

Work-related Traumatic Injury Fatalities, Australia

2017



safe work australia

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Foreword

The aim of this report is to provide statistics about people who traumatically die each year from injuries that arose through work-related activity. This includes traumatic fatalities resulting from an injury sustained in the course of a work activity (worker fatalities) and as a result of someone else's work activity (bystander fatalities).

Earlier reports have included fatalities that occurred while the worker was commuting to or from work (commuter fatalities), however, these fatalities have always been difficult to distinguish from other road fatalities and this report relies partly on workers' compensation data. As fewer jurisdictions are now providing compensation coverage for commuting, the integrity of the commuter fatality collection has diminished and has therefore been ceased.

Injury is defined as a condition coded to 'External causes of morbidity and mortality' and 'Injury, poisoning and certain other consequences of external causes' in the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification (ICD-10-AM).

The scope of this collection includes all persons:

- who were traumatically fatally injured, and
- whose injuries resulted from work activity or exposures, and
- whose injuries occurred in an incident that took place in Australian territories or territorial waters.

The report includes all persons who died:

- while working including unpaid volunteers and family workers, persons undertaking work experience and defence force personnel killed within Australian territories or territorial waters or travelling for work (worker fatalities), or
- as a result of someone else's work activity (bystander fatalities).

The collection specifically excludes those who died:

- of iatrogenic injuries—those where the worker died due to medical intervention
- due to natural causes such as heart attacks and strokes, except where a work-related injury was the direct cause of the heart attack or stroke
- as a result of diseases, such as cancers, and
- by self-inflicted injuries (suicide).

Changes from previous publications may also be evident due to the availability of additional information from finalised coroners' reports and additional workers' compensation claims. The Data presented in this report is based on the information available about the fatalities as at June 2018 when the 2017 data set was finalised.

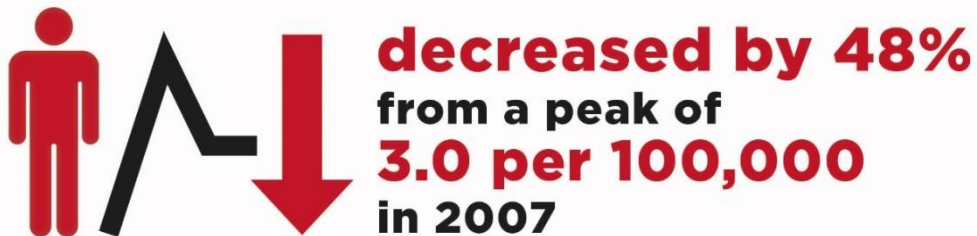
For explanatory notes on the data for this publication, refer to

<https://www.safeworkaustralia.gov.au/doc/explanatory-notes-safe-work-australia-datasets>

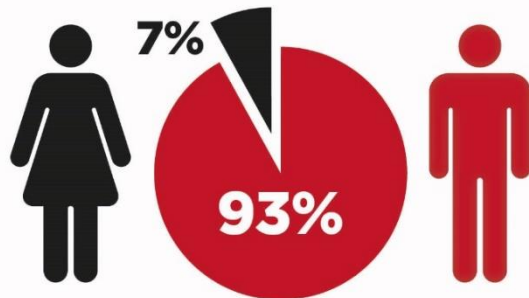
Worker Fatalities in 2017

Key findings

Worker fatalities in 2017



176 of 190
fatalities involved
male workers



Industry fatalities in 2017

72% of fatalities were in three industries



Causes of worker fatalities in 2017



32%

(60 workers)
vehicle collision



15%

(28 workers)
falling from height



18%

(35 workers)
hit by moving objects



63% 
were related
to vehicles

Causes of bystander fatalities in 2017



61%

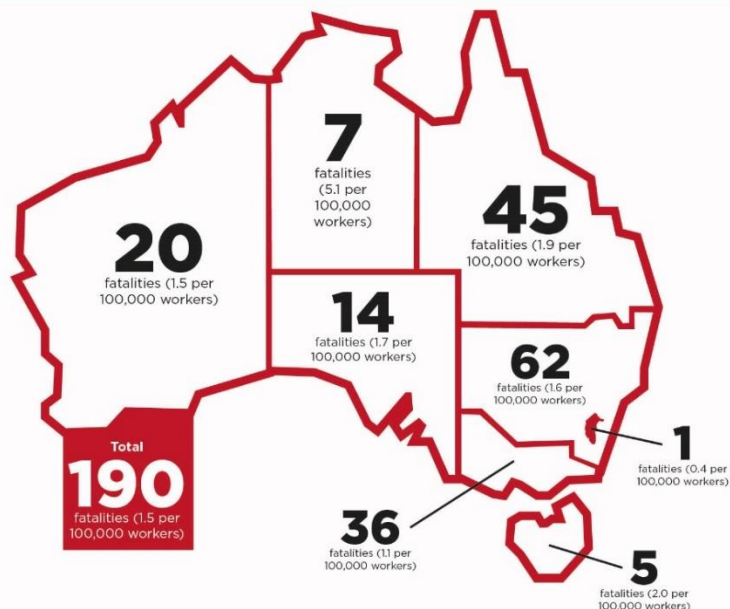
(41 bystanders)
of bystander fatalities
were due to a vehicle collision



24%

(16 bystanders)
hit by moving objects

Worker fatalities in 2017 by state/territory





Section 1: Worker fatalities

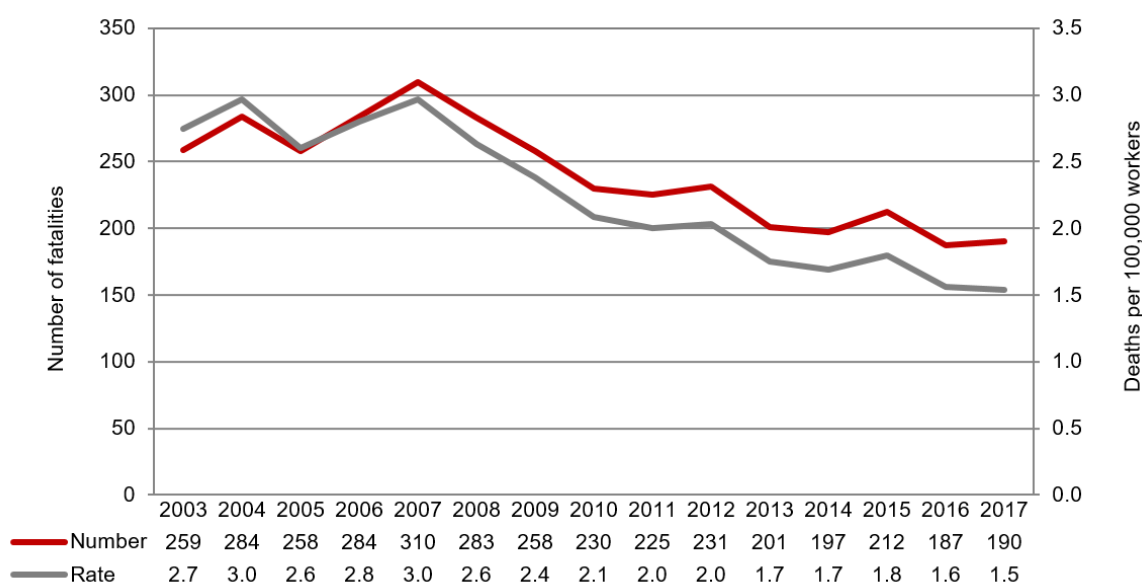


1. Worker fatalities

Figure 1 shows that both the number of fatalities and the fatality rate have been trending downward since 2007. Injuries at work resulted in the deaths of 190 workers in 2017, three more than in 2016. The highest number of work-related injury fatalities was recorded in 2007 when there were 310 deaths.

Similarly, the fatality rate was 1.5 fatalities per 100,000 workers in 2017, which is 6 per cent less than the rate in 2016. The fatality rate in 2017 is the lowest since the series began and is around half the rate recorded at the peak in 2007 when there were 3.0 fatalities per 100,000 workers.

