> ICD-9 code

Process:

For cases:
> Identify as they present to the major trauma centres of Brisbane
> Obtain consent, for telphone interview post discharge
> Patients telephoned and interviewed.

For controls:
> Random sample of patients in catchment area identified by random digit dialling: telephoned and consent obtained for telephone interview. No further follow up.

Analysis:

Descriptive analysis will document the incidence and distribution of the relevant variables and health states. Analytic evaluation of the results will then be performed to identify important associations between the variables. Odds rations will be calculated along with attributable risks for the various factors, both unadjusted and in multi-variate analysis (Logistic Regression). These measures of

association will be used to model important features of the web of causation responsible for the occurrence of motor vehicle accidents that result in serious injuries.

ETHICS

Ethics approval for this project has been granted by the Princess Alexandra Hospital Ethics Committee

BUDGET

Staff

1 and 1/4 full time project officer positions for twelve months

Salary for one position	$34,138
On-costs (15%)	$ 5,121
Salary for one quarter position	$ 8,535
Salary (15%)	$ 1,280

Administration costs

University administration and office costs	$ 926
TOTAL	$50,000

Budget Justification

Staff

As indicated by the details on the time line , the services of a full-time project officer are necessary for the successful conduct of the project. It is a relatively complex research project an will require a senior research officer who has experience in medical settings as well as undertaking surveys of the population. The appointee will need to the ongoing liaison with the hospital administrators. The data collection will occur over a twelve month period including weekends. It is therefore necessary to have the services of an additional research assistant to cover the periods when the project officer is unable to attend the hospital Hence the quarter-time position identified in the budget details.

Administration costs

These costs cover photocopying, telephone, stationary and administration support as required for implementation of the study.

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INTERVIEW SCHEDULE

The Determinants

of Motor Vehicle Accidents

in Australia

Survey for hospital patients

1. Identification Number: _____

1a. Listed in Brisbane Phone Directory

2. Today's date: ___/___/___

3. **Sex?** 1 Male 2 Female

Questions about your past health and your background.

Firstly, I am going to ask you some questions about your past health and your background.

4. **Date of birth?** ___/___/___

		never married	married	de facto	separated	divorced	widowed
5.	**What is your marital status?**	1	2	3	4	5	6

		completed primary school	did not finish high school	completed high school	completed trade course	completed university
6.	**What is the highest level of schooling you completed?**	1	2	3	4	5

7. **What is your employment status now?**

8. **If you do work at a job, do you:** work for yourself? 1

work for an employer? 2

9. **What is your and your partner's current occupation, what are your usual work tasks? [If not currently employed ask: what was your /your partner's last job?]**

	job position	usual tasks performed
respondent	_____	_____
partner	_____	_____

10. **Were you born in Australia?**

1 Yes *(If yes, go to Q11)*

2 No

9 Unknown

11.   If you were <u>not born in Australia</u> what year did you arrive? _____

12.   In which country was your <u>mother</u> born? _____

13.   In which country was your <u>father</u> born? _____

14.   **Have you ever been diagnosed with a major long-term medical condition?**
       [Prompt: vision impairment etc]

       Yes   1   No   2

       *Please specify:*_____

About the accident

This series of questions will be about the accident

15.   **Where did the accident happen?**   [general description of road type]

       _____

16.   **To (or from) where were you travelling when the accident occurred?**

       _____

17.   **What were the <u>weather conditions</u> at the time of the accident?**

       _____

       _____

18.   **What were the <u>light conditions</u> at the time of the accident?**

       _____

19.   **Before the accident occurred, how <u>regularly</u> would you pass by the accident site?**

       _____

20.   **What was the <u>primary traffic manoeuvre</u> you were attempting at the
       time of the accident?**

       _____

       _____

21.   **Was there another <u>vehicle/object</u> involved in the accident?** [general description of
other vehicle type]

22.   **What was the <u>impact</u> to the patient's vehicle?**

23.	What was the combined <u>velocity of impact</u> of the accident?

24.	<u>How many other people</u> were with you in the vehicle <u>at the time of the accident?</u>

	a) Who were they? (eg. friends family) _____

9	unknown

25.	What do you feel was the <u>main cause</u> of the accident?

	_____

	_____

26.	And can you think of the <u>second</u> most likely <u>cause of the accident</u>? (as above)

	_____

	_____

27.	In your opinion, what is the <u>major cause</u> of <u>motor vehicle accidents</u>?
	If no answer, prompt with the following:

	_____

28.	And the second most significant cause of accidents?		(code as above)

	_____

	_____

29.	How <u>frequently</u> did you drive the accident vehicle?

	_____

	_____

30.	For motor cars/trucks: **What were you doing <u>within the vehicle</u> at the time of the accident?**
	For motor cycles/bicycles: **Were you doing anything on the bike other than riding normally?**

	_____

	_____

31.	Were you wearing a seatbelt (MC helmet) at the time of the accident?

	_____

*31a.	If No: (and this patient <u>was not</u> a motor cyclist) Why.*

31b.   *If No: (and the patient was a motor cyclist)*

   ask: *'What was your reasons for not wearing a helmet?'*

32.   **What was the make and model of the vehicle you were driving?**

   _____

33.   **Were you driving/riding your own vehicle?**

   Yes   1   No   2

   [*if no then skip following two questions*]

34.   **Were the car/bike's safety features, size or its reputation for safety important considerations in deciding to acquire this vehicle?**

   Yes   1   No   2

35.   **What were those features/considerations?**

   _____

Personal Habits

The following couple of questions are about some actions you may or may not have taken prior to the accident.

36.   **Are you taking any regular medication?**   1 **Yes**   2 **No**
   (If yes, obtain details on type, quantity and regularity)

   Type/Quantity: _____ Regularity: _____

37.   **In the 12 hours preceding your accident, did you have**   1 **Yes**   2 **No**
   an alcoholic drink?*(If yes, obtain details on type and quantity)*

   Type/Quantity: _____

38.   **In the 12 hour period preceding the accident did you**   1 **Yes**   2 **No**
   take any *other medication(prescribed or unprescibed)/*
   drugs/pain killers?(If yes, get details on type and quantity)

   Type/Quantity: _____

Driving History Questions

I am going to ask you some questions about your driving experience

39.   **At what time of the day do you most regularly drive a motor vehicle?**

Other: _____

40.   How <u>frequently</u> do you drive a vehicle?   How far?   Where?

41.   Is driving part of your regular work duties?

       Yes   1   No   2

42.   As a driver, how many road accidents, if any, have you been involved in ever
       excluding this accident?

       _____ accidents

42a.   How many of these accidents required hospitalisation?
       _____ accidents

43.   Have you ever attended a driver training course (apart from learning to drive)?
       Yes   1   No   2

43a.   If so, when and where?

       _____

       _____

Recent Life Events

The next couple of questions refer to significant events in your life which have occurred
recently.

44.   Have you experienced any major life events in the past three months such as having a
       new baby, moving house, death of someone close, financial losses and so on (these can
       be either positive or negative)?
       Yes   1   No   2

45.   Can you tell me briefly were they were?

       _____

       _____

46. How have they effected you?

positive (1)   neutral (2)   negative (3)

Questions about risk and your perception of risk.

*I am now going to ask you some questions about **your personal risks** and your thoughts about the **risks that other people take**. Please think about the following situations, and estimate how many people would be affected by these conditions.*

47. In a class of <u>10 *male students who are graduating from high school*</u>, how many do you think a likely <u>to die</u> or to be <u>hospitalised at some stage in their lifetime</u> due to a <u>motor vehicle accide (in which they were the driver)</u>?

    _____

48. In a class of <u>10 *female students who are graduating from high school*</u>, how many do you think are likely <u>to die</u> or to be <u>hospitalised at some stage in their lifetime</u> due to a <u>motor vehicle accident (in which they were the driver)</u>?

    _____

49. In a mixed class of <u>10</u> students *who are graduating from high school*, (all of whom <u>smoked heavily</u>), how many do you think would end up <u>dying of a cardiovascular disease</u>, that is heart attack or stroke?

    _____

50. In a mixed class of <u>10</u> students *who are graduating from high school*, (all of whom consume a <u>high fat diet</u>), how many do you think would end up <u>dying of a cardiovascular disease</u>, that is heart attack or stroke?

    _____

51. *The following group of questions relate to risk factors which may increase someone's chance of having a motor vehicle accident which results in them being <u>admitted to hospital</u> or <u>dying</u>?*

    How much do you think [risk factor] would increase the chance of having <u>such an accident</u>? Do you think it would have 1) no effect 2) some effect or 3) a major effect?

