

NEW ISSUE

ACCIDENTS
AUSTRALIAN HEALTH SURVEY
1977-78

CATALOGUE NO. 4313.0

AUSTRALIAN BUREAU OF STATISTICS Canberra

ACCIDENTS
AUSTRALIAN HEALTH SURVEY
1977-78

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Australian Statistician

Catalogue No. 4313.0

AUSTRALIAN BUREAU OF STATISTICS

INQUIRIES

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NOON 16 NOVEMBER 1979

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MAIN FEATURES

In the Australian Health Survey a sample of persons in private households was interviewed about their illnesses and use of health services. Data were collected on the incidence of accidents that occurred in the two weeks before interview which required medical attention or a stay in bed. The following results relate to the data collected on accidents:

- 1.7 per cent of the Australian population reported having an accident in the 2 weeks before interview. A greater percentage of males (2.2 per cent) reported an accident than females (1.2 per cent).
- The most frequently reported place of accident for males aged 15 years or more was 'work' which accounted for 38.6 per cent of accidents in this group. For females aged 15 years or more the most frequently reported place of accident was 'own home' (49.4 per cent). For all persons aged under 15 years the most frequently reported category of place of accident was 'other place' (36.8 per cent) which includes areas used for sport or recreation.
- The most common type of injury incurred by persons was 'cut or breaking of skin (laceration)', which was reported in 37.5 per cent of injuries by persons aged under 15 years and 25.2 per cent by persons aged 15 years or more.
- The most frequent type of event which resulted in injury to persons under 15 years of age was the group 'fall or jump' which was reported in 44.5 per cent of accidents in this age group. For persons aged 15 years or more, the most frequent event was 'stepped on, struck against or by objects,' which caused injury in 45.2 per cent of accidents in this age group.

EXPLANATORY NOTES

Introduction

This publication contains estimates from the Australian Health Survey, based on information obtained from a sample of households during the 1977-78 financial year.

2. Other publications from the survey contain tables on different aspects of the survey. A description of all topics collected in the survey is contained in *Australian Health Survey 1977-78 Information Paper* (4340.0).
3. The main objective of the survey was to obtain information about the health of Australians and the use of and need for various health related services and facilities.

Scope and coverage

4. Interviews were conducted at a random sample of private dwellings from all parts of Australia excluding rural Northern Territory. Certain groups of persons, such as occupants of non-private dwellings (e.g. hospitals, motels, hotels), diplomatic personnel and persons from overseas touring or holidaying in Australia, were excluded from the survey. The exclusion of persons currently in hospitals, nursing homes and other health institutions should be borne in mind in assessing the significance of the results.

Survey method

5. Each person aged 15 years or more was interviewed personally, except those persons either too old or too sick to be interviewed, where relatives were interviewed on their behalf. Wherever possible, information for persons aged less than 15 years was obtained from their mothers.

Definitions

6. *Accidents* - Information was collected about any accident or injury that occurred in the two weeks prior to interview that resulted in treatment at a hospital or from a doctor, a dentist, a chemist or nurse, or a stay in bed due to the accident or injury. If more than one accident occurred in the two weeks prior to interview only the details of the most recent accident were recorded.

7. For each accident reported the following details were recorded:

- (a) place of accident
- (b) part(s) of body injured
- (c) type(s) of injury
- (d) the event which resulted in injury, and
- (e) the agency involved.

As more than one part of the body or type of injury may be involved in an accident, provision was made to allow all parts of the body or types of injury involved in an accident to be recorded. This means that the total parts of the body or types of injury recorded may exceed the number of accidents reported.

8. *Agency* - relates to that item which, because of its hazardous nature or condition, precipitated the event which led to the injury. For example if the injured person strained his back while lifting an article, the article was coded as the agent. For a detailed list of the categories involved and items included in each category see Appendix 1, Page 11.

9. *Event resulting in injury* - refers to the event which directly resulted in the injury, i.e. the manner in which the object causing the injury comes into contact with the person. For a detailed list of the categories involved and items included in each category see Appendix 2, Page 13.

Sample design

10. Households were randomly selected for inclusion in the survey, using a stratified multistage area sample design. Approximately 15,000 dwellings were selected for inclusion in the survey.

Estimation procedure

11. The estimates given in this publication were derived by use of a ratio estimation procedure based on the age/sex characteristics and distribution of the population of Australia.

Reliability of the estimates

12. Since the estimates are based on a sample they are subject to sampling variability (see Technical Note, page 15, for further details). Some figures in this publication are replaced or preceded by the symbol *. Estimates preceded by this symbol have a standard error of between 25 and 50 per cent and care should be exercised in using them because they are subject to such high errors. Estimates which are replaced with this symbol have a standard error greater than 50 per cent.