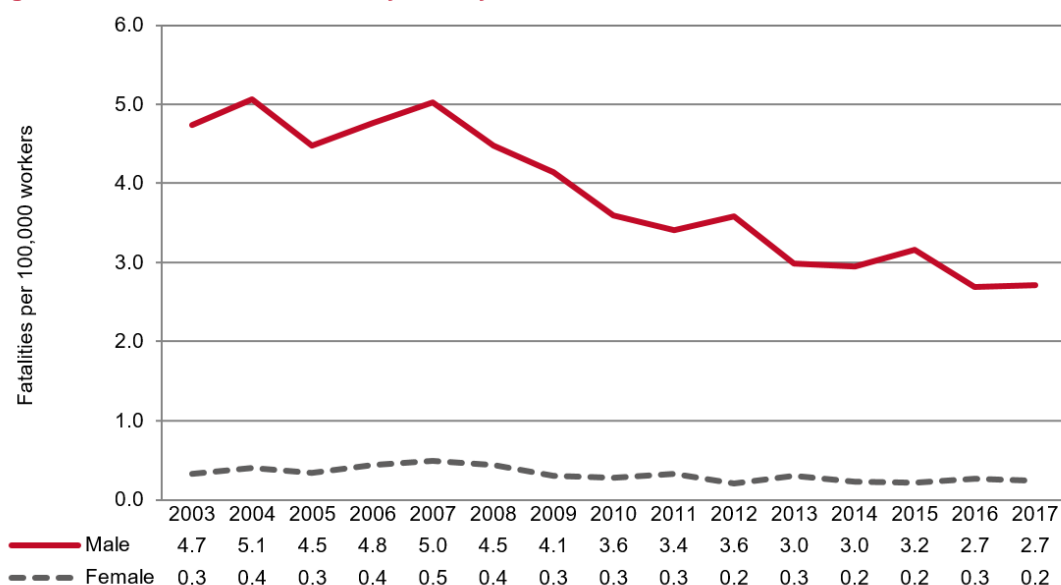
Figure 1: Worker fatalities: number of fatalities and fatality rate, 2003 to 2017



1.1. Worker fatalities by sex

In 2017, 93 per cent (176 of the 190 fatalities) of workers killed were men. Figure 2 shows that the fatality rate for male workers has been declining over the last 10 years, down from 5.0 fatalities per 100,000 workers in 2007 to 2.7 in 2017. Over the same period the fatality rate for female workers has remained relatively constant at or around 0.3 fatalities per 100,000 workers.

Figure 2: Worker fatalities: fatality rate by sex, 2003 to 2017



1.2. Worker fatalities by age

Tables 1 and 2 show the distribution of fatalities by age group. This distribution shows that there were fewer fatalities in the youngest and oldest age groups, which reflects the lower workforce participation of these age groups compared with other age groups.

The fatality distribution by age for 2017 was broadly similar to previous years, with fatalities among workers under 25 and those aged 65 and over remaining at a similar low point to 2016.

Despite this, while only accounting for 40 per cent of the workforce in 2017, older workers aged 45 and over accounted for the majority (57 per cent) of worker fatalities. This disproportionate share is also evident in Table 3 which shows that the fatality rates for the older age groups of 45–54, 55–64 and 65 and over were higher than younger age group rates.

Table 1: Worker fatalities: number by age group, 2013 to 2017

Age group	2013	2014	2015	2016	2017	Total
Under 25	17	22	17	16	16	88
25–34	30	33	39	33	32	167
35–44	37	28	28	24	33	150
45–54	44	45	50	40	35	214
55–64	39	38	42	48	49	216
65 & over	34	31	36	26	25	152
Total	201	197	212	187	190	987

Table 2: Worker fatalities: proportion by age group, 2013 to 2017

Age group	2013	2014	2015	2016	2017	5 year average
Under 25	8%	11%	8%	9%	8%	9%
25–34	15%	17%	18%	18%	17%	17%
35–44	18%	14%	13%	13%	17%	15%
45–54	22%	23%	24%	21%	18%	22%
55–64	19%	19%	20%	26%	26%	22%
65 & over	17%	16%	17%	14%	13%	15%
Total	100%	100%	100%	100%	100%	100%

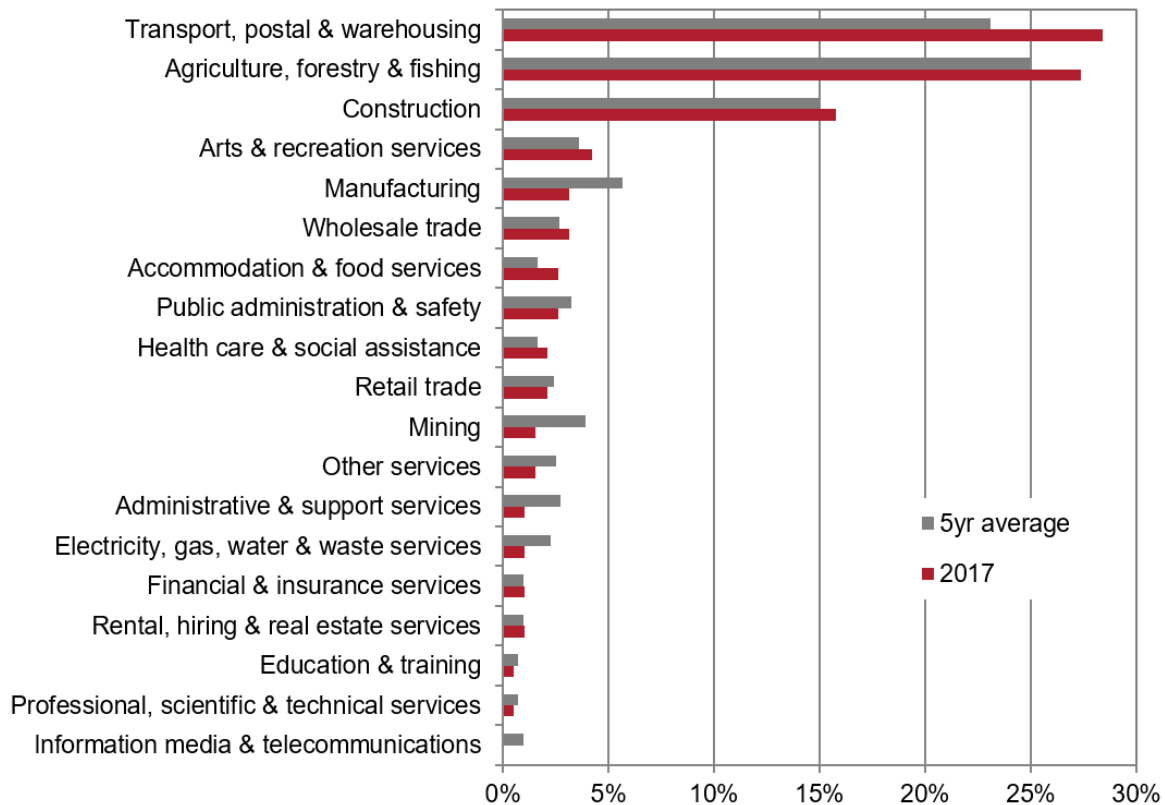
Table 3: Worker fatalities: fatality rates by age group, 2013 to 2017

Age group	2013	2014	2015	2016	2017	5 year average
Under 25	0.9	1.2	0.9	0.9	0.9	1.0
25–34	1.1	1.2	1.4	1.2	1.1	1.2
35–44	1.5	1.1	1.1	0.9	1.2	1.2
45–54	1.8	1.8	2.0	1.6	1.4	1.7
55–64	2.4	2.3	2.5	2.7	2.7	2.5
65 & over	8.6	7.3	8.3	5.7	5.1	7.0
Total	1.7	1.7	1.8	1.6	1.5	1.7

1.3. Industry

Figure 3 shows in 2017, the vast majority (72 per cent) of fatalities occurred in three industries. Transport, postal and warehousing (54 fatalities) accounted for more than a quarter of fatalities in 2017 (28 per cent), followed closely by Agriculture, forestry and fishing (52 fatalities, 27 per cent) and Construction (30 fatalities, 16 per cent).

Figure 3: Worker fatalities: proportion by industry of employer, 2017 and five year average (2013 to 2017)



Fatality rates, expressed as the number of fatalities per 100,000 workers, are best used when comparing data across industries. Figure 4 shows that in 2017 the Agriculture, forestry and fishing industry recorded the highest fatality rate with 16.5 fatalities per 100,000 workers, more than 10 times the all industries average of 1.5. The Transport, postal and warehousing industry recorded the second highest fatality rate in 2017 with 8.6 fatalities per 100,000 workers, followed by the Arts and recreation services industry (3.5 fatalities per 100,000 workers).

Figure 4: Worker fatalities: fatality rates by industry of employer, 2017 and five year average (2013 to 2017)



It should be noted, however, that fatality rates are sensitive to the number of workers employed in each industry. Industries which employ the fewest workers (such as the Electricity, gas, water and waste services industry) may show volatility even when small variations in the number of fatalities are recorded. Therefore, the actual number of fatalities should also be considered when interpreting the fatality rates for smaller industries (see Table 4 for a comparison).