	No effect	Some effect	Major effect
01 Two standard drinks in an hour before driving	1	2	3
02 Six or more standard drinks in an hour before driving.	1	2	3
03 Not wearing a seat belt.	1	2	3
04 Driving with bald tyres.	1	2	3
05 Driving more than twenty kilometres an hour over the speed limit in a built up area.	1	2	3
06 Driving at night.	1	2	3
07 Driving on wet roads	1	2	3

52. This next question includes some of the same situations as the last one, but here we are interested in the amount of danger you believe they may pose to your own health, rather than how much they may increase risks of accidents generally.

To what extent do you think that [risk factor] would pose a danger to your health? Do you think that a) the danger is so small as to be non-existent, b) the danger is present but not enough to worry about, or c) the danger is sufficiently large to worry about.

		Danger is so small as to be <u>non-existent</u>	Danger present, but <u>not enough</u> to worry about	The danger is <u>sufficiently large</u> to be a worry
01	Owning a gun	1	2	3
02	Dangerous recreational activities (eg boxing, hangliding, bungie jumping etc)	1	2	3
03	Driving a motor vehicle	1	2	3
04	Nuclear power/radiation	1	2	3
05	Air pollution	1	2	3
06	Passive smoking	1	2	3
07	Heavy smoking	1	2	3
08	High fat diet	1	2	3
09	Pesticides (eg crop dusting)	1	2	3
10	<u>Two standard drinks</u> in an hour before driving.	1	2	3
11	Driving after consuming <u>six or more standard drinks</u> in an hour	1	2	3
12	Not wearing a seat belt.	1	2	3
13	Driving with bald tyres.	1	2	3
14	Driving <u>more than twenty kilometres an hour</u> over the speed limit in a built up area.	1	2	3
15	Driving at night.	1	2	3
16	Driving on wet roads	1	2	3
17	Passing on a one lane road (one lane each way)	1	2	3
18	Driving when extremely tired	1	2	3

53. I would now like to ask you some questions about some of the things you may do. *Do you ...?*

		Yes	**No**
01	Smoke cigarettes	1	2
02	Drink alcohol	1	2
03	Drink (2 alcoholic drinks) and drive	1	2

14

		Yes	No
04	Drink (6 alcoholic drinks) and drive	1	2
05	Drive without a seatbelt	1	2
06	Drive when extremely tired	1	2
07	Ride a motor cycle without a helmet	1	2
08	Ride a bicycle without a helmet	1	2
09	Drive >20km over the speed limit in a built up area.	1	2
10	Deliberately ignore advisory sunsafe precautions (eg you knowingly spend time in the sun between 10am - 2pm without some form of skin protection)	1	2
11	Take part in dangerous sports, eg. boxing, hangliding, bungie jumping etc	1	2
12	Have a high fat diet	1	2
13	Smoke cannabis (hash, dope)	1	2
14	Use hard drugs (eg amphetamines, heroin, cocaine, or intravenous drug use generally etc)	1	2

54. **Would you drive a car if you knew <u>the registration had lapsed</u>?**

Never	Under extenuating circumstances	Usually	Often
1	2	3	4

This is the end of the questionnaire. Thank you for your time.

The Determinants

of Motor Vehicle Accidents

in Australia

Control Group Interview

"Hello! My name is [interviewer name] and I'm calling from the University of Queensland about a study we're presently conducting on driving habits and attitudes. I'd like to ask you a few questions, would that be OK?

If they ask how long it will take - *I just have a couple of questions to make sure that the survey applies to you, and then the main set of questions will take about 15 - 20 minutes, is that OK?"*

If NO/Negative response: Ask them if you could ring back at a more appropriate time. If yes, ask for their *name* and an *appropriate time*. (If possible check to see if they are eligible to participate by answering the 3 questions below. If no, thank them for their time and record as a Refusal (R)

If YES:

i.　　*"Can you tell me your age?"* _____ *years* **(use as age variable)**

If over 17, continue on to *question 2*

If under 17, thank them for their time and ask them ..... *."is there is anyone else who lives there who is over 17 years of age?"*

　　　If NO, thank them and conclude interview

　　　If YES, ask them if you can speak with them now (if not, suggest ringing back at a later time), and ask for a name and an appropriate time to call back.

ii.　　*"Have you ever been involved in a motor vehicle accident after which you were admitted to hospital?"*

If NO: move on to *question 3.*

If YES, ask:

　　　"Were you the driver?"

　　　If YES (ie they were the driver of the accident vehicle, thank them and ask:

　　　"is there is anyone else at home there who HAS NOT been hospitalised from a motor vehicle accident and who is OVER 17 years of age."

If YES, ask to speak with the other person and start the interview again.

If NO, thank them for their time and conclude interview.

iii.　　*"Do you drive a motor vehicle or ride a motor bike?"*

If YES, continue on with rest of the questionnaire.

If NO, thank them for their time, but explain that .... *"we are looking to speak with someone who drives either a car or rides a motor bike."*

Before we start the main interview I'd like to say that any information that you give us will be completely anonymous and won't be used for anything other than this research project.

Note: **R** - Refusal; **U** - Unreachable(no answer, away hols, work, O/S etc); **L (time/person)** - ring back at an appropriate time and ask for person.

1. **Identification Number:** _____   *Interview starting time:* _____

2. **Today's date**: ___/___/96

3. **Sex?**   1   Male   2   Female

4. **Age**_____(From above)

Questions about your past health and your background.

Firstly, I am going to ask you some questions about your past health and your background.

5. **Have you ever been diagnosed with a major long-term medical condition?**

    [Prompt: vision impairment etc]

    Yes   1   No   2

    Please specify:_____

		never married	married	de facto	separated	divorced	widowed
6.	**What is your marital status?**	1	2	3	4	5	6

		completed primary school	did not finish high school	completed high school	completed trade course	completed university
7.	**What is the highest level of schooling you completed?**	1	2	3	4	5

8. **What is your employment status now?**

    1   Employed in a full-time job

    2   Employed in a part-time or casual job

    3   Employed in a seasonal job (eg. landscaping)

    4   Unemployed

    5   Retired

    6   Homemaker

    7   Student

    9   Unknown

[If not employed go to question 10]

9. **If you do work at a job, do you:**   work for yourself?   1

                                            work for an employer?   2

10. **What is your/partners current occupation, and what are your usual work tasks?**

	job position	usual tasks performed
respondent	_____	_____

17

partner _____   _____

11.   Were you born in Australia?

Yes   1   No   2   Unknown   9
(If yes, go to Q13)

12.   If you were not born in Australia what year did you arrive? _____

13.   In which country was your mother born? _____

14.   In which country was your father born? _____

15.   In your opinion, what is the major cause of motor vehicle accidents?

_____

16.   And the second most significant cause of accidents?

_____(code as above)

Driving History Questions

The next set of questions are about your driving experience.

17.   How long have you been driving/riding (motor vehicles)?

_____

18.   At what time of the day do you most regularly drive or ride a motor vehicle?

1   mostly daytime driving

2   mostly night-time driving

3   to work in daylight hours and drive home on dusk

9   unknown

Other: _____

19.   How frequently do you drive or ride a vehicle?   How far?   Where?

20.   Is driving part of your regular work duties?

Yes   1   No   2   NA   0

21.   As a driver, how many road accidents, if any, have you ever been involved in?
_____ accidents

22.   Have you ever attended a driver training course (apart from learning to drive)?

Yes   1   No   2

22a.   **If so, when and where?**

_____

_____

Personal Habits

I'd like you to think back to the last time you drove or rode a motor vehicle on the road.

23.   **How long ago was that?**_____

The following couple of questions are about some actions you may or may not have taken in the period immediately before you last drove or rode a vehicle on the road.

24.   **Were you taking any regular medication?   1   Yes   2   No**
        (If yes, obtain details on type, quantity and regularity)

        Type/Quantity: _____Regularity: _____

25.   **In the 12 hours before you last drove,** did you have an alcoholic drink?*(If yes, obtain details on type and quantity)*   **1   Yes   2   No**

        Type/Quantity: _____

26.   **In the 12 hours before you last drove** did you take any other *medication/ drugs/pain killers* **(prescribed or unprescibed)?** *(If yes, get details on type and quantity)*
        Yes 1   No   2

        Type/Quantity. _____

Recent Life Events

The next couple of questions refer to significant events in your life which have occurred recently.

27.   **Have you experienced any major life events in the past three months such as having a new baby, moving house, death of someone close, financial losses and so on (these can be either positive or negative)?**

        Yes   1   No   2

28.   **Can you tell me briefly were they were?**

        _____

        _____

        _____

29. **How have they effected you?**

positive (1)   neutral (2)   negative (3)

Questions about risk and your perception of risk.