13. In addition to sampling errors, the survey results are subject to non-sampling errors, i.e. those inaccuracies that may occur because of imperfections in reporting by interviews or respondents, processing errors and non-response. Such errors may occur in any statistical collection whether it is a full census count or a sample survey. Every effort is made to reduce non-sampling errors in the survey to a minimum by careful design and testing of questionnaires, by intensive training and supervision of interviewers, and by efficient operating procedures.

14. The following factors should be considered in interpreting the estimates in this bulletin:

- (i) Those accidents in the last 2 weeks for which the person was hospitalised for the whole 2 week period or longer are excluded because of the survey design, (see Scope and coverage, paragraph 4).

- (ii) Those accidents in the last 2 weeks which resulted in death before the interview of the person concerned were not enumerated.

- (iii) Those accidents for which medical attention or a stay in bed was not required are excluded from the results, (refer paragraph 6).

Related publications

15. Other ABS publications which may be of interest include:

Australian Health Survey 1977-78, Information Paper (4340.0)

Australian Health Survey Bulletin No. 1 September 1977 (Preliminary) (4309.0)

Australian Health Survey Bulletin No. 2 December 1977 (Preliminary) (4310.0)

Australian Health Survey, 1977-78 (4311.0)

Causes of Death : 1975, 1976 and 1977 (3303.0)

Chronic Illnesses, Injuries and Impairments : May 1974 (4305.0)

Road Traffic Accidents Involving Casualties, Quarterly (9403.0).

16. All publications produced by the ABS are listed in *Catalogue of Publications (1101.0)* which is available free of charge from any ABS office.

Symbols and other usages

- .. not applicable
- * subject to sampling variability too high for most practical purposes. See explanatory note, paragraph 12.

17. Where figures have been rounded, discrepancies may occur between sums of the component items and totals.

R.J. CAMERON
Australian Statistician

TABLE 1. PERSONS : WHETHER THEY HAD AN ACCIDENT IN THE TWO WEEKS BEFORE INTERVIEW
BY AGE BY SEX

	Age group (years)						Total persons	
	Under 5	5-14	15-24	25-44	45-64	65 or more	Number	Percent
MALES								
	Number ('000)							
No accident	590.1	1,256.1	1,146.2	1,888.4	1,354.1	518.7	6,753.6	97.8
One or more accidents	*6.8	32.2	37.8	51.4	20.9	*5.5	154.7	2.2
Total males	596.9	1,288.4	1,183.9	1,939.8	1,375.1	524.2	6,908.3	100.0
	Rate (a)							
Rate per 1,000 males (a)	*11.5	25.0	31.9	26.5	15.2	*10.5	22.4	..
FEMALES								
	Number ('000)							
No accident	556.5	1,198.4	1,138.8	1,842.5	1,348.5	694.9	6,779.7	98.8
One or more accidents	10.3	21.0	18.0	18.3	10.4	*5.5	83.4	1.2
Total females	566.8	1,219.4	1,156.7	1,861.0	1,358.8	700.4	6,863.1	100.0
	Rate (a)							
Rate per 1,000 females (a)	18.1	17.2	15.5	9.9	7.6	*7.8	12.2	..
PERSONS								
	Number ('000)							
No accident	1,146.6	2,454.5	2,284.9	3,731.1	2,702.6	1,213.7	13,533.3	98.3
One or more accidents	17.1	53.2	55.7	69.8	31.3	11.0	238.1	1.7
Total persons	1,163.7	2,507.7	2,340.7	3,800.8	2,733.9	1,224.6	13,771.4	100.0
	Rate (a)							
Rate per 1,000 persons (a)	14.7	21.2	23.8	18.4	11.4	9.0	17.3	..

(a) Number of persons who had one or more accident in the two weeks before interview as a rate per 1,000 of population in that age group.

CHART A. PERSONS WHO HAD AN ACCIDENT IN THE TWO WEEKS BEFORE INTERVIEW : AGE BY SEX ('000)

