GOVERNMENT OF WESTERN AUSTRALIA

WorkSafe Western Australia

State of the work environment

Work-related traumatic injury fatalities in Western Australia

2012–13 to 2021–22p

Reference

The recommended reference for this publication is: WorkSafe, 2024, Work-related traumatic injury fatalities in Western Australia 2012–13 to 2011–22p: Department of Energy, Mines, Industry Regulation and Safety, Western Australia, 46 pp.

ISBN 978-1-922873-10-1 (web)

This publication is available on request in other formats for people with special needs.

This publication is also available in digital format (PDF) online at www.demirs.wa.gov.au

Further details of resources safety publications can be obtained by contacting:

WorkSafe Group
Department of Energy, Mines, Industry Regulation and Safety
303 Sevenoaks Street
Cannington
Western Australia 6107

Telephone 1300 307 877
NRS 13 36 77
Email Safety@dmirs.wa.gov.au (general queries)

Contents

List of figures

List of tables

Definitions

Breakdown agency

The breakdown agency identifies the chemical, product, process or equipment that was most closely associated with the breakdown event of the fatality.

Bystander

A bystander is a person who is fatally injured because of someone else's work activity and the work activity is not related to their own employment. Bystanders may include visitors, service recipients or passers-by. The term does not include most volunteers as volunteers, generally, are classed as workers. The *Work Health and Safety Act 2020* (WHS Act) categorises bystanders as 'other persons'.

Frequency rate

Frequency rates are used to provide an indication of the relative number of work-related fatalities across different years, scaled for changes in the number of hours worked. Frequency rates published in this document are per million hours worked. The fatality frequency rate is calculated as number of fatalities per million hours worked. The number of hours worked is the total number of hours worked by workers in Western Australia.

Incidence rate

Incidence rates are used to provide an indication of the relative number of work-related fatalities across different years, scaled for changes in the size of the workforce. Incidence rates published in this document are per million employees. The fatality incidence rate is calculated as the number of fatalities per million workers.

Mechanism

The mechanism of incident classification is intended to identify the mechanism or process that best describes the circumstances in which the fatality occurred. Thus, the code is allocated on the basis of the overall circumstances of the incident, rather than on the specific direct cause of the fatality. The mechanism of incident is most easily thought of in terms of an action, exposure or event. Some types of mechanisms are actions, such as being struck by, or striking against, an object, or lifting, handling or carrying objects. Other mechanisms can be exposures, such as to a virus, environmental factors, mental stress or specific events such as motor vehicle incidents and cave-ins.

Motor vehicle incident fatalities

In this report, motor vehicle incident fatalities means work-related fatalities which occurred on a road or at a place open to the public and within the jurisdiction of the offence provisions of the *Road Traffic Act 1974*. This is distinct from the mechanism of injury **vehicle incidents**. Motor vehicle incident fatalities does not include all **vehicle incidents**, similarly not all motor vehicle incident fatalities record the mechanism **vehicle incidents**. Motor vehicle incident fatalities are excluded from all parts of this report except sections 12 and 13.

Vehicle involvement

Fatalities were classified as involving a vehicle where the breakdown agency subgroup class was **conveyors and lifting plant, self-propelled plant, other mobile plant, road transport or other transport.** Fatalities meeting this criteria were excluded where the mechanism of incident subgroup was **hit by falling objects, exposure to cold, exposure to heat, falls from a height, falls on the same level** or **hitting stationary objects.**

Volunteer

Volunteer is defined in section 4 of the WHS Act: volunteer means a person who is acting on a voluntary basis (irrespective of whether the person received out of pocket expenses). Workers include volunteers, but in a separate subcategory. Volunteers fall under the occupation group of their work activity.

Worker

Worker is defined in detail in section 7 of the WHS Act. In brief, a person is a worker if the person carries out work in any capacity for a person conducting a business or undertaking (PCBU).

Work-related fatality

A traumatic injury fatality which has been determined by the regulator (WorkSafe Commissioner) to be work-related. Unless otherwise specified, this excludes motor vehicle incident fatalities before 1 July 2021.

Explanatory notes

Scope and exclusions

Fatalities are listed according to the year in which death occurred.

Unless otherwise specified, all data covers the period 2012–13 to 2021–22p.

Annual fatality totals from 1988–89 to 2021–22p are also referenced in some places.

The scope of this report includes all persons who sustained fatal traumatic injuries or poisoning as a result of work activity or exposures, and whose injuries occurred in an incident that took place in the State of Western Australia (WA), including Australian territories or territorial waters off the WA coast. In scope are workers (including self-employed persons and volunteers) and other persons (including bystanders). Diseases and most disorders that would be seen as 'diseases', such as cancers and heart attacks, are out of scope.

Work-related fatalities exclude motor vehicle incident fatalities except where specified otherwise.

Fatalities occurring before 1 July 2021 may have been determined by a different criteria. In particular, before this date, motor vehicle incident fatalities were generally not recorded as work-related. Self-inflicted injuries and homicide are not recorded as work-related.

The report excludes:

- fatalities related to activities not classified as work, such as:
  - unpaid domestic or home duties
  - studying (unless in connection with employment, for example, an apprenticeship)
  - volunteer activities with no work connection
- Commonwealth Government workers, workers covered by Comcare, and Australian Defence Force personnel
- work-related fatalities resulting from occupational diseases. Information on fatalities from work-related diseases is available through workers' compensation (WorkCover WA) and other sources
- motor vehicle incident fatalities occurring before 1 July 2021
- fatalities due to diseases and most disorders that would be seen as 'diseases', such as cancers, heart disease, heart attacks, or other natural causes, unless there is a clear relationship between the accident and the work being performed at the time of the accident.

Jurisdictions of work-related fatalities

WorkSafe will only record work-related fatality events which occur within the legislative jurisdiction of the *Work Health and Safety Act 2020* (WHS Act) and, previously, the *Occupational Safety and Health Act 1984* (OSH Act) and the *Mines Safety and Inspection Act 1994* (MSI Act).

Accordingly, WorkSafe will not record work-related fatality events which occur:

a) exclusively in Comcare's jurisdiction
b) outside three nautical miles of the WA coastline and therefore fall within the exclusive jurisdiction of NOPSEMA.

WorkSafe will record fatality events as work-related fatalities when an external safety regulator and WorkSafe have concurrent regulatory jurisdiction. Such matters include fatalities falling under the WHS Act and concurrent legislation regulated by:

a) Western Australian Police Force relating to traffic crashes occurring on a road or at a place open to the public
b) Building and Energy relating to electrical or gas incidents
c) Office of the National Rail Safety Regulator relating to rail incidents
d) Comcare where a PCBU related to the incident is identified to have a duty under the WHS Act
e) Australian Maritime Safety Authority in relation to marine safety incidents
f) Civil Aviation Safety Authority in relation to aircraft related incidents.

Denominator data sources

Workforce data of total employed and total hours worked by industry, occupation and gender are sourced from the Australian Bureau of Statistics *Labour Force Survey* which includes self-employed persons.

Western Australian population by age group, by gender or by industry figures are sourced from the Australian Bureau of Statistics *Census of Population and Housing*, 2021.

Preliminary, final and revised data

Investigations into fatalities can be protracted and final decisions are often dependent on the release of information from other agencies. The work-related traumatic injury fatality figures for 2019–20p, 2020–21p, and 2021–22p are yet to be finalised. Data for these years is considered preliminary: individual preliminary data years will be marked with a p (2021–22p).

All information is subject to revision and even final data may change. Information provided in this report is correct as at 24 August 2023.

Since the last publication of *State of the Work Environment* (SOWE) in April 2022, there have been two revisions to the annual number of work-related fatalities. The total count of fatalities in the 2019–20p year has increased from 18 to 19, and in the 2020–21p year has increased from 17 to 19. Some fatalities in the 2020–21p year previously reported as work-related fatalities have been reclassified to motor vehicle incident fatalities.

The previous two versions of this report included erroneous frequency rates, where scaling factors had been incorrectly applied to denominator data, causing all frequencies to be 13 times too high. The relative position of industries and occupations was not affected.

In a change from previous versions of this report, volunteers have been reclassified from bystanders to workers (with a subcategory of volunteer).

Classifications systems

Traumatic incident characteristics

Incident classifications are assigned according to the *Type of Occurrence Classification System Third Edition Revision 1* (TOOCS 3.1) provided by Safe Work Australia.

Occupation of worker

Occupation classifications are assigned according to the *Australian and New Zealand Standard Classification of Occupations First Edition 2013* (ANZSCO) provided by the Australian Bureau of Statistics.

Industry of workplace

Industry classifications are assigned according to the *Australian and New Zealand Standard Industry Classification 2006 Edition* (ANZSIC) provided by the Australian Bureau of Statistics.

Data is classified by industry of workplace, which describes the main work activity of the establishment at which the person was fatally wounded.

Comparisons with other data sets

The information in this report may differ from that reported by other agencies and organisations.

Comparisons with lost time injury and disease data

The data used to produce this report differs from reports on lost time injuries and diseases. The definition and identification of work-related fatalities requires case-by-case assessment of the work being performed and the circumstances of the fatal event.

Comparisons with WorkCover WA compensated work-related fatality data

WorkCover WA data on the annual number of compensated work-related fatalities does not match the data in this report due to differences in the data collection methods.

WorkCover WA compensated work-related fatalities include certain types of fatalities that are not directly related to work, but occur while a person is at work, such as fatalities resulting from road traffic accidents and fatalities from heart attack and other diseases.

WorkCover WA reports compensated fatalities according to the year in which the relevant claim is lodged, regardless of when the associated fatality occurred.

Comparisons with Safe Work Australia fatality data

Data on WA work-related fatalities is also collected and reported on by Safe Work Australia.

Safe Work Australia usually reports based on calendar years and uses different criteria for inclusion in the dataset. Safe Work Australia generally considers on-duty motor vehicle collisions to be work-related.

Legislative change

The WHS Act was formally implemented on 31 March 2022 and all WA workplaces come under this single Act, replacing the OSH Act and the work health and safety elements of certain Acts covering mining and petroleum. The WHS Act is regulated by the WorkSafe Commissioner (the regulator).

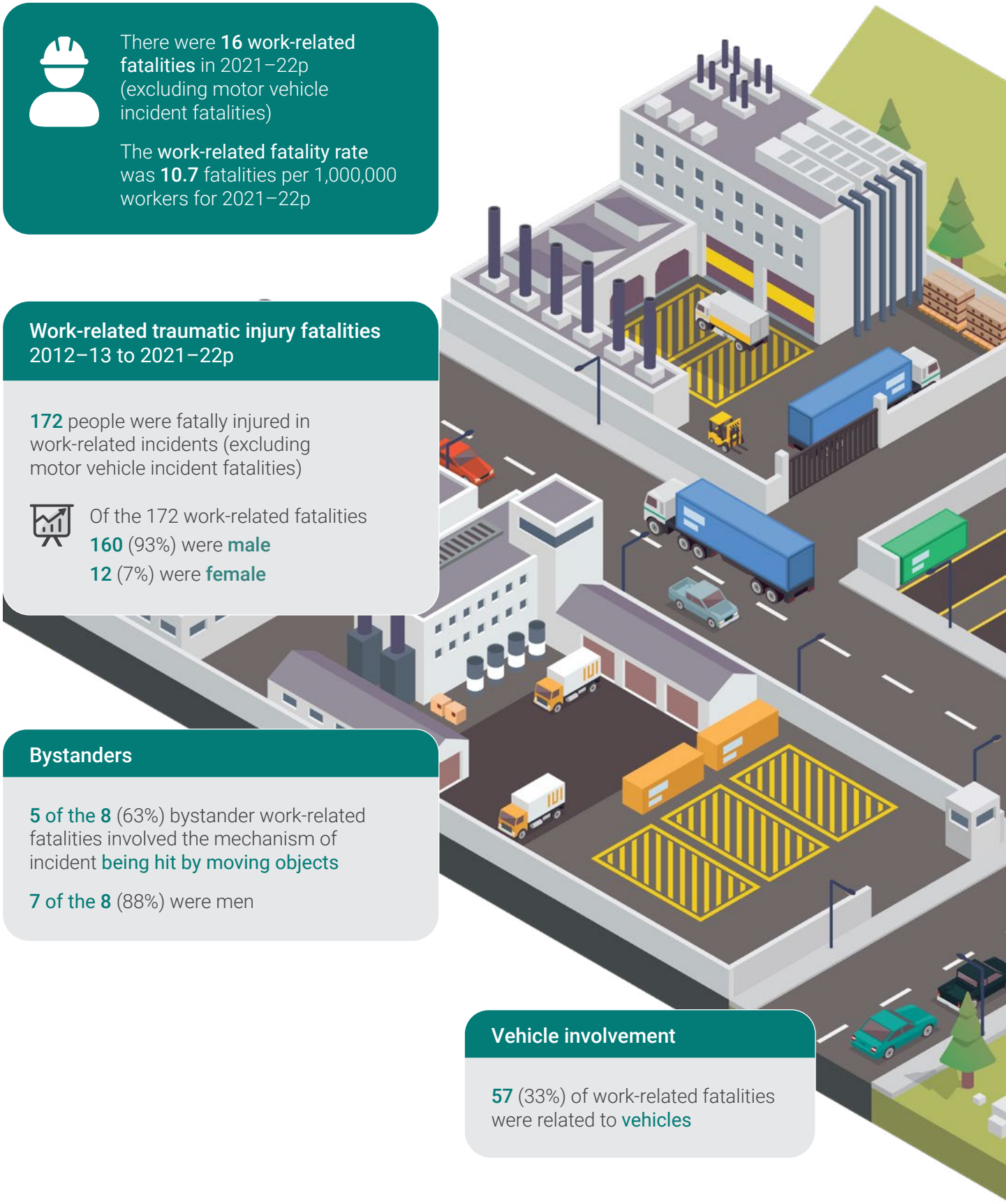
For data reporting purposes, work-related fatalities have been recorded to reflect classifications under the WHS Act, even those that occurred under the OSH Act.

Under the definitions of WHS, volunteers are generally considered to be a subcategory of workers. This is a change from the OSH Act and previous versions of this report, where volunteers were considered to be bystanders.