I am now going to ask you some questions about your personal risks and your thoughts about the risks that other people take.

30. In a class of **10** *male students who are graduating from high school,* how many do you think are likely **to die** or to be **hospitalised at some stage in their lifetime** due to a **motor vehicle accident** (in which they were the driver)?

    _____

31. In a class of **10** *female students who are graduating from high school,* how many do you think are likely **to die** or to be **hospitalised at some stage in their lifetime** due to a **motor vehicle accident** (in which they were the driver)?

    _____

32. In a mixed class of **10** students *who are graduating from high school,* (all of whom **smoked heavily**), how many do you think would end up **dying of a cardiovascular disease** that is heart attack or stroke?

    _____

33. In a mixed class of **10** students *who are graduating from high school,* (all of whom consume a **high fat diet**), how many do you think would end up **dying of a cardiovascular disease** that is heart attack or stroke?

    _____

34. *The following group of questions relate to risk factors which may increase someone's chance of having a motor vehicle accident which results in them being admitted to hospital or dying?*

    How much do you think [this risk factor] would increase the chance of having such an accident? Do you think it would have 1) no effect 2) some effect or 3) a major effect?

	No effect	Some effect	Major effect
01 Two standard drinks in an hour before driving	1	2	3
02 Six or more standard drinks in an hour before driving.	1	2	3
03 Not wearing a seat belt.	1	2	3
04 Driving with bald tyres.	1	2	3
05 Driving more than twenty kilometres an hour over the speed limit in a built up area.	1	2	3
06 Driving at night.	1	2	3
07 Driving on wet roads	1	2	3
08 Passing on a one lane road (one lane, each way)	1	2	3

		Danger is so small as to be non-existent	Danger is present, but not enough to worry about	Danger is sufficiently large to worry about
09	Driving when extremely tired	1	2	3

35. This next question includes some of the same situations as the last one, but here we are interested in the amount of danger you believe they may pose to your own health, rather than how much they may increase risks of accidents generally.

To what extent do you think that [risk factor] would pose a danger to your health? Do you think that a) the danger is so small as to be non-existent, b) the danger is present but not enough to worry about, or c) the danger is sufficiently large to worry about.

		Danger is so small as to be non-existent	Danger is present, but not enough to worry about	Danger is sufficiently large to worry about
01	Owning a gun	1	2	3
02	Dangerous recreational activities (eg boxing, hangliding, bungie jumping etc)	1	2	3
03	Driving a motor vehicle	1	2	3
04	Nuclear power/radiation	1	2	3
05	Air pollution	1	2	3
06	Passive smoking	1	2	3
07	Heavy smoking	1	2	3
08	High fat diet	1	2	3
09	Pesticides	1	2	3
10	Two standard drinks in an hour before driving.	1	2	3
11	Driving after consuming six or more standard drinks in an hour	1	2	3
12	Not wearing a seat belt.	1	2	3
13	Driving with bald tyres.	1	2	3
14	Driving more than twenty kilometres an hour over the speed limit in a built up area.	1	2	3
15	Driving at night.	1	2	3
16	Driving on wet roads	1	2	3
17	Passing on a one lane road (one lane each way)	1	2	3
18	Driving when extremely tired	1	2	3

36. I would now like to ask you some questions about some of the things you may do. *Do you ...?*

		Yes	No
01	Smoke cigarettes	1	2
02	Drink alcohol	1	2
03	Drink (2 alcoholic drinks) and drive	1	2
04	Drive without a seatbelt	1	2

		Yes	No
05	Drive when extremely tired	1	2
06	Drive >20km over the speed limit in a built up area.	1	2
07	Ride a motor cycle without a helmet	1	2
08	Ride a bicycle without a helmet	1	2
09	Deliberately ignore advisory sunsafe precautions (eg. you knowingly spend time in the sun between 10am - 2pm without some form of skin protection)	1	2
10	Take part in dangerous sports, eg. boxing, hangliding, bungie jumping etc	1	2
11	Have a high fat diet	1	2
12	Smoke cannabis (hash, dope)	1	2
13	Use hard drugs (eg amphetamines, heroin, cocaine, or intravenous drug use generally etc)	1	2

37. Would you drive a car if you knew <u>the registration had lapsed?</u>

Never	Under extenuating circumstances	Usually	Often
1	2	3	4

38. Do you have a current drivers licence?

Yes...................... 1   No 2

Interview conclusion: _____

This is the end of the questionnaire. Thank you for your time.

PROJECT PART B

TITLE

The distribution and determinants of motor vehicle related, life-threatening injuries in Australia and their outcomes.

GOAL

To describe the true burden of motor vehicle-related injury in Queensland and to facilitate improved secondary and tertiary prevention for this major public health problem

RATIONALE

With the increasing attention currently being given to the long term consequences of injury there is an urgent need to develop instruments and methodology for evaluating the post hospital outcomes. This project aims to develop a measure for adequately quantifying the individual and societal costs of injury. The burden of injury in the community will then be estimated for the first time properly inclusive of all relevant outcomes. This project will also identify those characteristics of the injured patient, the injury and the post injury medical care that explain the variations in patient outcome. Strategies will be identified which can favourably affect the relevant variables to ensure improved outcomes for high risk patients. The data will be used to construct an Injury Severity Scale where each injury is rated according to its threat to functional capacity

The impact of motor vehicle related injury on threat to life is well documented (Baker et al. 1992). The ability to categorise injuries on the basis their threat to life and has facilitated the development and implementation of countermeasures and advanced the medical, surgical and systematic management of trauma so that a dramatic lowering of mortality rate has been achieved over the past twenty years. Few of these scales however, have attempted to broaden the concept of injury severity to include notions of consequent functional capacity in survivors (MacKenzie 1985) Yet the public health burden of injury related disability is substantial (Miller 1993). The investigators of this proposed study have begun the development of scales which are based upon the prediction of long term disability that arises from injury (McClure 1995). They have also made advances in the quantification of the public health impact of injury (McClure and Douglas). This proposed project aims to build upon the work that has been previously published in the area.

OBJECTIVES

1) To identify the population-based incidence and distribution of life-threatening motor vehicle related injury in Australia by

    time, person and place

    type of injury

    severity of injury and immediate outcome

    whether or not police involved

2) To identify associations between the personal, event and injury variables listed in   objective one.

3) To validate (or otherwise) the hospital morbidity file as a source of injury data in   Australia.

4)   To document the incidence and distribution of medical interventions for hospitalised motor vehicle crash patients (including emergency and trauma care systems and rehabilitation)

5)   To identify the population-based incidence and distribution of health and economic outcomes relating to hospitalised motor vehicle crash patients.

6)   To identify determinants of outcomes (including evaluation of trauma care systems)

7)   To validate the various available predictor-of-outcome scores.

METHODS

Study design: Prospective cohort study

Setting: Greater Brisbane Region

Study Period: January 1997 to January 1999 (twelve month registration of patients and two years follow-up)

Participants: Residents of Brisbane who are hospitalised for more than 24 hours or die from motor vehicle accidents during the study period: Sample size = approx. 400.

Study Variables: Age, sex, occupation, ethnicity, background health conditions, health status, personality type, usual alcohol patterns, other drugs, injury details and severity. Medical interventions. Economic, functional and social outcomes

Instruments:

1) Determinant variables

     A psychosocial questionnaire

2) Injury details

     Abbreviated Injury Scale (AIS)

     International Classification of Diseases (ICD-9)

3) Medical intervention, surgery and rehabilitation

     As per usual trauma registry questions

4) Outcome assessment

     As per the Functional Capacity Index health status measures

Process:

Patients fulfilling inclusion criteria will be identified from the Brisbane South Trauma Registry. The hospitals participating in this registry are Princess Alexandra, Logan, Mater, Queen Elizabeth II, Wynnum and Redland Bay Hospitals.

The identified patients will be approached by the project officer while in they are in hospital for consents and a baseline questionnaire (Schedule A). Information regarding injury and treatment details (Schedule B) will be obtained from the trauma registry. Follow up interviews (Schedule C) at three, six, twelve months and two years after injury will be conducted by telephone by the project officer.

Analysis:

<div style="border: 1px solid;">

Summary of Project

a) Describe the distribution of injuries sustained in motor vehicle accidents in terms of the following variables:

Personal   Injury   Treatment   Outcomes - economic & health

b) Identify determinants of each stage in terms of preceding variables

</div>

i) Descriptive

Univariate, subgroups and controlled for important factors

Groupings by time, person, place

ii) Analytic

In looking for associations Odds Ratios will be calculated along with attributable risks for the various factors, both individually and in multivariate analysis

Time series analysis will be conducted with Cox's proportional hazards modelling to enable the multivariate analysis to be performed.