Table 4: Worker fatalities: number of fatalities and fatality rates by industry of employer, 2016, 2017 and five year average (2013 to 2017)

Industry of employer	Number of fatalities			Fatality rates		
	2016	2017	5yr average	2016	2017	5yr average
Agriculture, forestry & fishing	45	52	51	14.3	16.5	16.3
Transport, postal & warehousing	46	54	47	7.4	8.6	7.7
Arts & recreation services	5	8	7	2.2	3.5	3.4
Construction	36	30	31	3.4	2.7	2.9
Electricity, gas, water & waste services	8	2	5	5.8	1.5	3.2
Mining	6	3	8	2.7	1.4	3.3
Wholesale trade	0	6	4	0.0	1.6	1.1
Rental, hiring & real estate services	2	2	2	0.9	1.0	0.8
Manufacturing	7	6	12	0.8	0.7	1.3
Public administration & safety	5	5	7	0.7	0.6	0.9
Other Services	4	3	5	0.8	0.6	1.1
Accommodation & food services	1	5	3	0.1	0.6	0.4
Administrative & support services	9	2	6	2.1	0.5	1.4
Financial & insurance services	0	2	0	0.0	0.5	0.1
Retail trade	4	4	4	0.3	0.3	0.3
Health care & social assistance	4	4	3	0.3	0.2	0.2
Education & training	2	1	1	0.2	0.1	0.1
Professional, scientific & technical services	1	1	1	0.1	0.1	0.1
Information media & telecommunications	2	..	..	1.0	0.0	0.2
Total	187	190	197	1.6	1.5	1.7

When considering numbers and rates of fatalities in 2017, one should also consider the five year average (2013 to 2017) as figures can fluctuate year-on-year. For example, there were three fatalities in the Mining industry in 2017, while in previous years there were significantly more with six fatalities in 2016 (11 in both 2015 and 2014, and nine in 2013). This higher incidence in earlier years is evident with the Mining five year average rate being more than double the 2017 rate (3.3 to 1.4 fatalities per 100,000 workers, respectively).

1.4. Priority industries

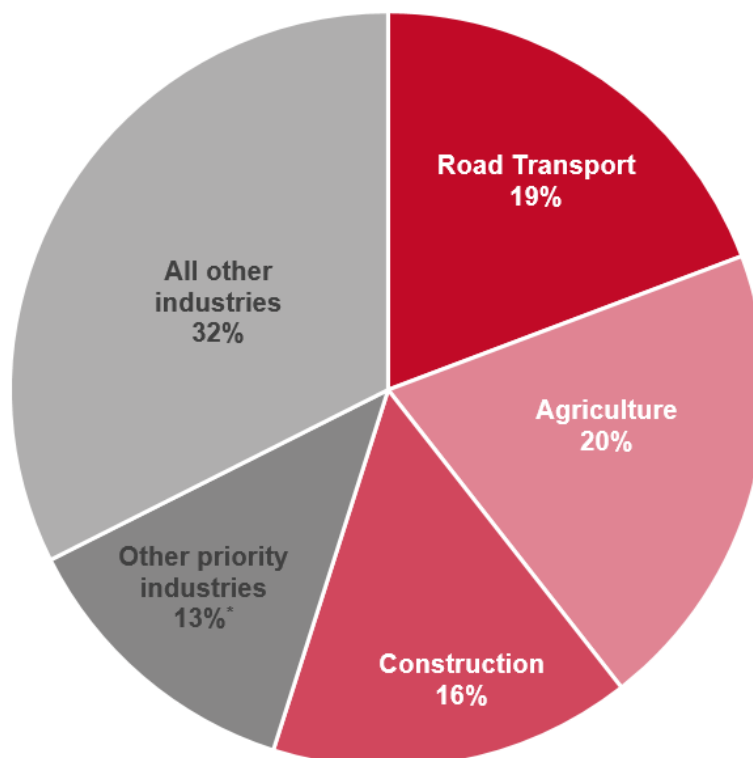
The *Australian Work Health and Safety Strategy 2012–2022* (Australian Strategy) provides a framework to drive improvements in work health and safety (WHS) in Australia. It promotes a collaborative approach between the Commonwealth, state and territory governments, industry and unions and other organisations to achieve the vision of healthy, safe and productive working lives. The Australian Strategy identifies national priority industries and disorders to help direct prevention activities to where they are needed the most.

The following priority industries have high numbers and rates of fatalities and/or injuries, or are by their nature hazardous:

- Agriculture
- Road transport
- Manufacturing
- Construction
- Accommodation and food services
- Public administration and safety, and
- Health care and social assistance.

Figure 5 shows that three priority industries—Agriculture, Construction and Road transport—accounted for 55 per cent of worker fatalities between 2013 and 2017.

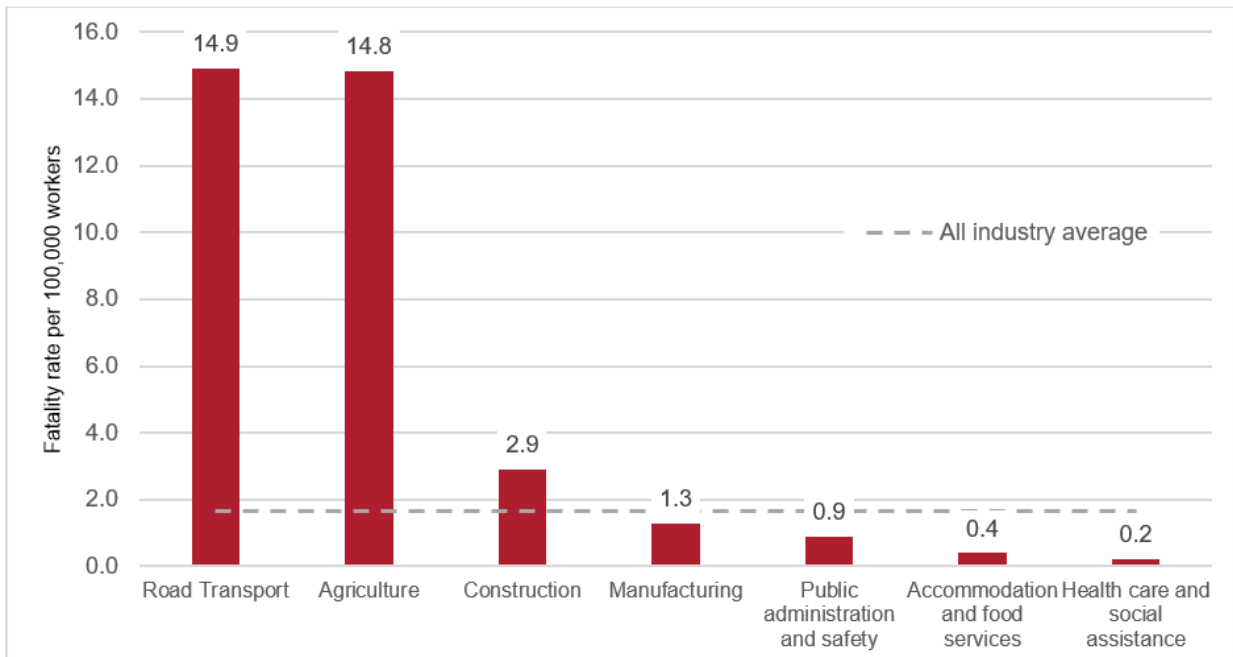
Figure 5: Worker fatalities: proportion of fatalities by priority industry of employer, 2013–2017 (combined)



* Includes: Manufacturing, Accommodation and food services, Public administration and safety, and Health care and social assistance

Agriculture, Construction and Road transport's large share of fatalities is not due to industry size, but due to disproportionately high fatality rates for these industries. As Figure 6 shows, the 5-year average fatality rates for Road Transport (14.9), Agriculture (14.8) and Construction (2.9) sit above the rates for the remaining other priority industries and all other industries (1.7). Given these significantly higher rates, this report examines these three priority industries in further detail.

Figure 6: Worker fatalities: fatality rates by priority industry of employer, 2013–2017 (combined)



Industries such as Manufacturing, Accommodation and food services, Health care and social assistance and Public administration and safety have low fatality rates but are included as priority industries due to high non-fatal injury rates. For information on non-fatal injuries in these industries, refer to the latest [Australian Workers' Compensation Statistics](#) report.

1.4.1. Agriculture

Table 5 shows the number of worker fatalities in the Agriculture industry sub-division and related groups, by age group for 2013 to 2017. Over the five year period, workers aged 65 and over accounted for a third (33 per cent) of fatalities in the Agriculture industry. This is more than double the proportion (15 per cent) of fatalities across all industries over the same period and age group.

Within the Agriculture industry, the Sheep, beef cattle and grain farming industry group accounted for 59 per cent of fatalities over the five year period (118 out of 199 fatalities).