Statistical summary

There were **16 work-related fatalities** in 2021–22p (excluding motor vehicle incident fatalities)

The **work-related fatality rate** was **10.7** fatalities per 1,000,000 workers for 2021–22p



Work-related traumatic injury fatalities 2012–13 to 2021–22p

172 people were fatally injured in work-related incidents (excluding motor vehicle incident fatalities)

Of the 172 work-related fatalities
160 (93%) were male
12 (7%) were female

Bystanders

5 of the 8 (63%) bystander work-related fatalities involved the mechanism of incident being hit by moving objects

7 of the 8 (88%) were men

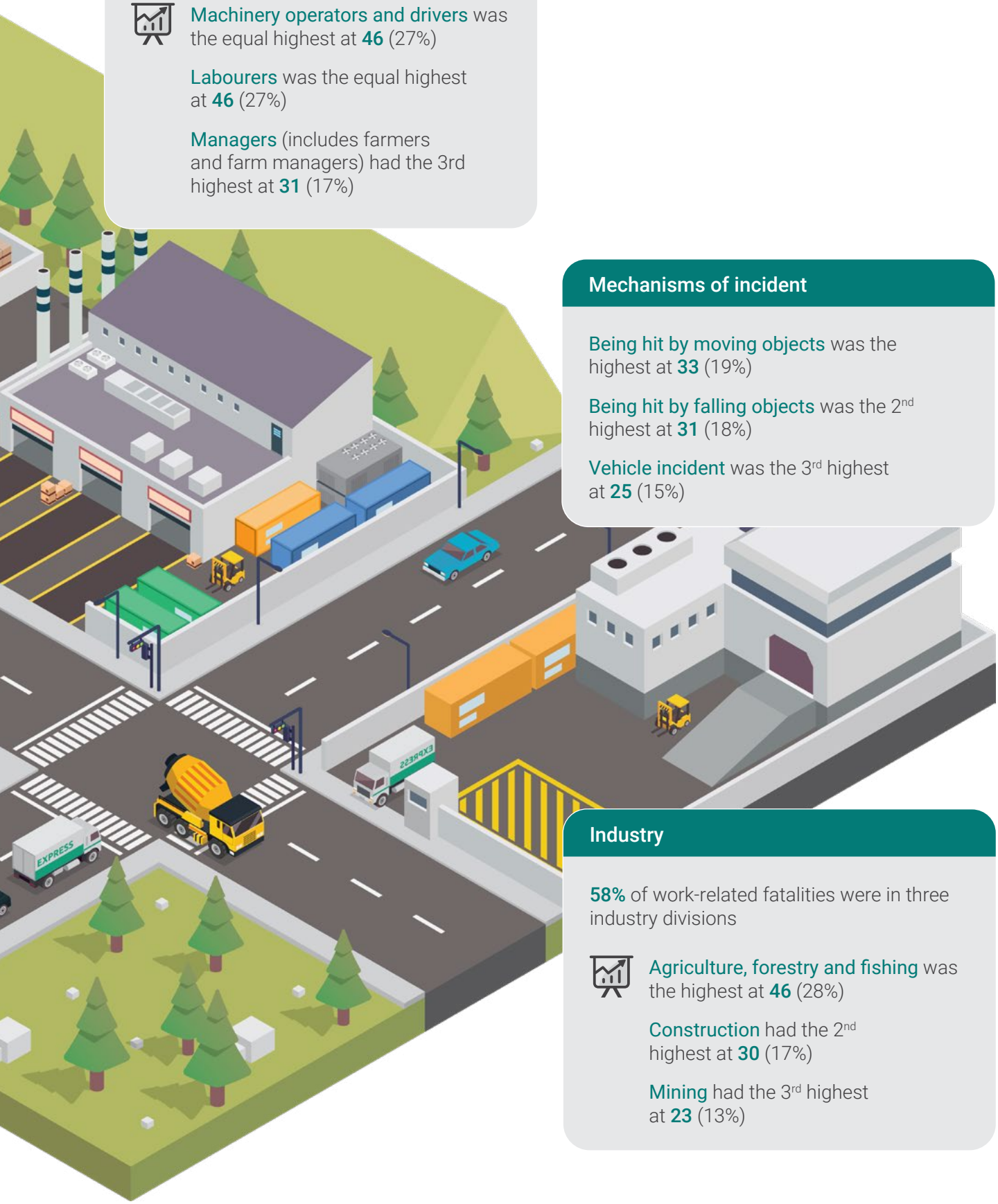
Vehicle involvement

57 (33%) of work-related fatalities were related to vehicles

Occupation

71% of work-related fatalities were in three major occupation groups

- **Machinery operators and drivers** was the equal highest at **46** (27%)
- **Labourers** was the equal highest at **46** (27%)
- **Managers** (includes farmers and farm managers) had the 3rd highest at **31** (17%)



Mechanisms of incident

Being hit by moving objects was the highest at **33** (19%)

Being hit by falling objects was the 2nd highest at **31** (18%)

Vehicle incident was the 3rd highest at **25** (15%)

Industry

58% of work-related fatalities were in three industry divisions

- **Agriculture, forestry and fishing** was the highest at **46** (28%)
- **Construction** had the 2nd highest at **30** (17%)
- **Mining** had the 3rd highest at **23** (13%)

Executive summary

The *State of the Work Environment* (SOWE) series is produced by WorkSafe to promote awareness of work health and safety in WA.

This report analyses data on traumatic injury fatalities in WA which have been determined by the regulator to be work-related (work-related fatalities). Both workers and bystanders are considered for the analysis in this report. Where this report refers to workers rather than people, bystanders have been excluded from the analysis. Details about the scope of this report are provided in Explanatory notes.

Data for 2019–20, 2020–21, and 2021–22 is considered preliminary (suffixed with 'p'), as some investigations related to this period are ongoing.

Work-related traumatic injury fatalities 2021–22p

During the year 2021–22p, there were 16 work-related fatalities and a further 14 motor vehicle incident fatalities (preliminary data, as at August 2023). Currently, on average, a person is fatally injured in a work-related incident every 23 days.

The average number of work-related fatalities has reduced since the introduction of the OSH Act in 1988–89:

- 1990s — 23 work-related fatalities per year
- 2000s — 20 work-related fatalities per year
- 2010s — 18 work-related fatalities per year.

The fatality incidence rate fell by three-quarters over the duration of the OSH Act.

List of work-related traumatic injury fatalities in WA 2021–22p

- A 19 year old builder's labourer received fatal injuries while assisting in the lowering of a ramp.
- A 24 year old farmer was fatality injured when he was struck by a hitch pin while attempting to free a bogged seeder.
- A 25 year old drill and blast operator was engulfed by material following a ground collapse at a mine site.
- A 35 year old farmer suffered fatal injuries after falling from a work cage attached to a telehandler.
- A 49 year old farmer, who was operating a skid steer in his orchard, was found trapped under the bucket of the vehicle with fatal injuries.
- A 52 year old registered nurse was fatality injured when a charter flight he was a passenger on crashed.
- A 54 year old farmer was operating a quadbike when he struck a rock pile causing fatal injuries.
- A 56 year old furniture removalist was between a truck and trailer combination, and was run over when the combination began to move.
- A 62 year old farmer was fatality injured when he was caught in a wool press machine he was operating.
- A 69 year old farmer was ejected off a quadbike and sustained fatal injuries.
- A 72 year old farmer was run over by a tractor he was attempting to start, causing fatal injuries.
- A 72 year old loader operator carrying out works on a construction site was crushed between the cab of the machine and the loader arm structure.
- A minor was playing at a residential construction site but was fatally injured when a steel beam fell on his head.
- A tanker driver was going into a soak to retrieve a funnel and was later found submerged in the water.
- An 89 year old farmer was fatality injured when he stood at the rear of an idle tractor, it rolled backwards and struck him.
- An operator was working in the vicinity of a conveyor system when he became entangled in the head/drive pulley of the conveyor belt.

Motor vehicle incident fatalities 2021–22p

From 1 July 2021, the recording of motor vehicle incident fatalities changed. Motor vehicle incident fatalities means fatalities resulting from on-duty road traffic accidents with no clear relationship between the accident and the work being performed at the time of the accident, and includes fatally injured bystanders.

Prior to 1 July 2021, motor vehicle incident fatalities were generally not counted as work-related. From 1 July 2021, motor vehicle incident fatalities are generally being counted as work-related. This change is intended to allow for the collection of statistics of on-duty motor vehicle fatalities in WA, enable reporting on the data collected and use it to inform future policy advice, prevention strategies and resourcing requests.

Motor vehicle incident fatalities will be considered separately, and will not form part of the total work-related fatalities considered elsewhere in this report, to allow for consistency across the reporting period.

Fourteen motor vehicle incident fatalities were recorded in 2021–22p.

List of motor vehicle incident fatalities in WA 2021–22p

- A 51 year old truck driver was fatality injured when a concrete truck collided with a tractor that was moving between paddocks on a public road.
- A 57 year old truck driver was fatally injured when the prime mover he was driving collided with another truck.
- A community engagement officer was driving a light vehicle containing two passengers, when a motor vehicle incident occurred. The driver and two passengers were fatally injured.
- A driver fatally collided with the trailer of a prime mover that was carrying an oversized load.
- A postal delivery officer on a motorbike suffered a leg injury during work activity. He was treated in a hospital but passed away days later at his own residence.
- A school bus driver suffered a medical episode and lost control of the bus, which collided with a cyclist causing fatal injuries.
- A tow truck driver and the passenger of the truck were fatally injured when the tow truck veered across multiple lanes and collided with a tree.
- A truck driver collided with the rear of another truck, then drove into oncoming traffic, and collided with a vehicle driven by a member of the public.
- A truck driver failed to negotiate a corner with his prime-mover which rolled and then caught alight.
- A worker was driving to a work location, lost control of the vehicle, and suffered fatal injuries from the accident.
- A crane operator drove a mobile crane on a public road and collided with a freightliner truck. The mobile crane rolled and the deceased died from injuries received in the crash.

Analysis of work-related traumatic injury fatalities — past 10 years

During 2012–13 to 2021–22p, 172 people were fatally injured in work-related traumatic incidents in WA.

Comparisons with other jurisdictions are difficult, but a standardised dataset of fatality incidence rates are provided by Safe Work Australia. Western Australia has the fourth highest incidence rate out of the eight jurisdictions, with its incidence rate equal to the national rate for this period.

Demographic factors

Workers aged 65 and over make up just four per cent of the workforce, but account for 18 per cent of work-related fatalities among workers.

Older workers were disproportionately likely to be fatally hit by moving objects. This is especially so for those 65 and older, who made up 30 per cent of workers fatally hit by moving objects.

Males represent 62 per cent of the workforce by hours worked, but comprise 93 per cent of worker work-related fatalities.

Mechanisms of incidents

The dominant mechanism of incident major group was **being hit by moving objects**, accounting for 52 per cent of work-related fatalities. This mechanism excludes **vehicle incidents and other**, which accounts for a further 20 per cent of work-related fatalities.

The most common mechanism of incident subgroups were **being hit by moving objects** (33 work-related fatalities) and **being hit by falling objects** (31 work-related fatalities).

Sixty-three percent of bystanders fatally injured in work-related incidents were hit by moving objects.

Occupations

Labourers and **machinery operators and drivers** make up a disproportionate share of work-related fatalities.

The occupation unit group of **truck drivers** accounted for 24 work-related fatalities.

Truck drivers make up two per cent of the WA workforce by hours worked, but 14 per cent of work-related fatalities.

Industries

By frequency rate, most work-related fatalities occurred in **agriculture, forestry and fishing** followed by **arts and recreation services**, and **transport, postal and warehousing.**

By numbers, however, the top three industries with the most work-related fatalities were:

- 46 — Agriculture, forestry and fishing
- 30 — Construction
- 23 — Mining.

Agriculture, forestry and fishing has both the highest number of work-related fatalities and the highest frequency rate. This is despite a relatively small workforce compared to many other industries.

The **construction** industry worked the most hours of any industry, and had the second highest number of work-related fatalities.

Affected Workers and Families Advisory Committee

When people are fatally injured in work-related traumatic incidents, this has a significant impact on their families, friends and other workers.

During 2019–20, the first steps were taken to create an advisory group of friends and relatives of people who have lost their lives at work. The Affected Families and Workers Advisory Committee was formally established in 2021 and is contributing useful recommendations to the Work Health and Safety Commission.

1 Overview of work-related traumatic injury fatalities (1988–89 to 2021–22p)

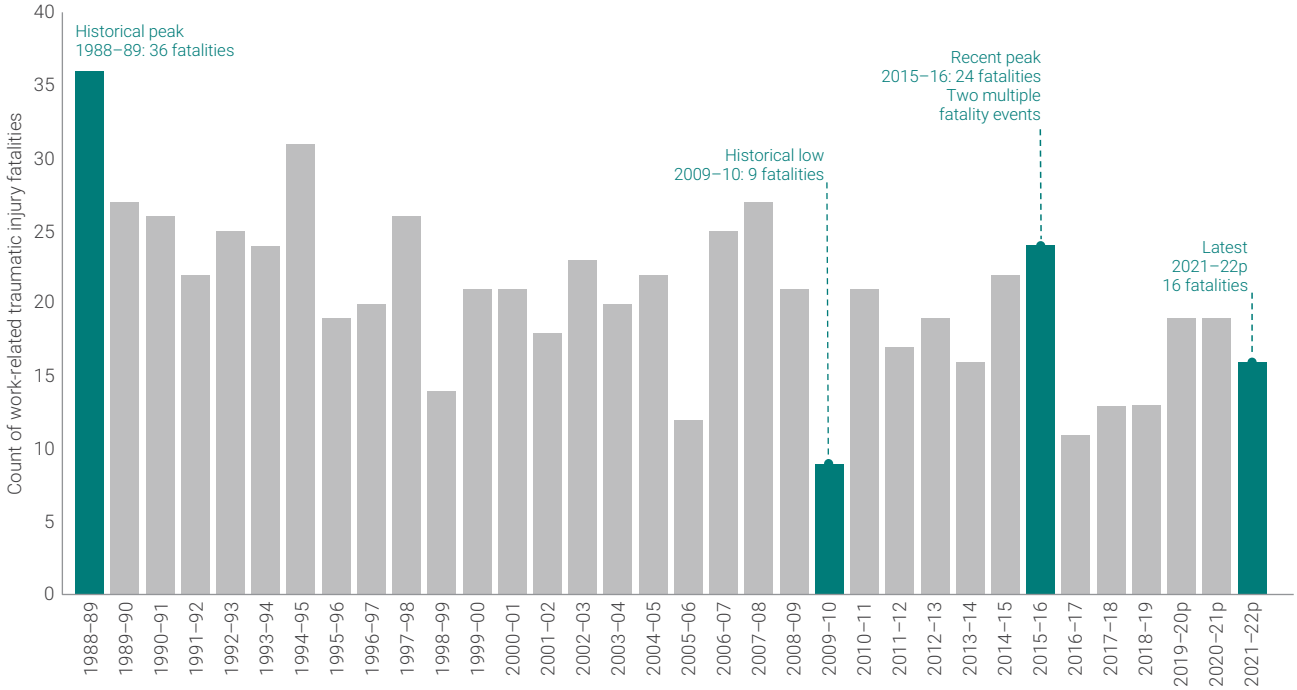


FIGURE 1 Work-related traumatic injury fatalities from 1988–89 to 2021–22p

Key findings

Figure 1 shows an apparent downward trend in the number of people fatally injured in work-related incidents per year, from 1988–89 to 2021–22p.