ETHICS

Ethics approval for this project has been granted by the Princess Alexandra Hospital Ethics Committee

BUDGET

As outlined above, this project is a prospective study over three years. The required funding for this project is $50,000 per year for three years. The fellowship application is for the first years funding

Staffing
1 full time project officer positions per year

Salary for one position	$34,138
On-costs (25%)	$ 8,535

Contribution to Trauma registry per year

Block reimbursement per year	$ 5,000

Administration costs per year

University administration and office costs	$ 2,327
Total for 1997	$50,000
Total for duration of project (1997-1999)	$150,000

Budget Justification

Staff

The services of a full-time project officer are necessary for the successful conduct of the project. It is a relatively complex research project an will require a senior research officer who has experience in

medical settings as well as undertaking surveys of the population. The appointee will need to the ongoing liaison with the hospital administrators

Contribution to Trauma registry

The success of the project depends upon the resources of the Brisbane Trauma Registry. The project's subjects will be identified by this registry and much of the information regarding the injury and inpatient care needed for the project will be collected by the registry trauma nurse. The $5,000 contribution will reimburse the trauma registry for the se of its resources.

Administration costs

The Departments of Surgery and Social and Preventive Medicine will house the project and absorb many of the administrative costs of the project within their core budgets (eg rent, electricity, computer network maintenance etc) The listed administration costs cover specific extra costs of stationary and postage, leasing a computer for the project officer and the telephone costs associated with the follow-up interviews.

INTERVIEW SCHEDULES

Schedule A

The Outcomes of
Road Traffic Injuries

funded by

Federal Office of Road Safety

The Outcomes of Road Traffic Injuries

General details

For the interviewer to answer.

i.   Identification Number: _____

ii. Today's date: ___/___/96

iii. Sex?   1   Male   2   Female

iv. Have you had to stay in hospital for *24 hours or more* **because of your injury?**

1   Yes   2   No

To be asked of the injured patient.

How are you feeling today?

_____

_____

a) Pain   1   Yes   2   No

b) Nausea   1   Yes   2   No

c) Fatigue   1   Yes   2   No

vi. Are you experiencing any feelings of anxiety or depression?

a) Anxiety   1   Yes   2   No

b) Depression   1   Yes   2   No

Comments: _____

_____

vii. Are you presently having any difficulty with the following?

a) Concentrating   1   Yes   2   No

b) Remembering   1   Yes   2   No

c) Thinking Clearly 1   Yes   2   No

Comments: _____

_____

HCI

The following questions are about your health now. This information will help keep track of how you feel and how you are able to do your usual activities.

1. (i) At any time since your injury, did your injury **prevent** you from

    a) driving a car .... YES   NO

    b) being a passenger in a car .... YES   NO

    c) using public transport .... YES   NO

    (ii) At any time since your injury did your injury cause you
    to **need help to** ride in a car or use public transport?   YES   NO

2. (i) At any time since your injury did you spend the day in a
    bed, chair or couch BECAUSE OF YOUR INJURY?   YES   NO

    ii) At any time since your injury did you
    spend time in a wheelchair, BECAUSE OF YOUR INJURY?   YES   NO

        If YES, did you move or control the movement of
        the chair without help from someone else?   YES   NO

    (iii) At any time since your injury did your injury
    prevent you from, or cause you to have difficulty with,
    lifting, stooping, bending over or using stairs?   YES   NO

    (iv) At any time since your injury did your injury
    cause you to limp, use a stick, crutches or walker?   YES   NO

    (v) At any time since your injury did your injury prevent
    you from walking as far or as fast as is usual for you?   YES   NO

3. Now we'd like to find out how your injury has affected your ability
    to work at your "job". For the purposes of this survey, your "job"
    could be any of the following:-

    a) full-time or part-time self employed or paid employment_

    b) houseduties

    c) school, college or university studies

    d) retired persons normal activities

    e) preschooler's play activities

    [NOTE: If you do not have a "job" go straight to question 4.]

    (i) At any time since your injury has your
    injury COMPLETELY PREVENTED you from
    being able to work at your "job"?   NO   YES --- HOW MANY DAYS OFF?_____

    (ii) At any time since your injury
    has your injury PARTIALLY RESTRICTED your
    ability to work at your "job"?   NO   YES --- ON HOW MANY DAYS?_____

4. Here is a list of a wide range of activities people might engage in outside of their "job". Did your recent injury cause you to have more difficulty than usual with any of these activities at any time in the week following your injury?

YES   NO

a) Going shopping, handling personal business, and so on.   Y   N

b) Taking part in hobbies, games, play activities, and so on.   Y   N

c) Visiting and meeting with friends, relatives and so on.   Y   N

d) Taking part in church, or religious activities etc.   Y   N

e) Taking part in community work, going to meetings and so on.   Y   N

f) Attending movies, spectator sports, other entertainment and so on.   Y   N

g) Looking for a job or other work.   Y   N

h) Other activity similar to those above. Please specify_____Y   N

5. At any time since your injury did you find you

i) **did not** DRESS because of your recent injury, or had help to DRESS (tying shoes, buttoning shirt, blouse, coat, etc)   YES   NO

ii) **did not** FEED SELF (did not eat, received fluids by vein etc) or had help to FEED SELF (being fed, having meat cut, bread buttered, etc) because of your injury   YES   NO

iii) **did not** use TOILET (Eg used a bedpan) because of your recent injury, or had help to use TOILET (getting on and off the seat, cleaning with tissues etc)   YES   NO

iv) **did not** TAKE A BATH or SHOWER because of your recent injury, or had help to TAKE A BATH/SHOWER, getting in or out of tub or shower, washing all parts of the body etc)   YES   NO

Patient's Perception of Injury

1a. Imagine a friend is expected to live for the rest of their life with the same disability your injury is giving you now. Suppose treatment could return them to full health, but would shorten their life. How much time do you think it would be worth them giving up in return for full health?

> *"I would advise giving up at most* |__|__| *years and/or* |__|__| *months and/or* |__|__| *days in return for full health."*

1b. If you take a moment to consider your condition at the present time, I would like you to imagine that you were given two choices regarding your future health.

Your first choice: You will not consider any form of treatment. Your health will remain at its present level, for the rest of your life.

The second choice: This treatment has two possible outcomes. You will undergo treatment which will allow you to immediately recover your total health. However, there is a slight risk that you may not recover from the operation.

I would like to find out what would be the greatest risk that you would consider was an acceptable risk for you to consent to have the operation? _____ %

Use the statement: If the risk was only X% would you consider having the operation?   Yes   No

Explanation of Risk Factors

1. Read through the first sentence in 1b. *2.* Then, show the diagram explaining the options using the information beneath the diagram. *3.* Use the diagram below to give examples of probabi;lities of the patient dying during an operation by shading the appropriate numbers of boxes. (Note: 1 box = 1%); you can then determine what risk they would be prepared to accept in having the operation).

Now we want to ask you some questions about your physical health

2. To help you to tell us how your injury has affected your ability to perform regular day to day activities, we have drawn a scale (rather like a thermometer) on which the best state of physical health you can imagine is marked by 100. The other reference point on the scale is 0 which represents death.

Your Health

Could you mark on this scale, your ability to perform normal daily activities in the following situations.

you (before the accident)

you today (after the accident)

Hypothetical Conditions

I am now going to tell you about a number of conditions and ask you to imagine that each of these effects someone you know. How do you think a person with each of these conditions would cope with their normal daily activities.

Use the scale below to give your response. (Clarify conditions 1 & 2, if necessary).

1. paraplegia

2. quadriplegia

3. Has some difficulty walking (uses a stick) and is mildly confused

4. Can get about by themselves, but has some difficulty in bending and carrying (eg would find it difficult to carry a bag of groceries).