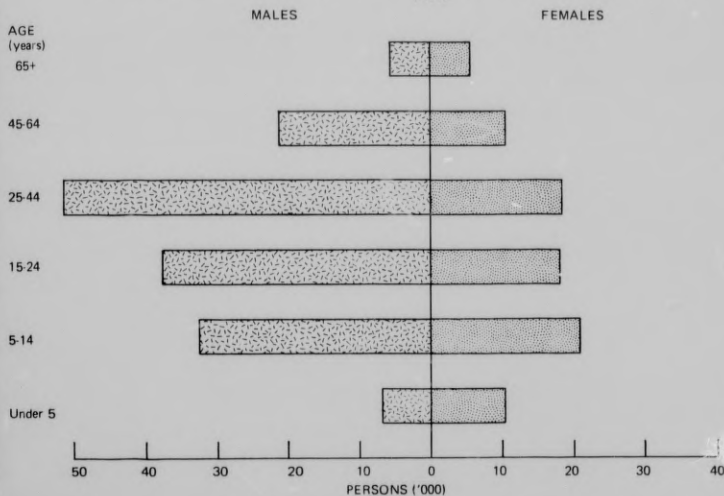


TABLE 2. PLACE OF OCCURRENCE OF MOST RECENT ACCIDENT : AGE BY SEX ('000)

Place of accident	Persons under 15 years of age				Persons aged 15 years or more			
	Males	Females	Total		Males	Females	Total	
			Number	Percent			Number	Percent
Work	..	..	..	..	44.6	*7.9	52.5	31.3
School/College/University	9.3	9.9	19.2	27.3	*	*	*2.3	*1.4
Own home	11.9	*6.6	18.5	26.3	24.4	25.8	50.3	30.0
Street or road	*4.0	*2.7	*6.7	*9.5	11.9	*5.9	17.9	10.7
Other place (a)	13.8	12.1	25.9	36.8	33.0	12.0	44.9	26.8
Total	39.1	31.2	70.3	100.0	115.6	52.2	167.8	100.0

(a) Includes areas used for sport or recreation and other public places.

CHART B PLACE OF OCCURRENCE OF MOST RECENT ACCIDENT : SEX ('000)

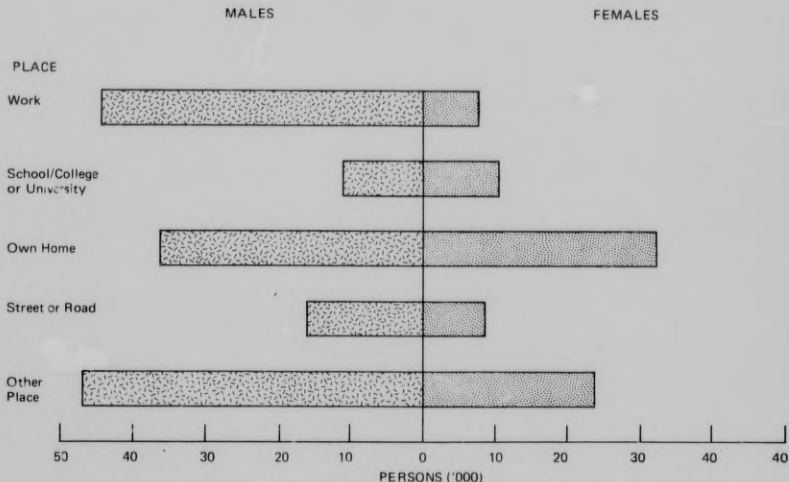


TABLE 3. PLACE OF OCCURRENCE OF MOST RECENT ACCIDENT : AGE (DETAILED)
(^{'000})

Place of accident	Age group (years)						Total persons	
	Under 5	5-14	15-24	25-44	45-64	65 or more	Number	Percent
Work	..	..	13.3	27.5	11.7	*	52.5	22.0
School/College/University	*	19.2	*	*	*	*	21.5	9.0
Own home	*7.1	11.4	10.8	19.6	11.3	*8.6	68.7	28.9
Street or road	*	*5.6	*7.3	*5.1	*4.5	*	24.5	10.3
Other place (a)	9.0	16.9	22.4	17.4	*3.8	*	70.8	29.8
Total	17.1	53.2	55.7	69.8	31.3	11.0	238.1	100.0

(a) Includes areas used for sport or recreation and other public places.

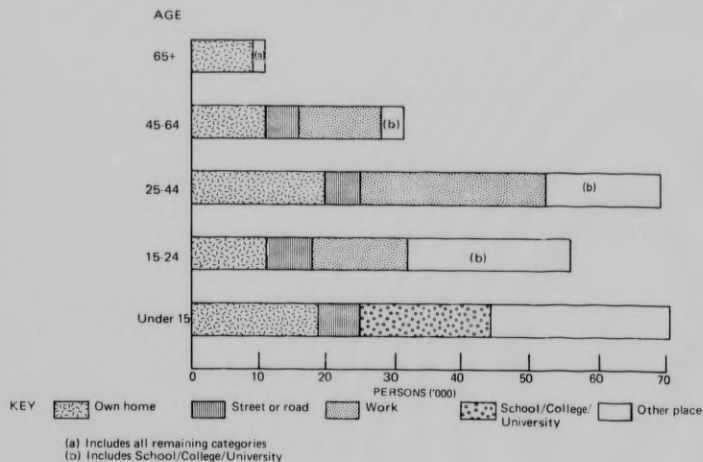
CHART C PLACE OF OCCURRENCE OF MOST RECENT ACCIDENT : AGE (DETAILED)
(^{'000})

