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Work-related injury and illness in Australia, 2004 to 2014

What is the incidence of work-related conditions and their impact on time lost from work by state and territory, age, gender and injury type?

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118 Compensation Policy And Return to work Effectiveness (COMPARE) study

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Gray S, Collie A. Workers' compensation claims among nurses and ambulance officers in Australia, 2008/09-2013/14. Melbourne (AU): Monash University, ISCRR; 2016 May. 26 p. Report No.: 118-0516-R03.

Collie A, Lane TJ, Hassani-Mahmooei B, Thompson J, McLeod C. Does time off work after injury vary by jurisdiction? A comparative study of eight Australian workers' compensation systems. BMJ Open. 2016 May 5; 6(5): e010910. doi: 10.1136/bmjopen-2015-010910.

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Table of Contents

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Key Findings

Incidence of Work-Related Injury and Compensation Claims

- Between 2006 and 2014, the incidence of work-related injury in Australia declined from 63.6 to 42.6 per 1,000 workers. This suggests that in general, Australian workplaces have become safer over the past decade.
- The incidence of compensable work-related injury has also declined, from 31.0 per 1,000 covered workers in 2009 to 22.3 in 2014.
- However, the decline in incidence of 'serious' claims has been less marked, falling by 2.1% between 2009 and 2012; among all claims in this time period, incidence fell 6.4%.

Access to Workers' Compensation

- Across Australia, there are twice as many estimated self-reported work-related injuries as there are accepted workers' compensation claims. This indicates that many injuries do not progress into the nations' workers' compensation systems.
- The proportion of work-related injuries that become workers' compensation claims varies between states. In 2014, there were 1.5 injuries to every workers' compensation claim in New South Wales, compared to 3.5 injuries to every accepted claim in Victoria.

Duration of Time Off Work

- Injured workers who receive workers' compensation for time loss from work experience a median of two weeks of time loss. Among 'serious' claims, this was 9.2 weeks.
- The median duration of time loss after injury increased by 4.8% for claims with any time loss and 4.4% for 'serious' claims between 2009 and 2012.

Injury Type

- Musculoskeletal conditions represent 55.4% of claims and accounted for 62.8% of all time loss in the study period.
- Workers with work-related mental health conditions had the longest duration of time off work. While accounting for only 3.4% of claims made between 2009 and 2012, they account for 11.8% of all time loss.
- There was a reduction in the incidence of claims among all injury types across the study period. However for serious claims the incidence of mental health conditions increased by 11.4%, while all other injury categories decreased.
- Duration of time loss increased for most injury categories across the study period. This was most pronounced in mental health conditions.

Gender

- Male workers are more likely to report injury and to make claims than female workers. The incidence of claims in female workers is ~75% lower in female workers.
- The rate of all claims has decreased in both male and female workers, however serious claims have increased amongst female workers while declining amongst male workers.
- Among 'serious' claims, female workers take about one-and-a-half weeks more time off work.

Age

- The incidence of claims and duration of time loss generally increases with worker age, although this effect diminishes beyond 45 years of age.

Definitions

ABS	Australian Bureau of Statistics
ACT	Australian Capital Territory
CRD	Compensation Research Database
NDS	National Dataset for Compensation Based Statistics
NSW	New South Wales
NT	Northern Territory
OHS	Occupational Health and Safety
QLD	Queensland
RTW	Return to Work
SA	South Australia
SWA	Safe Work Australia
TAS	Tasmania
TOOCS	Type of Occurrence and Classification System
VIC	Victoria
WA	Western Australia
WRI	Work-Related Injury

Introduction

Globally, 313 million people experienced a Work-Related Injury or Illness (WRI) in 2010 that resulted in four or more days off work. The costs of workers' compensation, treatment, lost wages, training replacement workers, and damage associated with WRI, was estimated at equivalent to 4% of global GDP (International Labour Organization, 2014).

In Australia, an estimated 532 thousand workers experienced a WRI in 2013/14, or 43 in every thousand workers (Australian Bureau of Statistics, 2014). The cost to the economy was $61.8 billion in 2012/13, or 4.1% of GDP; three-quarters (74%) of this cost is assumed by the worker (Safe Work Australia, 2015c). One-third (31%) of injured workers who took ten days off work had not achieved sustained Return to Work (RTW) in the seven to nine months following workers compensation claim acceptance (The Social Research Centre, 2014).

Australian state, territory, and commonwealth governments each manage compensation schemes to provide replacement wages and treatment costs associated with WRI. Employers are obliged to either manage their own compensation scheme, which must be approved by the relevant authority, or pay premiums to a government scheme. In 2013/14, premiums averaged 1.5% of payroll, though varied by jurisdiction, industry, and employers based on claim histories (Safe Work Australia, 2015a).

Many factors influence the occurrence of WRI and the duration of recovery; for instance older and female workers and certain injuries are associated with longer duration of time off work (Berecki-Gisolf, Clay, Collie, & McClure, 2012b; Huijs, Koppes, Taris, & Blonk, 2012; Nieuwenhuijsen, Verbeek, de Boer, Blonk, & van Dijk, 2006; Prang, Bohensky, Smith, & Collie, 2016; Smith et al., 2015). Previous research using Australian survey and administrative data has found substantial differences between workers' compensation jurisdictions in the duration of time loss (Collie, Lane, Hassani-Mahmooei, Thompson, & McLeod, 2016; The Social Research Centre, 2014). Jurisdictions differ in policy and practice, including the proportion of the labour market covered, proportion of and caps to wages compensated, employer excess for both time loss and treatment costs, limits to benefit periods, and OHS intervention and enforcement (Safe Work Australia, 2015a, 2015b).

The Compensation Policy and Return to Work Effectiveness (ComPARE) Project, led by the Institute for Safety, Compensation and Recovery Research (ISCRR), is seeking to identify those policies and practices that impact duration of time loss following WRI. To achieve this objective, it is important to understand how claims differ in terms of incidence and duration across jurisdictions, injury types, gender, and age groups. The ComPARE Project research team has assembled WRI and workers' compensation claims data from multiple sources. This provides an opportunity to describe WRI and claims in a more comprehensive way than has occurred previously in Australia.

Objective

This reports seeks to describe WRI and workers' compensation claims in Australia over the decade to 2014, including changes in injury incidence and duration of time off work according to geographic location (state or territory), injury type, gender, and age. In and of itself, this is important information that will enhance understanding of WRI and compensation in Australia and identify opportunities for further research and scheme improvement.

Methods

Data sources

The primary data source for this report is the National Dataset for Compensation-based Statistics (NDS), an amalgamation of jurisdictional workers' compensation data collected and compiled by Safe Work Australia (SWA). For the ComPARE Project, the NDS has undergone substantial quality assurance, data cleaning and variable creation/linkage. For this report we will thus refer to the NDS as the ComPARE dataset.

Annually, all public workers' compensation schemes across Australia and New Zealand supply administrative claims data to SWA, which include each compensation claim lodged, as well as aggregate scheme-level data such as costs, premiums, remuneration, assets, and liabilities. These data are contained in the NDS and defined in the NDS data dictionary (National Occupational Health and Safety Commission, 2004). For this report, data from claims made in the financial years 2004 to 2014 were extracted. All years refer to the last year of a financial year unless stated otherwise (e.g., 2014 refers to 2013/14). These data are administrative, meaning they are collected primarily for administrative such as record keeping, registration, and service delivery planning.

Additional data sources used in this report include information from the ABS WRI survey (Australian Bureau of Statistics, 2014), the ABS labour force survey (Australian Bureau of Statistics, 2015), and estimates of the number of covered workers by jurisdiction, age, year, and industry, compiled by the ABS and provided by SWA. These surveys collect data using personal interviews conducted via telephone or within selected dwellings.

Work-Related Injuries versus workers' compensation claims

Throughout this report, we use data on both Work-Related Injury or Illness (WRI) and workers' compensation claim (claim). While there is considerable overlap in these concepts, they are nevertheless distinct, which is necessary for interpreting this report as they are used throughout to describe different aspects of work injury.

The ABS defines a WRI as 'any injury or illness…where a person suffers either physically or mentally from a condition that has arisen out of, or in the course of, employment' (Australian Bureau of Statistics, 2014, p. 45). Claims on the other hand are the subset of WRIs that are accepted to receive compensation under one of Australia's major workers' compensation schemes. Not every WRI becomes a claim; many are too minor, whether in practical terms (e.g., they do not cause the worker undue pain or disability) or design terms (e.g., employer excess is higher than either the injured workers' duration of time loss or treatment costs or minimum duration of time loss), or a worker may not be covered under a scheme (e.g., self-employed trade workers). The relationship between WRIs and claims is illustrated in the section entitled 'Work Injury and Workers' Compensation Claims in Australia'.

Each type of data has its strengths and limitations. WRI data can be used to make inferences about the frequency of injuries across the population. However, as these are estimates derived from self-report surveys, they are vulnerable to issues such as recall or social desirability bias and error in self-observation and sampling. Claims data describe practically all injured workers with a compensation claim, but as noted above, are not collected for research purposes, which means they often do not directly answer research questions directly, and represent only a subset of all WRI.

Analysis

The NDS was cleaned to remove duplicate cases, unaccepted claims (rejected or pending), and claims from jurisdictions prior to their adoption of the current national recording standard, NDS3.[1] New Zealand's Accident Compensation Corporation and Seacare were also excluded. Analyses focused primarily on claims lodged between the 2009 and 2014 financial years, as 2009 was the first year when all jurisdictions had applied NDS3. Where jurisdictions began collecting data using the NDS3 coding standard earlier we included their information in the analyses, back to 2004. A duration of time loss variable was created by dividing hours compensated by average weekly hours worked pre-injury. The duration is measured in weeks of work lost/compensated and has been described elsewhere (Collie et al., 2016).

Claims data were analysed to compare the incidence of claims as a rate per 1,000 workers per year. Incidence was calculated by dividing the volume of claims by the estimated number of covered workers in a financial year and multiplying the resulting figure by 1,000. There are some limitations to using 1,000 workers per year as the denominator, as it treats all persons working as similar units regardless of their hazard exposure. Alternatives such as Full-Time Equivalent (FTE) workers or million hours worked can be more accurate denominators for calculating incidence of either WRIs or workers' compensation claims, though these are not as easily conveyed and the data are not always available. For instance, WRI data are only available as persons who worked some time in previous 12 months. To maintain consistency between the WRI and claim measures in this report we have thus chosen to report incidence in terms of rate per 1,000 workers. Other analyses include brief discussions of volumes (number) of WRI and claims and average (median) duration of time loss.

Time loss durations were compared using the median due to the right skewed distribution of the data. Between-group differences in duration were assessed for statistical significance including the Mann-Whitney *U* test for dichotomous variables (e.g., male/female), Kruskal-Wallis test for categorical (>2) variables (e.g., jurisdiction), and Spearman rank for ordinal variables (e.g., age groups).

Where possible, comparisons in incidence and duration are made by jurisdiction, injury type, gender (male and female), and age. Jurisdictions included each state and territory plus Commonwealth Comcare. Claimant age was grouped into five age categories: 15-24, 25-34, 35-44, 45-54, and 55+ years of age.

Workers' compensation claims were categorised as one of the following injury types; 'fractures', 'musculoskeletal', 'neurological', 'mental health conditions', 'other traumatic', 'other diseases', and 'other claims'. Categories were created using codes from the Type Of Occurrence and Classification Systems 3rd Edition Revision (TOOCS3) (Australian Safety and Compensation Council, 2008). Prior categories using TOOCS3 had been developed using claims from one jurisdiction (e.g., Collie, Ruseckaite, Brijnath, Kosny, & Mazza, 2013); however, differences between jurisdictions in the proportion of claims by injury type were identified in quality assurance, suggesting inconsistent application of TOOCS3 codes. The inconsistency was likely due to the thematic similarity between lower-level injury codes, which resulted in heterogeneous localised interpretation and application, particularly between traumatic and musculoskeletal conditions.[2] Other high-level injury categories

[1] Jurisdictions adopted NDS3 recording standards in a staggered manner, which made their data incomparable across in some time points. These were South Australia (adopted NDS3 in 2005), Tasmania (2007) and ACT private (2009).

[2] For instance, most jurisdictions used code 239 in lieu of 459 for back pain, while Victoria used 459 almost exclusively; the former is defined as 'soft tissue injuries due to trauma or unknown mechanisms with

('fractures', 'neurological', 'mental health conditions, and 'other diseases') were more conceptually distinct and exhibited consistency of distribution between and within jurisdictions over time. Further, there were disparities within jurisdictions themselves over time. In some cases, this coincided with the upgrade from TOOCS2 to TOOCS3 coding standards, though this was not always the case.[3] A more consistent categorisation protocol was developed to control for these differences. Additionally, the protocol would allow for consistent reporting between ComPARE Project outputs and the synthesis of findings based on injury type. Categories and corresponding TOOCS Major Groups are shown in Table 1.

Table 1 – Injury categorisation and corresponding TOOCS3 group

Category	TOOCS3 Major Group
Fractures	B: Fractures
Musculoskeletal	F: Traumatic Joint/Ligament and Muscle/Tendon Injury H: Musculoskeletal and Connective Tissue Diseases
Neurological	A: Intracranial Injuries E: Injury to Nerves and Spinal Cord L: Nervous System and Sense Organ Diseases
Mental Health Conditions	I: Mental Diseases
Other Traumatic	C: Wounds, Lacerations, Amputations and Internal Organ Damage D: Burn G: Other Injuries
Other Diseases	J: Digestive System Diseases K: Skin and Sub-cutaneous Tissue Diseases M: Respiratory System Diseases N: Circulatory System Diseases O: Infectious and Parasitic Diseases P: Neoplasms (Cancer) Q: Other Diseases
Other Claims	R: Other Claims

When analysing claims based on duration (e.g., comparing median time loss duration or analysing claims exceeding two weeks' time loss duration ['serious' claims]), claims are censored to 2012 to allow for a minimum follow-up period of two years. We have previously described the advantages and limitations of using administrative data for assessing RTW and duration of time loss (Collie et al., 2016).