Questions about your work

1. Please complete this table for the specified members of your family who work at a job.

	job position	usual tasks performed
yourself	_____	_____
your partner	_____	_____

2. If you do work at a job, do you:

work for yourself	1
work for an employer?	2

3. If you needed to take some time off work while this injury recovered would you still receive adequate pay, or some form of sickness benefit, or compensation or pension, that would meet your financial needs.

yes	no	don't know
1	2	3

4. About your job in general. How satisfied have you been with the following?

	very satisfied	satisfied	dissatisfied	very dis-satisfied	N/A
a) your usual take home pay	1	2	3	4	5
b) your work prospects	1	2	3	4	5
c) the people you work with	1	2	3	4	5
d) physical working conditions	1	2	3	4	5
e) the way your section is run	1	2	3	4	5
f) the way your abilities are used	1	2	3	4	5
g) how interesting your job is	1	2	3	4	5
h) your job as a whole taking everything into consideration	1	2	3	4	5

5. Does your boss or supervisor seem to notice when you take time off work?

almost always	sometimes	seldom	never	N/A
1	2	3	4	5

6. How much interest does your boss or supervisor show in your well-being when you return to work after sick leave?

a lot of interest	some interest	not much interest	no interest at all	N/A
1	2	3	4	5

7.	How many <u>days have you taken off</u> because of injury or ill health in the last <u>twelve months</u>?	0 - 7d	8 - 14d	15 - 28d	28d or more work
		1	2	3	4

```
        1            2            3            4
        |------------|------------|------------|
     Strongly                              Strongly
     agree                                 disagree
```
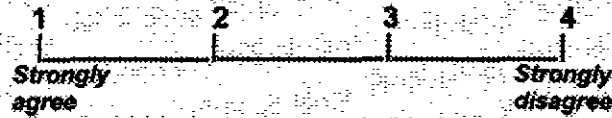
8. I can anticipate difficulties and take action to avoid them. .... [ ]

9. A great deal of what happens to me is probably just a matter of chance. .... [ ]

10. Everyone knows that luck or chance determines one's future. .... [ ]

11. When I make plans, I am almost certain that I can make them work. .... [ ]

12. People are victims of circumstance beyond their control. .... [ ]

13. I believe a person can really be the master of his/her fate. .... [ ]

14. I am confident of being able to deal successfully with future problems. .... [ ]

15. In my case maintaining control over my problem(s) is mostly due to luck. .... [ ]

16.	Does your mood often go up and down?	Yes	No
17.	Do you ever feel "just miserable" for no reason?................................	Yes	No
18.	Are your feelings easily hurt?...................	Yes	No
19.	Do you often feel "fed-up"?........	Yes	No
20.	Would you call yourself a nervous person?..	Yes	No
21.	Are you a worrier?...	Yes	No
22.	Do you worry about awful things that might happen?...........................	Yes	No
23.	Would you call yourself tense or "highly strung"?...............................	Yes	No
24.	Do you worry too long after an embarrassing experience?..............	Yes	No
25.	Do you suffer from "nerves"?...	Yes	No

EXAMPLE:

a. Who do you know whom you can trust with information that could get you into trouble?

1) _____ 4) _____ 7) _____
2) _____ 5) _____ 8) _____
3) _____ 6) _____ 9) _____

b. How satisfied are you with this overall support?

very satisfied	fairly satisfied	a little satisfied	a little dissatisfied	fairly dissatisfied	very dissatisfied
6	5	4	3	2	1

26a. <u>Whom can you really count on</u> to <u>listen to you</u> when you need to talk?

1) _____ 4) _____ 7) _____
2) _____ 5) _____ 8) _____
3) _____ 6) _____ 9) _____

26b. How satisfied are you with this overall support?

Very satisfied	Fairly satisfied	A little satisfied	A little dissatisfied	Fairly dissatisfied	Very dissatisfied
6	5	4	3	2	1

27a. <u>Whom could you really count on</u> to help you out in a crisis situation, even though they would have to go out of their way to do so?

1) _____ 4) _____ 7) _____
2) _____ 5) _____ 8) _____
3) _____ 6) _____ 9) _____

27b. How satisfied are you with this overall support?

Very satisfied	Fairly satisfied	A little satisfied	A little dissatisfied	Fairly dissatisfied	Very dissatisfied
6	5	4	3	2	1

28a. Whom can you really count on to care about you regardless of what is happening to you?

1) _____ 4) _____ 7) _____
2) _____ 5) _____ 8) _____
3) _____ 6) _____ 9) _____

28b. How satisfied are you with this overall support?

Very satisfied	Fairly satisfied	A little satisfied	A little dissatisfied	Fairly dissatisfied	Very dissatisfied
6	5	4	3	2	1

29a. Whose lives do you feel you are an important part of?

1) _____ 4) _____ 7) _____
2) _____ 5) _____ 8) _____
3) _____ 6) _____ 9) _____

29b. How satisfied are you with this overall involvement?

Very satisfied	Fairly satisfied	A little satisfied	A little dissatisfied	Fairly dissatisfied	Very dissatisfied
6	5	4	3	2	1

30a. Whom can you really count on to help you feel better when you are very irritable and ready to get angry at almost anything.

1) _____ 4) _____ 7) _____
2) _____ 5) _____ 8) _____
3) _____ 6) _____ 9) _____

30b. How satisfied are you with this overall support?

very satisfied	fairly satisfied	a little satisfied	a little dissatisfied	fairly dissatisfied	very dissatisfied
6	5	4	3	2	1

31a. Whom can you really count on to help you if a person whom you thought was a good friend insulted you and told you he/she didn't want to see you again?

1) _____ 4) _____ 7) _____
2) _____ 5) _____ 8) _____
3) _____ 6) _____ 9) _____

31b. How satisfied are you with this overall support?

very satisfied	fairly satisfied	a little satisfied	a little dissatisfied	fairly dissatisfied	very dissatisfied
6	5	4	3	2	1

This next section consists of a number of statements about personal attitudes. There are no right or wrong answers. Using the 9-point scale shown below, please indicate how much you agree or disagree with each statement by selecting the appropriate number on the scale beside the statement. For example, a score of 5 would indicate that you neither agree nor disagree with the statement, a score of 3 that you moderately agree, a score of 9 that you strongly disagree.

1   2   3   4   5   6   7   8   9

Strongly   Strongly
agree   disagree

32.	I get satisfaction from helping others and if this were taken away from me I would get depressed.	1	2	3	4	5	6	7	8	9
33.	I'm able to keep a problem out of my mind until I have time to deal with it.	1	2	3	4	5	6	7	8	9
34.	I work out my anxiety through doing something constructive and creative like painting or woodwork.	1	2	3	4	5	6	7	8	9
35.	I am able to find good reasons for everything I do.	1	2	3	4	5	6	7	8	9
36.	I'm able to laugh at myself pretty easily.	1	2	3	4	5	6	7	8	9
37.	People tend to mistreat me.	1	2	3	4	5	6	7	8	9
38.	If someone mugged me and stole my money, I'd rather he/she be helped than punished.	1	2	3	4	5	6	7	8	9
39.	People say I tend to ignore unpleasant facts as if they didn't exist.	1	2	3	4	5	6	7	8	9
40.	I ignore danger as if I was Superman.	1	2	3	4	5	6	7	8	9
41.	I pride myself on my ability to cut people down to size.	1	2	3	4	5	6	7	8	9
42.	I often act impulsively when someone else is bothering me.	1	2	3	4	5	6	7	8	9
43.	I get physically ill when things aren't going well for me.	1	2	3	4	5	6	7	8	9
44.	I'm a very inhibited person.	1	2	3	4	5	6	7	8	9
45.	I get more satisfaction from my daydreams than from my real life.	1	2	3	4	5	6	7	8	9
46.	I've special talents that allow me to go through life with no problems.	1	2	3	4	5	6	7	8	9
47.	There are always good reasons when things don't work out for me.	1	2	3	4	5	6	7	8	9
48.	I work more things out in my daydreams than in my real life.	1	2	3	4	5	6	7	8	9
49.	I fear nothing.	1	2	3	4	5	6	7	8	9
50.	Sometimes I think I'm an angel and other times I think I'm a devil.	1	2	3	4	5	6	7	8	9

| 51. | I get openly aggressive when I feel hurt. .... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

| 52. | I always feel that someone I know is like a guardian angel. .... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

| 53. | As far as I'm concerned, people are either good or bad. .... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

| 54. | If my boss bugged me, I might make a mistake in my work or work more slowly to get back at him. .... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

| 55. | There is someone I know who can do anything and who is absolutely fair and just. .... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

| 56. | I can keep the lid on my feelings if letting them out would interfere with what I'm doing. .... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

| 57. | I'm usually able to see the funny side of an otherwise painful predicament. .... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

| 58. | I get a headache when I have to do something I don't like. .... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

| 59. | I often find myself being very nice to people who by all rights I should be angry at. .... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

| 60. | I am sure I get a raw deal from life. .... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

| 61. | When I have to face a difficult situation I try to imagine what it will be like and plan ways to cope with it. .... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

| 62. | Doctors never really understand what is wrong with me. .... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

| 63. | After I fight for my rights I tend to apologise for my assertiveness. .... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

| 64. | When I'm depressed or anxious, eating makes me feel better. .... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

| 65. | I'm often told that I don't show my feelings. .... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

| 66. | If I can predict that I'm going to be sad ahead of time, I can cope better. .... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

| 67. | No matter how much I complain, I never get a satisfactory response. .... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

| 68. | Often I find that I don't feel anything when the situation would seem to warrant strong emotions. ...... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

| 69. | Sticking to the task at hand keeps me from feeling depressed or anxious. .... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

| 70. | If I were in a crisis, I would seek out another person who had the same problem. .... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

| 71. | If I have an aggressive thought, I feel the need to do something to compensate for it. .... | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

Questions about your past health and your background.