TABLE 4. PART(S) OF BODY INJURED IN MOST RECENT ACCIDENT :
AGE BY SEX
(^{'000})

Part(s) of body injured (a)	Persons under 15 years of age				Persons aged 15 years or more			
	Males	Females	Total		Males	Females	Total	
			Number	Percent			Number	Percent
Head and neck (excluding eyes and features)	*8.4	*4.6	13.0	17.4	12.3	*7.0	19.3	10.2
Eyes and features (nose, mouth, etc.)	*4.2	*7.5	11.7	15.6	15.4	*	17.4	9.2
Back and trunk (including shoulders)	*4.8	*	*5.8	*7.7	21.5	*8.6	30.1	15.9
Arms and wrists	*4.1	*5.0	9.1	12.1	11.4	*6.6	18.1	9.5
Hands and fingers	*2.8	*2.5	*5.3	*7.1	29.0	12.4	41.4	21.8
Legs and ankles	*8.5	*5.9	14.4	19.2	23.0	15.4	38.4	20.2
Feet and toes	*7.6	*2.8	10.4	13.9	12.2	*6.3	18.5	9.8
Other	*	*3.8	*5.2	*6.9	*4.1	*2.4	*6.5	*3.4
Total	41.9	33.1	74.9	100.0	129.0	60.7	189.7	100.0

(a) Persons may appear in a number of categories but they may appear only once within a category.

CHART D PART(S) OF BODY INJURED IN MOST RECENT ACCIDENT : AGE
(^{'000})

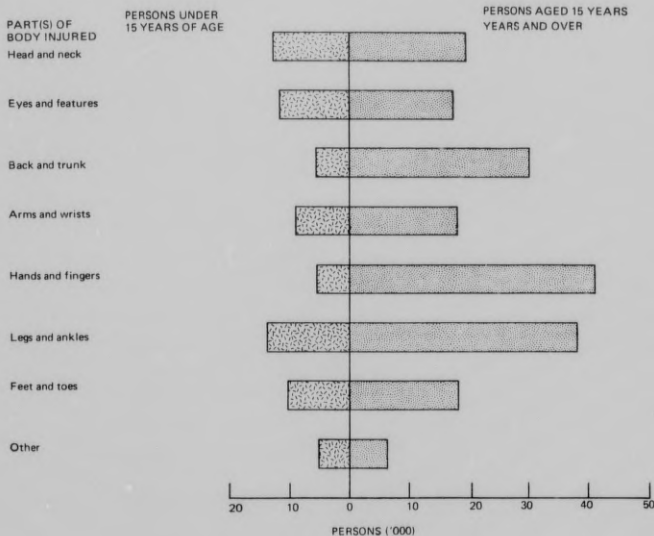


TABLE 5. TYPE(S) OF INJURY INCURRED IN MOST RECENT ACCIDENT : AGE BY SEX
('000)

Type(s) of Injury (a)	Persons under 15 years of age				Persons aged 15 years or more			
	Males	Females	Total		Males	Females	Total	
			Number	Percent			Number	Percent
Burn or scald	*	*	*	*	*4.2	*2.8	*7.0	*3.6
Cut or breaking of skin (laceration)	16.0	12.6	28.7	37.5	35.8	12.9	48.7	25.2
Bruise or crushing	*7.4	*6.8	14.2	18.6	29.1	17.2	46.3	24.0
Sprain, strain or twist	*6.0	*5.1	11.2	14.6	25.8	14.3	40.1	20.8
Fractures	*3.1	*2.6	*5.7	*7.5	12.5	*5.6	18.2	9.4
Foreign body/harmful contact (b)	*4.6	*	*6.8	*8.9	12.9	*4.3	17.2	8.9
Other (c)	*3.3	*5.3	*8.7	*12.1	11.3	*4.1	15.4	8.0
Total	41.7	34.7	76.5	100.0	131.7	61.2	192.9	100.0

(a) Persons may appear in a number of categories but they may appear only once within a category. (b) Includes poisonings, splinters and injury caused by animal or insect bites or stings. (c) Includes internal injuries (such as ruptures and hernias).