To illustrate differences in the proportion of WRIs that become a workers' compensation claim, an 'injury-to-claims' ratio, or the number of WRIs to every claim, was calculated. A higher ratio indicates a lower proportion of WRIs being compensated. As many injuries are minor, not every WRI will become a claim. In 2014, an estimated 61.3% of workers who experienced a WRI in Australia did not apply for workers' compensation with the most common reason being that the injury was perceived

insufficient information to code elsewhere', whereas the latter refers to 'back pain, lumbago, and sciatica'. 239 falls under 'other trauma' and 459 under 'musculoskeletal'. As common codes in the jurisdictions in which they were used, this resulted in noticeable differences between jurisdictions in the proportional distributions of injuries.

[3] For instance, Western Australia coded about four thousand claims as resulting from trauma to muscles and tendons between 2004 and 2009, TOOCS3 codes 222 to 228. Between 2010 and 2014 this number ranged from 0 to 3. Western Australia adopted the updated TOOCS3 coding in 2002/03.

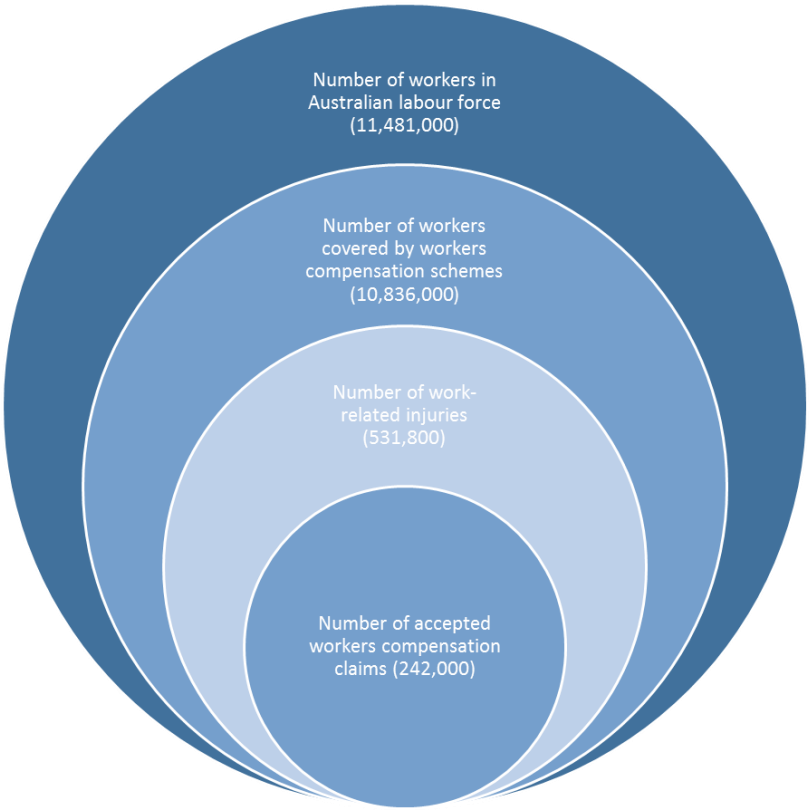
to be too minor (Australian Bureau of Statistics, 2014). However, differences in the ratio may indicate barriers to claiming, such as a higher injury threshold or employer excess. The injury-to-claims ratio also illustrates why using claims data is an inaccurate and potentially misleading indicator of comparative workplace safety (O'Neill, Martinov-Bennie, Cheung, & Wolf, 2013). As noted above, workers' compensation claims only measure a subset of WRI and tend to bias towards more severe injuries (Shannon & Lowe, 2002; Tucker, Diekrager, Turner, & Kelloway, 2014).

To calculate the injury-to-claims ratio, claims figures were adjusted to account for the fact that not every worker is covered under publicly administered compensation schemes (e.g., sole traders do not need to register for workers' compensation in most jurisdictions). The adjustment assumes that WRIs are equally distributed in terms of frequency, type, and severity across covered and uncovered workers within each jurisdiction. Details of the adjustment method are available on request.

Work Injury and Workers' Compensation Claims in Australia

The Australian labour force included 11.48 million workers in 2014. Of these, an estimated 10.84 million (94.4%) were covered under the nations workers' compensation schemes and 531,800 (4.6%) experienced a work-related injury in the 2014. In that year, 242,000 workers (45.3% of injured workers and 2.2% of covered workers) had an accepted workers compensation claim during the year. These data are illustrated in Figure 1, which was constructed with information from multiple data sources including ABS labour force and work-related injury surveys and the ComPARE dataset.

Figure 1. Overview of labour force, work injury and compensation claims in Australia for the 2014 financial year



Sources: Australian Bureau of Statistics, 6202.0 – Labour Force, Australia*; Australian Bureau of Statistics,* Estimate of workers covered or regulated by workers' compensation agencies*; Institute for Safety, Compensation and Recovery Research,* ComPARE dataset

Table 2 displays the same information for each state and territory in Australia for the 2014 year. Notably, the proportion of all WRIs accepted as compensation claims varies substantially between jurisdictions: Victoria and Comcare had the lowest proportion (1.4% and 1.6% of covered workers) while Tasmania (3.5%) had the highest. This table also demonstrates differences in the proportion of the labour force that is covered by workers' compensation legislation. All states and territories had at least 89.0% coverage with the exception of the ACT, which had a coverage rate of 71.5. Workers in the geographic region of the ACT are covered by two major schemes, ACT private and ACT government (which falls under the Comcare scheme).

Table 2 – Overview of labour force, covered workers, work injury and compensation claims (000s) in Australian states and territories for the 2014 financial year

State/territory/ jurisdiction	Number of workers	*N* (%) covered workers	*N* work related injuries	*N* accepted compensation claims (% of covered workers)
New South Wales	3,599.4	3,268.0 (90.8%)	143.6	88.6 (2.7%)
Victoria	2,859.3	2,607.3 (91.2%)	138.5	35.8 (1.4%)
Queensland	2,318.5	2,121.3 (91.5%)	108.7	42.1 (2.0%)
South Australia	799.4	724.5 (90.6%)	44.6	21.4 (3.0%)
Western Australia	1,329.4	1,243.9 (93.6%)	62.4	34.4 (2.8%)
Tasmania	232.8	207.1 (89.0%)	16.8	7.3 (3.5%)
Northern Territory	132.3	130.9 (98.9%)	5.1	3.0 (2.3%)
ACT total	210.4	150.5 (71.5%)	12.2	3.1 (2.1%)
ACT government	-	23.0 (NA)	-	0.4 (1.7%)
ACT private	-	127.5 (NA)	-	2.7 (2.1%)
Comcare	-	405.8 (NA)	-	6.4 (1.6%)
Total	11,481.5	10,836.2 (94.4%[4])	531.8	241.7 (2.2%)

Source: Australian Bureau of Statistics, 6324.0 - Work-Related Injuries, Australia; *Australian Bureau of Statistics,* Estimate of workers covered or regulated by workers' compensation agencies*; Institute for Safety, Compensation and Recovery Research,* ComPARE dataset

Work-related injuries

The volume of self-reported WRIs in Australia declined from 689,500 in 2006 to 641 thousand in 2010 to 531,800 in 2014 (Table 3).

Table 3 – Estimated volume of work-related injuries (000s) by state/territory, 2006, 2010, and 2014

	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUS
2006	240.3	143.2	154.0	46.1	68.5	15.3	6.1	13.1	689.5
2010	213.2	157.4	144.3	44.4	50.4	13.7	6.4	10.8	640.7
2014	143.6	138.5	108.7	44.6	62.4	16.8	5.1	12.2	531.8

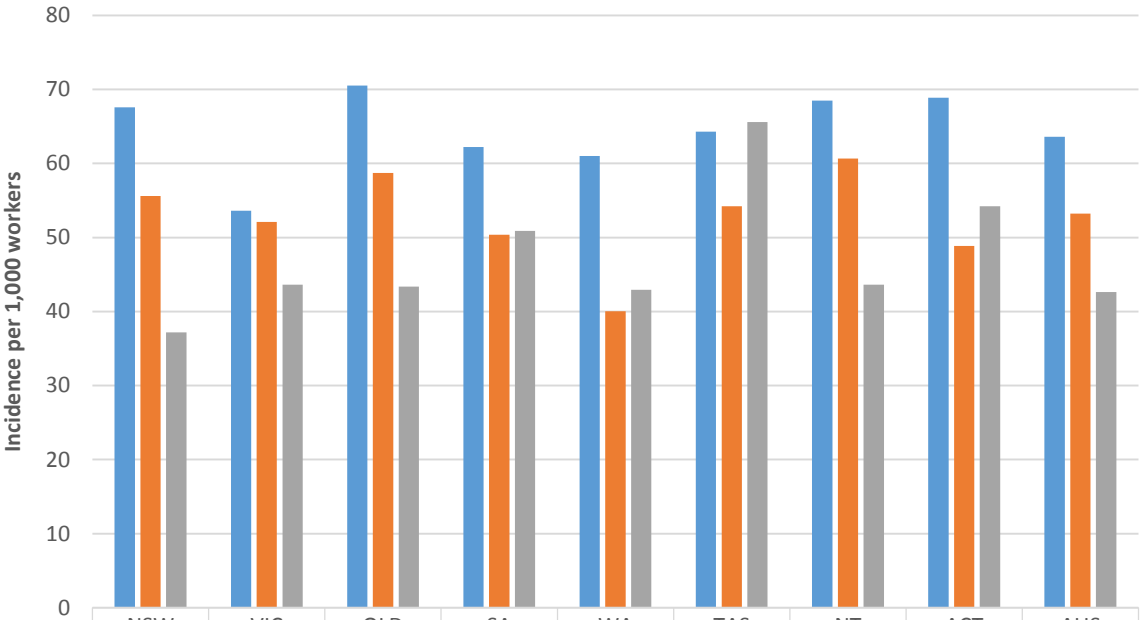
Source: Australian Bureau of Statistics, 6324.0 - Work-Related Injuries, Australia

The incidence of injuries also declined by about one-third in this time period, from 63.6 per 1,000 workers in 2006 and 53.2 in 2006 to 42.6 in 2014, or 33.0% down from 2006 and 19.9% down from 2010, and occurred in most states and territories (Figure 2) (Australian Bureau of Statistics, 2006, 2010, 2014). One exception was Tasmania, which, after a reduction in WRIs between the 2006 and

[4] Total average includes 405 thousand workers covered under Comcare who cannot be counted under state or territorial jurisdictions. Each jurisdiction's coverage rate can thus be considered the minimum proportion who are covered.

2010 survey periods, recorded a substantial increase in 2014. In this case, the 2010 result may be a statistical outlier given the small sample size in Tasmania and the large relative standard error.[5]

Figure 2 – Estimated incidence of work-related injury per 1,000 workers by state/territory, 2006, 2010, and 2014



	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUS
2006	67.6	53.6	70.5	62.2	61.0	64.3	68.5	68.9	63.6
2010	55.6	52.1	58.7	50.4	40.0	54.2	60.7	48.9	53.2
2014	37.2	43.6	43.4	50.9	43.0	65.6	43.6	54.2	42.6

Source: Australian Bureau of Statistics, 6324.0 - Work-Related Injuries, Australia

Workers' compensation claims for injury

Consistent with the fall in WRIs, there was a reduction in the volume of claims for workers' compensation across Australia; between 2009 and 2014, the volume of claims reduced by 21.1%. In nearly all jurisdictions, the absolute volume of claims diminished. The sharpest decline was observed in ACT private, where claims were reduced by 41.1%. Similarly, the incidence of accepted claims per 1,000 covered workers declined in all jurisdictions and by 28.1% nationwide. These data are displayed in Table 4, which reports the percentage change in claims incidence and volume for the periods of 2004 to 2014 and 2009 to 2014, and illustrated in Figure 4. Note that complete data were only available for all jurisdictions from the 2009 year onwards.

There is substantial variability between states with respect to the proportionate change in volume and incidence over time. For example, in Victoria the volume of claims reduced by 49.9% between 2004 and 2014 and the incidence by 58.6%. The majority of this change occurred in the 2004 and

[5] The Relative Standard Error for Tasmania was 12.7% in 2009/10 and 14.0% in 2013/14 on this figure; however, it was not the highest (NT – 16.4% and 17.8%; ACT – 22.0% and 18.0%; Western Australia was similar at 11.3% and 13.3%).

2009 period, with relatively smaller changes between 2009 and 2014 (14.6% reduction in claim volume, 19.9% reduction in claim incidence). In contrast, Western Australia had a 17.2% reduction in volume and a 42.8% reduction in incidence, with more than half this change occurring in the period 2009 to 2014. The smaller reduction in volume is presumably due to growth in the number of covered workers in WA over the study period (45.0% increase between 2004 and 2014, 16.7% increase between 2009 and 2014) (Table 4 and Figure 3).