Fatalities halved over the duration of the OSH Act. While the workforce has almost doubled since 1988–89, the total numbers of work-related fatalities are significantly lower than in the late 1980s and early 1990s.

Western Australia had recorded more than 20 work-related fatalities in almost all the years in the late 1980s and 1990s, with two outlier years recording more than 30 work-related fatalities.

The average number of people fatally injured in work-related incidents per year for the 1990s was 23 and for the 2000s was 20.

In the 2010s, only three years recorded more than 20 work-related fatalities. The average number of people fatally injured in work-related incidents for this decade was 18.

A total of 172 people were fatally injured in work-related incidents during the ten-year reporting period of 2012–13 to 2021–22p.

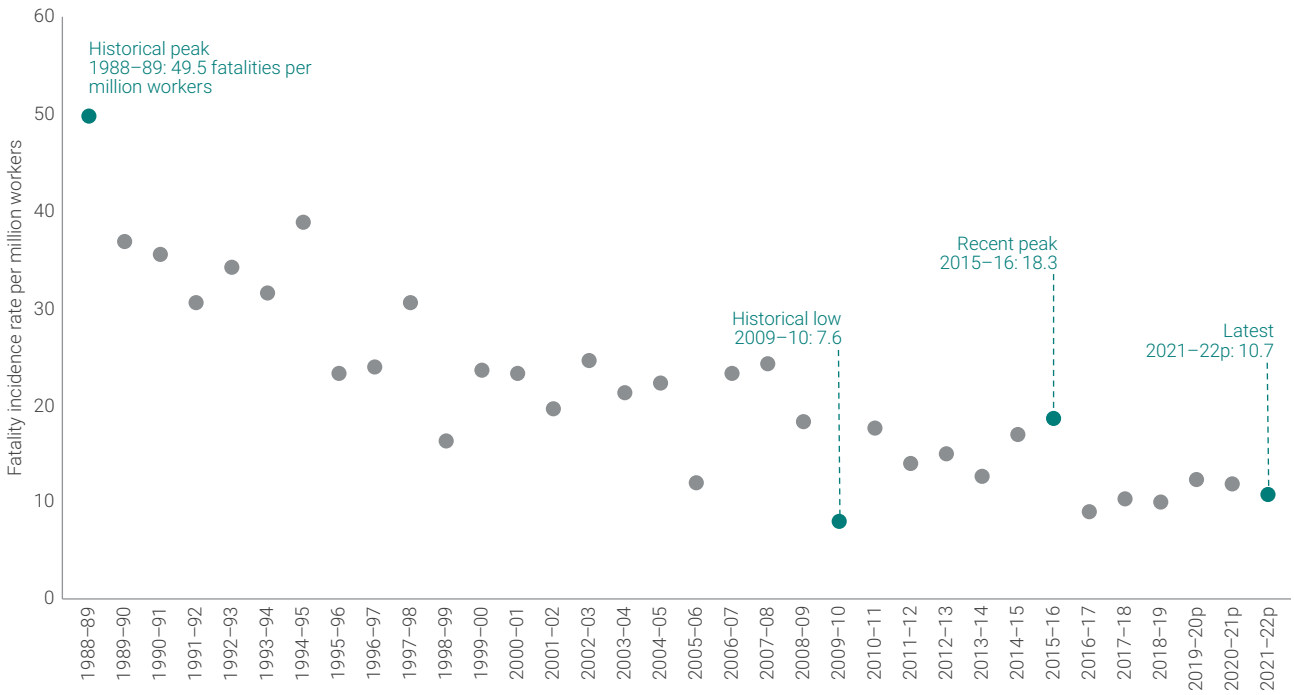


FIGURE 2 Work-related traumatic injury fatality incidence rates from 1988–89 to 2021–22p

Incidence rates scale the number of work-related fatalities by the size of the workforce, providing a figure that is more directly comparable across long time periods.

Key findings

A downward trend in the fatality incidence rates is more apparent than in the numbers of work-related fatalities. The 2021–22p incidence rate for WA was 10.7.

Note: Incidence rates are used to provide an indication of the relative number of work-related fatalities across different years, scaled for changes in the size of the workforce. The fatality incidence rate is calculated as the number of fatalities per million workers. Fatality incidence rates are shown as dots in Figure 2.

2 Work-related traumatic injury fatality incidence rates across Australia

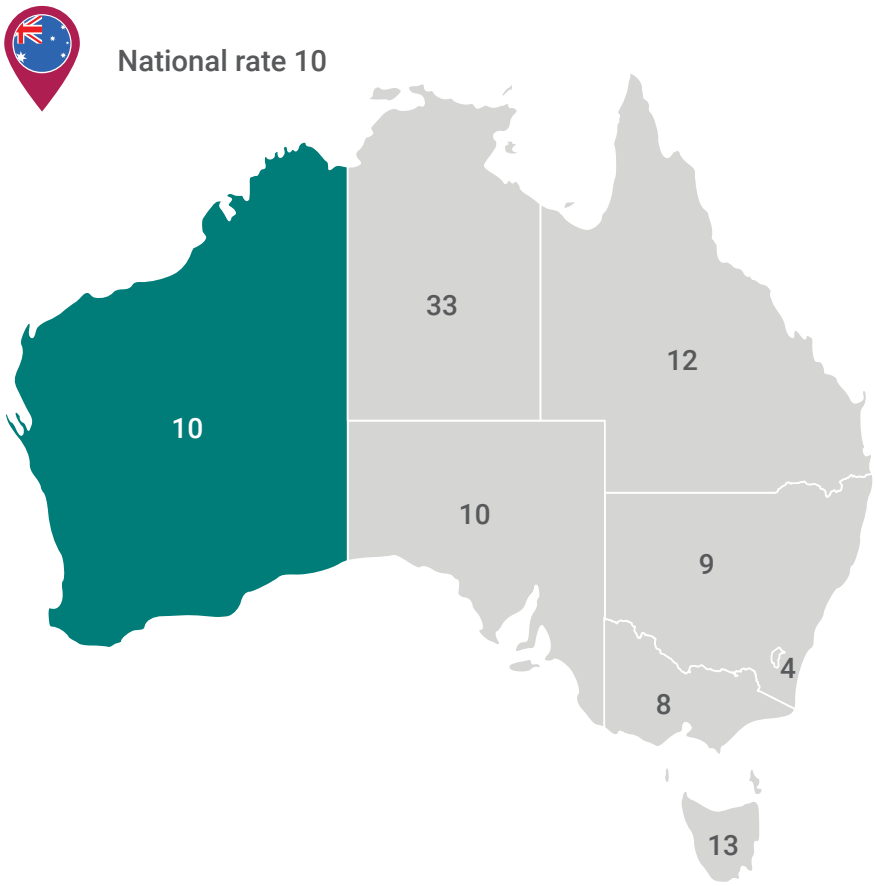


FIGURE 3 Work-related traumatic injury fatality incidence rates by state or territory (2016–17 to 2020–21p)

Key findings

Western Australia's work-related fatality incidence rate is equal to the national rate.

Western Australia has the fourth highest incidence rate of the eight jurisdictions.

Note: Figure 3 shows comparative work-related fatality incidence rates across Australia, sourced from Safe Work Australia, Comparative Performance Monitoring report 24th edition: Work Health and Safety Performance, 2022, p. 20. Figures in this report have been presented as rate per 1,000,000 workers rather than rate per 100,000 workers for internal consistency. Years presented are the latest figures available. These incidence rates are not directly comparable with those in Figure 2.

The data in Figure 3 has been prepared by Safe Work Australia to present a reasonably comparable picture across jurisdictions and may differ from incidence rates reported by each jurisdiction, as different criteria is used when determining whether fatalities are work-related.

One of the greatest differences in the criteria used by various jurisdictions is in their treatment of on-duty motor vehicle incidents, which occur in significant numbers. Incidents on public roads have been excluded from Figure 3 to present more comparable figures between jurisdictions.

3 Work-related traumatic injury fatalities (2012–13 to 2021–22p)

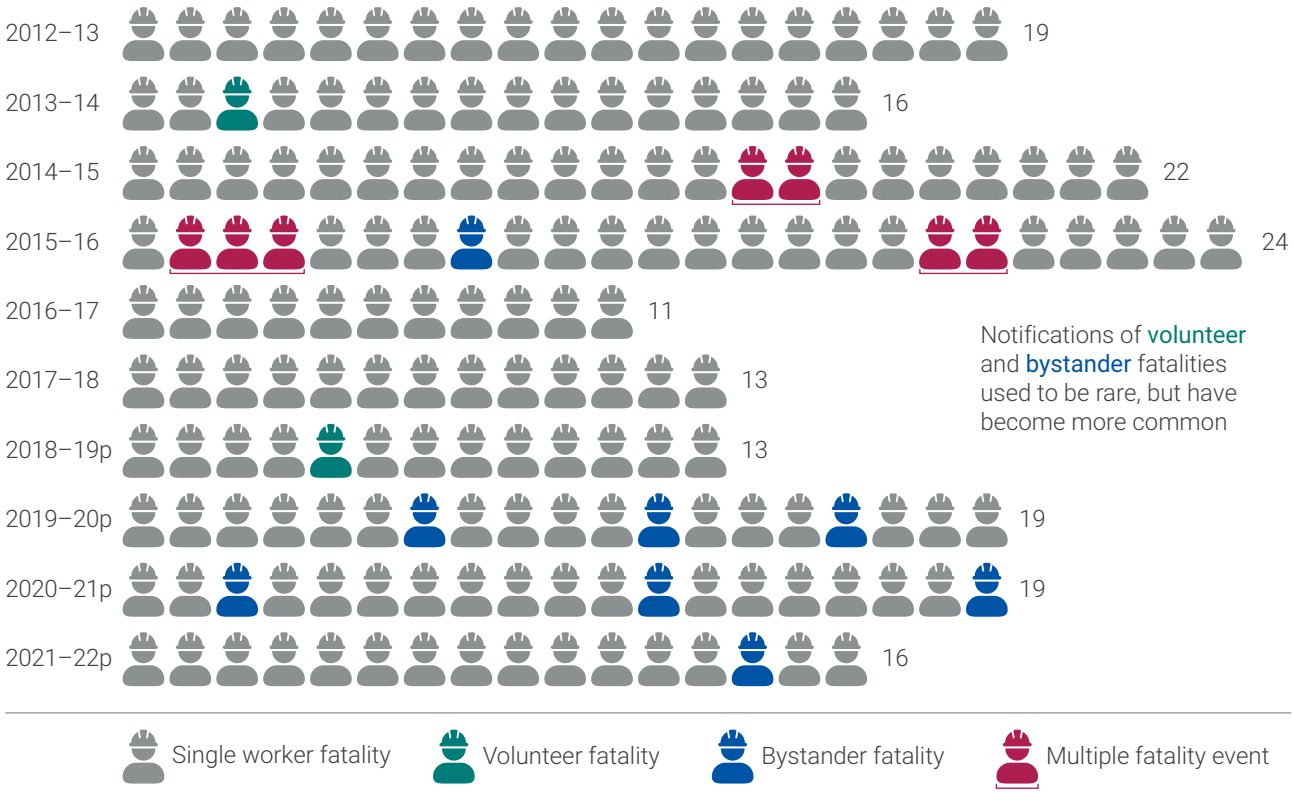


FIGURE 4 Types of work-related traumatic injury fatalities (2012–13 to 2021–22p)

FIGURE 5 Work-related traumatic injury fatalities by business size (2012–13 to 2021–22p)

Key findings

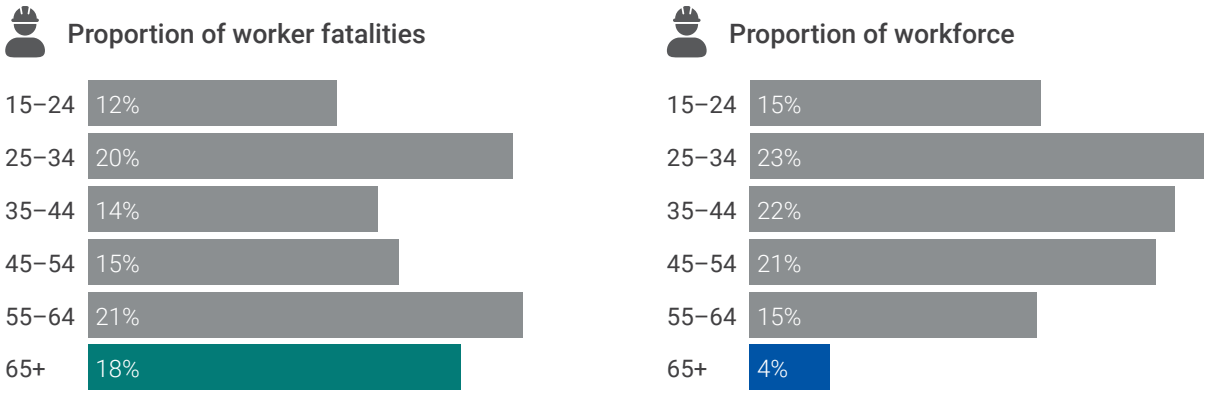
Work-related traumatic injury fatalities have fallen slightly over the last decade, but remain high (Figure 4).

Most work-related fatalities occur in organisations with less than 20 workers (Figure 5).

Note: Simple motor vehicle incident fatalities are excluded from Figure 4, but included two multiple fatality events in 2021–22, as per Figure 29.