Table 5: Worker fatalities: Agriculture industry groups by age group, 2013 to 2017 (combined)

Industry group	Under 25	25–44	45–64	65 & over	Total
Sheep, beef cattle & grain farming	9	20	49	40	118
Fruit & tree nut growing	..	4	10	4	18
Other livestock farming	..	3	9	6	18
Other crop growing	3	4	2	7	16
Dairy cattle farming	2	1	7	3	13
Mushroom & vegetable growing	2	2	3	2	9
Poultry farming	..	1	1	3	5
Deer farming	..	..	1	..	1
Nursery & floriculture production	1	..	..	..	1
Grand Total	17	35	82	65	199

Table 6 shows the most common mechanisms of incident¹ causing worker fatalities in the Agriculture industry. A quarter of the fatalities in the Agriculture industry were due to vehicle collisions over the five years to 2017. This was followed by the rollover of non-road vehicles (34 fatalities or 17 per cent) and being hit by moving objects (27 fatalities or 14 per cent).

Table 6: Worker fatalities: Agriculture by mechanism of incident, 2013 to 2017 (combined)

Mechanism of incident	No. of fatalities	% of fatalities
Vehicle collision	50	25%
Rollover of non-road vehicle	34	17%
Being hit by moving objects	27	14%
Falls from a height	19	10%
Being trapped by moving machinery	16	8%
Being hit by falling objects	10	5%
Contact with hot objects	8	4%
Being trapped between stationary and moving objects	7	4%
Contact with electricity	7	4%
Being hit by an animal	7	4%
Other mechanisms	14	7%
Total	199	100%

* The percentages shown in this table have been rounded to the nearest whole number; therefore the sum of percentage figures for each column may not equal the total.

¹ See Glossary for explanation of 'mechanism of incident'

Table 7 shows whether vehicles were involved² in an agricultural worker fatality, and what types of vehicles. Over the five years to 2017 the majority (72 per cent) of fatalities in the Agriculture industry involved a vehicle. Of these fatalities, 40 (20 per cent) involved a tractor and 37 (19 per cent) involved a quad bike.

Table 7: Worker fatalities: Agriculture by vehicle involvement and type of vehicle, 2013 to 2017 (combined)

Vehicle involvement and type of vehicle	No. of fatalities	% of fatalities
Vehicle involved	144	72%
Tractor	40	20%
Quad bike	37	19%
Ute or car	13	7%
Worker on foot	12	6%
Aircraft	11	6%
Motorbike	6	3%
Forklift	5	3%
Truck	4	2%
Other vehicles	16	8%
No vehicle involved	55	28%
Total	199	100%

* The percentages shown in this table have been rounded to the nearest whole number; therefore the sum of percentage figures for each column may not equal the total.

² See Glossary for explanation of 'vehicle involvement'

1.4.2. Road transport

Over the period from 2013 to 2017, there were 190 worker fatalities in the Road transport industry. Of these, the vast majority (93 per cent) occurred in the Road freight transport sub-division. The remaining 13 fatalities occurred in the Road passenger transport industry.

As shown in Table 8, the majority of fatalities in the Road transport industry over the five years to 2017 were due to vehicle collisions—137 in the Road freight transport industry and 9 in the Road passenger transport industry. Being hit by moving objects (14 fatalities) was the next highest mechanism for the Road freight transport industry, compared with being trapped by moving machinery (3 fatalities) for the Road passenger transport industry.

Table 8: Worker fatalities in Road transport industry groups by mechanism of incident, 2013 to 2017 (combined)

Industry group and mechanism of incident	No. of fatalities	% of fatalities
Road freight transport	177	93%
Vehicle collision	137	72%
Being hit by moving objects	14	7%
Being hit by falling objects	8	4%
Being trapped between stationary and moving objects	6	3%
Falls from a height	4	2%
Other mechanisms	8	4%
Road passenger transport	13	7%
Vehicle collision	9	5%
Being trapped by moving machinery	3	2%
Being assaulted by a person or persons	1	1%
Total	190	100%

* The percentages shown in this table have been rounded to the nearest whole number; therefore the sum of percentage figures for each column may not equal the total.

Table 9 shows that 176 work fatalities (or 93 per cent) in the Road transport industry involved a vehicle, and of these, the majority (149 fatalities) occurred while the deceased worker was driving. A further 10 fatalities occurred while the worker was loading or unloading a vehicle and 6 occurred while the worker was conducting repairs or maintenance on a vehicle.

Table 9: Worker fatalities: Road transport by vehicle involvement and activity of the deceased, 2013 to 2017 (combined)

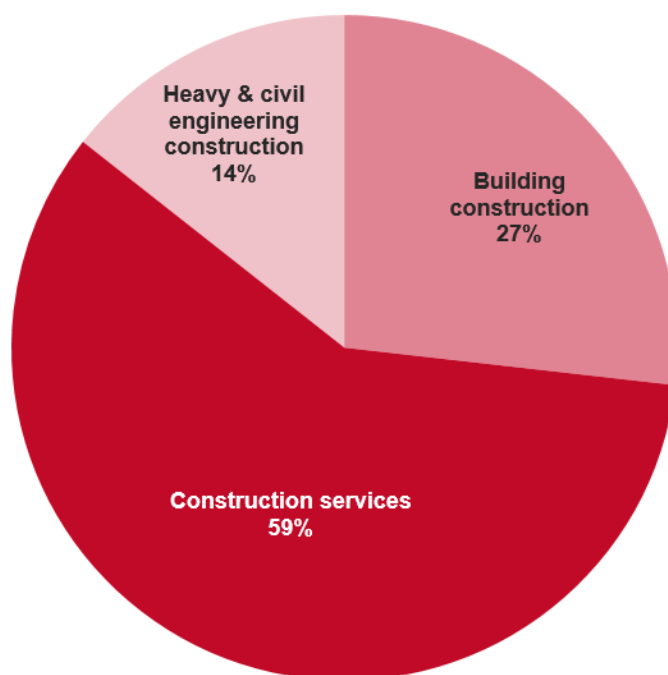
Vehicle involvement/Deceased activity	No. of fatalities	% of fatalities
Vehicle involved	176	93%
Driving/moving freight/people	149	78%
Loading/unloading	10	5%
Repair/maintenance	6	3%
Entering/exiting vehicle	1	1%
Other	10	5%
No vehicle involved	14	7%
Loading/unloading	2	1%
Repair/maintenance	1	1%
Other	11	6%
Total	190	100%

* The percentages shown in this table have been rounded to the nearest whole number; therefore the sum of percentage figures for each column may not equal the total.

1.4.3. Construction

Over the five year period from 2013 to 2017, there were 153 worker fatalities in the Construction industry in Australia. Figure 7 below shows that almost two-thirds (90 fatalities or 59 per cent) occurred in the Construction services industry sub-division. As Table 10 highlights, these 90 fatalities were relatively evenly spread across the industry groups within the Construction services sub-division.

Figure 7: Worker fatalities: Fatality proportions by construction industry divisions, 2013 to 2017 (combined)



As outlined in Table 10, younger construction workers aged under 25 accounted for 13 per cent of fatalities, compared with only 9 per cent of fatalities across all industries.

Table 10: Worker fatalities: Construction industry sub-divisions and groups by age group, 2013 to 2017 (combined)

Industry sub-divisions and groups	Under 25	25–44	45–64	65 & over	Total
Building Construction	6	12	18	5	41
Residential building construction	2	7	9	3	21
Non-residential building construction	4	5	9	2	20
Construction Services	12	27	39	12	90
Other construction services	5	4	6	5	20
Building structure services	1	6	12	1	20
Land development & site preparation services	1	7	8	2	18
Building installation services	4	7	6	..	17
Building completion services	1	3	7	4	15
Heavy & Civil Engineering Construction	2	7	9	4	22
Construction Total	20	46	66	21	153

With regard to occupations within the Construction industry, Table 11 shows Labourers (both Construction & mining and Miscellaneous) accounted for 34 per cent of fatalities from 2013 to 2017. This was followed by Electricians accounting for 10 per cent and Bricklayers, carpenters and joiners accounting for 9 per cent of Construction industry fatalities.

Table 11: Worker fatalities: Construction industry occupations, 2013 to 2017 (combined)

Occupation minor groups	No. of fatalities	% of fatalities
Construction and mining labourers	37	24%
Miscellaneous labourers	15	10%
Electricians	15	10%
Bricklayers, carpenters and joiners	14	9%
Mobile plant operators	10	7%
Glaziers, plasterers and tilers	9	6%
Floor finishers and painting trades workers	9	6%
Truck drivers	7	5%
Plumbers	7	5%
Construction, distribution and production managers	7	5%
Stationary plant operators	6	4%
Electronics and telecommunications trades workers	3	2%
Other occupations	14	9%
Construction Total	153	100%

* The percentages shown in this table have been rounded to the nearest whole number; therefore the sum of percentage figures for each column may not equal the total.