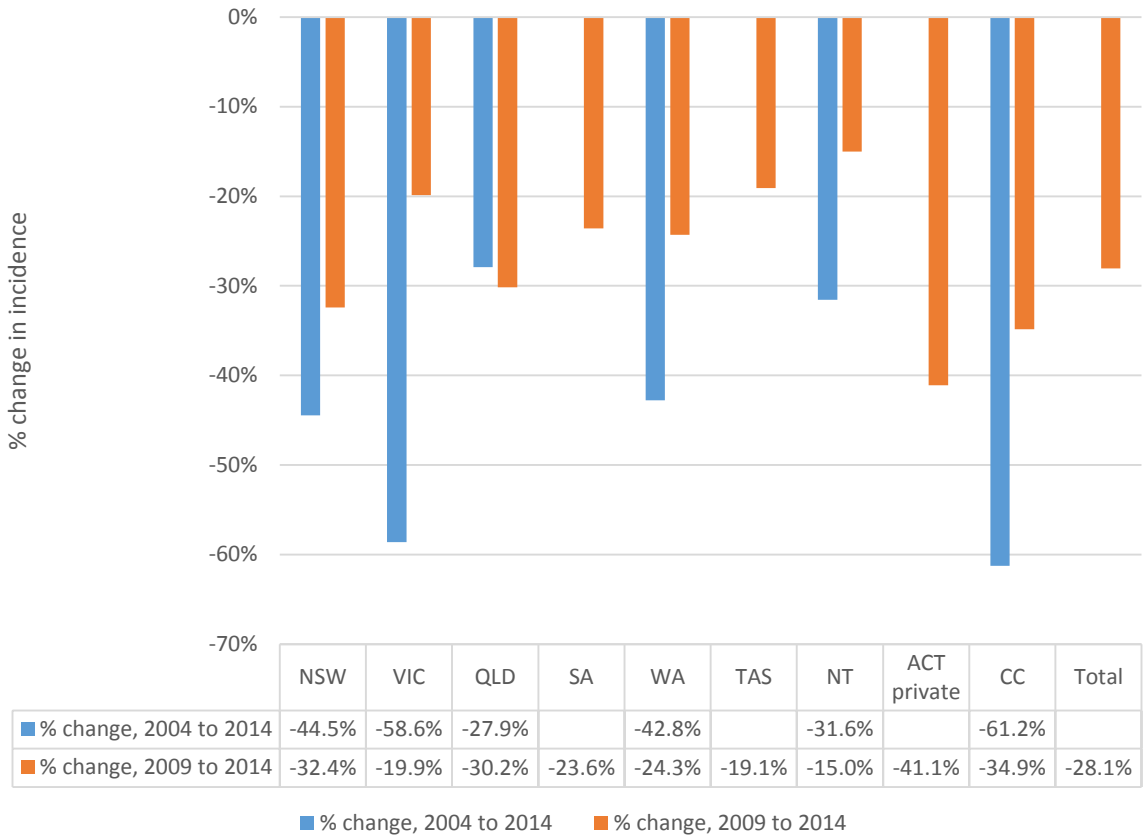
The impact of changes to legislation affecting access to workers' compensation is also apparent in the data. For example, New South Wales introduced the *Workers Compensation Legislation Amendment Act 2012*, which mostly came into effect on 19 June 2012 with all changes implemented by 1 January 2013. One impact of this legislation was to limit access to compensation for some workers (Markey, Holley, O'Neill, & Thornthwaite, 2013). The amendment coincided with a 21.5% reduction in claims (26,606) and a 23.6% reduction in incidence (down 9.3 claims per 1,000 covered workers) between 2012 and 2013. This finding demonstrates the sensitivity of claims data to changes in workers' compensation policy and practice, and reinforces arguments that number and incidence of workers compensation claims are an inaccurate workplace safety (O'Neill et al., 2013).

Table 4 – Incidence and volume of accepted workers' compensation claims, 2004 to 2014

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2009-2014	% change 2004 to 2014	% change 2009 to 2014
Rate per 1000 workers (number) of accepted claims														
NSW	48.8 (137,116)	49.2 (138,768)	44.5 (128,498)	42.5 (126,574)	40.7 (122,183)	40.1 (120,509)	40.8 (123,399)	40.8 (125,629)	39.4 (123,643)	30.1 (97,037)	27.1 (88,581)	36.2 (678,798)	-44.5% (-35.4%)	-32.4% (-26.5%)
VIC	33.1 (71,437)	30.8 (69,150)	22.0 (50,304)	19.9 (46,422)	19.7 (47,183)	17.1 (41,906)	16.6 (41,404)	16.3 (42,116)	15.9 (41,139)	14.7 (38,342)	13.7 (35,794)	15.7 (240,701)	-58.6% (-49.9%)	-19.9% (-14.6%)
QLD	27.6 (41,898)	29.4 (46,782)	29.4 (48,919)	30.0 (52,397)	30.4 (53,358)	28.5 (52,380)	26.8 (49,311)	25.5 (48,495)	25.1 (48,774)	23.9 (46,206)	19.9 (42,173)	24.8 (287,339)	-27.9% (0.7%)	-30.2% (-19.5%)
SA	-	54.7 (35,674)	49.1 (33,089)	46.2 (31,725)	42.2 (29,453)	38.6 (27,031)	36.6 (25,621)	35.5 (25,538)	35.1 (25,288)	31.5 (23,348)	29.5 (21,357)	34.4 (148,183)		-23.6% (-21.0%)
WA	48.4 (41,554)	47.5 (42,330)	43.2 (40,743)	40.8 (40,179)	39.9 (40,665)	36.6 (38,963)	33.5 (35,884)	33.6 (36,901)	32.8 (37,859)	29.9 (36,414)	27.7 (34,393)	32.2 (220,414)	-42.8% (-17.2%)	-24.3% (-11.7%)
TAS	-	-	-	46.7 (9,309)	45.6 (9,469)	43.5 (9,256)	42.1 (8,687)	44.2 (9,295)	41.4 (8,749)	37.8 (7,940)	35.2 (7,292)	40.7 (51,219)		-19.1% (-21.2%)
NT	33.9 (3,147)	35.8 (3,288)	34.9 (3,286)	29.1 (2,921)	29.4 (3,154)	27.3 (3,023)	26.4 (2,993)	27.8 (3,175)	26.4 (3,058)	25.2 (3,060)	23.2 (3,034)	26.0 (18,343)	-31.6% (-3.6%)	-15.0% (0.4%)
ACT private	-	-	-	-	-	36.0 (4,111)	39.6 (4,539)	40.7 (4,737)	33.3 (3,900)	27.4 (3,291)	21.2 (2,700)	32.8 (23,278)		-41.1% (-34.3%)
CC	40.5 (11,154)	37.1 (10,608)	32.6 (9,892)	28.7 (9,726)	20.7 (7,900)	24.1 (9,218)	23.6 (9,088)	22.5 (8,975)	21.9 (8,615)	17.7 (7,411)	15.7 (6,367)	20.8 (49,674)	-61.2% (-42.9%)	-34.9% (-30.9%)
Total	-	-	-	-	-	31.0 (306,397)	30.3 (300,926)	29.9 (304,861)	29.0 (301,025)	24.8 (263,049)	22.3 (241,691)	27.8 (1,717,949)		-28.1% (-21.1%)

Source: Australian Bureau of Statistics, 6202.0 – Labour Force, Australia; *Australian Bureau of Statistics,* Estimate of workers covered or regulated by workers' compensation agencies*; Institute for Safety, Compensation and Recovery Research,* ComPARE dataset

Figure 3 – Percent change in incidence of claims per 1,000 covered workers by jurisdiction, 2004 to 2014 and 2009 to 2014



	NSW	VIC	QLD	SA	WA	TAS	NT	ACT private	CC	Total
% change, 2004 to 2014	-44.5%	-58.6%	-27.9%		-42.8%		-31.6%		-61.2%	
% change, 2009 to 2014	-32.4%	-19.9%	-30.2%	-23.6%	-24.3%	-19.1%	-15.0%	-41.1%	-34.9%	-28.1%

Source: Australian Bureau of Statistics, Estimate of workers covered or regulated by workers' compensation agencies*; Institute for Safety, Compensation and Recovery Research,* ComPARE dataset

'Serious' claims

Many WRIs workers' compensation claims resolve quickly with the injured person returning to work shortly after injury. Safe Work Australia uses an indicator of 'serious' claims (more than or equal to one week time loss) as a marker of the proportion of accepted claims that persist on compensation and may require greater levels of support and assistance (Safe Work Australia, 2015b). For the purposes of this report, we have defined 'serious' claims as those that result in more than two weeks of compensated time loss to account for two week employer excesses in Victoria and South Australia, assessing only those lodged up to 2012 to allow a minimum two year time period of follow up (data collection period extends to June 2014). Table 5 displays the incidence and volume of 'serious' claims across the study period for all jurisdictions.

Between 2009 and 2012, Queensland recorded the highest incidence of 'serious' claims (11.9 per 1,000 workers), followed closely by Tasmania (11.6) and New South Wales (10.7). Comcare (6.9) and Victoria (7.4) had the lowest incidence. The national incidence in this period was 9.6 per 1,000 workers.

Table 5 – Incidence and volume of accepted 'serious' workers' compensation claims between 2004 and 2012

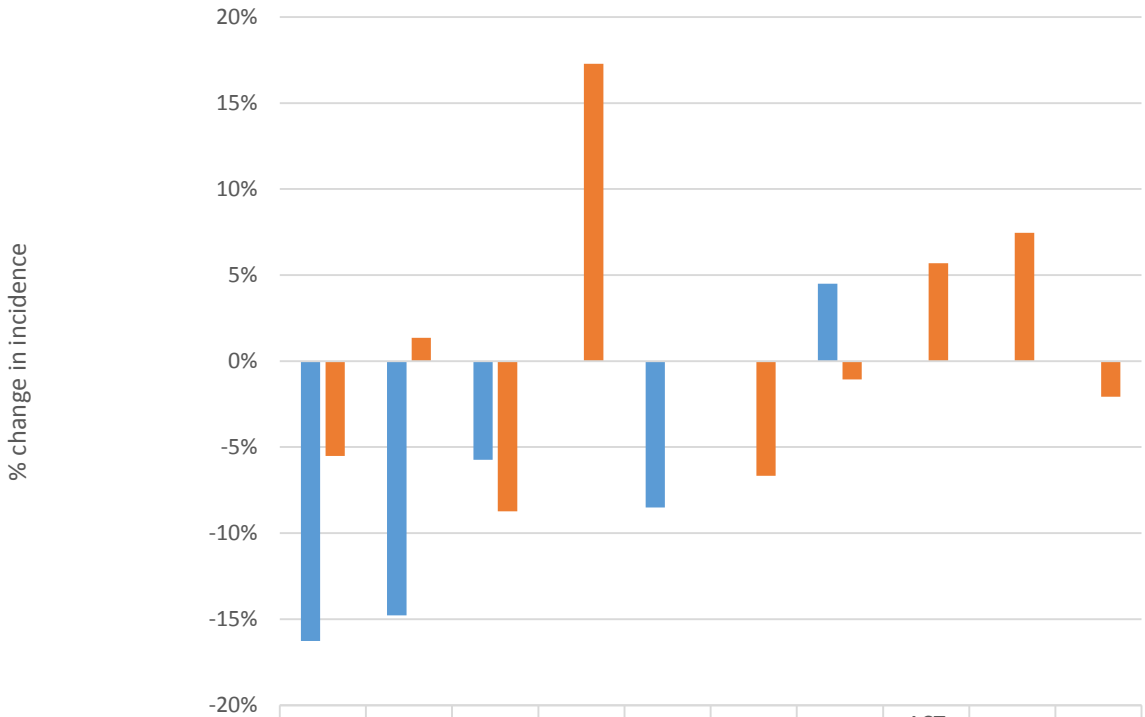
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2009-2012	% change 2004 to 2012	% change 2009 to 2012
Rate per 1000 covered workers (number) of 'serious' claims												
NSW	12.3 (34,484)	11.9 (33,630)	10.8 (31,126)	10.5 (31,181)	10.4 (31,148)	10.9 (32,725)	10.8 (32,759)	10.9 (33,410)	10.3 (32,201)	10.7 (131,095)	-16.3% (-6.6%)	-5.5% (-1.6%)
VIC	8.8 (18,914)	8.4 (18,815)	8.5 (19,328)	7.7 (17,910)	8.0 (19,144)	7.4 (18,181)	7.4 (18,343)	7.4 (18,972)	7.5 (19,440)	7.4 (74,936)	-14.8% (2.8%)	1.4% (6.5%)
QLD	12.2 (18,620)	12.6 (20,133)	12.5 (20,877)	12.7 (22,220)	12.9 (22,641)	12.6 (23,271)	11.8 (21,765)	11.5 (21,756)	11.5 (22,331)	11.9 (89,123)	-5.7% (19.9%)	-8.7% (-4.2%)
SA	-	11.6 (7,541)	11.2 (7,525)	10.4 (7,140)	8.9 (6,183)	8.1 (5,707)	8.6 (6,031)	9.0 (6,475)	9.5 (6,850)	8.8 (25,063)		17.3% (16.7%)
WA	9.4 (8,089)	9.5 (8,506)	8.9 (8,346)	8.8 (8,670)	9.1 (9,233)	8.6 (9,129)	8.2 (8,817)	8.6 (9,431)	8.6 (9,920)	8.5 (37,297)	-8.5% (22.6%)	0.0% (8.0%)
TAS	-	-	-	12.1 (2,405)	11.7 (2,429)	12.0 (2,551)	11.5 (2,381)	11.7 (2,459)	11.2 (2,374)	11.6 (9,765)		-6.7% (-7.5%)
NT	8.9 (829)	9.3 (854)	9.3 (876)	10.4 (1,047)	11.0 (1,179)	9.4 (1,039)	9.7 (1,095)	9.6 (1,101)	9.3 (1,078)	9.5 (4,313)	4.5% (30.0%)	-1.1% (3.6%)
ACT private	-	-	-	-	-	8.8 (1,007)	9.4 (1,081)	10.0 (1,162)	9.3 (1,085)	9.4 (4,335)		5.7% (7.2%)
CC	-	9.9 (2,837)	9.0 (2,736)	8.0 (2,719)	5.5 (2,087)	6.7 (2,570)	6.6 (2,541)	7.0 (2,785)	7.2 (2,830)	6.9 (10,726)		7.5% (9.2%)
Total	-	-	-	-	-	9.7 (96,180)	9.5 (94,813)	9.6 (97,551)	9.5 (98,109)	9.6 (386,653)		-2.1% (2.0%)

Source: Australian Bureau of Statistics, Estimate of workers covered or regulated by workers' compensation agencies*; Institute for Safety, Compensation and Recovery Research*, ComPARE dataset

Between 2009 and 2012, there was a slight reduction in the incidence of 'serious' claims (-2.1%). The incidence of all claims for 2009 to 2012, which was calculated for comparison using the data in Table 4, was much greater -6.4%[6].