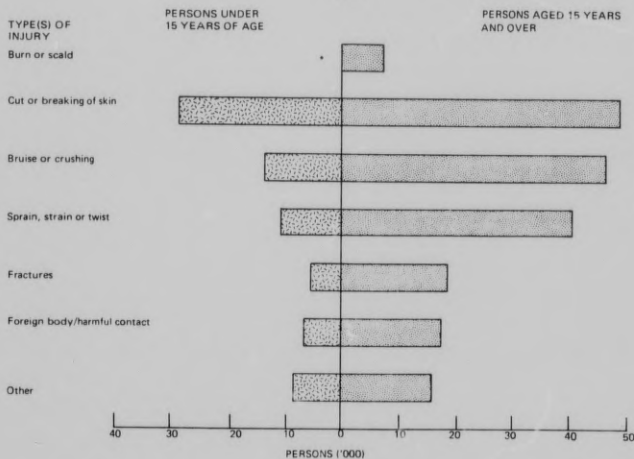
CHART 5 TYPE(S) OF INJURY INCURRED IN MOST RECENT ACCIDENT : AGE
('000)

TABLE 6. EVENT WHICH DIRECTLY CAUSED INJURY IN MOST RECENT ACCIDENT :
AGE BY SEX
(⁰⁰⁰)

Event resulting in injury	Persons under 15 years of age				Persons aged 15 years or more			
	Males	Females	Total		Males	Females	Total	
			Number	Percent			Number	Percent
Fall or jump by person	16.5	14.8	31.3	44.5	21.7	13.7	35.4	21.1
Struck by falling object(s)	*	*	*	*	9.4	*2.8	12.2	7.3
Stepped on, struck against or struck by object(s)	16.3	10.1	26.4	37.5	55.4	20.5	75.9	45.2
Caught in or between objects	*	*	*	*	*5.2	*	*7.0	*4.2
Overexertion or strain	*	*2.2	*2.9	*4.2	11.2	*5.9	17.1	10.2
Exposure to extreme temperature, electric current or harmful substance	*	*	*2.6	*3.7	*6.7	*4.2	10.9	6.5
Other	*3.1	*	*4.4	*6.3	*6.1	*3.1	9.2	5.5
Total	39.1	31.2	70.3	100.0	115.6	52.2	167.8	100.0

CHART F. EVENT WHICH DIRECTLY CAUSED INJURY IN MOST RECENT ACCIDENT : AGE
(⁰⁰⁰)

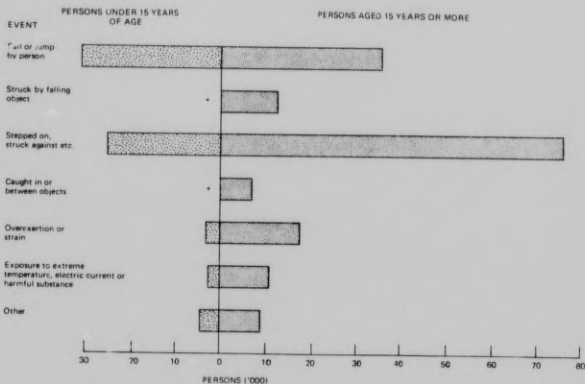
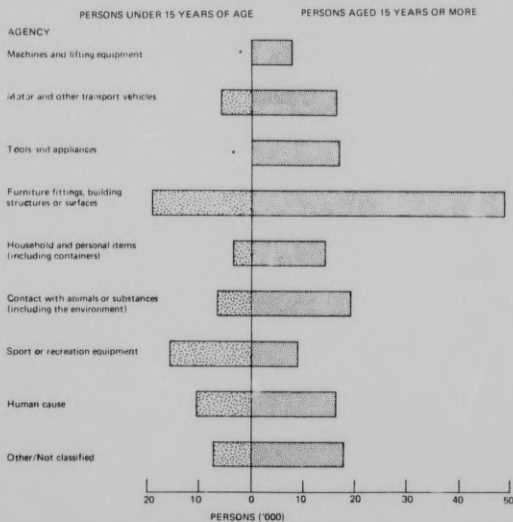


TABLE 7. AGENCY ASSOCIATED WITH MOST RECENT ACCIDENT : AGE AND SEX ('000)

Agency associated with accident	Persons					
	Males	Females	Under 15 years of age	Aged 15 years or more	Total	
					Number	Percent
Machines and lifting equipment	*8.0	*	*	*7.7	*8.7	*3.7
Motor and other transport vehicles	15.5	*6.9	*5.9	16.5	22.4	9.4
Tools and appliances	13.4	*4.1	*	16.9	17.6	7.4
Furniture, fittings, building structures or surfaces	43.3	25.2	19.4	49.1	68.5	28.8
Household and personal items (including containers)	11.6	*6.6	*3.6	14.5	18.2	7.7
Contact with animals or substances (including the environment)	16.6	9.2	*6.6	19.2	25.8	10.8
Sport or recreation equipment	12.2	12.2	15.2	9.2	24.4	10.2
Human cause	18.7	*8.4	10.5	16.6	27.1	11.4
Other, not elsewhere classified (including no agency involved)	12.1	9.4	*5.5	15.9	21.5	9.0
Not classified due to insufficient data	*3.3	*	*	*	*3.9	*1.7
Total	154.7	83.4	70.3	167.8	238.1	100.0