In terms of mechanism of the fatalities, Table 12 shows that between 2013 and 2017, falls from a height were the main cause of fatalities in both the Building construction and Construction services industry sub-divisions. By contrast, being hit by moving objects caused the most fatalities in the Heavy and civil engineering construction industry sub-division.

Fatalities arising from vehicle collisions were most common in the Construction services industry sub-division, causing 13 deaths. Being hit by falling objects was a common cause of fatality across Building construction and Construction services, totalling 22 fatalities. Lastly, contact with electricity was a significant cause of fatalities in Construction services (12 fatalities).

Table 12: Worker fatalities: Construction industry sub-divisions by mechanism of incident, 2013 to 2017 (combined)

Construction sub-division and mechanism	No. of fatalities	% of fatalities
Building construction	41	27%
Falls from a height	17	41%
Being hit by falling objects	10	24%
Being hit by moving objects	5	12%
Contact with electricity	3	7%
Vehicle collision	2	5%
Being trapped between stationary and moving objects	2	5%
Other mechanisms	2	5%
Construction services	90	59%
Falls from a height	28	31%
Vehicle collision	13	14%
Being hit by falling objects	12	13%
Contact with electricity	12	13%
Being trapped between stationary and moving objects	8	9%
Being hit by moving objects	5	6%
Being trapped by moving machinery	4	4%
Rollover of non-road vehicle	3	3%
Slide or cave-in	2	2%
Other mechanisms	3	3%
Heavy & civil engineering construction	22	14%
Being hit by moving objects	9	41%
Vehicle collision	5	23%
Being trapped between stationary and moving objects	3	14%
Falls from a height	1	5%
Other mechanisms	4	18%
Construction Total	153	100%

* The percentages shown in this table have been rounded to the nearest whole number; therefore the sum of percentage figures for each column may not equal the total.

Across the Construction industry, falls from a height caused 46 fatalities (or 30 per cent) over the five years to 2017. As shown in Table 13 below, over a third (35 per cent) of these involved falls from a building or other type of structure, and almost a quarter (22 per cent) involved a fall from a ladder.

Table 13: Worker fatalities: Construction industry, falls from a height fatalities by breakdown agency, 2013 to 2017 (combined)

Breakdown agency	No. of fatalities	% of fatalities
Buildings and other structures	16	35%
Ladders	10	22%
Openings in floors, walls or ceilings	4	9%
Scaffolding	3	7%
Doors and windows	3	7%
Cranes	2	4%
Other agencies	8	17%
Falls from a height – Total	46	100%

* The percentages shown in this table have been rounded to the nearest whole number; therefore the sum of percentage figures for each column may not equal the total.

1.5. Occupation

In 2017, 56 Labourers were killed, accounting for the largest proportion (29 per cent) of all worker fatalities. Table 14 below shows Machinery operators and drivers accounted for a further 29 per cent (55 fatalities) of fatalities, the majority of which (80 per cent) were Road and rail drivers. Managers accounted for a further 14 per cent (26 fatalities) and Technicians and trades workers 9 per cent (17 fatalities).

Table 14: Worker fatalities: number of fatalities by major and sub-major occupation groups, 2016, 2017 and five year average (2013 to 2017)

Occupation	Number of fatalities		
	2016	2017	5yr average
Machinery operators and drivers	66	55	64
Road and rail drivers	53	44	48
Machine and stationary plant operators	5	7	8
Mobile plant operators	8	3	8
Labourers	44	56	47
Farm, forestry and garden workers	15	18	17
Construction and mining labourers	13	13	11
Managers	27	26	29
Farmers and farm managers	23	21	24
Technicians and trades workers	28	17	28
Construction trades workers	12	7	9
Electrotechnology and telecommunications trades workers	7	2	7
Automotive and engineering trades workers	3	3	7
Professionals	14	18	14
Design, engineering, science and transport professionals	8	14	9
Community and personal service workers	5	14	11
Sports and personal service workers	1	7	5
Protective service workers	3	4	4
Clerical & administrative workers	2	1	3
Sales workers	1	3	2
Total	187	190	197

Figure 8 below presents 2017 and five year average (2013 to 2017) fatality rates for the ‘sub-major’ classification tier of occupations. Only sub-major occupations with a 2017 fatality rate over the national 2017 average fatality rate of 1.5 fatalities per 100,000 workers are shown. Farm, forestry and garden workers had the highest 2017 rate of 14.9 fatalities per 100,000 workers, followed by Farmers and farm managers (13.5) and Road and rail drivers (12.4).

Figure 8: Worker fatalities: occupations with 2017 fatality rates over the 2017 national average, 2017 and 5 year average (2013 to 2017) rates



1.6. Worker fatalities by State/Territory

The data presented in this section relates to the state or territory where the fatality occurred and not necessarily the jurisdiction. Table 15 shows that in 2017, the vast majority of worker fatalities occurred in New South Wales (62 fatalities), Queensland (45 fatalities), and Victoria (36 fatalities).

Table 15: Worker fatalities: number by State/Territory of death, 2016, 2017 and five year average (2013 to 2017)

State/Territory	Number of fatalities			Fatality rates		
	2016	2017	5yr average (2013–2017)	2016	2017	5yr average (2013–2017)
New South Wales	54	62	58	1.4	1.6	1.6
Queensland	45	45	49	1.9	1.9	2.1
Victoria	36	36	37	1.2	1.1	1.2
Western Australia	20	20	28	1.5	1.5	2.1
South Australia	21	14	14	2.6	1.7	1.7
Northern Territory	4	7	4	3.0	5.1	3.2
Tasmania	6	5	7	2.5	2.0	2.8
Australian Capital Territory	1	1	1	0.5	0.4	0.3
Total	187	190	197	1.6	1.5	1.7

Table 16 shows the industries that had the highest numbers of fatalities occurring in each state or territory over the 5 years from 2013 to 2017. As seen in the national overview of industries, Agriculture, forestry and fishing, Transport, postal and warehousing and Construction account for most worker fatalities across all the states and territories (65 per cent nationally from 2013 to 2017).

Table 16: Worker fatalities: number by State/Territory of death and industries with the highest number of fatalities, 2013 to 2017 (combined)

Industry	New South Wales	Queensland	Victoria	Western Australia	South Australia	Tasmania	Northern Territory	National total (2013–2017)
Agriculture, forestry & fishing	65	68	64	25	19	9	4	254
Transport, postal & warehousing	71	54	39	35	22	6	8	235
Construction	52	37	29	21	9	3	1	153
Manufacturing	23	13	3	15	..	4	..	58
Mining	8	10	1	14	2	3	2	40
Arts & recreation services	9	14	6	4	2	..	1	37
Public administration & safety	7	9	5	4	4	1	2	33
Administrative & support services	4	8	6	5	4	1	..	28
Other services	5	7	3	6	3	2	..	26
Electricity, gas, water & waste services	5	4	8	5	1	..	..	23
Other industries	41	21	21	6	4	4	3	100
Total	290	245	185	140	70	33	21	987

* The Australian Capital Territory was not included separately due to the low number of fatalities, however, the total includes the Australian Capital Territory.

1.7. Mechanism of incident

The mechanism of incident refers to the overall action, exposure or event that describes the circumstances that resulted in a worker fatality.

Table 17 below shows that 60 worker fatalities (31 per cent) were due to a vehicle collision in 2017, 17 less than in 2016 and 8 below the five year average (2013 to 2017). This includes incidents where an occupant of a vehicle is killed following a collision with another vehicle or a stationary object.

Being hit by moving objects accounted for the next highest proportion of worker fatalities (18 per cent, 35 fatalities) in 2017, which was higher than its proportion of 10 per cent (18 fatalities) in 2016. Falls from a height accounted for the third highest proportion in 2017 at 15 per cent (28 fatalities), followed by being hit by falling objects (8 per cent, 15 fatalities).

These top four mechanisms accounted for almost three-quarters of worker fatalities in 2017 (73 per cent).