Work-related fatalities where the business size was not recorded are excluded. Percentages do not add to 100% because of rounding error.

4 Age focus



Workers aged over 65 make up **18% of fatalities** but just **4% of the workforce**

FIGURE 6 Age groups, as proportion of work-related traumatic injury fatalities and workforce (2012–13 to 2021–22p)

Key findings

Figure 6 shows that work-related fatalities among workers are not proportionately distributed across age groups.

Workers under 55 have a lower share of work-related fatalities than would be expected from their numbers in the workforce. Workers 55 and above have a higher share of work-related fatalities than would be expected from their numbers in the workforce. In particular, workers aged 65 and over make up just four per cent of the workforce, but 18 per cent of work-related fatalities among workers.

TABLE 1 Age groups of work-related traumatic injury bystander fatalities (2012–13 to 2021–22p)

Age range	Number of bystander fatalities
0–24 years of age	1
25–34 years of age	3
35–44 years of age	1
45–54 years of age	1
55–64 years of age	0
65 years of age and over	2

Key findings

The eight bystander work-related fatalities in Table 1 were distributed across multiple age groups, but people aged 65 and over were over-represented.

Note: Work-related fatalities exclude fatalities that occur at a workplace but are deemed to involve natural causes, such as heart attacks. Bystanders were excluded from the fatality count for Figure 6, as they do not form part of the workforce.

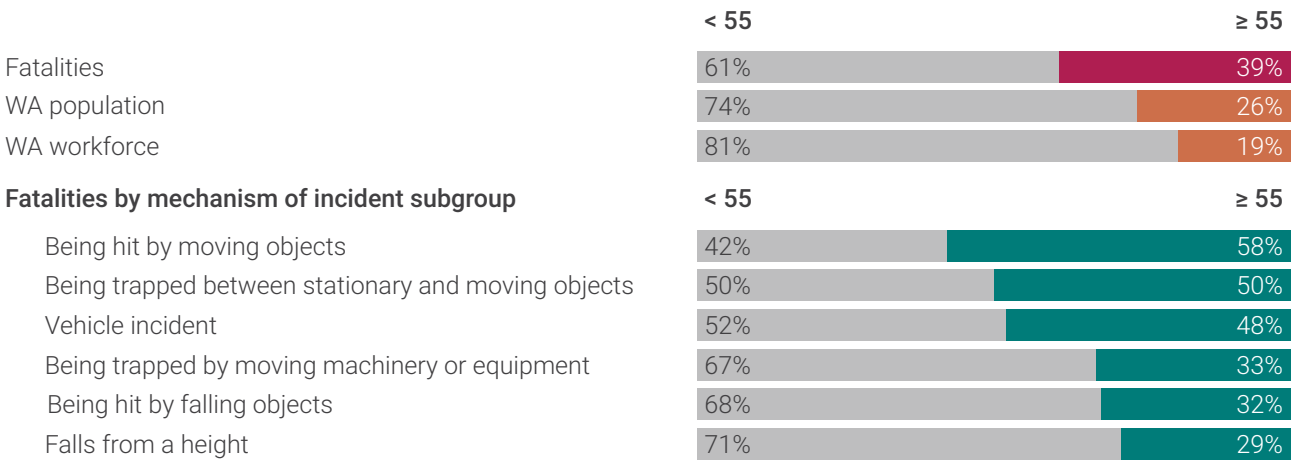


FIGURE 7 Proportion of population and work-related traumatic injury fatalities by mechanism subgroup for persons under 55 and persons 55 and over (2012–13 to 2021–22p)

Key findings

Persons aged 55 and over are most over-represented in incidents involving **being hit by moving objects** (see Section 7.1 for further information).

Note: Figure 7 considers persons aged under 55 and persons aged 55 and above, and compares the share of the population of these groups to the share of work-related fatal incidents involving various mechanisms of incident.

5 Gender focus

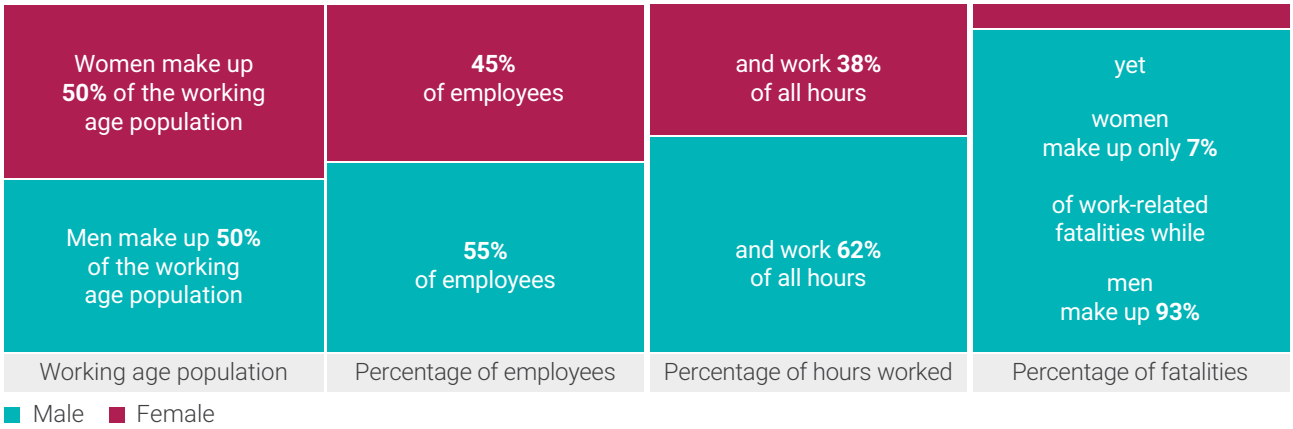


FIGURE 8 Proportions of working age population, employees, hours worked and work-related traumatic injury fatalities among workers, by gender (2012–13 to 2021–22p)

Key findings

Men make up 93 per cent of work-related fatalities among workers for 2012–13 to 2021–22p, though they make up 50 per cent of the working age population.

The gender disparity in work-related fatalities may be influenced by several factors; however, some of the higher fatality numbers may be explained by a greater male participation in the workforce, particularly when hours worked are considered.

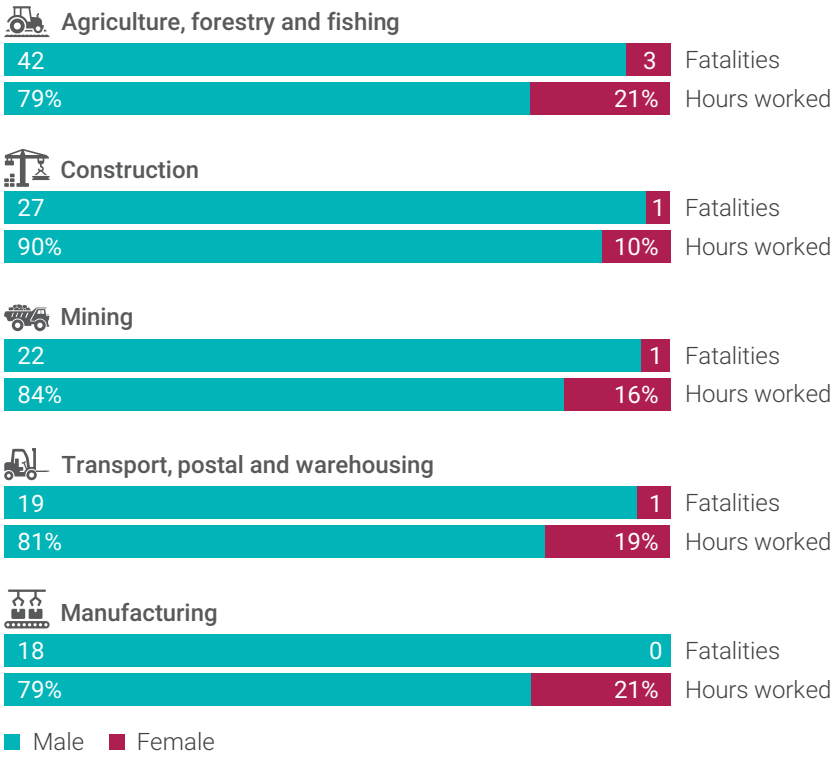


FIGURE 9 Proportion of worker work-related traumatic injury fatalities and hours worked by gender for the top five industry divisions by fatalities (2012–13 to 2021–22p)

For the 2012–13 to 2021–22p period, the top five industry divisions with the most work-related fatalities are **agriculture, forestry and fishing, construction, mining, transport, postal and warehousing,** and **manufacturing**.

Key findings

While many industry divisions with higher fatality numbers have a significant over-representation of men in their workforce, in the five industries with the most traumatic injury work-related fatalities among workers, men have had more work-related fatalities than their proportion of hours worked explains (Figure 9).

For example, 96 per cent of the work-related fatalities among workers in **mining** were male, yet men represent 84 per cent of the hours worked in **mining**.

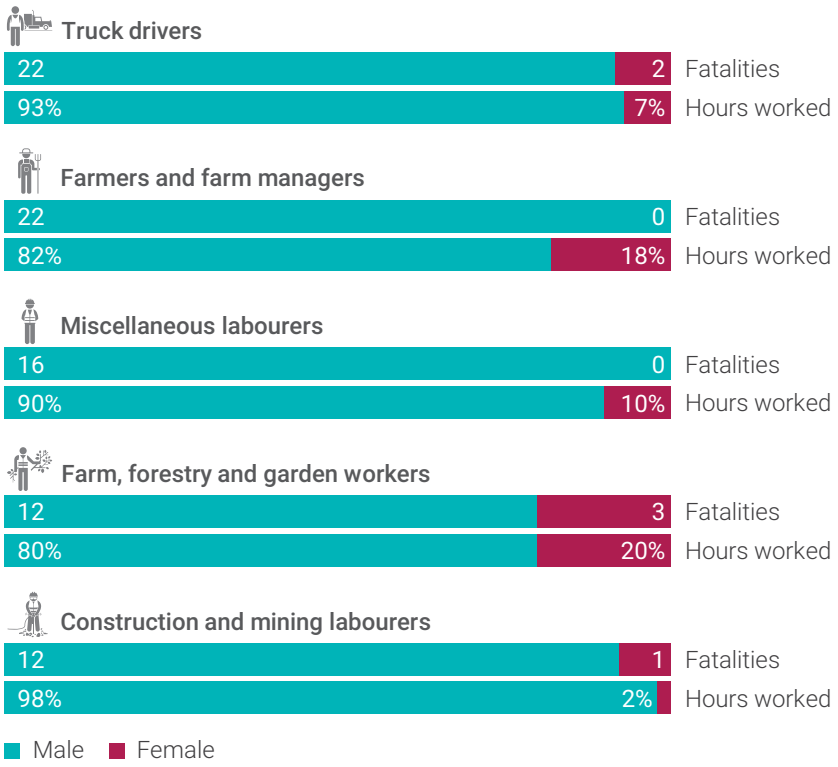


FIGURE 10 Proportion of worker work-related traumatic injury fatalities and hours worked by gender for the top five occupation minor groups by fatalities (2012–13 to 2021–22p)

Key findings

Many occupations that experienced higher work-related fatality numbers have a significant under-representation of women in their workforce.

The gender breakdown of worker work-related fatalities is similar to the gender breakdown of the hours worked for **truck drivers; farm, forestry and garden workers;** and **construction and mining labourers**. (Figure 10).

Overall, the hours worked in the top five industries with the most traumatic injury work-related fatalities is 90 per cent male. This is similar to the overall proportion of work-related fatalities among workers at 92 per cent male.

This supports the hypothesis that more men are fatally injured at work because men are significantly more likely to work in the highest harm occupations.

6 Location overview

Key findings

The **Wheatbelt** has the highest incidence rate, closely followed by **offshore**.

Note: The incidence rate provides a comparison of work-related fatality numbers across different regions, scaled for each region's workforce size.

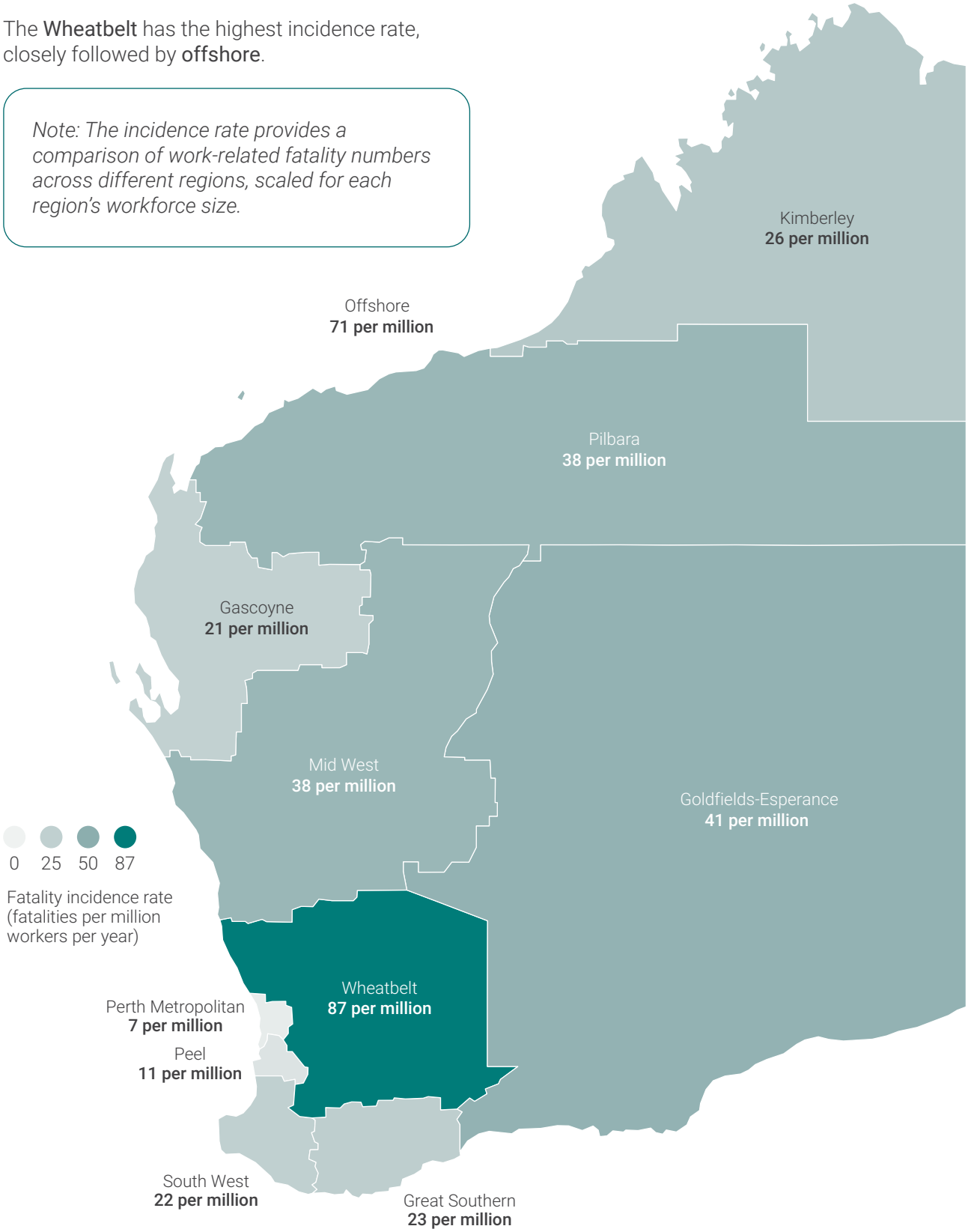


FIGURE 11 Work-related traumatic injury fatality incidence rate by region (2012–13 to 2021–22p)