CHART G. AGENCY ASSOCIATED WITH MOST RECENT ACCIDENT : AGE ('000)



APPENDIX 1

AGENCY ASSOCIATED WITH MOST RECENT ACCIDENT - CODE LIST

Introduction

This appendix contains details of the classification of the agency associated with the accident which was used in the coding of this data item and gives a general guide to the composition of the various categories tabulated.

Definition

Agency - relates to that item which because of its hazardous nature or condition precipitated the event which led to the injury. For example if the injured person strained his back while lifting an article, the article was coded as the agent.

<i>Classification</i>	<i>Type of agency included in the classification</i>
Machines and Lifting Equipment	
Machines and lifting equipment (power driven and other)	Engines used for driving machinery, transmission belts and cables, lathes, forging machines, grinding machines, power presses, compressors, pumps, cement mixers, cranes, winches, pulley blocks, jacks, lifts, elevators.
Motor and other Transport Vehicles	
Motor vehicles	Cars, trucks, buses, motor bikes ONLY.
Other transport vehicles	Tractors, bulldozers, scrapers, front-end loaders, steam rollers, animal and hand drawn vehicles, bicycles, planes, helicopters, trains, rolling stock, boats, barges, launches, conveyor belts, escalators, chutes and slides.
Tools and Appliances	
Electric hand tools and appliances (household type)	Power drills, electric soldering equipment, portable electric saws, electric saws, electric welding equipment, fridges, electric kettles, air-conditioners, televisions, hair dryers, power cords, electric stoves, electric razors, irons, office cleaning equipment, washing machines (electric shocks from hand in machine while spin-dry on etc.)
Other hand tools, appliances and implements	Chisels, hammers, blow torches, shovels, axes, crowbars, knives, garden hoses, hoes, oxy-acetylene welding equipment, gas fires, gas stoves, oil heaters, kerosene heaters, hurricane lamps, carpet sweepers, gas or metho portable stoves or barbeques, wood barbeques.
Furniture, Fittings and Building Structures or Surfaces	
Furniture and fittings	Strollers, nursery equipment, wheelchairs, bedding, chairs, baths, tables, taps, light fittings, curtains, desks, cupboards, shelves, scatter rugs.
Building structures or construction material	Doors, windows, walls, gates, stacked or loose construction material, excavation.
Traffic and other surfaces (excluding recreation areas)	Steps, stairs, floors, footpaths, gang-planks, tracks, parking areas, storage areas, house gardens, public gardens, concrete surrounding swimming pool.
Household and Personal Items (including containers)	
Household type article/utensil/ornament	Cutlery, glassware, scissors, pots and pans.
Personal use items/haberdashery	Pins, clothing, jewellery, coins, headwear, footwear, cigarettes, lighters, safety razors.
Containers	Crates, boxes, cases, cartons, drums, tins, glass jars, plastic bags, etc.

<i>Classification</i>	<i>Type of agency included in the classification</i>
Contact with Animals or Substances (including the environment)	
Animal, insect or reptile	Bites, kicks, stings, etc.
Consumables and drugs	Medicaments, cosmetics, cooking oil, fish bones, other foodstuffs.
Dusts, gases or chemicals	Fumes, acids, bleaches, dyes, kerosene, paint, garden spray.
Environment	Extreme weather, landslides, sunburn, fires, ventilation noise, water, trees, rough ground, lightning, wind, tempest, dust, pollen, seeds.
Sporting or Recreation Equipment	
Sporting or recreation equipment	Swimming pools (excludes area surrounding pool), playground equipment, skate boards, marbles, toys, hang gliders, golf balls, sporting equipment.
Human Cause	
Human cause	Excludes human failure, includes assault, surgical and medical complication or misadventure, sporting mishap, tackle.
Other	
Other n.e.c. (including no agency involved)	Includes cases where a movement by a person, entirely on its own results in injury i.e. WITHOUT handling, lifting, stepping on, etc. objects. Lawnmowers — all types Ladder and scaffolding.
Not classified for lack of sufficient data	

APPENDIX 2

EVENT RESULTING IN INJURY — CODE LIST

Introduction

This appendix contains details of the classification of the events resulting in injury which was used in the coding of this data item and gives a general guide to the composition of the various categories tabulated.