Table 17: Worker fatalities: number by mechanism of incident, 2013 to 2017 (sorted by five year average)

Mechanism of incident	Number of fatalities			% of fatalities		
	2016	2017	5 yr average (2013–2017)	2016	2017	5 yr average (2013–2017)
Vehicle incident	77	60	68	41%	32%	34%
Falls from a height	25	28	26	13%	15%	13%
Being hit by moving objects	18	35	26	10%	18%	13%
Being hit by falling objects	17	15	19	9%	8%	10%
Rollover of non-road vehicle	4	10	10	2%	5%	5%
Being trapped between stationary and moving objects	4	10	9	2%	5%	4%
Being trapped by moving machinery	8	3	8	4%	2%	4%
Contact with electricity	7	4	6	4%	2%	3%
Drowning	7	8	5	4%	4%	2%
Being assaulted by a person or persons	4	2	4	2%	1%	2%
Contact with hot objects	3	3	3	2%	2%	2%
Explosion	2		4	1%	0%	2%
Being hit by an animal	3	3	2	2%	2%	1%
Slide or cave-in	1	2	2	1%	1%	1%
Other mechanisms	7	7	7	4%	4%	3%
Grand Total	187	190	197	100%	100%	100%

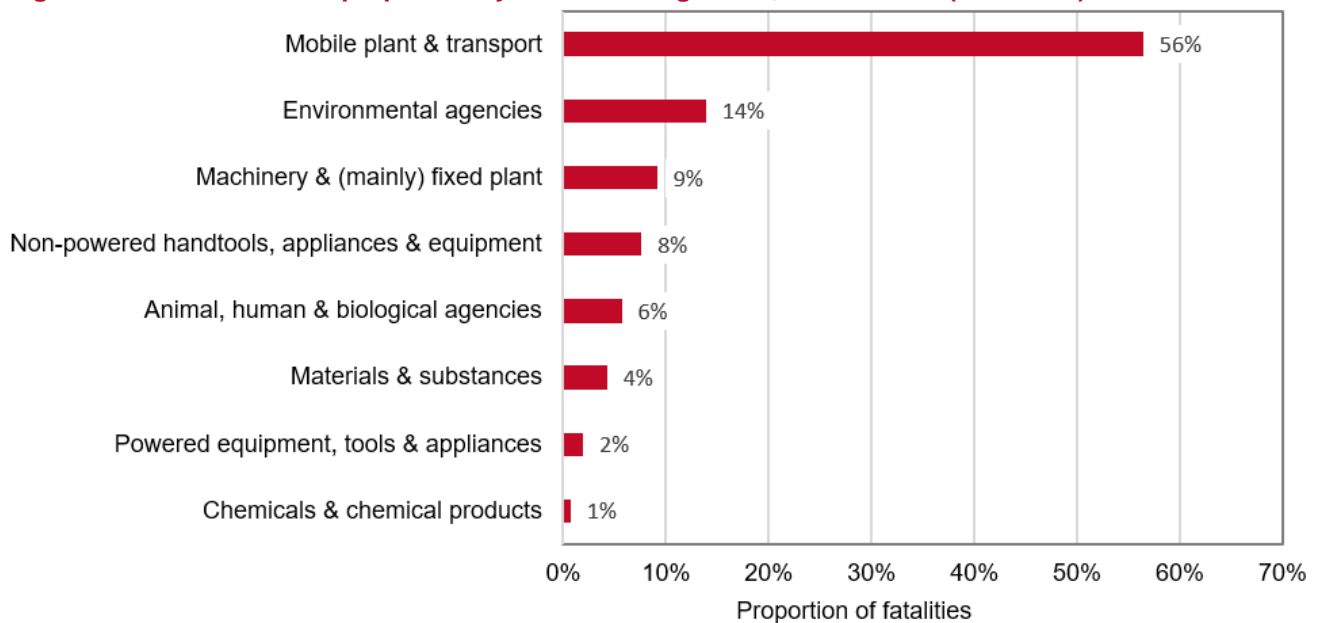
* The percentages shown in this table have been rounded to the nearest whole number; therefore the sum of percentage figures for each column may not equal the total.

1.8. Breakdown agency

The breakdown agency identifies the object, substance or circumstance principally involved at the point at which things started to go wrong and ultimately led to a worker fatality.

Figure 9 shows that the breakdown agency of mobile plant and transport accounted for over half (56 per cent) of fatalities over the five years to 2017. Mobile plant and transport includes objects such as cars, tractors and excavators. Environmental agencies accounted for the second most common breakdown agency (14 per cent of fatalities), which includes objects such as buildings and vegetation.

Figure 9: Worker fatalities: proportion by breakdown agencies, 2013 to 2017 (combined)



The following sections analyse selected mechanisms of incidents in conjunction with breakdown agencies, providing an overview of types of high-risk work that can result in worker fatalities. For a comprehensive overview of breakdown agency coding, see the [Type of Occurrence Classification System \(TOOCS\), 3rd Edition](#).

1.9. Being hit by moving objects

In 2017, 35 workers were killed as a result of being hit by moving objects. This is almost double the number in 2016 (18 fatalities).

As shown in Table 18, 54 per cent of these fatalities were caused by mobile plant and transport in 2017. Within the mobile plant and transport category, being hit by heavy vehicles (trucks, semi-trailers and lorries) accounted for the highest proportion (20 per cent), followed by light vehicles such as cars, station wagons, vans and utilities (11 per cent). These fatalities are of workers who were not occupants in a vehicle – vehicle occupant fatalities are analysed further in section 1.12.

With mobile plant and transport accounting for the majority of 2017 fatalities due to being hit by moving objects, the remaining fatalities were evenly spread across breakdown agencies. The next most common breakdown agency was machinery & (mainly) fixed plant (11 per cent), which involves plant such as cranes and forklifts.

Table 18: Worker fatalities due to being hit by moving objects: number by breakdown agency, 2013 to 2017 (sorted by five year average)

Breakdown agency	2013	2014	2015	2016	2017	% of 2017	% of 5 yr average (2013–2017)
Mobile plant & transport	16	17	18	11	19	54%	63%
Trucks, semi-trailers, lorries	5	5	3	2	7	20%	17%
Cars, station wagons, vans, utilities	5	2	3	..	4	11%	11%
Tractors, agricultural or otherwise	1	5	3	3	4	11%	13%
Self-propelled plant	3	2	6	5	1	3%	13%
Other mobile plant and transport	2	3	3	1	3	9%	9%
Machinery & (mainly) fixed plant	5	1	3	2	4	11%	12%
Powered equipment, tools & appliances	..	..	3	2	3	9%	7%
Non-powered handtools, appliances & equipment	2	2	2	..	3	9%	7%
Animal, human & biological agencies	..	1	1	1	2	6%	4%
Environmental agencies	..	1	2	..	1	3%	3%
Materials & substances	..	..	..	1	3	9%	3%
Chemicals & chemical products	1	..	..	..	..	..	1%
Total – being hit by moving objects	24	22	29	18	35	100%	100%

* The percentages shown in this table have been rounded to the nearest whole number; therefore the sum of percentage figures for each column may not equal the total.

1.10.Falls from a height

In 2017, 28 workers died as a result of a fall from a height.

Table 19 shows that over the 5 years to 2017, falls from a height most commonly involved falls from a roof (15 per cent of fatalities), ladder (14 per cent), horses, donkeys and mules (11 per cent) and trucks, semi-trailers and lorries (7 per cent).

Table 19: Worker fatalities due to falls from a height: number by selected breakdown agencies, 2013 to 2017 (sorted by five year average)

Breakdown agency	2013	2014	2015	2016	2017	% of 2017	% of 5yr average (2013–2017)
Environmental agencies	7	10	12	9	11	39%	38%
Roof	2	5	6	4	3	11%	15%
Openings in floors, walls or ceilings	..	1	1	2	3	11%	5%
Non-powered handtools, appliances & equipment	4	4	7	10	6	21%	24%
Ladders	3	2	3	6	4	14%	14%
Scaffolding	..	..	2	2	..	0%	3%
Mobile plant & transport	7	2	5	3	6	21%	18%
Trucks, semi-trailers, lorries	3	..	3	1	2	7%	7%
Tractors, agricultural or otherwise	1	..	..	..	3	11%	3%
Animal, human & biological agencies	5	3	3	1	3	11%	12%
Horses, donkeys, mules	4	3	3	1	3	11%	11%
Machinery & (mainly) fixed plant	3	3	2	1	1	4%	8%
Elevating work platforms	1	..	2	..	..	0%	2%
Total – Falls from a height	26	22	29	25	28	100%	100%

* The sum of the number of fatalities and percentage figures for each column may not equal the total due to rounding and the inclusion of selected subcategories in some breakdown agencies. The total also includes fatalities where the breakdown agency was unknown.

1.11. Being hit by falling objects

In 2017, 15 workers died due to being hit by falling objects.

Table 20 provides more detail on the object (agency) which hit the worker. Over the five years up to 2017, 15 per cent of fatalities occurred as a result of a worker being hit by falling vegetation. This was followed by trucks, semi-trailers and lorries (12 per cent) and ferrous and non-ferrous metal (9 per cent).