7 Mechanism of incident overview

Mechanism of incident major group > subgroup	Fatalities	
Being hit by moving objects	**90**	**52%**
Being hit by moving objects	33	19%
Being hit by falling objects	31	18%
Being trapped by moving machinery or equipment	15	9%
Being trapped between stationary and moving objects	8	5%
Being hit by an animal	2	1%
Being assaulted by a person or persons	1	1%
Vehicle incidents and other	**34**	**20%**
Vehicle incident	25	15%
Slide or cave-in	4	2%
Rollover	3	2%
Unspecified mechanisms of incident	2	1%
Falls, trips and slips of a person	**22**	**13%**
Falls from a height	21	12%
Falls on the same level	1	1%
Heat, electricity and other environmental factors	**21**	**12%**
Contact with electricity	6	3%
Drowning/immersion	4	2%
Exposure to environmental heat	4	2%
Contact with hot objects	3	2%
Exposure to non-ionising radiation	2	1%
Exposure to other and unspecified environmental factors	2	1%
Chemicals and other substances	**4**	**2%**
Insect and spider bites and stings	4	2%
Sound and pressure	**1**	**1%**
Explosion	1	1%

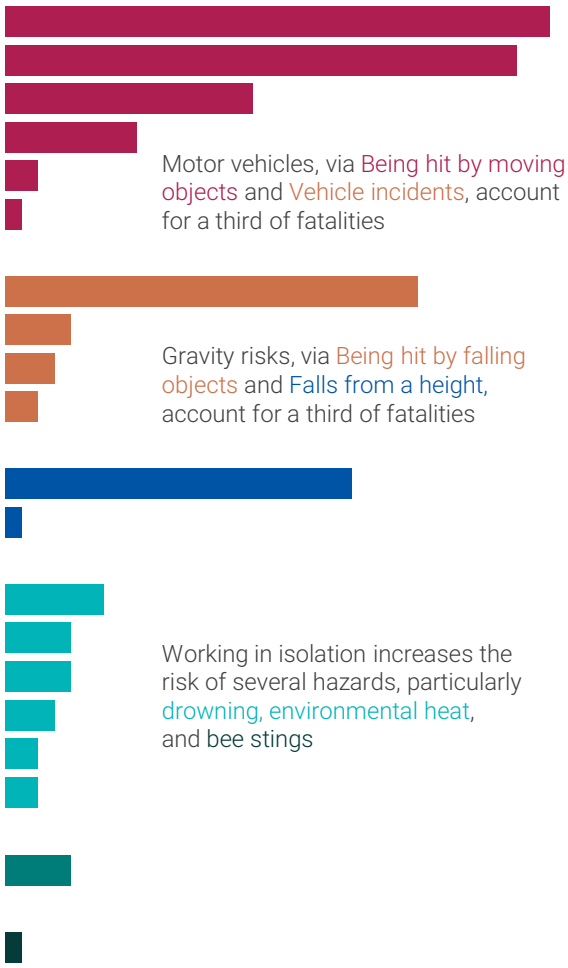


FIGURE 12 Work-related traumatic injury fatalities, by mechanism of incident major groups and subgroups (2012–13 to 2021–22p)

Key findings

More than half of work-related fatalities were recorded against the **being hit by moving objects** major group (90 work-related fatalities).

The mechanism of incident subgroups **being hit by moving objects** (33 work-related fatalities) and **being hit by falling objects** (31 work-related fatalities) were the two most prevalent subgroups. These mechanism subgroups are considered further in Sections 7.1 and 7.2.

Four major groups recorded no work-related fatalities during the period: **biological factors, body stressing, hitting objects with a part of the body** and **mental stress**.

Note: Being hit by moving objects is used when a person not travelling in a vehicle is injured as a result of being struck by a vehicle or striking against a vehicle. This excludes vehicle incidents and other, which accounts for a further 20 per cent of work-related fatalities. Motor vehicle incident fatalities are excluded from all parts of this report except Sections 12 and 13.

7.1 Being hit by moving objects subgroup focus

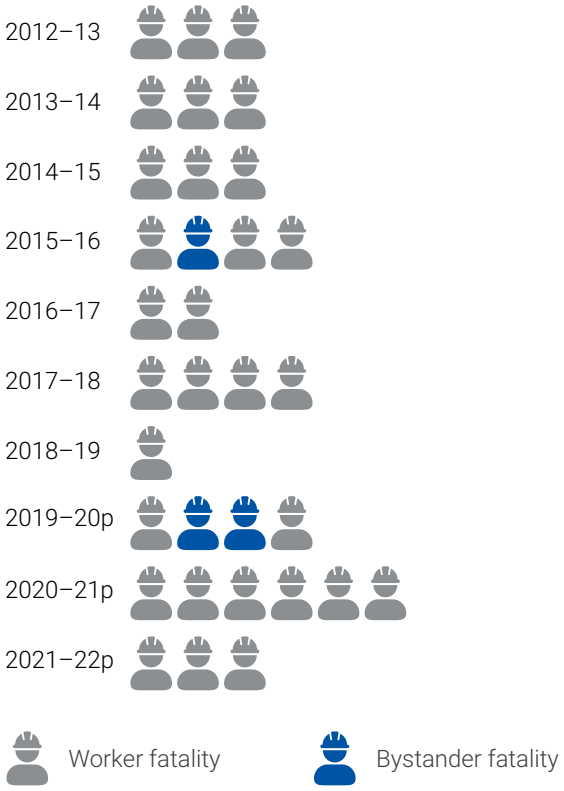


FIGURE 13 Work-related traumatic injury fatalities for incidents involving being hit by moving objects (2012–13 to 2021–22p)

Key findings

Being hit by moving objects (moving objects) is the most common mechanism of incident subgroup and comprised 19 per cent of all work-related fatalities in WA for the period 2012–13 to 2021–22p (Figure 13).

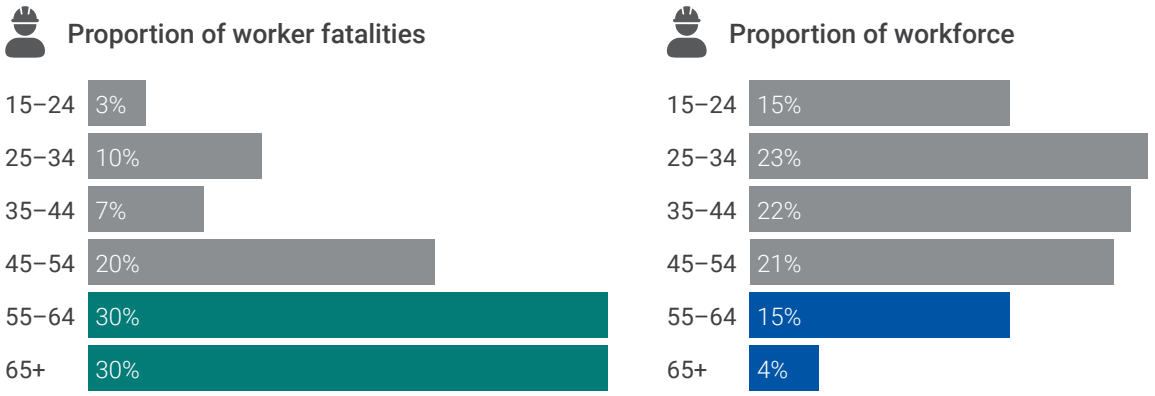
Most work-related fatalities involving moving objects occur in the three occupation major groups **machinery operators and drivers, managers** and **labourers** (Figure 13).

Breakdown agencies for **being hit by moving objects** predominantly involved large vehicles (Table 2).

Note: Managers includes farmers and farm managers.

TABLE 2 Top four breakdown agency classes of work-related traumatic injury fatalities for being hit by moving objects (2012–13 to 2021–22p)

Breakdown agencies	Number of fatalities
Trucks, semi-trailers, lorries	9
Tractors, agricultural or otherwise	7
Cars, station wagons, vans, utilities	3
Graders, dozers, snowploughs, other scraping plant	2



Workers aged over 55 make up **60% of fatalities** with the mechanism subgroup **being hit by moving objects**, but just **19% of the workforce**.

FIGURE 14 Proportion of work-related traumatic injury fatalities and workforce by age for being hit by moving objects (2012–13 to 2021–22p)

Key findings

Older workers are disproportionately more likely to be fatally hit by moving objects, especially workers 65 and older.

Younger workers were less likely to be fatally hit by moving objects.

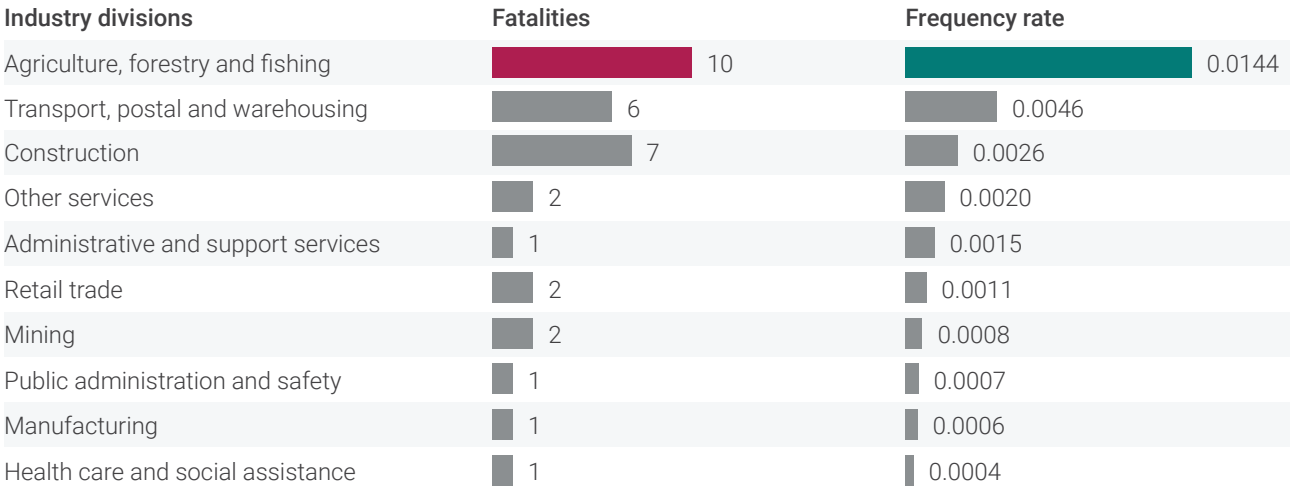


FIGURE 15 Work-related traumatic injury fatalities and frequency rate by industry division for being hit by moving objects (2012–13 to 2021–22p)

Key findings

Most work-related fatalities caused by moving objects were in the **agriculture, forestry and fishing** industry division (Figure 15).

While the **construction** industry has a relatively high number of work-related fatalities (7), the frequency rate for this industry is significantly lower than the **agriculture, forestry and fishing** industry.

The industry subdivision with the most persons fatally hit by moving objects is **agriculture**, with 10 out of the 33 work-related fatalities.

Note: Only industries where a fatality occurred are shown. The frequency rate is a useful measure to make comparisons across industries, as it is scaled by the size of the workforce in each industry.

7.2 Being hit by falling objects subgroup focus

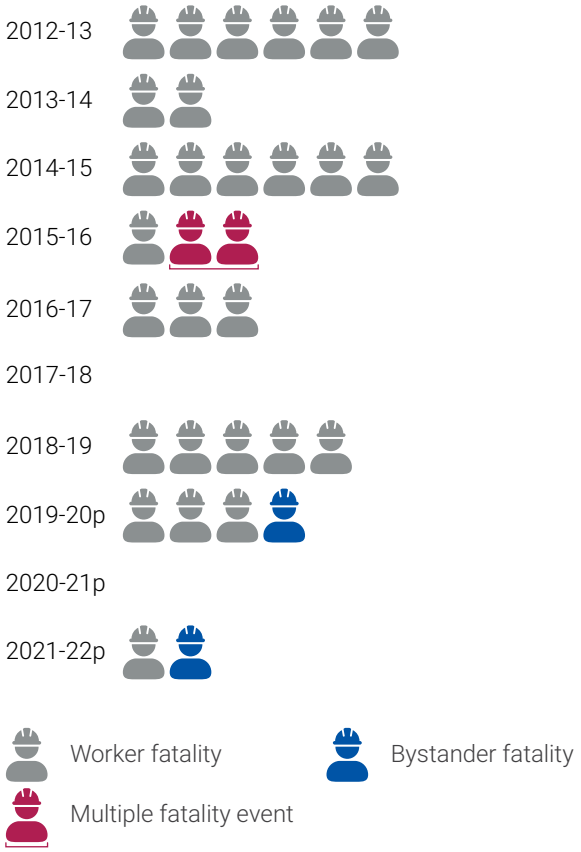


FIGURE 16 Work-related traumatic injury fatalities for incidents involving being hit by falling objects (2012–13 to 2021–22p)

Key findings

Being hit by falling objects (falling objects) is the second most common mechanism of incident and comprised 18 per cent of all work-related fatalities in WA for 2012–13 to 2021–22p.