Victoria (1.4%), South Australia (17.3%), ACT private (5.7%), and Comcare (7.5%) all saw increases in 'serious' claims incidence in this time period. Queensland saw the greatest reduction (-8.7%). Note that for some jurisdictions complete data for the period 2004 to 2009 were not available.

Figure 4 – Percent change in incidence of 'serious' claims per 1,000 covered workers, 2004 to 2012



	NSW	VIC	QLD	SA	WA	TAS	NT	ACT private	CC	Total
% change, 2004 to 2012	-16.3%	-14.8%	-5.7%		-8.5%		4.5%			
% change, 2009 to 2012	-5.5%	1.4%	-8.7%	17.3%	0.0%	-6.7%	-1.1%	5.7%	7.5%	-2.1%

Source: Australian Bureau of Statistics Estimate of workers covered or regulated by workers' compensation agencies*; Institute for Safety, Compensation and Recovery Research,* ComPARE dataset

Ratio of work-related injuries to claims

Workers' compensation claims are often used as a marker of the relative effectiveness of occupational health and safety policy and practice. Claims are still the dominant performance measure for Australia's occupational health and safety schemes, despite the acknowledged limitations of these outcomes (O'Neill et al., 2013). One major limitation is that factors other than OHS programs can affect the volume and duration of claims. For this reason it is necessary to

[6] The change in incidence for all claims from 2009 to 2012 was calculated by subtracting the incidence in 2012 (29.0) by that in 2009 (31.0) and dividing that by the 2009 incidence. The change in incidence between 2009 and 2014 was substantially greater at 28.1%, though a large part of this was likely the result of changes in New South Wales due to its amendments to workers' compensation legislation in 2012, and the recording of a decline over a time period that was two years longer. As such, comparisons between 'serious' claims for 2009-2012 and any claims for 2009-2014 data were not appropriate.

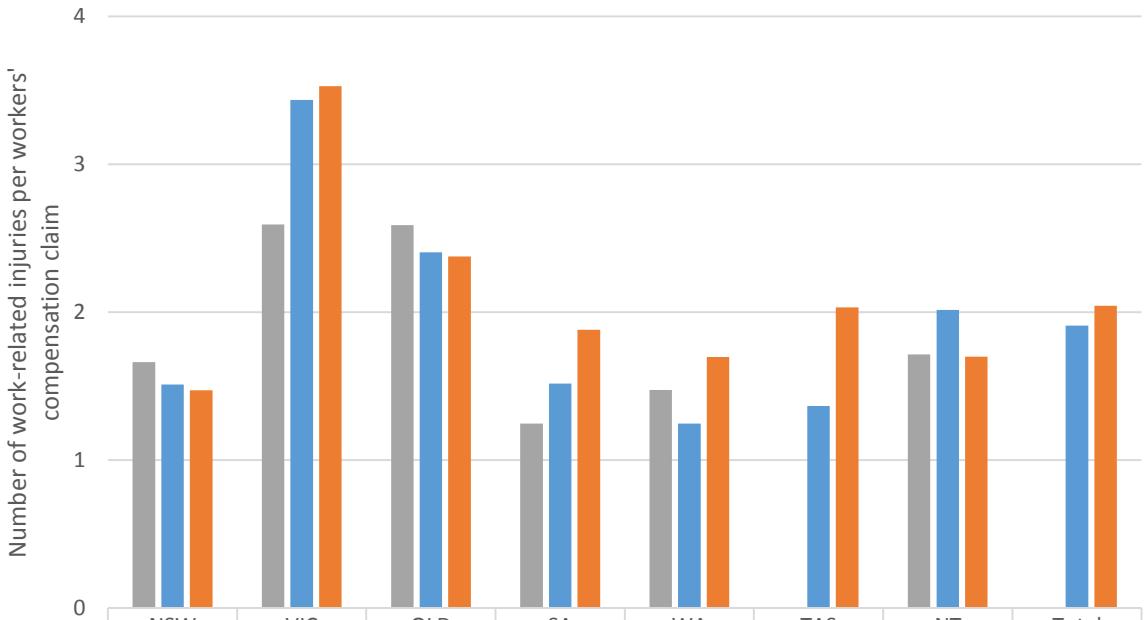
establish alternative measures of the effectiveness of OHS and WRI prevention activities. This is an area attracting much attention, for example markers such as the Occupational Health and Safety Vulnerability Scale (Smith et al., 2015) and the Organisational Performance Metric (OPM) (De Cieri, Shea, Cooper, Sheehan, & Donohue, 2015).

The limitations of claims data mean that it is important to understand the relationship between the total burden of WRI in a population and the manifestation of this burden within a workers' compensation system. This section compares volumes of WRIs and claims across jurisdictions to determine the ratio of injuries to claims. A higher ratio indicates that fewer WRIs are compensated and vice versa. For instance, a ratio of 1:1 would mean that every WRI is compensated, whereas a ratio of 9:1 would mean that for every one WRI that is compensated, eight are uncompensated. The number of WRIs are derived from the ABS Work-Related Injury survey and the number of claims from the ComPARE dataset. Claims volume adjusted to account for the number of workers not covered by the jurisdiction's scheme. The injury-to-claims ratio by jurisdiction for 2006, 2010, and 2014 is displayed in Figure 5 below. Note that it is not possible to calculate ratios for Comcare as there is no corresponding geographic region in which WRIs could be calculated, and that ACT was excluded due to the methodological challenges of accounting for two major schemes in a small geographic area.

With a national ratio[7] of two WRIs to every workers' compensation claim (1.9 in 2010 and 2.0 in 2014), an estimated one-half of WRIs are covered as a workers' compensation claim. There was substantial variation between jurisdictions. At all points, Victoria recorded the highest ratio at 3.5 WRIs in 2014. This figure was 3.4 in 2010 and 2.6 in 2006. In contrast, for every accepted workers' compensation claim in New South Wales, there were between 1.5 and 1.7 WRIs. This indicates that a smaller proportion of WRIs are accepted into the Victorian workers' compensation scheme than in other states. Queensland had the second highest ratio at 2.4 to 2.6 over the study period. New South Wales (1.5-1.7), Western Australia (1.2-1.7), and South Australia (1.2-1.9) had the lowest ratios.

[7] The national ratio excludes Comcare and ACT private due to difficulties in calculating an adjusted (i.e., accounting for workers not covered under each jurisdiction' scheme) volume of claims for each.

Figure 5 – Injury-to-claims ratio by jurisdiction, 2006, 2010, and 2014



	NSW	VIC	QLD	SA	WA	TAS	NT	Total
2006	1.7	2.6	2.6	1.2	1.5		1.7	
2010	1.5	3.4	2.4	1.5	1.2	1.4	2.0	1.9
2014	1.5	3.5	2.4	1.9	1.7	2.0	1.7	2.0

Source: Australian Bureau of Statistics, 6202.0 – Labour Force, Australia; *Australian Bureau of Statistics* Estimate of workers covered or regulated by workers' compensation agencies; *Institute for Safety, Compensation and Recovery Research,* ComPARE dataset

Duration of time off work

Within Australian workers' compensation jurisdictions, estimates of the duration of time away from work are often used as a marker of RTW performance. There are multiple methods for assessing the duration of time off work with administrative data, including calendar-based time-to-event outcomes such as time to first RTW, measures of partial or failed RTW attempts, and measures that estimate the cumulative time away from work. The last of these options, sometimes referred to as 'work disability duration', is considered the best proxy for RTW when using administrative data, as it accounts for partial and failed attempts at RTW (Krause, Dasinger, Deegan, Brand, & Rudolph, 1999). In this report we have utilised the number of lost weeks, which was calculated by dividing the total number of work hours lost by the average pre-injury weekly hours worked. In the following section, time loss data are reported for claims accepted between 2004 and 2012. Claims accepted in 2013 and 2014 were excluded as there was an insufficient follow-up period for these years to accurately calculate time loss.

In the period between 2009 and 2012, differences between jurisdictions in median duration of time loss were statistically significant ($p < .001$ for both any time loss and 'serious' claims). For claims with any time loss, the national median was 2.0 weeks. New South Wales and Queensland recorded the shortest median durations (1.8 weeks for both), while the Northern Territory recorded the longest median duration (3.6 weeks) (Table 6). For 'serious' claims, the national median was 9.2 weeks. Tasmania (7.4) and Queensland (7.8) recorded the shortest durations and Victoria (13.0) the longest (Table 7).

The median duration of time loss increased in most states and territories (Table 6). Between 2009 and 2012, duration increased 4.8% on claims with any time loss (excluding Victoria and South Australia due to ten day/two week employer excess). Among 'serious' claims, duration increased 4.4% (Table 7).

The magnitude of change in duration varied between jurisdictions. For claims with any time loss between 2004 and 2012, the increase in duration ranged from 11.1% (Queensland) to 100% (Northern Territory). Interestingly, New South Wales recorded a 28.6% increase between 2004 and 2014, though no increase between 2009 and 2012, indicating that all the increase in duration took place between 2004 and 2009 (Table 6). For 'serious' claims, the percentage change in median duration ranged from 9.6% (New South Wales) to 36.8% (Northern territory) between 2004 and 2014. The percentage change between 2009 and 2012 varied between -6.1% (New South Wales) to 21.6% (Comcare) (Table 7).

Table 6 – Median time loss in weeks for any time loss claims in weeks, by jurisdiction, 2004 to 2012

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2009-2012	% change 2004 to 2012	% change 2009 to 2012
Median time lost in weeks, claims with any time loss (excl. VIC & SA) (IQR)												
NSW	1.4 (0.5-5.3)	1.4 (0.5-5.0)	1.4 (0.5-5.3)	1.4 (0.6-5.6)	1.5 (0.6-6.3)	1.8 (0.6-7.8)	1.8 (0.6-7.6)	2.0 (0.6-8.0)	1.8 (0.6-7.4)	1.8 (0.6-7.6)	28.6%	0.0%
QLD	1.8 (0.8-6.4)	1.6 (0.6-6.0)	1.6 (0.6-6.0)	1.6 (0.6-6.0)	1.6 (0.6-6.4)	1.8 (0.6-7.0)	1.8 (0.6-6.9)	1.9 (0.6-7.2)	2.0 (0.6-7.9)	1.8 (0.6-7.2)	11.1%	11.1%
WA	1.4 (0.5-6.0)	1.5 (0.6-6.2)	1.6 (0.6-6.7)	1.8 (0.6-7.6)	2.0 (0.6-8.6)	2.0 (0.7-9.6)	2.3 (0.8-10.0)	2.3 (0.8-10.7)	2.5 (0.8-11.0)	2.3 (0.8-10.3)	76.8%	21.3%
TAS	-	-	-	2.2 (0.9-7.0)	2.4 (1.0-7.9)	2.4 (1.0-8.0)	2.6 (1.0-8.0)	2.7 (1.0-9.0)	3.1 (1.0-9.6)	2.7 (1.0-8.6)		31.0%
NT	2.2 (1.0-7.0)	2.2 (1.0-2.2)	2.2 (1.0-8.0)	3.2 (1.0-11.1)	3.8 (1.2-13.0)	3.8 (1.0-14.4)	3.4 (1.2-11.4)	3.0 (1.0-10.8)	4.4 (1.4-14.0)	3.6 (1.2-12.4)	100.0%	15.8%
ACT private	-	-	-	-	-	2.2 (0.8-8.3)	2.4 (0.8-9.5)	2.8 (0.8-10.8)	2.4 (0.8-9.4)	2.4 (0.8-9.5)		7.0%
CC	-	1.8 (0.6-7.2)	1.9 (0.6-7.8)	2.0 (0.6-8.0)	2.1 (0.7-8.4)	2.2 (0.6-8.8)	2.2 (0.6-9.7)	2.9 (0.7-12.0)	3.2 (0.8-13.5)	2.6 (0.6-10.9)		48.8%
Total	-	-	-	-	-	1.9 (0.6-7.8)	2.0 (0.6-7.8)	2.1 (0.6-8.2)	2.0 (0.6-8.2)	2.0 (0.6-8.0)		4.8%

Source: Institute for Safety, Compensation and Recovery Research, ComPARE dataset