Definitions

Event resulting in injury -- refers to the action or event which directly resulted in injury, i.e. the manner in which the object or substance causing the injury came into contact with the person.

<i>Classification</i>	<i>Type of event included in the classification</i>
Fall or Jump by Person	falls from moving objects thrown from moving objects falls of persons from heights falls into depths falls of persons on the same level (while handling, carrying, pushing, pulling) jumps from moving objects jumps from a height jumping up jumping across or over
Struck by Falling Objects	struck by an object in free fall struck by falling objects during handling collapse (building, walls, scaffolds, ladders) slides and cave-ins (earth, rocks, sand)
Stepping on, Striking against or Struck by Objects (excluding falling objects)	stepping on objects stumbling or tripping on an object without falling or striking against an object stepping in or on uneven surfaces or onto a different level (including stumbling and tripping as a result of stepping in a hole, etc. without falling or striking against an object) striking against stationary objects (except impacts due to a previous fall) (includes grabbing a stationary object) striking against moving objects (except impacts due to a previous fall) (includes grabbing a moving object and clothing catching in machinery) struck by moving objects (including flying fragments and particles) (excluding falling objects) (including assaults by persons) jar (i.e. jarred wrist, hand, etc.) cut not elsewhere classifiable puncture, not elsewhere classifiable (includes splinter in hand, etc., not elsewhere classifiable) injury caused by friction, not elsewhere classifiable
Caught in or Between Objects	caught in an object caught between a stationary object (except ground, floor, etc.) and a moving object caught between moving objects (except flying or falling objects) crushed, not elsewhere classifiable

<i>Classification</i>	<i>Type of event included in the classification</i>
Overexertion, Strenuous Movements	overexertion in lifting, pushing, pulling, handling or throwing objects strenuous movements (includes catching objects falling or otherwise, squatting, climbing) apparently normal movements (includes kneeling) movements not elsewhere classifiable
Exposure to or Contact with Extreme Temperatures, Electric Current, Harmful Substances or Radiations	exposure to heat or cold (atmosphere or environment) contact with hot substances or objects contact with very cold substances or objects exposure to or contact with electric current struck by lightning contact (including inhalation, ingestions or absorption) with harmful substances (includes chemical burns, reaction to injection, poisoning) exposure to radiations (includes X-rays, welding flash, ultraviolet rays, infra-red rays)
Other Types of Accident, not elsewhere Classified, Including Accidents not Classified for Lack of Sufficient Data	bites and stings of animals, insects, etc. blister etc. caused by clothing injury to driver or passenger of a vehicle, not elsewhere classifiable injury by suffocation, not elsewhere classifiable injury by slipping, not elsewhere classifiable accidents not classified for lack of sufficient data

TECHNICAL NOTE

Estimation procedure

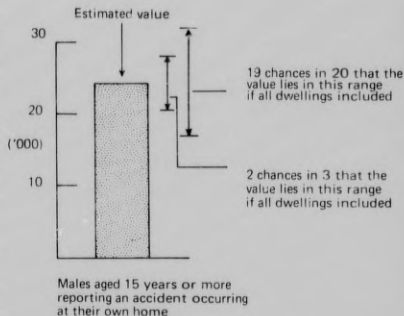
Estimates derived from the survey are obtained by using a complex ratio estimation procedure, which ensures that the survey estimates conform to an independently estimated distribution of the population by age and sex, rather than to the age and sex distribution within the sample itself.

Reliability of the estimates

2. Since the estimates in this publication are based on information obtained from occupants of a sample of dwellings they are subject to sampling variability; that is, they may differ from the figures that would have been produced if all dwellings had been included in the survey. One measure of the likely difference is given by the *standard error*, which indicates the extent to which an estimate might have varied by chance because only a sample of dwellings was included. There are about two chances in three that a sample estimate will differ by less than one standard error from the figure that would have been obtained if all dwellings had been included, and about nineteen chances in twenty that the difference will be less than two standard errors.

3. Space does not allow for the separate indication of the standard error of all estimates in this publication. A table of standard errors for general application is given below. These figures will not give a precise measure of the standard error of a particular estimate but they will provide an indication of its magnitude. An example of the calculation and use of standard errors is as follows: Table 2 shows that the estimated number of males aged 15 years or more who reported an accident occurring at their own home is 24,400. From the table below it will be seen that the estimate has a standard error of about

3,700 and therefore there are about two chances in three that the value that would have been produced if all dwellings had been included in the survey will fall within the range 20,700 to 28,100 and about nineteen chances in twenty that the value will fall within the range 17,000 to 31,800. This example is illustrated in the following diagram.