Common factors in relation to work-related traumatic injury fatalities involving **being hit by falling objects** include metal, forklifts, trucks, manual lifting equipment, concrete panels, chains, cranes, vegetation and hydraulic equipment.

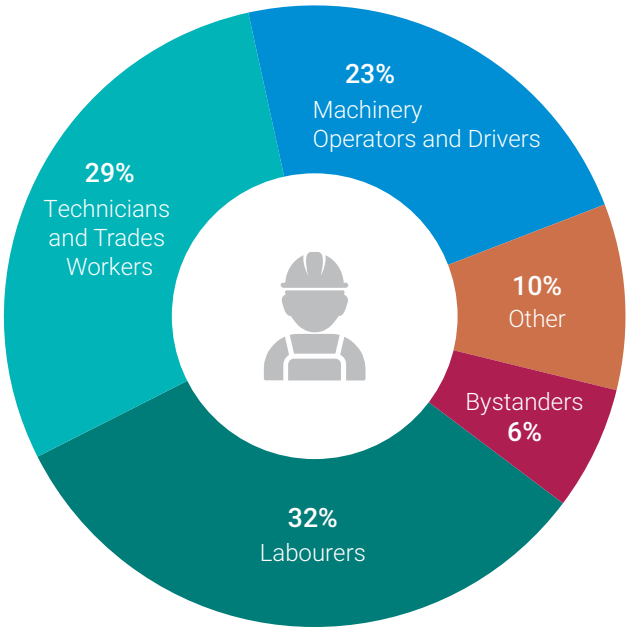


FIGURE 17 Work-related traumatic injury fatalities by occupation major groups for incidents involving being hit by falling objects (2012–13 to 2021–22p)

Key findings

As highlighted in Figure 17, most work-related fatalities involving falling objects occur in the three occupation major groups **labourers, technicians and trades workers** and **machinery operators and drivers**.

The **other** group in Figure 17 comprises one work-related fatality each in the occupation major groups of **managers, sales workers** and **clerical and administrative workers**.

No work-related fatalities occurred in the major groups **professionals** or **community** and **personal service workers**.

The occupation unit group with the greatest number of work-related fatalities involving falling objects is **truck drivers**, with five.

Industry divisions	Fatalities	Frequency rate
Agriculture, forestry and fishing	5	0.0072
Electricity, gas, water and waste service	2	0.0053
Manufacturing	7	0.0043
Other services	3	0.0030
Construction	7	0.0026
Transport, postal and warehousing	3	0.0023
Accommodation and food service	1	0.0008
Mining	2	0.0008
Public administration and safety	1	0.0007

FIGURE 18 Work-related traumatic injury fatalities and frequency rate by industry division for being hit by falling objects (2012–13 to 2021–22p)

Key findings

Most work-related fatalities by industry caused by falling objects occurred in the **construction** and **manufacturing** industry divisions.

Similar to section 7.1, the **agriculture, forestry and fishing** industry division also had the most work-related fatalities occur per million hours worked.

Electricity, gas, water and waste services and **manufacturing** have the second and third highest industry division frequency rates respectively.

Note: The frequency rate is a useful measure to make comparisons across industries, as it is scaled by the size of the workforce in each industry. Only industries where a fatality occurred are shown.

8 Common factors

TABLE 3 Top common mechanism of incident subgroups and breakdown agency classes for work-related traumatic injury fatalities (2012–13 to 2021–22p)

Mechanism subgroup	Breakdown agency class	Fatalities
Being hit by moving objects	Trucks, semi-trailers, lorries	9
Being hit by moving objects	Tractors, agricultural or otherwise	7
Vehicle incident	Trucks, semi-trailers, lorries	5
Being hit by falling objects	Ferrous and non-ferrous metal	4
Being hit by falling objects	Vegetation	4
Falls from a height	Buildings and other structures	4
Insect and spider bites and stings	Insects	4
Vehicle incident	Cars, station wagons, vans, utilities	4
Being hit by falling objects	Forklift trucks	3
Being hit by falling objects	Manual lifting equipment	3
Being hit by moving objects	Cars, station wagons, vans, utilities	3
Contact with electricity	Distribution lines: low tension	3
Drowning/immersion	Motorised craft	3
Exposure to environmental heat	Weather and water	3
Vehicle incident	Quad bike	3
Vehicle incident	Industrial aircraft	3

Key findings

Many common factors recur frequently in work-related fatalities, as shown in Table 3. Vehicles are involved in an overwhelming proportion of fatalities. Being hit by falling metal, vegetation, or items dropped from forklifts or manual lifting equipment are also common causes of fatalities of fatalities.

9 Bodily location of injury overview

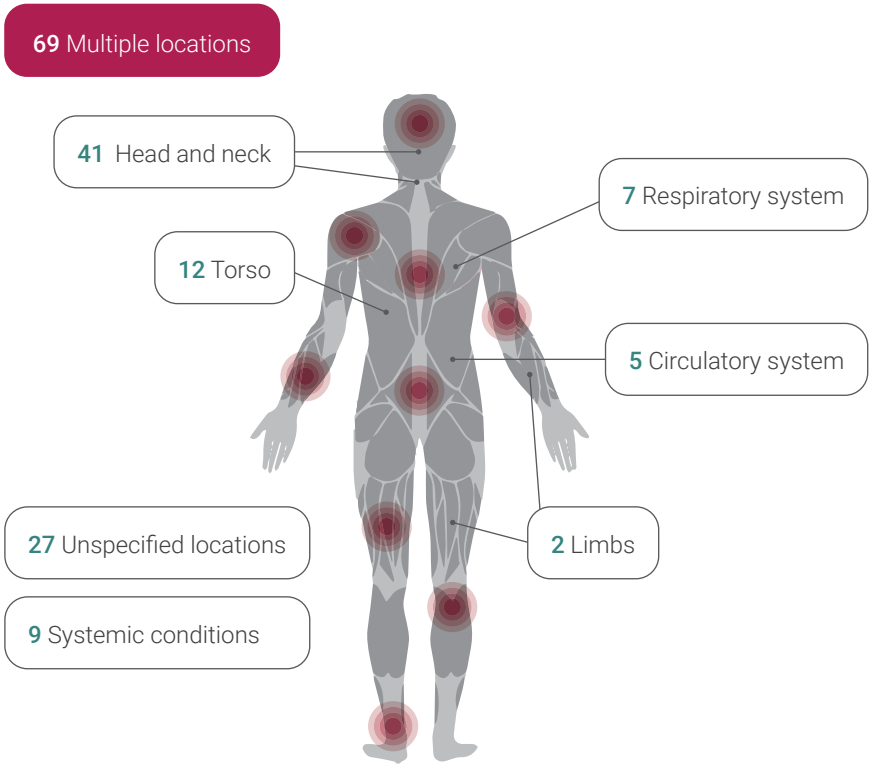


FIGURE 19 Top seven bodily locations of injury of work-related traumatic injury fatalities (2012–13 to 2021–22p)

Key findings

The head or neck is involved in 24 per cent of all work-related fatal incidents.

From the subset of incidents where a specific bodily location of incident can be identified, the head and neck were involved in 61 per cent of cases, and the torso in 18 per cent of cases.

Incidents involving the circulatory system were primarily attributed to heat stroke.

Incidents involving the respiratory system were primarily attributed to drowning.

Incidents involving other systemic conditions were primarily attributed to electrocution.

Note: The bodily location of injury code is allocated to the part of the body affected by the most serious injury. Because of the traumatic nature of work-related fatality events, it is common for injuries to occur in multiple locations across the body.

10 Occupations overview

Occupation major group	Fatalities	Hours worked	Frequency rate
Labourers	46		0.0226
Machinery operators and drivers	46		0.0204
Managers	31		0.0093
Technicians and trades workers	26		0.0056
Professionals	10		0.0019
Community and personal service workers	2		0.0010
Sales workers	2		0.0013
Clerical and administrative workers	1		0.0004
Bystanders	8		N/A

FIGURE 20 Work-related traumatic injury fatalities and hours worked by occupation major group (2012–13 to 2021–22p)

Key findings

The number of work-related fatalities is not strongly linked to the number of hours worked.

The occupation major groups **machinery operators and drivers** and **labourers** have large numbers of work-related fatalities while working relatively few hours (Figure 20).

The overall frequency rate for all occupation major groups, for 2012–13 to 2021–22p was 0.007. Most occupation major groups have a lower frequency rate, with only three having a higher frequency rate than the overall frequency rate.

Labourers had the highest frequency rate and the equal highest number of work-related fatalities. **Machinery operators and drivers** had the second highest frequency rate, but had the equal highest share of work-related fatalities.

Eight bystanders
were fatally injured in work-related incidents

3 Being hit by moving objects
2 Being hit by falling objects
2 Vehicle incident
1 Fall from height

Note: The occupation major group managers includes farmers and farm managers.

Bystanders may include persons such as visitors, customers, service recipients, or simply passers-by. Some bystanders may be employed in work entirely unrelated to the work-activity involved in the fatal incident, but many are not workers. While all of these bystanders have been determined as work-related fatalities, the work activity is not related to their own employment.

Bystanders do not fall under an ANZSCO major group, but have been included as a separate category. Volunteers fall under the ANZSCO major group of their work activity. Bystanders are excluded from the hours worked calculations in Figure 23.

11 Industry overview

Industry divisions	Fatalities	% Hours worked	Frequency rate
Agriculture, forestry and fishing	46		0.0661
Arts and recreation services	6		0.0167
Transport, postal and warehousing	21		0.0161
Electricity, gas, water and waste services	5		0.0131
Construction	30		0.0113
Manufacturing	18		0.0110
Mining	23		0.0094
Other services	7		0.0069
Public administrative and safety	4		0.0027
Wholesale trade	2		0.0026
Accommodation and food services	3		0.0025
Administrative and support services	1		0.0015
Health care and social assistance	3		0.0012
Retail trade	2		0.0011
Education and training	1		0.0006
Financial and insurance services	0		0.0000
Information media and telecommunications	0		0.0000
Professional, scientific and technical services	0		0.0000
Rental, hiring and real estate services	0		0.0000

FIGURE 21 Work-related traumatic injury fatalities, hours worked and frequency rate by industry division (2012–13 to 2021–22p)

Key findings

The size of each industry's workforce varies. Many industries with a high workforce proportion, such as **professional, scientific and technical services** and **health care and social assistance**, have low or no work-related fatalities over 2012–13 to 2021–22p (Figure 21). Other industries that make up a relatively small proportion of the workforce, such as **agriculture, forestry and fishing** and **transport, postal and warehousing** have large numbers of work-related fatalities.

The overall ten year frequency rate for all industry divisions for 2012–13 to 2021–22p, was 0.007. Most industry divisions have a lower frequency rate, with only seven of the 19 divisions having a higher frequency rate than overall.

Agriculture, forestry and fishing has both the highest number of work-related fatalities and the highest frequency rate. It will be considered in further detail in Section 11.1. Certain industry divisions have been highlighted due to historically higher levels of work-related fatalities when compared with other divisions and will be covered in Sections 11.2 to 11.5.

11.1 Agriculture, forestry and fishing

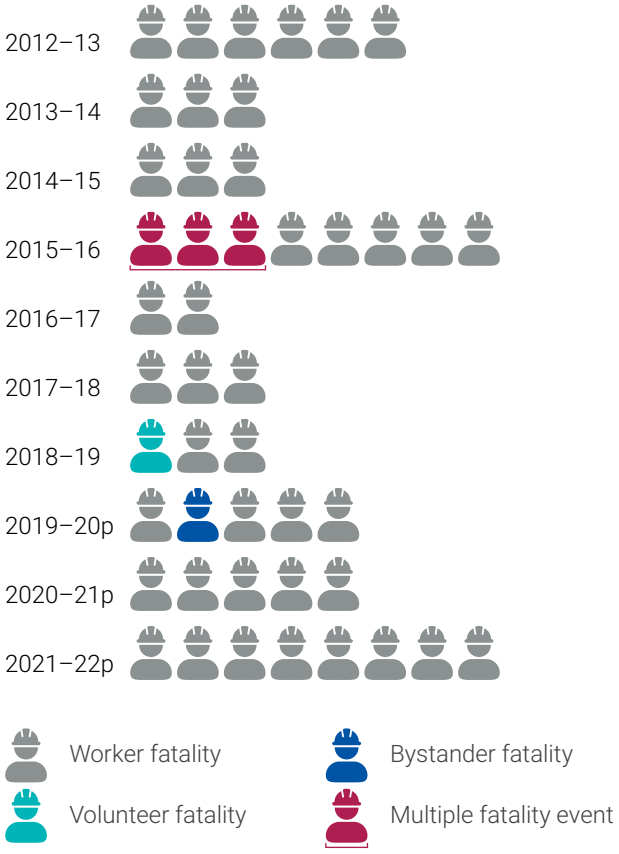


FIGURE 22 Work-related traumatic injury fatalities in the agriculture, forestry and fishing industry division (2012–13 to 2021–22p)

Key findings

Despite relatively few hours worked compared to many other industries, the **agriculture, forestry and fishing** industry has the highest number of work-related fatalities for 2012–13 to 2021–22p, with 46 fatalities. This is followed by the **construction** industry with 30 work-related fatalities (Figure 21).

The fatality frequency rate in the **agriculture, forestry and fishing** industry division is four times as high as the **arts and recreation services** industry division which has the second highest work-related fatality frequency rate, and over nine times as high as the overall rate across the industries.

Eighty-five per cent of **agriculture, forestry and fishing** industry work-related fatalities occurred in the **agriculture** subdivision.

Examples of agriculture, forestry and fishing work-related traumatic injury fatalities 2012–13 to 2021–22p

- A tree feller was fatally injured when a tree branch struck him.
- A farmer was kicked by an animal, which fatally aggravated an existing medical condition.
- A farm worker sustained fatal injuries when she was struck by a bull and crushed against a fence.
- A farmer was repeatedly stung by bees while working and suffered a fatal reaction.
- A farm hand was fatally injured when a hydraulically supported steel bucket he was working under fell.
- A farmer was fatally injured after being thrown from a quad bike.
- A fishing vessel sank resulting in the fatalities of all three workers aboard.
- A farmer was fatally injured when he was caught in the wool press machine he was operating.