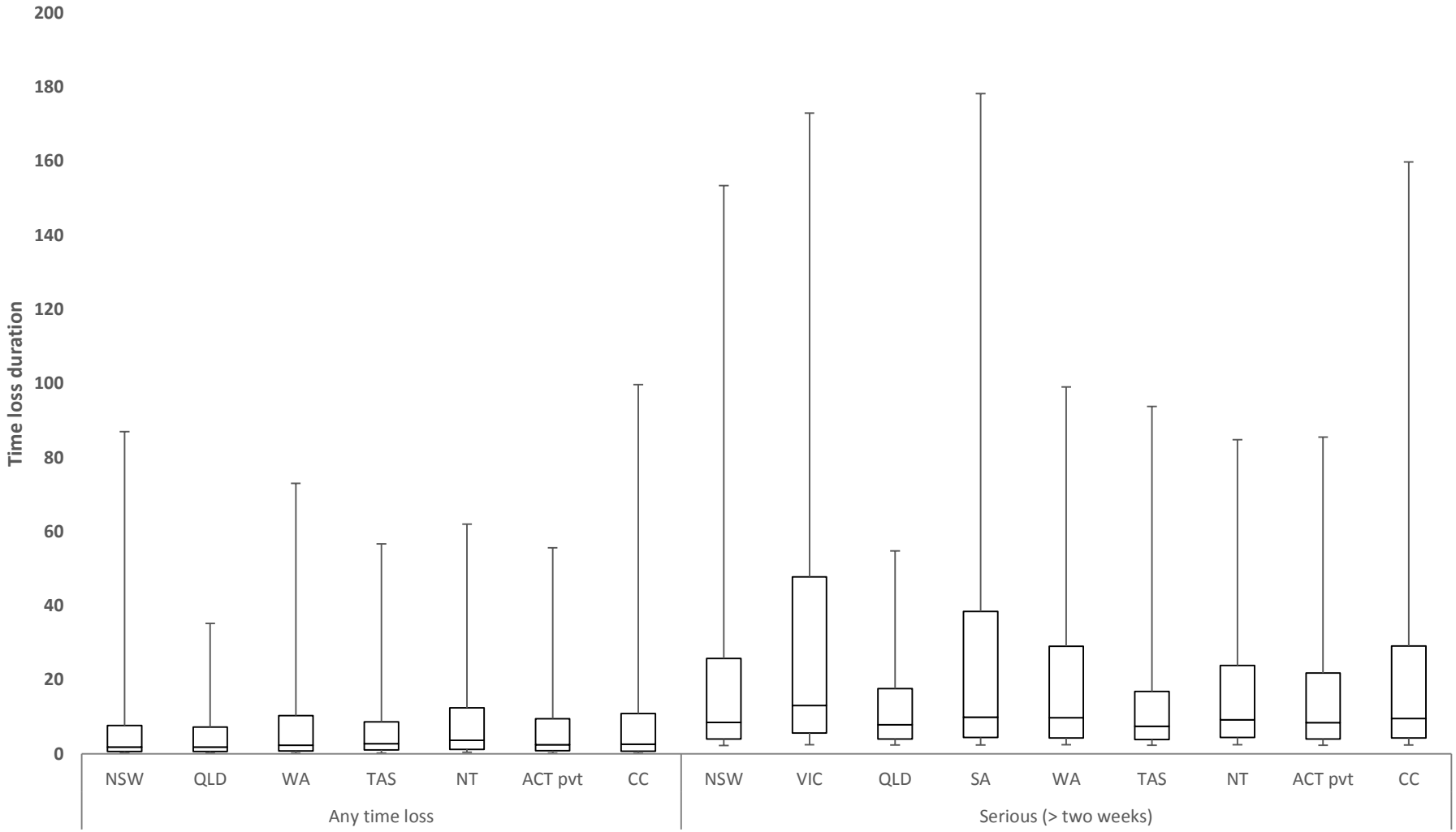
Table 7 – Median time loss in weeks for 'serious' claims in weeks, by jurisdiction, 2004 to 2012

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2009-2012	% change 2004 to 2012	% change 2009 to 2012
Median time lost in weeks for 'serious' claims												
NSW	7.5 (3.8-22.6)	7.2 (3.6-20.7)	7.4 (3.6-21.5)	7.5 (3.7-22.7)	8.2 (3.9-25.2)	8.7 (4.0-27.8)	8.4 (3.9-26.1)	8.6 (4.0-26.0)	8.2 (4.0-23.3)	8.5 (4.0-25.8)	9.6%	-6.1%
VIC	10.7 (4.8-32.7)	10.2 (4.8-29.2)	12.4 (5.4-48.2)	11.8 (5.4-41.2)	13.6 (6.0-54.0)	12.6 (5.4-45.8)	13.0 (5.6-49.2)	13.0 (5.6-48.6)	13.8 (5.8-47.8)	13.0 (5.6-47.8)	29.1%	9.4%
QLD	7.2 (3.8-17.2)	7.2 (3.8-16.6)	7.4 (3.8-17.2)	7.4 (3.8-17.8)	7.6 (4.0-17.2)	7.7 (4.0-17.0)	7.6 (4.0-16.7)	7.8 (4.0-18.0)	8.2 (4.1-19.4)	7.8 (4.0-17.6)	13.8%	7.0%
SA	-	11.0 (5.0-42.0)	10.8 (4.7-44.0)	11.6 (5.0-42.8)	11.4 (5.0-46.8)	9.9 (4.4-44.7)	9.8 (4.4-36.9)	10.3 (4.6-40.7)	9.7 (4.3-33.6)	9.9 (4.4-38.4)		-2.7%
WA	8.0 (4.0-26.0)	8.1 (3.9-25.6)	8.7 (4.0-26.1)	8.8 (4.0-26.0)	9.0 (4.0-27.3)	9.5 (4.2-29.6)	9.3 (4.1-27.8)	10.0 (4.3-28.6)	10.0 (4.4-30.2)	9.7 (4.3-29.0)	24.6%	5.2%
TAS	-	-	-	6.9 (3.6-14.9)	7.0 (3.7-15.8)	7.2 (3.9-15.8)	6.9 (3.8-15.7)	7.6 (3.8-18.4)	7.8 (4.0-17.7)	7.4 (3.9-16.8)		8.5%
NT	6.8 (4.0-15.3)	7.1 (4.0-16.0)	8.0 (4.0-18.8)	8.6 (4.2-22.0)	8.4 (4.0-22.4)	10.2 (4.6-29.0)	8.8 (4.2-23.6)	8.6 (4.0-21.2)	9.3 (4.4-23.0)	9.2 (4.4-23.8)	36.8%	18.2%
ACT private	-	-	-	-	-	7.9 (3.9-20.5)	8.0 (3.7-21.1)	8.8 (4.0-24.3)	8.6 (4.1-20.9)	8.4 (4.0-21.8)		9.7%
CC	-	8.2 (3.9-21.4)	8.4 (3.9-23.0)	8.1 (4.0-21.6)	8.2 (4.0-23.7)	8.6 (4.0-26.7)	9.0 (4.2-28.15)	9.9 (4.3-29.6)	10.5 (4.7-31.9)	9.5 (4.3-29.1)		21.6%
Total	-	-	-	-	-	9.0 (4.2-26.0)	9.0 (4.2-25.6)	9.3 (4.2-26.8)	9.4 (4.3-26.0)	9.2 (4.2-26.0)		4.4%

Source: Institute for Safety, Compensation and Recovery Research, ComPARE dataset

Figure 6 presents a box and whisker plot, which illustrates variability in time loss by indicating where the 5th, first quarter, median, third quarter, and 95th percentiles of duration fall within each jurisdiction, for claims with any time loss and 'serious' claims. Larger values indicate a greater 'spread' of claims durations, likely indicating a longer 'tail'. Queensland has shortest 'tail' and Victoria, South Australia, Comcare, and New South Wales are the jurisdictions with the longest tails.

Figure 6 – Box and whisker plot of median time loss (interquartile ranges and 5th and 95th percentile) in weeks, by jurisdiction, claims with any time loss and time loss over two weeks duration, 2009 to 2012



Source: Institute for Safety, Compensation and Recovery Research, ComPARE dataset

Nature of Work Injury and Workers' Compensation Claims

This section presents findings on the incidence and duration of claims by injury type. 'Other claims' and those that were unspecified or missing were excluded from analysis due to their small volumes and the lack of insight they would bring to the report (0.6% for 'other claims', 0.4% for unspecified/missing code).

Compensation claims

The most common injury claim type was musculoskeletal, with an incidence of 16.7 per 1,000 workers between 2009 and 2014, accounting for 59.5% of claims and nearly twice the incidence of the next most common injury type, 'other traumatic' (9.2 per 1,000 workers). On the lower end of incidence, claims for mental health conditions had an incidence of 1.0 per 1,000 workers. Note that these incidence rates reflect accepted workers' compensation claims attributed to the injury type, not their proportionate distribution among WRIs. For instance, Safe Work Australia (2013) reports that the acceptance rate for mental health claims is under 70%, while it is over 90% for all other WRIs, indicating that work-related mental health conditions are proportionally more common than claims data alone suggest.

Injury incidence declined among all injury types by at least 20% between 2009 and 2014. Among more common injury types, the steepest declines were among 'other diseases' (down 37.6%), 'other trauma' (down 34.4%), and 'neurological' (down 33.7%) (Table 8). The sharpest decline occurred between the 2012 and 2013 years. This coincides with changes to major changes in workers' compensation legislation in at least one major jurisdiction (NSW) which may be contributing to this decline. Note that data for the 2014 year may not be fully mature.

Table 8 – Volume and incidence of accepted claims by injury type, 2009 to 2014

	2009	2010	2011	2012	2013	2014	2009-2014	% change 2009 to 2014
Incidence of claims per 1,000 covered workers (number)								
Fractures	1.8 (18,131)	1.8 (17,471)	1.8 (17,924)	1.8 (18,721)	1.6 (16,684)	1.5 (15,861)	1.7 (104,792)	-20.2% (-12.5%)
Musculoskeletal	16.7 (165,218)	16.6 (164,806	16.3 (166,888)	16.3 (168,999)	13.9 (147,599)	12.6 (136,145)	16.7 (949,655)	-24.8% (-17.6%)
Neurological	1.1 (10,790)	1.1 (11,336)	1.1 (10,776)	1.1 (11,452)	0.8 (8,613)	0.7 (7,843)	1.1 (60,810)	-33.7% (-27.3%)
Mental health conditions	1.0 (9,490)	1.0 (10,366)	1.1 (11,183)	1.0 (10,689)	0.9 (9,330)	0.7 (8,045)	1.0 (59,103)	-22.7% (-15.2%)
Other traumatic	9.2 (90,999)	8.6 (85,611)	8.5 (87,110)	7.8 (81,012)	6.8 (71,854)	6.0 (65,452)	9.2 (482,038)	-34.4% (-28.1%)
Other diseases	0.9 (8,722)	0.8 (8,430)	0.8 (7,993)	0.8 (7,889)	0.6 (6,757)	0.6 (5,971)	0.9 (45,762)	-37.6% (-31.5%)

Source: Australian Bureau of Statistics, Estimate of workers covered or regulated by workers' compensation agencies; Institute for Safety, Compensation and Recovery Research, ComPARE dataset

'Serious' claims

Claims for musculoskeletal injuries were the most common 'serious' type at a rate of 5.7 per 1,000 workers, which was almost four times the incidence of the next most common injury type, 'other traumatic' (1.5). The incidence of 'serious' claims decreased for all injury types except mental health claims, which increased by 11.4% over the period. (Table 9).

Table 9 – Volume and incidence of accepted 'serious' injury claims by injury type, 2009 to 2012

	2009	2010	2011	2012	2009-2012	% change, 2009 to 2012
Incidence of 'serious' claims (volume)						
Fractures	1.1 (11,257)	1.1 (10,499)	1.1 (10,860)	1.1 (11,105)	1.1 (43,721)	-6.0% (-1.4%)
Musculoskeletal	5.8 (57,064)	5.7 (56,585)	5.6 (56,551)	5.7 (59,084)	5.7 (230,284)	-1.4% (3.5%)
Neurological	0.2 (1,996)	0.2 (1,828)	0.2 (1,956)	0.2 (1,905)	0.2 (7,685)	-9.1% (-4.6%)
Mental health conditions	0.6 (6,173)	0.7 (6,898)	0.7 (7,603)	0.7 (7,218)	0.7 (27,892)	11.4% (16.9%)
Other traumatic	1.5 (14,852)	1.4 (14,233)	1.5 (15,008)	1.4 (14,525)	1.5 (58,618)	-6.9% (-2.2%)
Other diseases	0.4 (4,083)	0.4 (3,960)	0.4 (3,785)	0.4 (3,695)	0.4 (15,523)	-13.8% (-9.5%)

Source: Australian Bureau of Statistics Estimate of workers covered or regulated by workers' compensation agencies*; Institute for Safety, Compensation and Recovery research,* ComPARE dataset

Duration of time off work

Between 2009 and 2012, there were significant differences between injury types in the duration of time loss, both for any time loss and 'serious' claims ($p < .001$) (Table 10). In addition to being statistically significant, the differences in magnitude are substantial. Mental health conditions had the longest median time loss. For claims with any time loss, mental health conditions were 71% longer than the next longest, fractures (6.2 weeks), and 83% longer than the next longest for 'serious' conditions, neurological (11.0 weeks).

Median durations of time loss increased for most injury types between 2009 and 2012. In both types of time loss claims, 'other claims' had the greatest increase, though as noted elsewhere, this category consists of a range of less common conditions. Mental health claims showed the second greatest increase in time loss duration, at 14.6% for claims with any time loss and 4.1% among 'serious' claims (Table 10).