I am now going to ask you some questions about your past health and background.

72. Have you ever been diagnosed by a doctor as having any of the following medical conditions?

	yes	no	don't know
a) high blood pressure	1	2	3
b) lung disease (Eg. asthma, emphysema etc)	1	2	3
c) diabetes or sugar problem	1	2	3
d) liver problem	1	2	3
e) over-weight problem	1	2	3
f) heart problem	1	2	3
g) a mental disease (such as depression, anxiety etc)	1	2	3
h) physical disability	1	2	3
i) a drinking problem	1	2	3

j) another medical problem not mentioned above?
   *Please specify*_____

73. Date of birth? ___/___/___

74. In which country were you born? _____ *If Australia, go to Q76*

75. If you were not born in Australia what year did you arrive? _____

76. In which country was your mother born? _____

77. In which country was your father born? _____

	never married	married	de facto	separated	divorced	widowed
78. What is your marital status?	1	2	3	4	5	6

	completed primary school	did not finish high school	completed high school	completed trade course	completed university
79. What is the highest level of schooling you completed?	1	2	3	4	5

You have now finished the questionnaire. Thank you for your time.

PART B

The Distribution and Determinants of Motor Vehicle Crash Injury outcomes

Date:

Assessment Time: _____

RR	☐	Annex	☐
CAS	☐	Transit	☐
# Clinic	☐	Other	☐

Trauma Form

Title	Family Name	M.R N
Given Names:		History Number
C.M.O.	Fin Class	Address
Date of Birth	Sex	Ward	Postcode

Pulse Rate = _____ /min

B/P: _____ **A**

Systolic	>90	4	☐
	70-90	3	☐
	50-69	2	☐
	<50	1	☐
	0	0	☐

Cap Filling **B**

<2 sec	2	☐
>2 sec	1	☐
nil	0	☐

Resp rate: _____ **C**

10-24	4	☐
25-35	3	☐
>35	2	☐
<10	1	☐
0	0	☐

Untestable due to: drugs ☐
other causes ☐

Resp effort **D**

Normal	1	☐
Shallow retractive	0	☐

Untestable due to drugs ☐
other causes ☐

E

Add A+B+C+D = (MAX SCORE 11) ☐

NATURE OF ACCIDENT

MVA	driver			
	passenger	front		
		back		
	seatbelt	yes	no	
MBA	rider			☐
	pillion			
	helmet	yes	no	
Pedestrian				☐
Pedal Cyclist				
	helmet	yes	no	
Personal Assault				☐
Stabbing				☐
Gunshot				☐
Industrial				☐
Fall				☐
Other				☐

Pupils R L

	R	L
size (mm)	☐	☐
reaction	☐	☐
no reaction	☐	☐
untestable	☐	☐

Eye Opening **F**

spontaneous	4	☐
to voice	3	
to pain	2	
nil	1	

Untestable due to: drugs
other causes

Verbal **G**

orientated	5	☐
confused	4	
inappropriate words	3	
incomprehensible	2	
nil	1	

untestable due to drugs
other causes

Motor **H**

obeys commands	6	☐
localises	5	
withdrawal	4	
abnormal flexion	3	
extension	2	
nil	1	

Untestable due to. drugs
other causes

GCS Untestable ☐

Add F+G+H = (MAX SCORE 15) ☐

If Coma Score **J**

14-15	5	☐
11 to 13	4	
8 to 10	3	
5 to 7	2	
3 to 4	1	

Add E + J = (MAX SCORE 16) ☐

Burns	Electrical	☐
	Chemical	
	Blast	
	Other	☐

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PLACE OF INJURY

Street or highway
Home
Residential Institution
Industrial premises
Public area
Hotel or Club
Recreation unorganised
Oranised sport
Farm
Other

DETAILS AT THE SCENE

Loss of consciousness:
           immediate
           delayed
Length of time?
Cardiac arrest
Hypertension
External bleeding:
Site?
Vomiting
Airway obstruction
Other

TREATMENT AT SCENE OR TRANSPORT

Nil specific
IV Fluids
          Type.
          Code
          Volume:

Medications
          Type·
          Code:
          Dose:

Intubated:
CPR
MAST suit·
Chest tube
Cervical collar
Limb splint

Pre Intubation GCS
Temperature
          Arrival
          Despatch

DESCRIPTION OF INCIDENT:

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

PREVIOUS ILLNESSES & OPERATIONS:

CNS:
CVS:
Resp:
Per. Vasc:
Renal:
Other:
Medications:

Allergies:

FAMILY & SOCIAL:

Marital Status
M   S   W   D   O   C

Occupation·

Unemployed
Student
Retired
Pensioner
Home duties
Child <5

ACCIDENT AND EMERGENCY RECORDING

Day of Injury	
Public/School Holiday	
Postcode of Injury	
Date of Injury	
Time of Injury	
Time of Ambulance Attendance	
Time of Arrival	
Time of Resident Assessment	
Time of Surgical Reg Assessment	
Time of Despatch	
Mode of Arrival	
Ambulance Code	
Bypass	
Age	
Sex	

AMBULANCE	TIME	BP	RESP RATE	L.CON	For **BURNS** patients record calculation of fluids required in the 1st 24 hours.
First					
Final					

FLUIDS IN THE FIRST HOUR
Type:
Code.
Volume:

FLUIDS TO DESPATCH
Type:
Code:
Volume:

RESUSCITATION

1	One Peripheral IV Line	
2	Two Peripheral IV Line	
3	Central IV Line	
4	Oxygen Mask	
5	ET Tube	
6	Controlled Ventilation	
7	NG/orogastric tube	
8	1st Intercostal tube	
9	2nd Intercostal tube	
10	Pericardiocentesis	
11	MAST suit	
12	CPR	
13	Immobilisation of limb(s)	
14	Immobilisation of Neck	
15	IDC	
16	Other	
17	Thoracotomy	
18	Eschorotomy	

IMAGING INVESTIGATION

1	CXR	
2	ECG	
3	Skull X-Ray	
4	C-Spine X-Ray	
5	Abdo/Pelvis X-Ray	
6	L or T Spine X-Ray	
7	IVP	
8	Cystogram	
9	Urethrogram	
10	DPL Result ( )	
11	CT Head	
12	CT Abdo Chest	
13	L/S Scan	
14	U/S Abdomen	
15	Face X-Ray	
16	Limb X-Ray	
17	Aortography	
18	Peripheral Angiography	
19	Oral Contrast	
20	Other	
21	Bronchoscopy	

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TRAUMA TEAM CALLED

Criteria Fulfilled	
Team Called	

O/A Trauma Score:

Calculation in A&E	
Retrospective	
Not Tested	

Crams Score	
Paed Trauma Score	

NATURE OF DESPATCH & TIME

#		Ward	Time
1	Operating Suite		
2	ICU		
3	H.D. Ward (Specify)		
4	General Ward		
7	Home / Signed Out		
8	Death		
9	T/F Hospital		
10	R Room		
11	A3c		
12	C3c		

MEDICATIONS IN THE A&E DEPARTMENT

Code: **Drug:**   **Dose:**   **Route:**

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

ORIGINATING HOSPITAL: Code: _____
                                    Hospital: _____

Mode of Arrival:

Arrival date & time to Originating Hospital:

Departure date & time from the Originating Hospital:

Resuscitation:

Investigations:

IV Fluids:
Code: **Type:**   **Dose:**   **Route:**

_____

_____

_____

Code: **Drug:**   **Dose:**   **Route:**

_____

_____

_____

SPECIALITY TRANSFER

Orthopaedic			If Craniotomy	< 2 hrs from injury
Neurosurgical			If Laparotomy	< 4hrs from injury
Critical Care		Open Long Bone #	Yes	No
Other		Operation >6hrs from injury	Yes	No
Escort				

FIRST 24 HRS - EVENTS SINCE A&E DESPATCH

Operations:

Op-No#	Cavity	Code	Date	Time	Description

Resuscitation Measures:

	Code	Description
1		
2		
3		
4		
5		
6		
7		

Imaging Investigations:

	Code	Description
1		
2		
3		
4		
5		
6		
7		

Total IV Fluids in the first 24 hours:

	Code	Type	Volume
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

INITIAL TEST RESULTS

Hb	pH	O	CO	HC03	BE	SaO2

COHb

PROGRESS AT ONE WEEK OR AT DISCHARGE OR DEATH (first 24 hrs or at autopsy)

IDC9CM	Code		IDC9CM	Code

	Op No#	Cavity	Code	Time	Description
Operations:					

Complications:

			Date	Comments
1		Coagulopathy		
2		Resp/Vent. Failure		
3		Renal Failure		
4		Hyperbilirubinaemia		
5		G I. Bleeding		
6		Sepsis		
7		Abscess		
8		Other Infection		
9		CNS		
10		Other		
11		Cardiac		
12		Massive Blood Loss (>10 L.)		