Table 20: Worker fatalities due to being hit by falling objects: number by selected breakdown agencies, 2013 to 2017 (sorted by five year average)

Breakdown agency	2013	2014	2015	2016	2017	% of 2017	% of 5yr average (2013–2017)
Environmental agencies	8	6	3	6	3	20%	27%
Vegetation	6	2	2	3	1	7%	15%
Buildings and other structures	2	3	..	1	1	7%	7%
Mobile plant & transport	6	4	10	3	1	7%	25%
Trucks, semi-trailers, lorries	4	3	1	2	1	7%	12%
Tractors, agricultural or otherwise	1	..	1	1	..	..	3%
Materials & substances	5	3	5	5	4	27%	23%
Ferrous and non-ferrous metal	3	3	..	2	1	7%	9%
Sawn or dressed timber	..	..	2	1	1	7%	4%
Bricks and tiles and concrete, cement and clay products, not elsewhere classified	..	..	2	1	1	7%	4%
Machinery & (mainly) fixed plant	2	2	1	3	3	20%	12%
Cranes	1	..	..	1	1	7%	3%
Forklift trucks	..	1	..	1	1	7%	3%
Non-powered handtools, appliances & equipment	3	2	2	..	4	27%	12%
Storage equipment	2	..	1	..	1	7%	4%
Doors and windows	1	2	..	..	..	..	3%
Total – Being hit by falling objects	25	17	21	17	15	100%	100%

* Only selected agency subgroups are included. Therefore the number of fatalities in the selected subcategories will not add to the category total. The percentage figures are also rounded to the nearest whole number.

1.12. Vehicle involvement and collisions

Safe Work Australia's work-related fatalities database collects two sources of information relating to vehicles:

- Whether a vehicle was principally involved in the incident leading to a worker fatality, referred to as 'vehicle involvement'
- 'Vehicle collisions', where a vehicle crash occurred and the occupant of the vehicle was killed³

Over the five year period from 2013 to 2017, 60 per cent of worker fatalities (597 fatalities) involved vehicles. Of these, just under half (291 fatalities) occurred on a public road.

Table 21 shows that the vast majority (85 per cent) of worker fatalities involving vehicles on public roads were the result of a vehicle collision. This was followed by being hit by moving objects, which accounted for a further 8 per cent of fatalities.

By contrast, less than a third (30 per cent) of fatalities involving a vehicle not on a public road were due to a vehicle collision. A further 20 per cent were caused by being hit by a moving object and 15 per cent due to the rollover of a non-road vehicle.

Table 21: Worker fatalities by vehicle involvement: percentage by public road status and mechanism of incident, 2013 to 2017 combined (sorted by vehicle involved fatalities)

Mechanism of fatality	Vehicle involved: On a public road	Vehicle involved: Not on a public road	Vehicle involved: Total	No vehicle involved	Total
Vehicle collision	85%	30%	57%	..	34%
Being hit by moving objects	8%	20%	14%	11%	13%
Rollover of non-road vehicle	2%	15%	8%	..	5%
Being hit by falling objects	0%	8%	4%	18%	10%
Being trapped between stationary and moving objects	1%	8%	5%	4%	4%
Being trapped by moving machinery	1%	6%	3%	5%	4%
Falls from a height	0%	7%	4%	28%	13%
Other mechanisms	2%	8%	5%	33%	16%
Total	29%	31%	60%	40%	100%

* The percentages shown in this table have been rounded to the nearest whole number; therefore the sum of percentage figures for each column may not equal the total.

³ Refer to the Glossary for more detail on Vehicle collisions

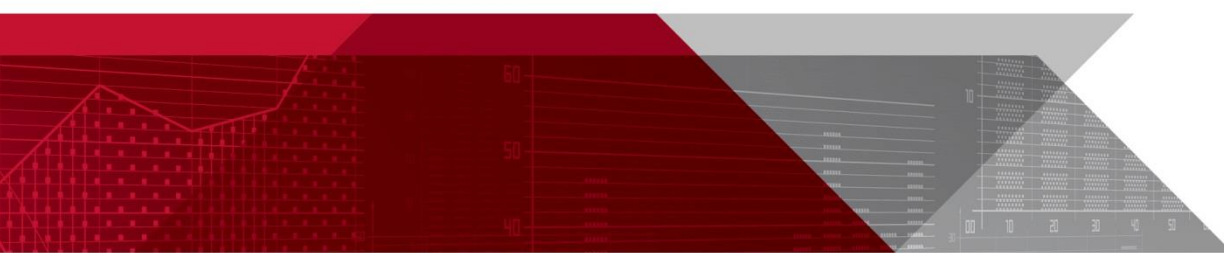
Table 22 shows in 2017, of the 60 workers who died in a vehicle collision, over two thirds (68 per cent) involved single vehicle collisions and just under half of these involved heavy vehicles (19 fatalities). A further 13 fatalities were as a result of an aircraft crash.

Table 22: Worker fatalities due to vehicle collision: number by type of collision and breakdown agency, 2013 to 2017

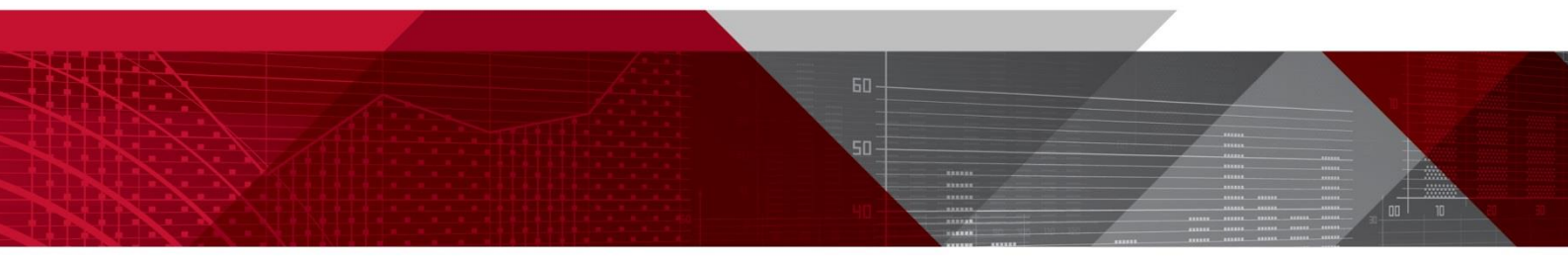
Type of collision	2013	2014	2015	2016	2017	% of 2017	% of 5yr average
Single vehicle collision	42	51	35	46	41	68%	64%
Heavy vehicle	18	24	17	21	19	46%	46%
Aircraft	10	9	5	7	13	32%	21%
Light vehicle	5	9	6	13	3	7%	17%
Quad bike	4	5	5	..	2	5%	7%
Motorbike	2	3	..	..	3	7%	4%
Agriculture vehicle	2	..	..	3	..	0%	2%
Other single vehicle	1	1	2	2	1	2%	3%
Multi vehicle collision	25	23	25	31	19	32%	36%
Two heavy vehicles	7	8	6	10	6	32%	30%
Occupant in a light vehicle killed in collision with a heavy vehicle	7	5	6	5	5	26%	23%
Two light vehicles	4	4	7	9	4	21%	23%
Occupant in a heavy vehicle killed in collision with a light vehicle	4	3	2	4	1	5%	11%
Other multi-vehicle collision	3	3	4	3	3	16%	13%
Total – vehicle collision	67	74	60	77	60	100%	100%

* The percentages shown in this table have been rounded to the nearest whole number; therefore the sum of percentage figures for each column may not equal the total.

The remaining 19 fatalities in 2017 due to a vehicle collision involved a multi-vehicle collision. One third (32 per cent) of these involved two heavy vehicles and a further 26 per cent involved an occupant in a light vehicle killed in collision with a heavy vehicle.



Section 2: Bystander Fatalities



2. Bystander fatalities by mechanism of incident

The actions of a worker or a fault in a workplace resulted in the deaths of 67 members of the public (referred to as bystanders) in 2017.

Table 23 shows over the five year period from 2013 to 2017, 58 per cent of the bystander fatalities were due to a vehicle collision, with being hit by moving objects accounting for a further 18 per cent.

Drowning and falls from a height each accounted for 6 per cent of fatalities over the same period, and being hit by falling objects accounted for 5 per cent.

Table 23: Bystander fatalities: number by mechanism of incident, 2013 to 2017 (sorted by five year average)

Mechanism of fatality	2013	2014	2015	2016	2017	% of 2017	% of 5yr average (2013–2017)
Vehicle collision	43	42	30	25	41	61%	58%
Being hit by moving objects	8	10	9	12	16	24%	18%
Drowning	..	5	5	7	1	1%	6%
Being hit by falling objects	6	3	2	3	..	0%	5%
Falls from a height	4	6	3	1	4	6%	6%
Other mechanisms	6	6	2	5	5	7%	8%
Total	67	72	51	53	67	100%	100%

* The percentages shown in this table have been rounded to the nearest whole number; therefore the sum of percentage figures for each column may not equal the total.