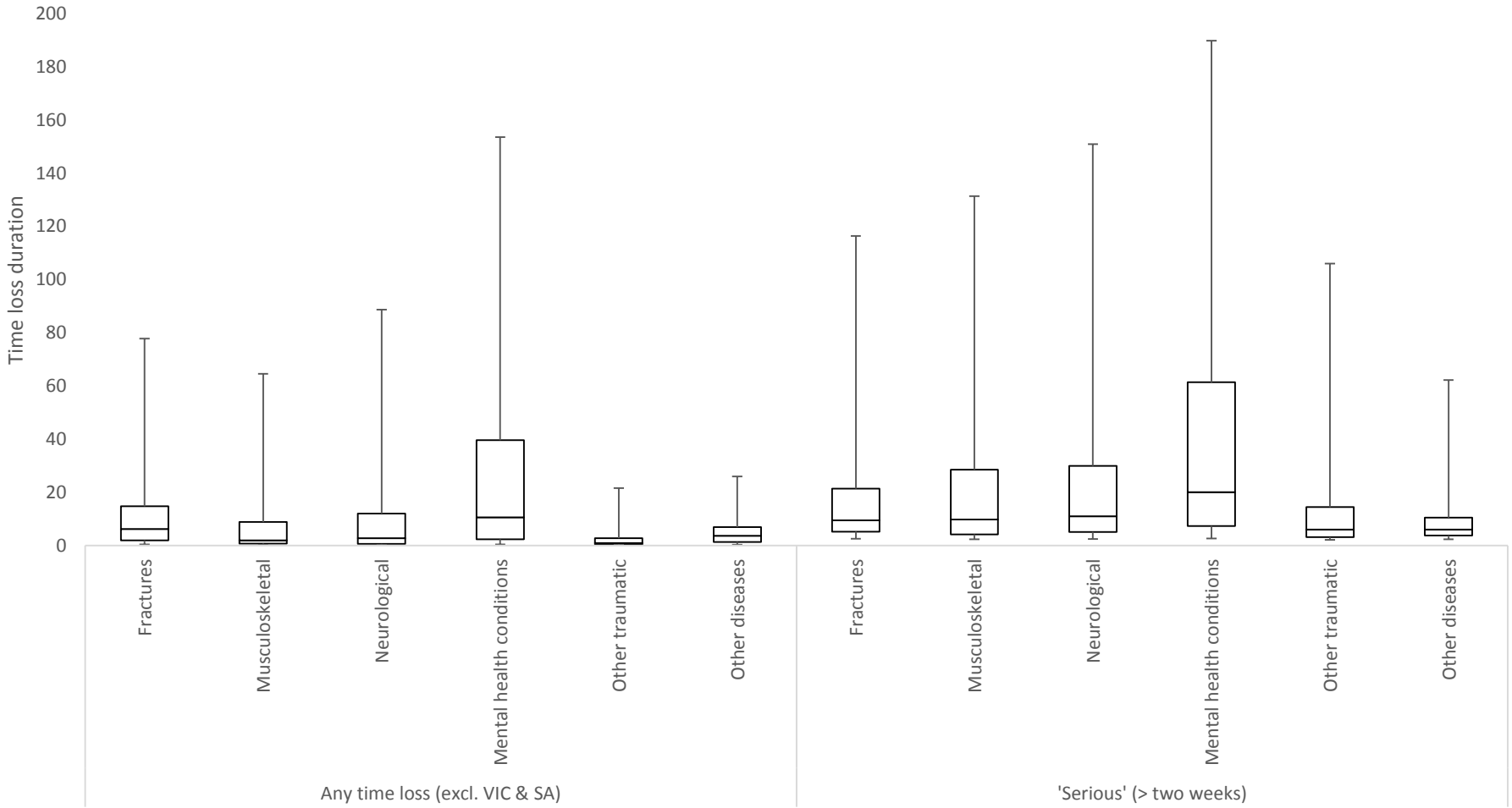
Table 10 – Median duration of compensated time loss claims in weeks, any time loss and 'serious' claims, by injury type, 2009 to 2012

	2009	2010	2011	2012	2009-2012	% change, 2009 to 2012
Any time loss (excl. VIC & SA), weeks (IQR)						
Fractures	6.4 (2.2-15.4)	6.0 (2.0-14.2)	6.2 (2.0-14.6)	6.2 (2.0-14.8)	6.2 (2.0-14.8)	-3.1%
Musculoskeletal	2.0 (0.8-8.7)	2.0 (0.8-8.5)	2.1 (0.8-9.1)	2.1 (0.8-9.1)	2.0 (0.8-8.9)	5.6%
Neurological	2.6 (0.6-11.8)	2.6 (0.6-11.0)	3.1 (0.6-13.0)	2.8 (0.6-11.8)	2.8 (0.6-12.0)	7.1%
Mental health conditions	9.6 (2.1-37.3)	10.8 (2.4-41.4)	11.2 (2.6-42.3)	11.0 (2.4-37.8)	10.6 (2.4-39.7)	14.6%
Other traumatic	1.0 (0.4-2.6)	1.0 (0.4-2.7)	1.0 (0.4-2.8)	1.0 (0.4-2.9)	1.0 (0.4-2.8)	0.0%
Other diseases	3.6 (1.3-7.0)	3.8 (1.4-6.9)	3.7 (1.4-7.0)	3.8 (1.4-7.1)	3.7 (1.4-7.0)	5.6%
'Serious' injury claims (more than two weeks duration), weeks						
Fractures	9.4 (5.1-21.6)	9.4 (5.2-21.2)	9.6 (5.2-21.7)	9.6 (5.2-21.4)	9.5 (5.2-21.4)	2.1%
Musculoskeletal	9.8 (4.2-28.8)	9.6 (4.2-27.8)	10.0 (4.3-29.2)	10.0 (4.4-28.4)	9.9 (4.3-28.6)	2.4%
Neurological	11.3 (5.2-30.8)	11.2 (5.1-29.2)	10.9 (5.2-30.6)	10.6 (4.9-29.0)	11.0 (5.1-30.0)	-6.2%
Mental health conditions	19.2 (7.2-61.9)	20.4 (7.6-64.6)	20.8 (7.4-65.2)	20.0 (7.6-55.0)	20.1 (7.4-61.4)	4.1%
Other traumatic	6.1 (3.2-14.8)	6.0 (3.2-14.0)	6.1 (3.2-14.5)	6.2 (3.3-14.7)	6.0 (3.2-14.5)	1.3%
Other diseases	6.0 (3.8-10.4)	6.0 (3.8-10.2)	6.0 (3.8-10.6)	6.0 (4.0-10.6)	6.0 (3.8-10.5)	0.0%

Source: Institute for Safety, Compensation and Recovery Research, ComPARE dataset

Mental health conditions had the largest degree of variability in time loss (5-95th percentile range, any time loss: 153.2 weeks; 'serious' claims: 187.1 weeks). 'Other traumatic' and 'other diseases' were similarly short (21.4 and 25.7) for claims with any time loss, and 'other diseases' was substantially shorter than all other injury types among 'serious' claims (59.8) (Figure 7).

Figure 7 – Box and whisker plot of median time loss (interquartile ranges and 5th and 95th percentile) in weeks, by injury type, claims with any time loss (excluding Victoria and South Australia) and time loss over two weeks duration, 2009 to 2012

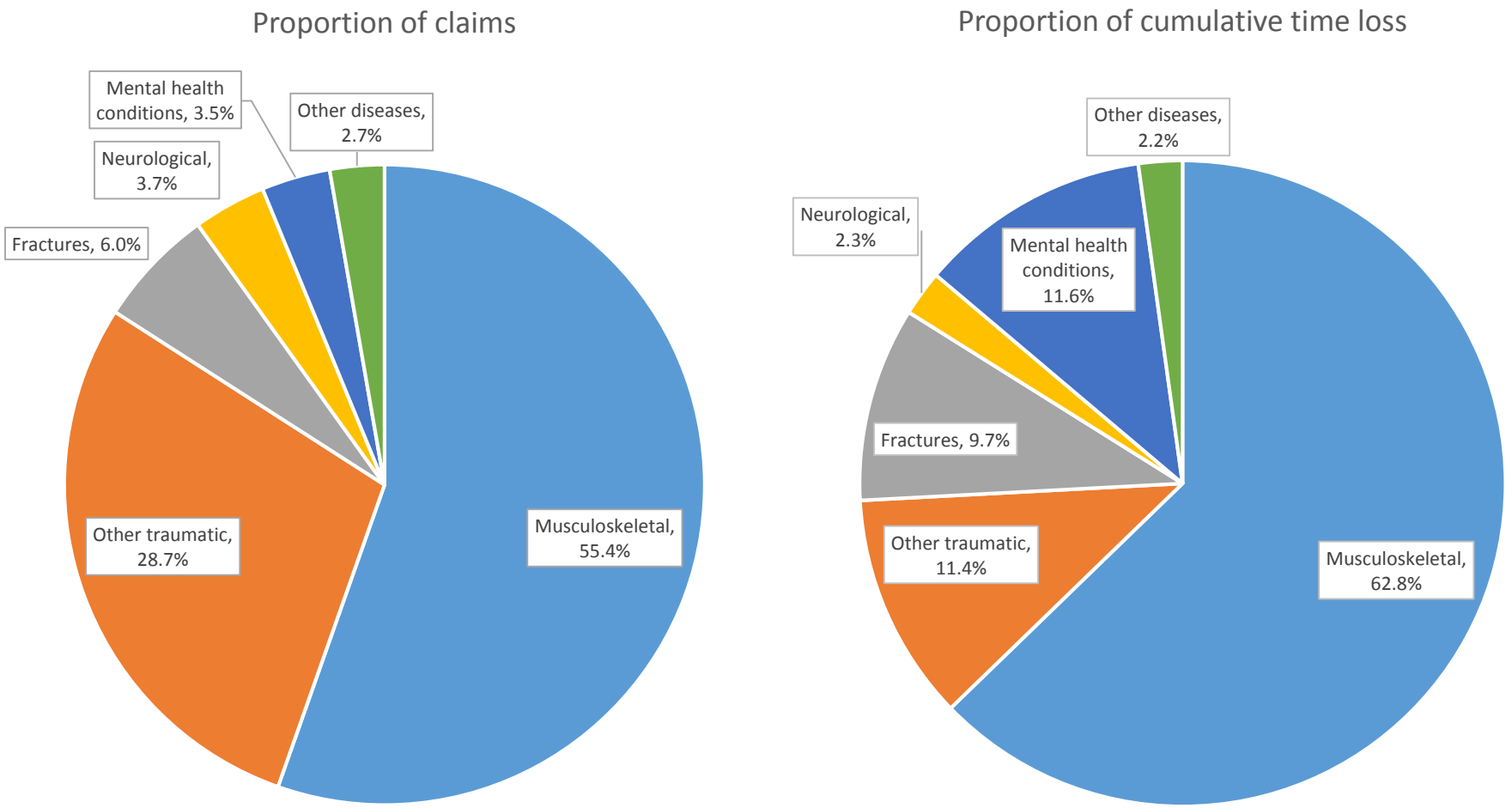


Source: Institute for Safety, Compensation, and Recovery Research, ComPARE dataset

Figure 8 illustrates differences in injury type by proportion of accepted workers' compensation claims compared to the proportion of cumulative time loss.[8] Among claims lodged between 2009 and 2012, a total of 10.6 million work weeks were compensated for time loss. Mental health conditions comprised 1.2 million of these weeks, or 11.6% of the total time loss, though only up 3.5% of claims. Fractures accounted for 61.7% more time loss than their proportion of claims, consisting of 6.0% of claims and 9.7% of time loss, or 1.0 million weeks. Musculoskeletal conditions were the most common injury type at 55.4% and a slightly greater share of cumulative time loss at 62.8%. Other traumatic conditions accounted for 28.4% of claims, but only 11.4% of total time loss.

[8] Cumulative time loss is the total amount of time that was compensated for claims lodged between 2009 and 2012, with compensation recorded up to 30 June 2014, which was the end of follow-up. Outliers corrected in accordance to maximum amount of time loss that could have been accrued for each time period, with follow-up ending 30 June 2014 and an absolute maximum of six years follow up (i.e., five years for claims lodged in 2009, four years for 2010, three years for 2011, two years for 2012).

Figure 8 – Proportion of claims and proportion of cumulative time loss by injury type, 2009 to 2012



Source: Institute for Safety, Compensation, and Recovery Research, ComPARE dataset

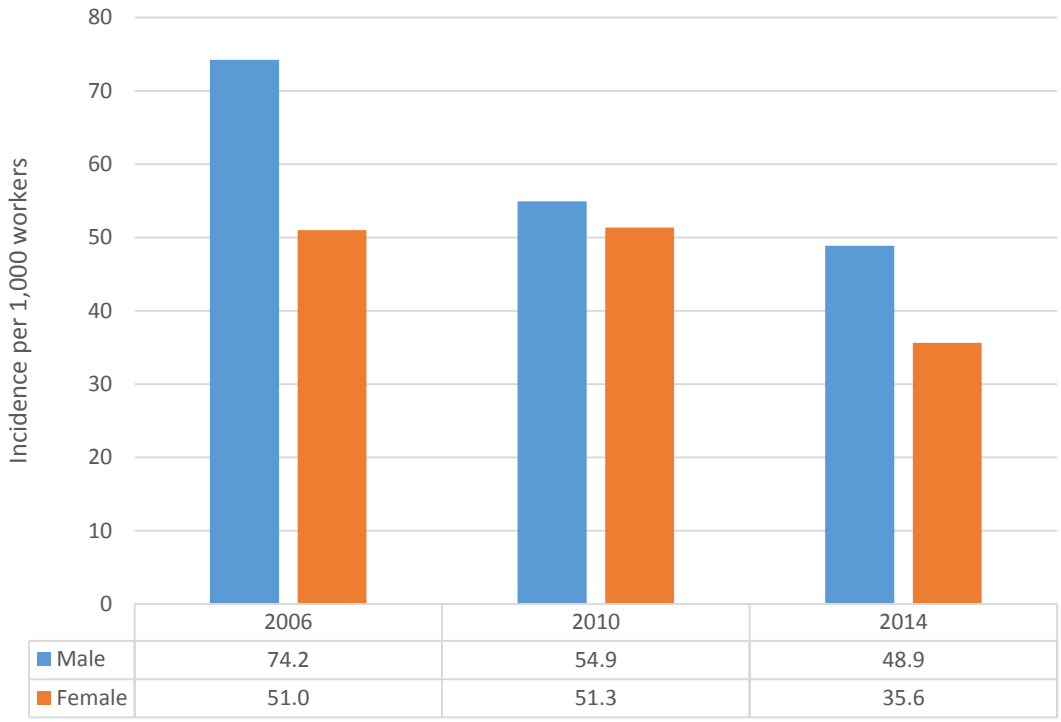
Gender, Work Injury and Workers' Compensation Claims

There is a body of evidence suggesting that women and men differ in exposure to workplace health and safety risks, patterns of work-related injury, and durations of absence after work injury (Campos-Serna, Ronda-Pérez, Artazcoz, Moen, & Benavides, 2013). Studies published by ISCRR using the Victorian Compensation Research Database have shown that women are less likely to be compensated for a WRI but more likely to be compensated for a work-related mental health condition, less likely to have a traumatic physical injury, and have longer durations of time off work (Prang et al., 2016; Smith, Black, Keegel, & Collie, 2014). The following analyses examine these issues across Australian jurisdictions and several years of data.

Work-related injuries

In 2014, male workers had substantially higher incidence of WRI incidence at 48.9 per 1,000 workers compared to 35.6 among women. Since 2006, self-reported WRI incidence amongst men has fallen in every survey period, from 74.2 to 48.9. In contrast, the major change among female workers was between 2010 and 2014 (Figure 9).