The size of the standard error in relation to the estimate indicates that the actual value could be greater or less (within standard error ranges) than the published figure. Estimates to which a person may contribute more than once (e.g. total number of parts of the body injured in Table 4) would be expected to have slightly higher standard errors than indicated in Table A.

TABLE A - STANDARD ERROR OF ESTIMATE - PERSONS

Size of estimate	Australia	
	Standard error	Relative standard error (percent)
1,500		
2,000		
2,500		
3,000		
4,000		
5,000		
6,000		
8,000		
10,000		
20,000		
30,000		
50,000		
100,000		
200,000		
300,000		
500,000		
1,000,000		
2,000,000		
5,000,000		
	1,200	46.9
	1,300	42.8
	1,500	37.2
	1,700	33.3
	1,800	30.4
	2,100	26.4
	2,400	23.7
	3,400	16.8
	4,100	13.8
	5,400	10.7
	7,600	7.6
	10,800	5.4
	13,300	4.4
	17,200	3.4
	24,500	2.4
	34,800	1.7
	55,400	1.1

4. As the standard errors in the table show, the smaller the estimate the higher is the relative standard error. Very small estimates would thus be subject to such high standard errors (relative to the size of the estimate) as to detract seriously from their value for most reasonable uses. In this publication, only estimates with relative standard errors less than 25% are considered sufficiently reliable for most purposes. Estimates with relative standard errors of 25% or more are indicated by an *. Estimates with relative standard errors between 25% and 50% have been included but care should be exercised in using them because they are subject to such high errors. Estimates with relative standard errors greater than 50% have not been shown and although figures for these components can in some cases be derived by subtraction, they should not be regarded as reliable.

5. The reliability of an estimated percentage or rate computed by using sample data for both numerator and denominator, depends upon both the size of the

numerator and the size of the denominator. However, the relative standard error of the estimated percentage will generally be lower than the relative standard error of the estimate of the numerator. The relative standard errors of the numerator can be obtained from Table A.

6. Approximate standard errors on rates or percentages may be derived by first obtaining the relative standard error of the number of persons corresponding to the numerator of this rate or percentage and then applying this figure to the estimated rate or percentage. An example of this calculation is as follows: Table 1 shows that the rate of accidents per 1,000 males to be 22.4 and that the numerator of this rate is 154,700. By interpolation from Table A the relative standard error of the numerator is approximately 6.0 per cent. The standard error on this rate is approximated as:

Rate $\times$ Relative standard error

$$= 22.4 \times \frac{6.0}{100.0}$$

$$= 1.3$$

Therefore there are 2 chances in 3 that the rate that would have been obtained if all dwellings had been included in the survey is in the range 21.1 to 23.7 per 1,000 males and 19 chances in 20 that it is in the range 19.8 to 25.0 per 1,000 males.

7. Published figures may also be used to estimate the difference between two survey estimates (estimates of numbers, rates or percentages). Such a figure is itself an estimate and is therefore subject to sampling error. The sampling error of the difference between two survey estimates depends on the standard errors of the original estimates and on the relationship (correlation) between the two original estimates. An approximate standard error of the difference between two estimates (x-y) may be calculated by the following formula:

Standard error (x-y)

$$= \sqrt{[\text{Standard error (x)}]^2 + [\text{Standard error (y)}]^2}$$

While this formula will only be exact for differences between separate and uncorrelated (unrelated) characteristics or sub-populations, it is expected to provide a good approximation for all differences likely to be of interest in this publication.

8. An example of the use of the above formula is as follows. The difference between the estimates of the number of males and females aged 15-24 years who reported an accident in the 2 weeks before interview (Table 1) is

$$37,800 - 18,000 = 19,800$$

9. The standard error of this estimate is as follows. From Table A the standard errors of each of the two original estimates can be approximated as 4,600 and 3,200 respectively. Therefore the standard error on the difference 19,800 is given by:

Standard error ~~(37,800 - 18,000)~~

$$= \sqrt{(4,600)^2 + (3,200)^2}$$

$$= 5,600 \text{ (rounded to nearest 100)}$$

Thus there are about 2 chances in 3 that the difference that would have been obtained, if all dwellings had been included in the survey is within the range 14,200 to 25,400 and about 19 chances in 20 that this difference is between 8,600 and 31,000.

10. The imprecision due to sampling variability, which is measured by the standard error, should not be confused with inaccuracies that may occur because of imperfections in reporting by interviewers and respondents. Inaccuracies of this kind are referred to as the *non-sampling error*, and they may occur in any enumeration, whether it be a full count or only a sample. Every effort is made to reduce the non-sampling error to a minimum by careful design of questionnaires, intensive training and supervision of interviewers and efficient operating procedures.