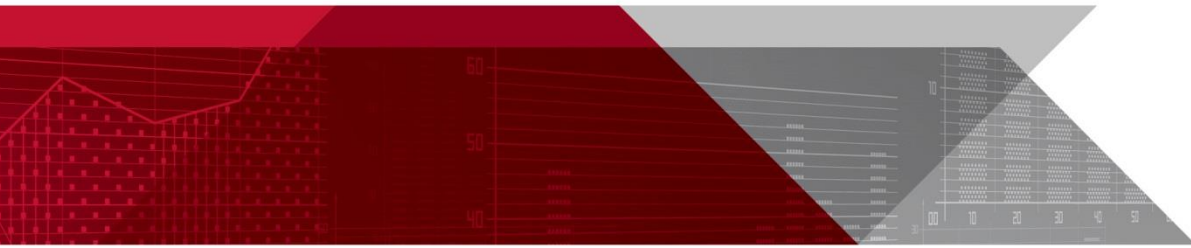
2.1 Bystander fatalities by age group

Table 24 shows that for the period of 2013 to 2017, children under 14 years of age and those aged 65 years or older accounted for 13 per cent (41 fatalities) and 22 per cent (69 fatalities) of fatalities, respectively.

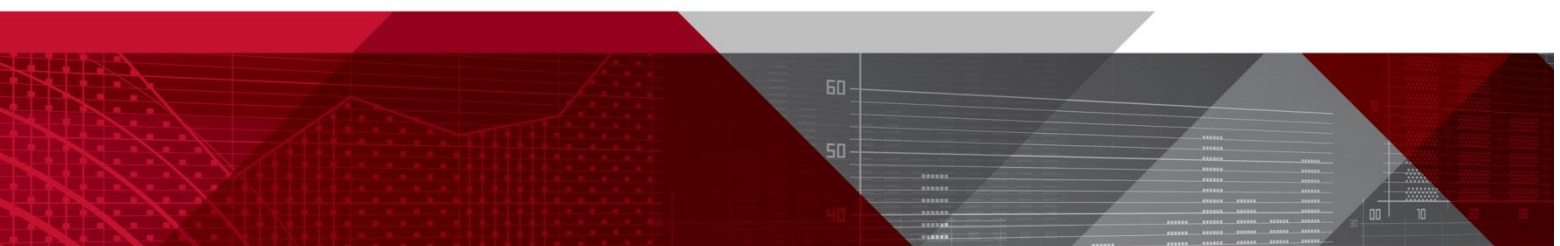
Bystander fatalities caused by a vehicle collision accounted for the highest number of fatalities across all age groups. This was followed by being hit by moving objects, where children aged 14 and under accounted for 22 per cent (12 fatalities) and bystanders aged 65 and over accounted for 27 per cent (15 fatalities). Bystanders 65 and over accounted for 44 per cent of falls from a height, the majority (5 fatalities) of which occurred in a health care setting.

Table 24: Bystander fatalities: number by age group, 2013 to 2017

Mechanism of fatality	14 & under	15–24	25–44	45–64	65 & over
Vehicle collision	16	24	57	58	26
Being hit by moving objects	12	2	8	18	15
Drowning	1	3	3	4	7
Falls from a height	4	2	2	2	8
Being hit by falling objects	5	2	2	2	3
Other mechanisms	3	1	7	3	10
Total	41	34	79	87	69



Section 3: Data sources & Glossary



3. Data sources

The Traumatic Injury Fatalities dataset uses information from four datasets:

- National Data Set for Compensation-based Statistics (NDS), constructed using accepted workers' compensation claims
- Notifiable Fatalities Collection (NFC), constructed using work-related fatalities that are notified to Australian work health and safety authorities
- National Coronial Information System (NCIS), constructed using deaths reported to Australian coroners
- Labour Force Survey data, conducted by the Australian Bureau of Statistics (ABS category number 6202.0) to provide the number of workers to calculate fatality rates

These four datasets are also supplemented by monitoring of work-related fatalities through Australian media by Safe Work Australia.

For more information on Safe Work Australia datasets, refer to

<https://www.safeworkaustralia.gov.au/doc/explanatory-notes-safe-work-australia-datasets>.

3.1 Glossary

Being hit by moving objects

Part of the Mechanism classification used to describe the action of an object hitting a person. This includes pedestrians hit by vehicles as well as being hit by other moving equipment or objects.

Breakdown agency

A part of the TOOCS classification which identified the object, substance or circumstance principally involved at the point at which things started to go wrong and ultimately led to a worker fatality.

Bystander fatality

The death of a person who dies from injuries sustained as a result of another person's work activity and who was not engaged in a work activity of their own at the time of the injury. A traffic incident death is only classified as a bystander fatality when attributable to someone else's work activity. Typically, this means the driver of a work vehicle is at fault. Cases where fault could not be determined with sufficient confidence are excluded.

Employed person

The denominators used in calculating fatality rates in this report are based on ABS estimates of Employed persons, as defined in Labour force, Australia (ABS cat no 6202.0). This population includes Employees (who work for an employer); self-employed persons (regardless of whether they employ others or not); and those who work without pay for a family business or farm. It excludes persons whose only work is voluntary.

Employee

A person who works for a public or private employer and receives remuneration in wages, salary, a retainer fee from their employer while working on a commission basis, tips, piece-rates, or payment in kind; or a person who operates his or her own incorporated enterprise with or without hiring employees.

Fatality rate

The number killed as a result of work-related injury expressed as a per-capita rate against the population at risk of work-related injury. In this report the rate is expressed as the number of fatalities per 100,000 Employed persons: for brevity this is usually expressed as 'fatalities per 100,000 workers'. See Paragraph 4 of the Explanatory notes for further details.

Industry

A grouping of businesses that carry out similar economic activities. Fatalities data in this publication have been coded to the Australian and New Zealand Standard Industrial Classification (ANZSIC) 2006 (ABS cat. no. 1292.0). ANZSIC utilises four levels of industry classification—division, subdivision, group and class—and unless specified in this report, industries are presented at the division level.

Injury

A condition coded to 'External causes of morbidity and mortality' and 'Injury, poisoning and certain other consequences of external causes' in the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification (ICD-10-AM).

Job

A set of tasks designed to be performed by one person for an employer (including self-employment) in return for payment or profit.

Mechanism of incident

The action, exposure or event that best describes the circumstances that resulted in the most serious injury.

Non-public road incident

An incident involving a vehicle that occurred at a worksite, on a private road or a public area that is not a public road. These incidents include plane crashes and incidents involving watercraft as well as vehicle crashes on farming properties.

Occupation

A set of jobs with similar sets of tasks. Fatalities data in this publication have been coded to the Australian and New Zealand Standard Classification of Occupations (ANZSCO) (ABS cat. no. 1220.0) First edition. ANZSCO utilises four levels of occupational classification—major, sub-major, minor and unit groups—and unless specified in this report, occupations are presented at the major group level.

Public road incident

A collision on a public road between any vehicle or self-propelled plant and anything else including a pedestrian. Incidents involving vehicles at worksites or on private roads are excluded. Public road incidents can be due to a Vehicle collision or being hit by a vehicle (which is included in the Mechanism of Being hit by moving objects).

Rollover of non-road vehicle

Part of the Mechanism classification used to identify when a vehicle that is not normally a road vehicle overturns. This includes tractors and quad bikes being used on farm properties.

Type of occurrence classification system (TOOCS)

A suite of four classifications to code the way an injury occurred, comprising the Nature of injury/disease classification, the Bodily location of injury/disease classification, Mechanism of incident classification, and the Agency of injury/disease classification. Version 3.1 is used for coding the data presented in this report. Fatalities are only coded by Mechanism and Agency.

Vehicle collision

Part of the Mechanism of incident classification that identifies fatalities that occurred due to a vehicle crash and where the occupant of the vehicle was killed. In the classification, this category is called Vehicle Incident but has been renamed to assist with reader understanding. Vehicle collisions that occur on public roads are further classified as a public road incidents and do not include people hit by a vehicle, which are coded to Being hit by moving objects. Vehicles not only include cars and trucks but also include other motorised equipment such as aircraft, boats, loaders, tractors and quad bikes.

Volunteer

Persons who undertake voluntary work through or for an organisation or group are included in the worker counts where that organisation or group is a business enterprise. It does not include sporting organisations or caring activities.

Worker fatality

The death of a person who dies from injuries sustained while at work, including those workers whose injury was caused by another's work activity. Workers include employees, self-employed persons, volunteers and contributing family workers.