TABLE 4 Top common mechanism of incident subgroups and breakdown agency classes for work-related traumatic injury fatalities in the agriculture, forestry and fishing industry division (2012–13 to 2021–22p)

Mechanism subgroup	Breakdown agency class	Fatalities
Being hit by moving objects	Tractors, agricultural or otherwise	7
Drowning/immersion	Motorised craft	3
Vehicle incident	All terrain vehicle (ATV)	3
Vehicle incident	Industrial aircraft	3
Being hit by falling objects	Vegetation	2
Insect and spider bites and stings	Insects	2
Rollover	Quad bike	2
Vehicle incident	Cars, station wagons, vans, utilities	2

TABLE 5 Mechanism of incident subgroups for work-related traumatic injury fatalities in the agriculture, forestry and fishing industry division (2012–13 to 2021–22p)

Mechanism of incident subgroup	Fatalities
Vehicle incident	11
Being hit by moving objects	10
Being hit by falling objects	5
Being trapped by moving machinery or equipment	5
Drowning/immersion	3
Rollover	3
Being hit by an animal	2
Falls from a height	2
Insect and spider bites and stings	2
Being trapped between stationary and moving objects	1
Exposure to other and unspecified environmental factors	1
Unspecified mechanisms of incident	1

Key findings

Being hit by tractors is the leading common cause of fatalities in **agriculture, forestry and fishing**. **Vehicle incidents** also dominate the common factors, involving aircraft, ATVs and light vehicles (table 4).

The top two mechanism of incident subgroups for **agriculture, forestry and fishing** are **vehicle incident** and **being hit by moving objects** (table 5).

Thirty-five per cent of work-related fatalities were in persons aged 65 years and older.

The occupations with the highest number of work-related fatalities in the **agriculture, forestry and fishing** industry were:

- farmers and farm managers (48%)
- farm, forestry and garden workers (28%)
- air and marine transport professionals (9%).

The top four breakdown agencies of incident in the **agriculture, forestry and fishing** industry for 2012–13 to 2021–22p were:

- mobile plant and transport (63%)
  - tractors, agricultural or other (22%)
  - all terrain vehicle (ATV) (11%)
- animal, human, and biological agencies (9%)
- environmental agencies (9%)
- machinery and (mainly) fixed plant (9%).

11.2 Construction

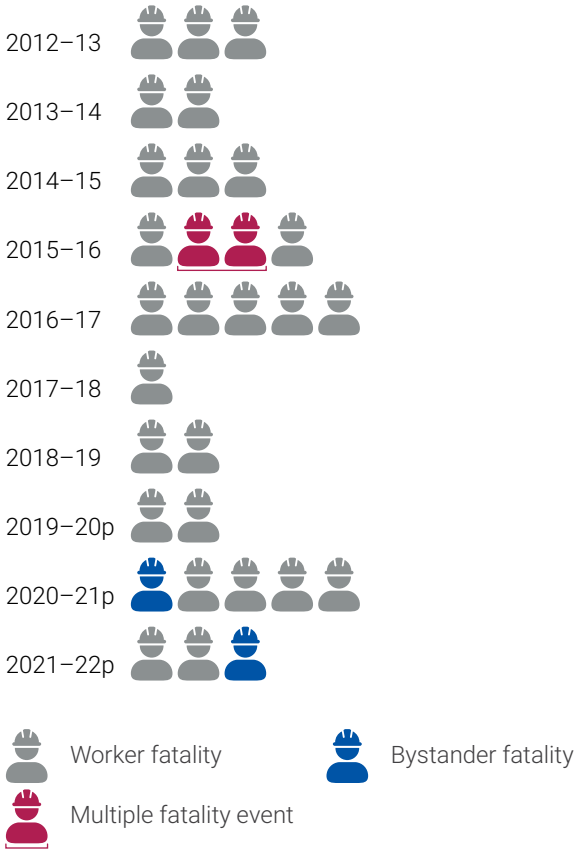


FIGURE 23 Work-related traumatic injury fatalities in construction industry division (2012–13 to 2021–22p)

Key findings

The **construction** industry had the second highest number of work-related fatalities in 2012-13 to 2021-22p, with 30 total fatalities.

Construction comes in first in terms of hours worked across all industries. The work-related fatality frequency rate in the **construction** industry is the fifth highest of the 19 industry sectors (Figure 21).

For a given hour worked, a person in the **construction** industry has 1.5 times the average risk across all industries of a work-related fatality.

This industry works 11 per cent of the entire hours of the industry and work-related fatalities for this division are disproportionately high.

Forty-five per cent of work-related fatalities in this industry division occurred in the **building construction** subdivision.

Examples of construction work-related traumatic injury fatalities 2012–13 to 2021–22p

- A builder's labourer was assisting in the lowering of a hinged ramp attached to a 40 foot container and received fatal injuries soon after the ramp's retaining pins were released.
- A builder fell five metres through a skylight, sustaining fatal injuries.
- A young worker fatally fell 10–12 metres through a hole in a glass atrium ceiling that was being installed.
- A scaffolder fatally collapsed from heat stress.
- A dogman was fatality injured after a one tonne panel fell while the panel was being moved by a crane.
- A plumber was working in a deep trench when a water main burst, filling the trench and overcoming the worker.
- Two workers were fatally crushed when a concrete panel fell from the rear of a delivery truck that was making a delivery to a construction site.
- A glazier received fatal crush injuries when a crate of plate glass fell onto him during unloading.
- A loader operator carrying out works on a construction site was crushed between the cab of the machine and the loader arm structure.
- A minor playing at a residential construction site was fatally injured when a steel beam fell on his head.
- An apprentice electrician was fatally electrocuted while in a roof space to check access for installation of new wiring.

TABLE 6 Mechanism of incident subgroups for work-related traumatic injury fatalities in the construction industry division (2012–13 to 2021–22p)

Mechanism of incident subgroup	Fatalities
Being hit by falling objects	7
Being hit by moving objects	7
Contact with electricity	5
Falls from a height	4
Being trapped between stationary and moving objects	2
Being trapped by moving machinery or equipment	1
Exposure to environmental heat	1
Slide or cave-in	1
Unspecified mechanisms of incident	1
Vehicle incident	1

TABLE 7 Top common mechanism of incident subgroups and breakdown agency classes for work-related traumatic injury fatalities in the construction industry division (2012–13 to 2021–22p)

Mechanism subgroup	Breakdown agency class	Fatalities
Being hit by falling objects	Bricks and tiles and concrete, cement and clay products, not elsewhere classified	2
Being hit by moving objects	Graders, dozers, snowploughs, other scraping plant	2
Contact with electricity	Control apparatus	2
Contact with electricity	Distribution lines: low tension	2
Falls from a height	Openings in floors, walls or ceilings	2

Key findings

The top three mechanism of incident subgroups for **construction** are **being hit by moving objects, being hit by falling objects** and **contact with electricity** (Table 6).

The top common factors for fatalities in the **construction** industry are all well-known hazards, suggesting hazard controls are being poorly implemented (Table 7).

Sixty-seven per cent of work-related fatalities occurred within the Perth metropolitan region.

Thirty-three per cent of work-related fatalities were in persons younger than 25.

Only one of the 30 persons fatally injured was female.

The occupations recording the greatest number of work-related fatalities in the **construction** industry were:

- construction and mining labourers (27%)
- miscellaneous labourers (17%)
- glaziers, plasterers and tilers (13%).

The top three breakdown agencies of incident in the **construction** industry were:

- materials and substances (23%)
- mobile plant and transport (23%)
- environmental agencies (20%)

11.3 Transport, postal and warehousing

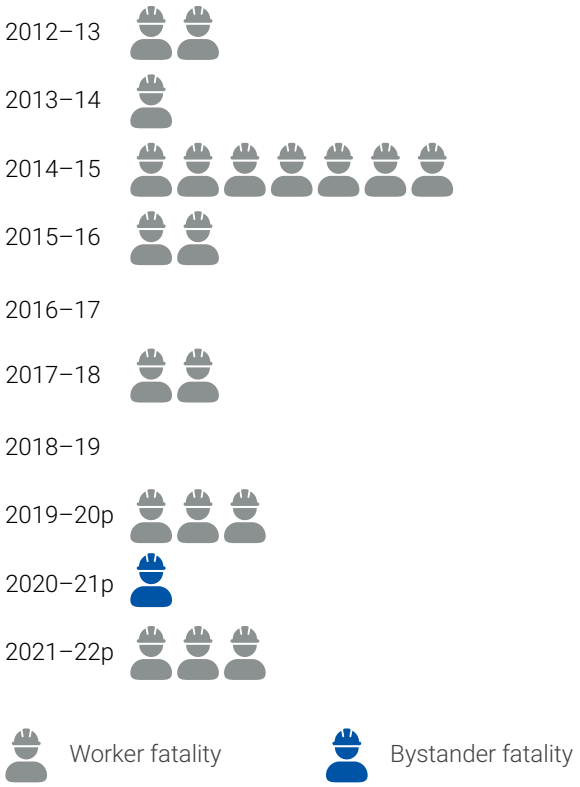


FIGURE 24 Work-related traumatic injury fatalities in transport, postal and warehousing (2012–13 to 2021–22p)

Key findings

There were 21 work-related fatalities in the **transport, postal and warehousing** industry (Figure 24).

The **transport, postal and warehousing** industry had the forth-highest number of work-related fatalities recorded during 2012–13 to 2021–22p (Figure 21).

The work-related fatality frequency rate in the **transport, postal and warehousing** industry (Figure 21) is the third highest after **agriculture, forestry and fishing** and **arts and recreation** services.

The industry subdivisions recording the greatest number of work-related fatalities in the **transport, postal and warehousing** industry were:

- road transport (48%)
- warehousing and storage services (14%)
- water transport (14%)

TABLE 8 Mechanism of incident subgroups for work-related traumatic injury fatalities in the transport, postal and warehousing industry division (2012–13 to 2021–22p)

Mechanism of incident subgroup	Fatalities
Being hit by moving objects	6
Vehicle incident	6
Being hit by falling objects	3
Explosion	1
Exposure to environmental heat	1
Falls from a height	1
Falls on the same level	1
Insect and spider bites and stings	1

Key findings

The top two mechanism of incident subgroups for **transport, postal and warehousing** are **vehicle incident** and **being hit by moving objects** (Table 8).

Workers aged 35–44 represent 38 per cent of all **transport, postal and warehousing** work-related fatalities, despite representing only 22 per cent of the **transport, postal and warehousing** industry workforce.

One work-related fatality was female.

The occupation recording the greatest number of work-related fatalities in the **transport, postal and warehousing** industry was **truck drivers** (57%).

The top breakdown agency in the **transport, postal and warehousing** industry division for 2012–13 to 2021–22p was:

- mobile plant and transport (67%)
  - trucks, semi-trailers, lorries (38%)
  - passenger aircraft (10%)
  - trains (10%)

Examples of transport, postal and warehousing work-related fatalities 2012–13 to 2021–22p

- A deck worker was fatally crushed between a container and a cargo container when a wave came over the back deck of the vessel.
- A worker was fatally crushed between a prime mover and a stationary truck.
- A truck driver was found deceased a kilometre from his truck after it became bogged.
- A fatality occurred when a seaman fell into the ocean from a ship's ladder.
- A pilot flying to a bulk carrier at night was fatally injured when the helicopter crashed.
- A truck driver was fatally injured when he fell back and hit his head while opening the liner of his truck.
- A linesman working on a railway crossing was fatally struck by a train.
- A truck driver was fatally run over by a grain truck waiting to unload.

11.4 Mining

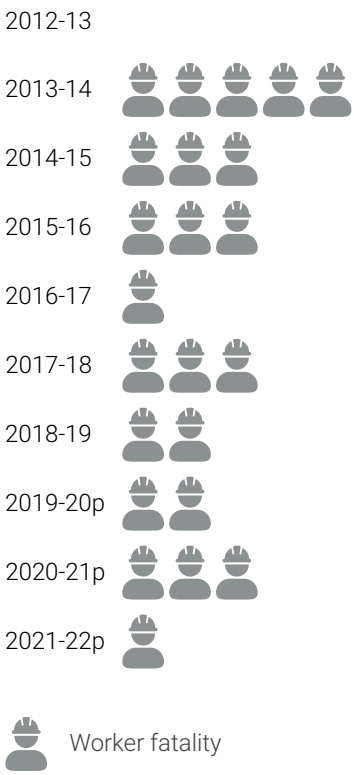


FIGURE 25 Work-related traumatic injury fatalities in mining industry division (2012–13 to 2021–22p)

Key findings

During 2012–13 to 2021–22p, there were 23 work-related fatalities in the **mining** industry (Figure 25).

The **mining** industry has the third highest number of work-related fatalities recorded for this period (Figure 21).

The fatality frequency rate in the **mining** industry is the seventh highest of the 19 industry divisions.

However, the **mining** industry works the second most hours of any industry in WA, which leads to a relatively low frequency rate.

Seventy-four per cent of **mining** industry work-related fatalities occurred in the **metal ore mining** subdivision.

TABLE 9 Mechanism of incident subgroups for work-related traumatic injury fatalities in the mining industry division (2012–13 to 2021–22p)

Mechanism of incident subgroup	Fatalities
Being trapped by moving machinery or equipment	5
Vehicle incident	5
Being trapped between stationary and moving objects	3
Slide or cave-in	3
Being hit by falling objects	2
Being hit by moving objects	2
Exposure to environmental heat	2
Insect and spider bites and stings	1

Key findings

The top four mechanism of incident subgroups for **mining** are **being trapped by moving machinery and equipment, vehicle incident, slide or cave-in** and **being trapped between stationary and moving objects** (Table 9).

Workers aged 25–34 represent 39 per cent of **mining** work-related fatalities, despite representing only 25 per cent of the **mining** industry workforce.

One work-related fatality was female.