Discharge:

Days	in Hospital			High Dep Unit	
	in ICU			High Dep Days	
	on Ventilator				
	on Dialysis				

Death:

Date.		Autopsy Report		
Time:		Organ Donor		
Place:		No Autopsy		
Cause:		CNS Death	YES	NO
Time to Death:		Operation	YES	NO
Days				
Hours				
Minutes:				

Precipitating Medical Condition (Clinical Cause)

At Discharge:

Discharged by Hospital		Own Risk	
Referral to GP		District Hospital	
Specialist F.U		Nursing Home	
Rehab F.U		Psych Hospital	
Outpatient Therapy		Other	
Acute Care Hosp.		Death	

Salvageable is defined as any case with
           but excluding cases with·

* at least one injury with AIS score of 4 or more
* AIS 6 in any region
* AIS 5 in any region head & neck (except solitary EDH)
* ISS >59

Is this case salvageable as defined above:

INJURIES

Injury Severity Score: (ISS)	(1-75)	Open Long Bone #	Yes No
Autopsy Obtained	1 = Yes	Operation <6hrs from injury	Yes No
Amended After Autopsy	2 = No		

INJURY DESCRIPTION	Region	ICD9CM	AIS Code	Score

Schedule C

The Outcomes of
Road Traffic Injuries

funded by

Federal Office of Road Safety

The Outcomes of Road Traffic Injuries

General details

1. Identification Number: _____

2. Today's date: ___/___/96

3. Sex?   1   Male   2   Female

Use of Health and Social Services

I am going to ask you about your use of health and social services since the accident.

1. **How did you go to the Accident and Emergency Department (casualty) after the accident?**

   1   Land ambulance

   2   Helicopter

   3   General practitioner

   4   Taken by a member of the general public

   5   Walked in unaided

   6   *Other; if so please specify* _____

   _____

2. **Have you been discharged form hospital?**

   Yes   No

   1   2

   [If the patient has not yet been discharged from hospital, go to page 7, HCI questions]

3. **Have you <u>returned to the hospital and stayed overnight</u> since you were discharged after the accident?**

   Yes   No   *[If no, go to question 7 page 3]*

   1   2

   If yes - how many times have you returned?   _____ times

4. To which hospital were you readmitted:

Re-admission number

	1st	**2nd**	**3rd**
Name of hospital			
Type [eg. acute general psychiatric, geriatric.]			

5. When were you admitted?

	1st	**2nd**	**3rd**
Date			

6. Did you go to casualty first?

	1st	**2nd**	**3rd**
Yes	1	1	1
No	2	2	2

7. Have you visited hospital without being admitted (eg as an outpatient) since the accident?

   Yes   No

   1   2

   [If no, go to Q9, page 4]

8. Approximately <u>how many times</u> have you visited hospital for problems related to injuries from the accident?

   Outpatient   _____ times

   In patient(<24 hr stay)   _____ times

   Accident and Emergency   _____ times

   If other, please specify _____

8a. How many of these visits to hospital were <u>in the last month?</u>

Outpatient _____ times

In patient(<24 hr stay) _____ times

Accident and Emergency _____ times

If other, please specify _____

For the following 4 questions, prompt <u>once only</u> if the patient is unsure as to the number of times

---

9. About <u>how many times</u> have you visited a GP for problems related to injuries from the accident?

____ times

9 unknown

9a. How many of these visits were <u>in the last month?</u>

____ times

9 unknown

10. And approximately <u>how many times have you been visited at home by a GP</u> for problems related to injuries from the accident?

____ times *(If the answer is 0, go to Q11)*

9 unknown

10a. How many of these <u>visits by the GP</u> were <u>in the last month?</u>

____ times

9 unknown

11. Have you been visited either by (or do you go and see) a <u>district nurse, a social worker, occupational therapist,</u> or some other person from Health or Social Services in connection with the effects of the accident?

Yes No

1 2

[If no, go to Q13, page 5]

12. For each of these visitors, please answer the following:

[Complete a separate column for each visitor]

Visitor number

	1	2	3
Post held by visitor (DN, SW, OT)			
For how many weeks since the accident has the visitor been giving care?			

How often did they visit you in the first 2 months after the accident?

More than once a day	1	1	1
Once a day	2	2	2
Every other day	3	3	3
2-3 times a week	4	4	4
Once a week	5	5	5
Less often than once a week	6	6	6
Approximately for how many hours a week did the visitor stay?			

DN - district nurse, SW - social worker, OT - occupational therapist

[If difficult, ask how long each visit lasted and calculate]

13. **In the three months since your accident, have you been attending a formal rehabilitation programme with your doctor or physiotherapist.**

　　　Yes　　　No

　　　1　　　2

[If no, go to Q14, page 6]

13b. **For each rehabilitation therapist who has treated you, please answer the following:**

[Complete a separate column for each therapist]

therapist number

	1	2	3
Post held by rehab worker (DN, Phys)			
For how many weeks since the accident you been undergoing rehab?			

How often did you visit each therapist in the first 3 months after the accident?

	1	2	3
More than once a day	1	1	1
Once a day	2	2	2
Every other day	3	3	3
2-3 times a week	4	4	4
Once a week	5	5	5
Less often than once a week	6	6	6
Approximately how many hours a week did you visit each therapist?			

14. Have you been given any <u>special equipment</u> to help with your <u>daily living</u>?

        Yes   No

         1   2

[If no, go to Q 15, below]

If yes, please complete the following about each item of equipment:-

Type of equipment	Length of time equipment used (in months)

15. Since your accident, do you receive more help with any of your daily activities from friends or relatives than you did before the accident?

        Yes   No

         1   2

[If no, go to Q16 below]

15a. For <u>how many weeks</u> have they been helping you?

_____ weeks

9   unknown

15b. On average during these weeks, <u>how much extra time each week</u> did they take off from their usual activities to help you?

1   Less than 1 hour

2   1-5 hours

3   6-20 hours

4   More than 20 hours?

9   unknown

16. Can you tell me, were you in <u>paid employment</u> or self employment <u>before the accident</u>?

1   Yes, full time

2   Yes, part time

3   No

[If not in employment, go to Q18, page 7]

17. How many <u>days have you had off work</u> due to the accident?

    ____ days

    9   unknown

[If no days off, go below to the section: 'Questions Related to Your Injury']

17a. How many days have you had off work due to the accident <u>in the last month?</u>

    ____ days

    9   unknown

[Go below to the section: HCI]

18. *Only ask if <u>not</u> in employment]*

    For about how many days have you been unable to do your usual activities (eg. house work, gardening, childcare, voluntary etc.)

    _____ days

    [If no days, then go to the section: HCI]

18a. For how many days have you been unable to do your usual activities <u>in the last month?</u>

    ____ days

    9   unknown

HCI

The following questions are about your health now. This information will help keep track of how you feel and how you are able to do your usual activities.