Figure 9 – Incidence of self-reported Work-Related Injury by gender, 2006, 2010, and 2014



	2006	2010	2014
Male	74.2	54.9	48.9
Female	51.0	51.3	35.6

Source: Australian Bureau of Statistics, 6324.0 - Work-Related Injuries, Australia

The estimated volume of WRIs also fell consistently amongst men across the survey periods, while for women it grew it grew 13% between 2006 and 2010. One contributing factor is likely to be the 11% increase in females in the workforce between 2006 and 2010 (4.9 to 5.5 million) (Table 11).

Table 11 – Estimated work-related injuries and workers (000s) by gender, 2006, 2010, and 2014

	Male		Female		All	
	WRIs	Workers	WRIs	Workers	WRIs	Workers
2006	437.6	5,894.3	251.9	4,944.3	689.5	10,838.6
2010	356.5	6,493.2	284.3	5,539.8	640.7	12,033.0
2014	323.7	6,625.5	208.1	5,845.6	531.8	12,471.0

Source: Australian Bureau of Statistics, 6324.0 - Work-Related Injuries, Australia

Compensation claims

Similar to WRIs, the incidence of workers' compensation claims was higher among male workers; between 2009 and 2014, their incidence was 34.5 claims per 1,000, compared to 20.4 per 1,000 female workers. Both exhibited a reduction in the incidence of claims, though the reduction was slightly larger amongst male workers (-29.6% to -25.3%) (Table 12).

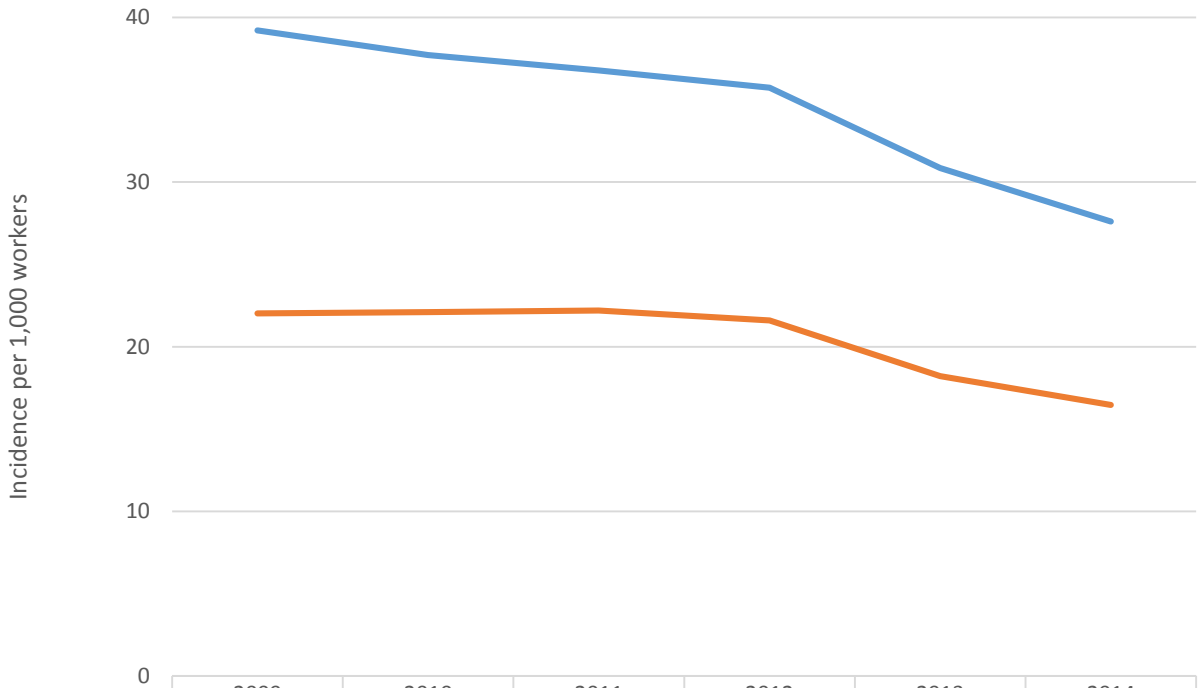
Table 12 – Volume and incidence of accepted claims by gender, 2009 to 2014

	2009	2010	2011	2012	2013	2014	2009-2014	% change 2009 to 2014
Incidence of accepted claims per 1,000 workers (volume)								
Male	39.2 (202,189)	37.7 (195,837)	36.8 (196,971)	35.7 (194,131)	30.9 (171,092)	27.6 (156,848)	34.5 (1,117,068)	-29.6% (-22.4%)
Female	22.0 (104,183)	22.1 (105,074)	22.2 (107,873)	21.6 (106,873)	18.2 (91,938)	16.5 (84,819)	20.4 (600,760)	-25.3% (-18.6%)

Source: Australian Bureau of Statistics, Estimate of workers covered or regulated by workers' compensation agencies*; Institute for Safety, Compensation and Recovery Research, ComPARE dataset*

The largest decline in incidence occurred between 2012 and 2014, where a reduction of 22.8% was observed among men and 23.8% among women (Figure 10). One of the factors contributing to this is the changes to workers' compensation legislation in New South Wales, which resulted in a 25% reduction in the number of accepted claims in that state, as described above. New South Wales accounts for 39.5% of claims lodged between 2009 and 2014 (678,798 of 1,717,949 claims, Table 13).

Figure 10 – Incidence of accepted work-related injury claims per 1,000 covered workers, by gender

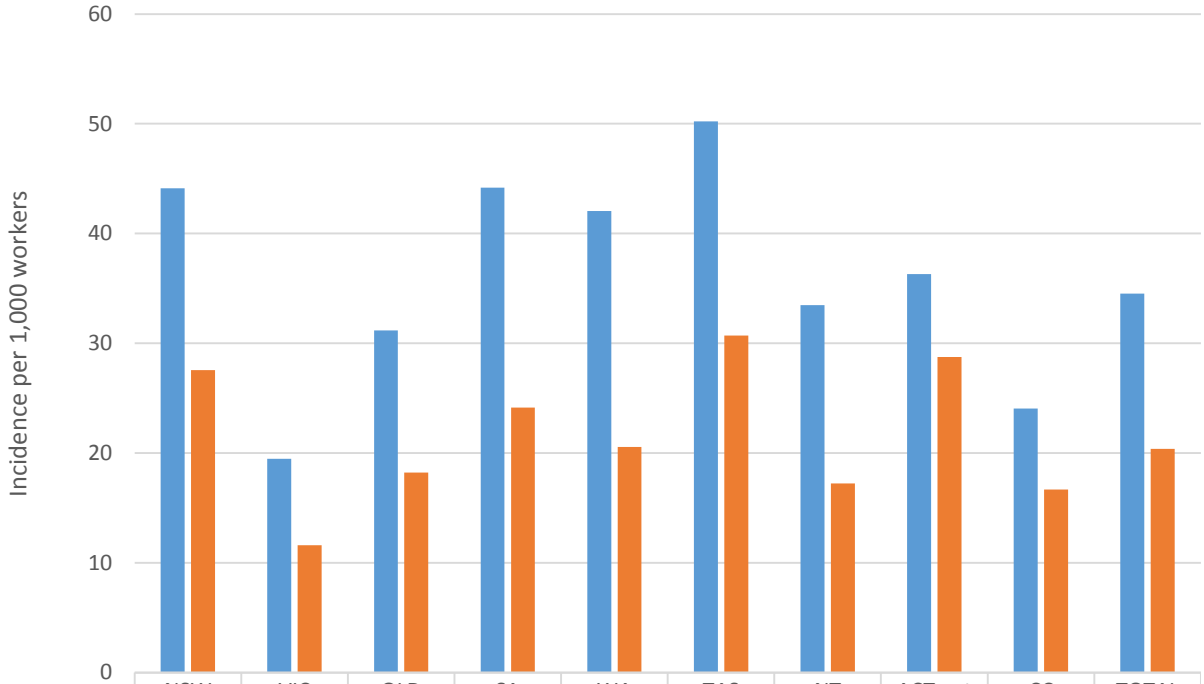


	2009	2010	2011	2012	2013	2014
Male	39.2	37.7	36.8	35.7	30.9	27.6
Female	22.0	22.1	22.2	21.6	18.2	16.5

Source: Australian Bureau of Statistics Estimate of workers covered or regulated by workers' compensation agencies; Institute for Safety, Compensation, and Recovery Research, ComPARE dataset

Claims incidence was higher for male workers in every jurisdiction. The difference was most pronounced in South Australia, Western Australia, and the Northern Territory, where claims incidence was twice as high amongst male workers, and smallest in ACT private and Comcare (Figure 11).

Figure 11 – Incidence of accepted work-related injury claims per 1,000 covered workers, by gender and workers' compensation jurisdiction, 2009 to 2014



	NSW	VIC	QLD	SA	WA	TAS	NT	ACT pvt	CC	TOTAL
Male	44.1	19.5	31.2	44.2	42.0	50.2	33.5	36.3	24.1	34.5
Female	27.5	11.6	18.2	24.1	20.5	30.7	17.2	28.7	16.7	20.4

Source: Australian Bureau of Statistics Estimate of workers covered or regulated by workers' compensation agencies*; Institute for Safety, Compensation and Recovery Research,* ComPARE dataset

'Serious' claims

The incidence of 'serious' claims was also higher for male workers; between 2009 and 2012, there were 11.5 per 1,000 male workers and 7.5 per 1,000 female workers. Incidence declined 5.9% for men between 2009 and 2012, while at the same time rising slightly for women (2.3%) (Table 13).

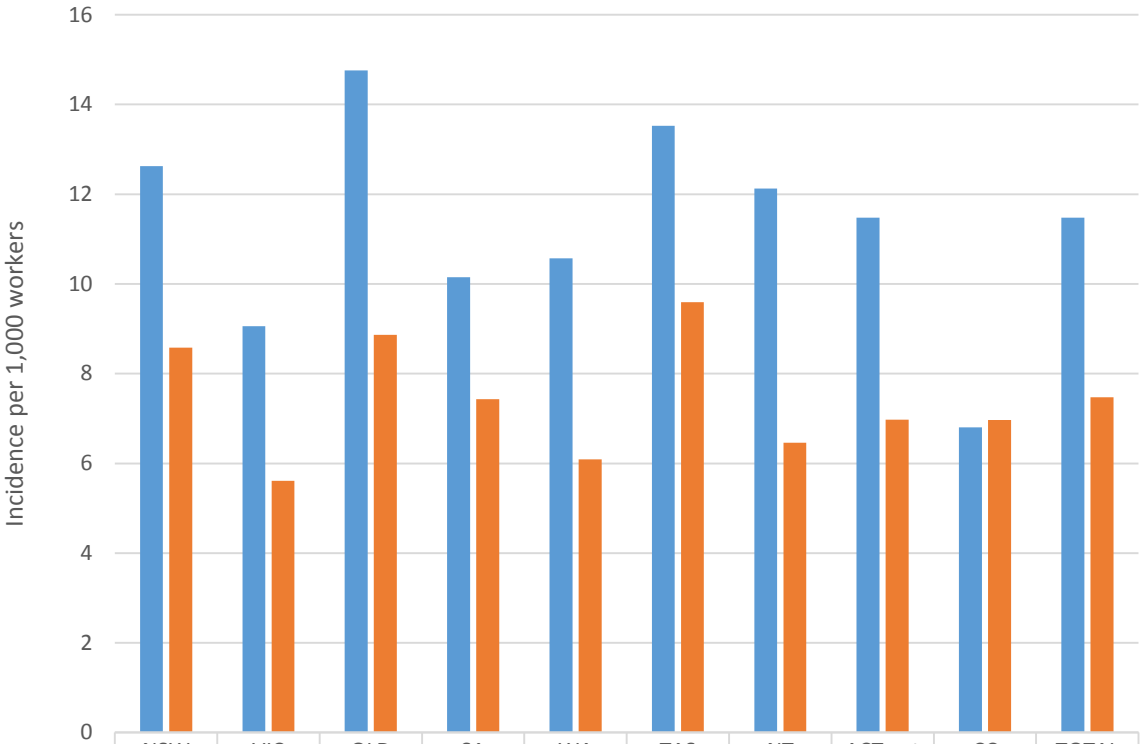
Table 13 – Incidence and volume of 'serious' claims by gender, 2009 to 2012

	2009	2010	2011	2012	2009-2012	% change, 2009 to 2012
Incidence of 'serious' claims (volume)						
Male	11.9 (61,408)	11.4 (59,331)	11.4 (60,900)	11.2 (60,902)	11.5 (242,541)	-5.9% (-0.8%)
Female	7.4 (34,772)	7.5 (35,482)	7.5 (36,651)	7.5 (37,207)	7.5 (144,112)	2.3% (7.0%)

Source: Australian Bureau of Statistics Estimate of workers covered or regulated by workers' compensation agencies*; Institute for Safety, Compensation and Recovery research,* ComPARE dataset

The incidence of 'serious' claims is higher for male workers in nearly every jurisdiction except Comcare, where rates are nearly equal between genders (Figure 12).