The occupations recording the highest number of work-related fatalities in the **mining** industry were:

- miner (22%)
- truck driver (17%)
- fitter (13%)

The top four breakdown agencies of incident in the **mining** industry for 2012–13 to 2021–22p were:

- mobile plant and transport (48%)
  - trucks, semi-trailers, lorries (22%)
- environmental agencies (22%)
- machinery and (mainly) fixed plant (13%)
- materials and substances (13%)

Examples of mining work-related traumatic injury fatalities 2012–13 to 2021–22p

- A worker was fatally crushed between the drill rod centraliser arm and drill head while carrying out maintenance.
- A fitter working on a dozer was fatally crushed by the belly plate.
- An operator was fatally injured while using an elevating work platform underground.
- An electrician was fatally injured while working under a motor in the ore crushing area.
- A senior field technician was performing survey reconnaissance when the effects associated with heat stress proved fatal.
- A boilermaker received fatal crush injuries when a gantry above collapsed.
- A production operator was fatally crushed between a handrail and mechanical ladder.
- A worker fatally collapsed from heat stroke while working underground.
- A surveyor was working alone when they were fatally stung by a bee.
- A drill and blast operator was engulfed by material following a ground collapse on blast pattern at a mine site.
- A fixed plant operator received fatal crush injuries when caught between a fence line and the telehandler he was operating.

11.5 Manufacturing

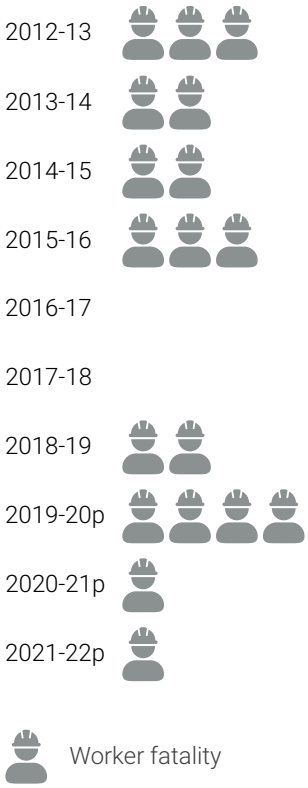


FIGURE 26 Work-related traumatic injury fatalities in the manufacturing industry division (2012–13 to 2021–22p)

Key findings

There have been 18 work-related fatalities in the **manufacturing** industry (Figure 26).

The **manufacturing** industry has the fifth highest number of work-related fatalities recorded during 2012–13 to 2021–22p (Figure 21). The fatality frequency rate in the **manufacturing** industry is the sixth highest of the 19 industry divisions.

The top four industry subdivisions for **manufacturing** were:

- food product manufacturing (28%)
- fabricated metal product manufacturing (17%)
- non-metallic mineral product manufacturing (17%)
- primary metal and metal product manufacturing (17%)

TABLE 10 Mechanism of incident subgroups for work-related traumatic injury fatalities in the manufacturing industry division (2012–13 to 2021–22p)

Mechanism of incident subgroup	Fatalities
Being hit by falling objects	7
Falls from a height	5
Being trapped by moving machinery or equipment	4
Being hit by moving objects	1
Being trapped between stationary and moving objects	1

Key findings

The top two mechanisms of incident subgroups for **manufacturing** are **being hit by falling objects** and **falls from a height** (Table 10).

The occupation major group **machinery operators and drivers** recorded fifty per cent of **manufacturing** work-related fatalities.

The occupations recording the greatest number of work-related fatalities in the **manufacturing** industry were:

- truck driver (22%)
- chief executive or managing director (11%)

The top breakdown agencies of incident in the **manufacturing** industry for 2012–13 to 2021–22p were:

- machinery and (mainly) fixed plant (56%)
- mobile plant and transport (11%)
- other and unspecified agencies (11%)

Examples of manufacturing work-related fatalities 2012–13 to 2021–22p

- A truck driver was fatally hit by a one tonne steel pipe, which fell when being unloaded from his truck by a forklift.
- A worker was working in an elevator when he fell down the lift shaft receiving fatal injuries.
- A welder was working with a submerged arc welding machine mounted on a large boom when the boom fell onto the worker causing fatal injuries.
- A managing director was fatally hit by a reversing front-end loader as he was walking through the workplace yard.
- A scaffolder fell 12 metres and was fatally injured when he entered a manway where scaffolding had been removed.
- While standing on a pallet held by a forklift, a truck driver was fatally injured when he was struck by a pallet after falling three metres.
- A mill offsider was fatally buried in tonnes of loose sand while attempting to clear a conveyor belt blockage.
- A leading hand suffered fatal crush injuries while attempting to clear a blockage in an automatic brick stacker.
- While cleaning an industrial mixer, a worker became entangled and sustained fatal injuries.
- A factory hand was fatally injured when he was grabbed by a robotic pallet lifter inside a loading chute.
- A process operator was fatally injured when he became entangled in a conveyor belt.

12 Work-related motor vehicle incident fatalities

From 1 July 2021, the recording of motor vehicle incident fatalities changed. Motor vehicle incident fatalities means fatalities resulting from on-duty road traffic incidents with no clear relationship between the incident and the work being performed at the time of the incident.

Prior to 1 July 2021, motor vehicle incident fatalities were generally not counted as work-related. From 1 July 2021, motor vehicle incident fatalities are generally being counted as work-related. This change is intended to allow for the collection of statistics of on-duty motor vehicle fatalities in Western Australia, enable reporting on the data collected and use it to inform future policy advise, prevention strategies and resourcing requests.

Motor vehicle incident fatalities will be considered separately, and will not form part of the total work-related fatalities considered elsewhere in this report, to allow for consistency across the reporting period.

Trend discussions for on-duty motor vehicle incident fatalities will not be possible until several years' data is available. Records of motor vehicle incident fatalities should be considered indicative rather than empirical, but data is expected to become more reliable and useful over time.

Fourteen motor vehicle incident fatalities were recorded in 2021–22p.

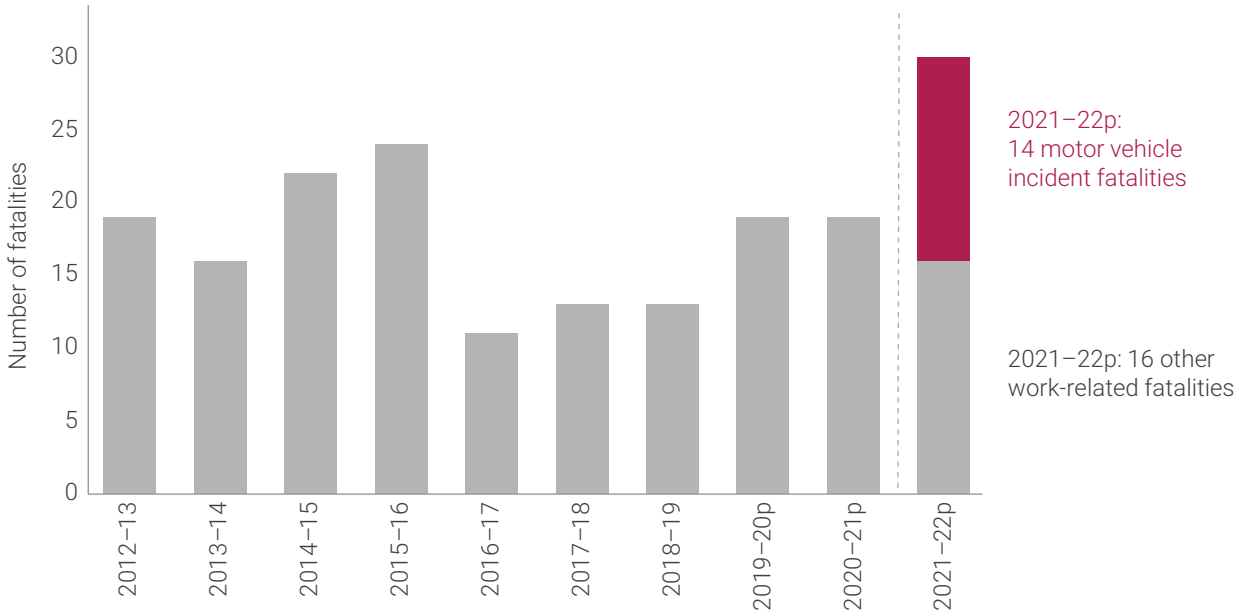


FIGURE 27 Work-related traumatic injury fatalities (2012–13 to 2021–22p) including motor vehicle incident fatalities (2021–22p)

Key findings

For the first year of data collection (2021–22p), motor vehicle incident fatalities almost equal all other work-related traumatic injury fatalities.

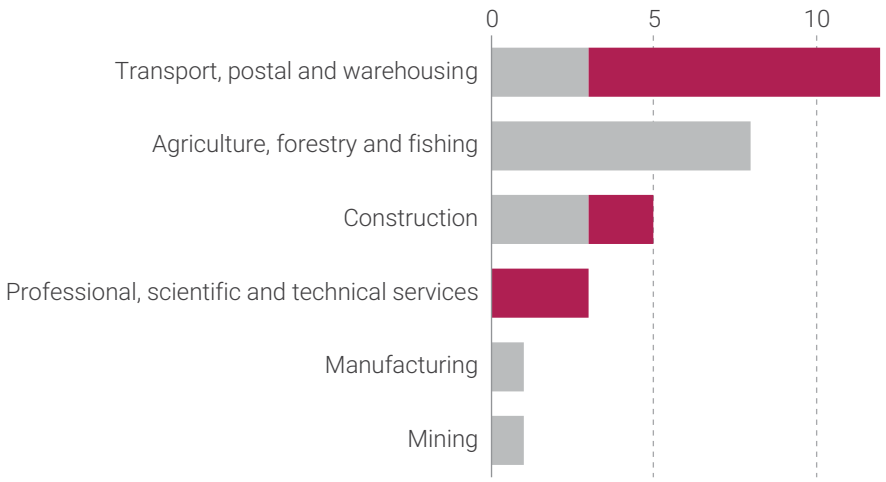


FIGURE 28 Work-related traumatic injury fatalities by motor vehicle incident category and industry division (2021–22p)

Key findings

For the first year of data collection (2021–22p), motor vehicle incident fatalities are concentrated within the **transport, postal and warehousing** industry division.

Most motor vehicle incident fatalities in 2021-22 were in **transport, postal and warehousing**.

While agriculture, forestry and fishing recorded the most **other fatalities**, it recorded no **motor vehicle incident fatalities**.

13 Multiple fatality events

Annual fatality totals can be influenced by multiple fatality events due to a single incident resulting in more than one death.

The period 2012–13 to 2021–22p included five multiple fatality events, including motor vehicle incidents (Figure 29).

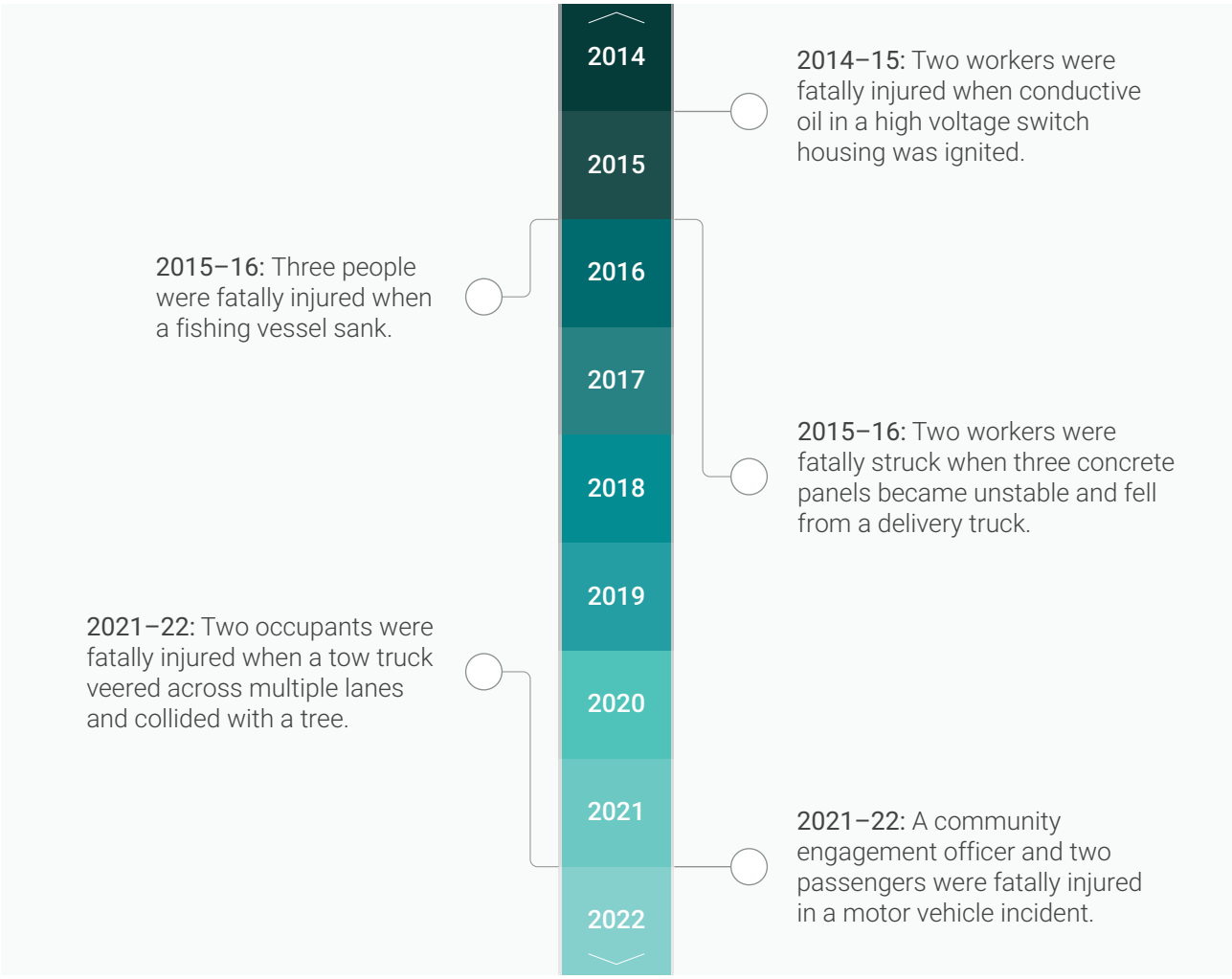


FIGURE 29 Timeline of work-related traumatic injury and motor vehicle incident multiple fatality events (2012–13 to 2021–22p)

WorkSafe Group
Department of Energy, Mines, Industry Regulation and Safety
303 Sevenoaks Street
CANNINGTON WA 6107
Telephone: 1300 307 877
NRS: 13 36 77
Email: Safety@dmirs.wa.gov.au
Website: www.dmirs.wa.gov.au

RSD.Jan24_1310