1. Have you had to stay in hospital for 24 hrs or more BECAUSE OF YOUR INJURY?   YES   NO

2. In your opinion, is your injury now completely better?   YES   NO

    If YES, what was the date of full recovery?   ___/___/___

3. How are you feeling today?_____

3a. *Prompt with the following: ie Are you presently experiencing any:*

    a)   Pain   1   Yes   2   No

    b)   Nausea   1   Yes   2   No

    c)   Fatigue   1   Yes   2   No

3b. Are you experiencing any feelings of **anxiety** or **depression**?

   a) Anxiety   1   Yes   2   No

   b) Depression   1   Yes   2   No

   Comments: _____

   _____

3c. Are you presently having any difficulty with the following?

   a) Concentrating   1   Yes   2   No

   b) Remembering   1   Yes   2   No

   c) Thinking Clearly 1   Yes   2   No

   Comments:

   _____

   _____

4. **(i)** In the last week, did your injury **prevent** you from

a) driving a car	YES	NO
b) being a passenger in a car	YES	NO
c) using public transport	YES	NO
(ii) At any time in the last week did your injury cause you to **need help to** ride in a car or use public transport?	YES	NO

5. **(i)** In the last week, did you spend the day in a bed chair or couch BECAUSE OF YOUR INJURY?   YES   NO

ii) In the last week, did you spend time in a wheelchair. BECAUSE OF YOUR INJURY?   YES   NO

        If YES, did you move or control the movement of the chair without help from someone else?   YES   NO

(iii) In the last week, did your injury prevent you from,or cause you to have difficulty with, lifting, stooping, bending over or using stairs?   YES   NO

(iv) In the last week, did your injury cause you to limp, use a stick, crutches or walker?   YES   NO

(v) In the last week, did your injury prevent you from walking as far or as fast as is usual for you?   YES   NO

6.   Now we'd like to find out how your injury has affected your ability
      to work at your "job". For the purposes of this survey, your "job"
      could be any of the following:-

      a) full-time or part-time self employed or paid employment_

      b) houseduties

      c) school, college or university studies

      d) retired persons normal activities

      e) preschooler's play activities

[NOTE: If you do not have a "job" go straight to question 6.]

(i) In the last week, has your injury
COMPLETELY PREVENTED you from
being able to work at your "job"?   NO   YES --- HOW MANY DAYS OFF?_____

(ii) In the last week has your injury
PARTIALLY RESTRICTED your
ability to work at your "job"?   NO   YES --- ON HOW MANY DAYS?_____

7.   Here is a list of a wide range of activities people might engage in outside of   YES   NO
      their "job". Did your recent injury cause you to have more difficulty than usual
      with any of these activities at any time in the last week?

      a) Going shopping, handling personal business, and so on.   Y   N

      b) Taking part in hobbies, games, play activities, and so on.   Y   N

      c) Visiting and meeting with friends, relatives and so on.   Y   N

      d) Taking part in church, or religious activities etc.   Y   N

      e) Taking part in community work, going to meetings and so on.   Y   N

      f) Attending movies, spectator sports, other entertainment and so on.   Y   N

      g) Looking for a job or other work.   Y   N

      h) Other activity similar to those above. Please specify_____   Y   N

---

8.   At any time in the last week did you find you

      i) **did not** DRESS because of your recent injury, or had help to
      DRESS (tying shoes, buttoning shirt, blouse, coat, etc)   YES   NO

      ii) **did not** FEED SELF (did not eat, received fluids by vein etc)
      or had help to FEED SELF (being fed, having meat cut, bread
      buttered, etc) because of your injury   YES   NO

      iii) **did not** use TOILET (Eg used a bedpan) because of your recent
      injury, or had help to use TOILET (getting on and off the seat,
      cleaning with tissues etc)   YES   NO

      iv) **did not** TAKE A BATH or SHOWER because of your recent injury,
      or had help to TAKE A BATH/SHOWER, getting in or out of tub or
      shower, washing all parts of the body etc)   YES   NO

Patient's Perception of Injury

1a. Imagine a friend is expected to live for the rest of their life with the same disability your injury is giving you now. Suppose treatment could return them to full health, but would shorten their life. How much time do you think it would be worth them giving up in return for full health?

> *"I would advise giving up at most* |__|__| *years and/or* |__|__| *months and/or* |__|__| *days in return for full health."*

1b. If you take a moment to consider your condition at the present time, I would like you to imagine that you were given two choices regarding your future health.

Your first choice: You will not consider any form of treatment. Your health will remain at its present level, for the rest of your life.

The second choice: This treatment has two possible outcomes. You will undergo treatment which will allow you to immediately recover your total health. However, there is a slight risk that you may not recover from the operation.

I would like to find out what would be the greatest risk that you would consider was an acceptable risk for you to consent to have the operation? _____%

Use the statement: If the risk was only X% would you consider having the operation?   Yes   No

(Use the table below to assist you in explaining the various probabilities of the patient dying during the operation; you can then determine what risk they would be prepared to accept in having the operation).

Explanation of Risk Factors

1. Read through the first sentence in 1b. 2. Then, show the diagram explaining the options using the information beneath the diagram.

Now we would like to ask you some questions about your physical health

2. To help you to tell us how your injury has affected your ability to perform regular day to day activities, we have drawn a scale (rather like a thermometer) on which the best state of physical health you can imagine is marked by 100. The other reference point on the scale is 0 which represents death.

Your Health

Could you mark on this scale, your ability to perform normal daily activities in the following situations.

Hypothetical Conditions

I am now going to tell you about a number of conditions and ask you to imagine that each of these effects someone you know. How do you think a person with each of these conditions would cope with their normal daily activities.

Use the scale below to give your response. (Clarify conditions 1 & 2, if necessary).

1. paraplegia

you (before the accident)

2. quadriplegia

3. Has some difficulty walking (uses a stick) and is mildly confused

you today (after the accident)

4. Can get about by them-selves, but has some difficulty in bending and carrying (eg would find it difficult to carry a bag of groceries).

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PROJECT REFERENCES

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Appendix - 1.

The Pilot Study

A pilot study was conducted at the Princes Alexandra Hospital from April - August 1996 in order to pre-test both the questionnaire and the practical processes involved in the collection of data.

Of the 11 patients identified as being eligible for the pilot study and approached by an interviewer 10 consents were obtained. Data from these 10 'cases' were combined with information obtained through telephone interviews from the 20 'controls'. Although the sample size **is not sufficient to enable sophisticated analysis nor provide the power for supporting definitive conclusions**, a brief review of some of the quantitatve information obtained in the pilot is useful to demonstrate the project's potential.

EXAMPLE TABULATIONS

1. Characteristics of the motor vehicle crashes

Manoeuvre being performed at time of crash

Crash occurred while driver	Cases
stationary	1
proceeding alone on straight road	3
proceeding in traffic on straight road	1
proceeding alone on curved road	1
performing a right turn	1
performing a left turn	1
proceeding through intersection	1
performing other manoeuvre	1
Total	10

Familiarity with crash site.

Site usually traversed by subject	Cases
daily	5
at least weekly	1
at least monthly	2
annually	1
less than annually	1
Total	10

Light conditions at time of crash

Light	Cases
bright daylight	4
dusk	2
night	2
dark daylight	2
Total	10

Weather conditions at time of crash

weather	Cases
fine	6
light rain	2
don't know	1
windy	1
Total	10

2. Socio-demographic characteristics of the subjects by whether case or control

Age by case status

	Case	Control	Total
17-35	6	5	11
35+	4	14	18
Total	10	19	29

Odds ratio = 4.2 (95% confidence interval 0.64-30)

In other words young drivers may have about a four-fold increased risk of seriously crashing.

Sex by case status

Sex	Case	Control	Total
Male	9	11	20
Female	1	9	10
Total	10	20	30

Odds ratio = 7.36 (95% confidence interval 0 68-186)

In other words male drivers may have about a seven-fold increased risk of seriously crashing.

Education by case status

Education	Case	Control	Total
primary	0	2	2
part high school	3	6	9
high school	4	8	12
trade	2		2
uni	1	4	5
Total	10	20	30

Employment by case status

Employment	Case	Control	Total
full-time	7	7	14
part-time	3	2	5
seasonal		0	0
unemployed		2	2
retired		3	3
homemaker		6	6
Total	10	20	30

Marital status by case status

Marital status	Case	Control	Total
Never	5	4	14
married	3	14	5
defacto		0	0
separated	1	0	2
divorced	1	0	3
widowed		2	6
Total	10	20	30

Country of birth by case status

Country of birth	Case	Control	Total
Australian born	9	15	24
Foreign born	1	5	6
Total	10	20	30

Odds ratio = 3 (95% confidence interval 0.25-79)

In other words Australian born drivers may have about a three-fold increased risk of seriously crashing

3. Risk behaviour characteristics of the subjects by whether case or control

Risk perception

The risk perceptions of the sample were identified and with high perceivers defined as the top 15% and low perceivers defined as the bottom 15% it was found that low risk perceivers have about a seven-fold increase of seriously crashing.

Odds ratio = 7.5 (95% confidence interval 0.25-401)

Risk acceptance

The tendency to accept risks for those in the sample were identified and the sample was dichotomised into high and low risk takers at the 50th percentile. It was found that high risk taker has about a nine-fold increase of seriously crashing.

Odds ratio = 9.44 (95% confidence interval 1.07-105)