Figure 12 – Incidence of 'serious' claims per 1,000 covered workers by gender and jurisdiction, 2009 to 2012



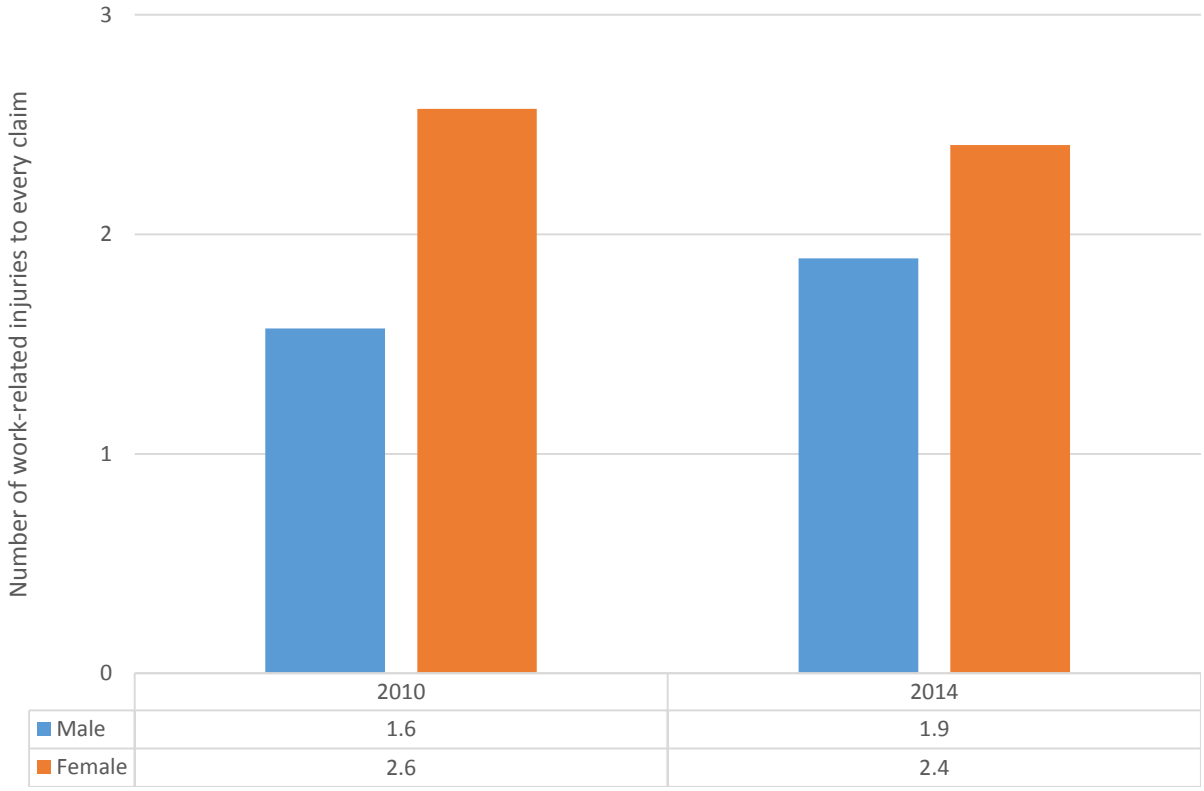
	NSW	VIC	QLD	SA	WA	TAS	NT	ACT pvt	CC	TOTAL
Male	12.6	9.1	14.8	10.1	10.6	13.5	12.1	11.5	6.8	11.5
Female	8.6	5.6	8.9	7.4	6.1	9.6	6.5	7.0	7.0	7.5

Source: Australian Bureau of Statistics Estimate of workers covered or regulated by workers' compensation agencies; *Institute for Safety, Compensation, and Recovery Research,* ComPARE dataset

Ratio of injury to claims

WRIs amongst female workers are less likely to become a workers' compensation claim. In 2014, for every claim among female workers, there were 2.4 self-reported WRIs compared to 1.9 for male workers. This is a slight narrowing of the difference from 2010, where the ratios were 2.6 to 1.6 (Figure 13). Possible reasons are presented in the discussion.

Figure 13 – Injury-to-claims ratio by gender, 2006, 2010, 2014



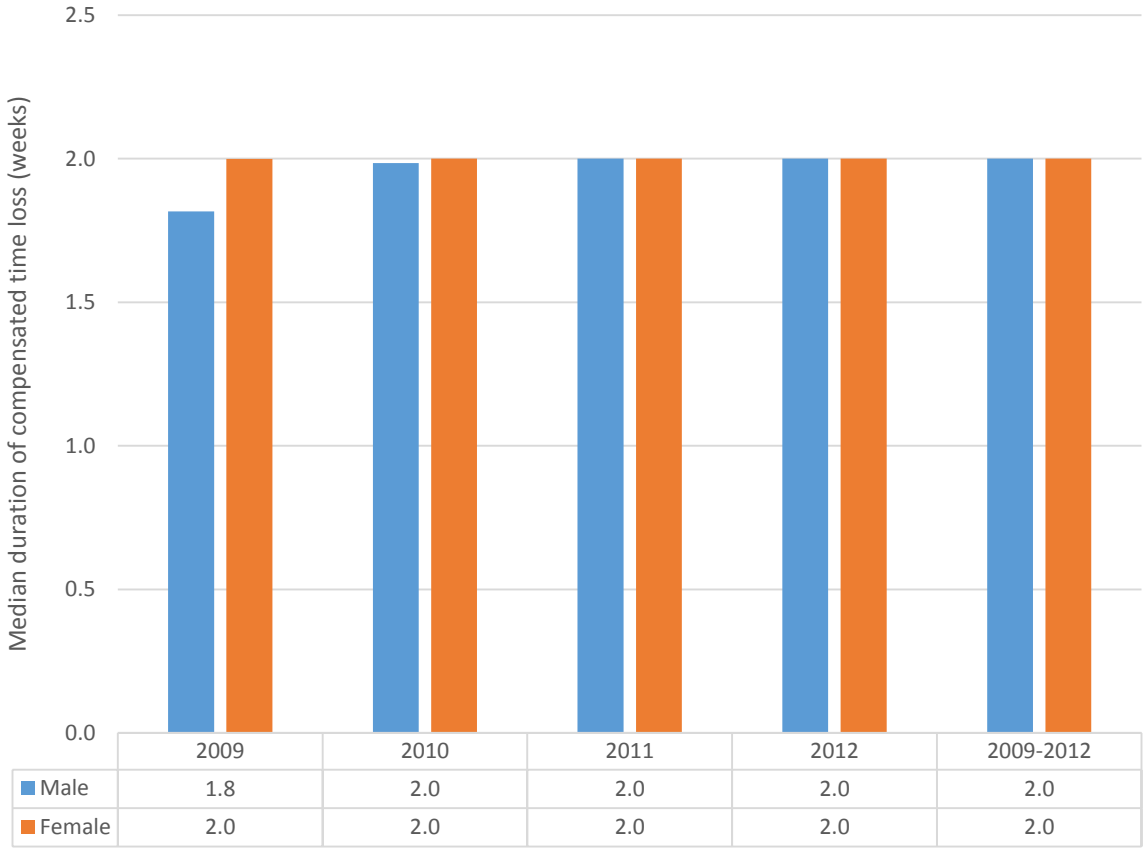
	2010	2014
Male	1.6	1.9
Female	2.6	2.4

Source: Australian Bureau of Statistics, 6202.0 – Labour Force, Australia; *Australian Bureau of Statistics,* Estimate of workers covered or regulated by workers' compensation agencies*; Institute for Safety, Compensation, and Recovery Research,* ComPARE dataset

Duration of time off work

Between 2009 and 2012, the median duration of time loss was two weeks for both male and female claimants and was not statistically significantly different (2.0 weeks, p = .471) (Figure 14).

Figure 14 – Median duration of time loss for claims with any time loss (excluding Victoria and South Australia) in weeks, by gender, 2009 to 2012

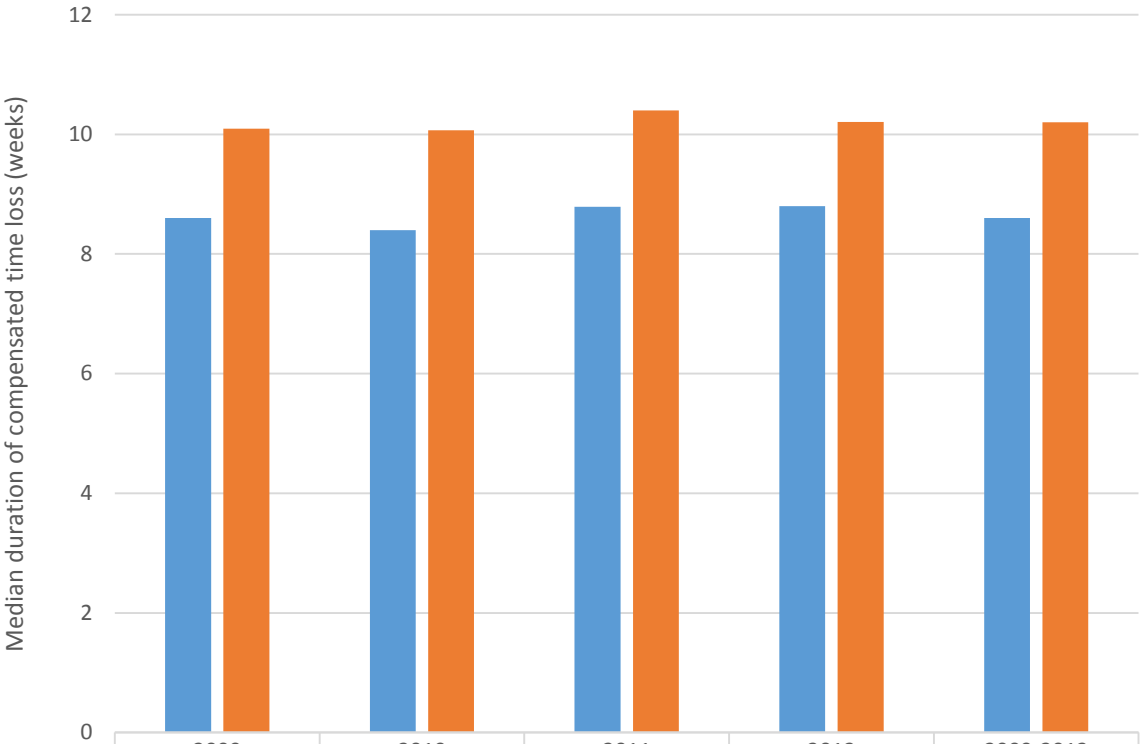


	2009	2010	2011	2012	2009-2012
Male	1.8	2.0	2.0	2.0	2.0
Female	2.0	2.0	2.0	2.0	2.0

Source: Institute for Safety, Compensation, and Recovery Research, ComPARE dataset

In contrast, median duration of 'serious' claims were longer among female claimants in the same period (10.2 to 8.6 weeks, $p < .001$) (Figure 15). At all points, the difference was about one and a half weeks in time loss duration.

Figure 15 – Median duration of time loss for 'serious' claims in weeks, by gender, 2009 to 2012



	2009	2010	2011	2012	2009-2012
Male	8.6	8.4	8.8	8.8	8.6
Female	10.1	10.1	10.4	10.2	10.2

Source: Institute for Safety, Compensation, and Recovery Research, ComPARE dataset

Age, Work Injury and Workers' Compensation Claims

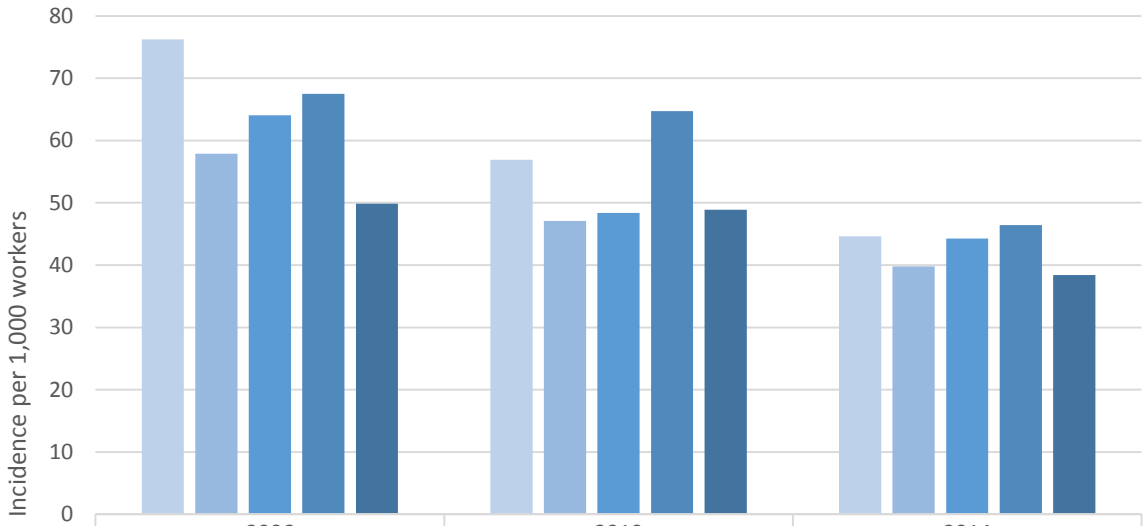
This section examines the impact of age on incidence of injury, claims, and duration of time loss. There is substantial evidence within Australia and internationally that age affects the frequency, severity and type of injury sustained at work, as well as the duration of time off work post-injury. For example, studies using the Victorian Compensation Research Database have demonstrated that older workers have longer periods of time off work and are more likely to experience 'relapses' or failed RTW attempts (Berecki-Gisolf et al., 2012b). The age of the worker is also commonly identified as a predictor of claim duration in predictive models (Collie et al., 2016; Huijs et al., 2012; Nieuwenhuijsen et al., 2006; Prang et al., 2016).

There are several important limitations to analysis of workers' compensation by age. Most notably, younger workers are more likely to work part time and concurrent jobs, which results in the data on covered workers exaggerating the number of younger workers and their exposure to work hazards. Though this could be overcome with use of Full Time Equivalent or million hours worked, WRI data are only provided in terms of number of workers. For this reason – and to maintain consistency with the rest of the report – WRI, claims, and duration data by age are presented using number of workers as the base unit.

Work-related injury

In the 2006, 2010, and 2014 survey periods, workers in the 15-24 and 45-54 age groups had the highest self-reported incidence of WRI, while those in the 25-34 and 55+ groups had the lowest. Across the survey periods, all age groups recorded a decline in the incidence of WRI (Figure 16).

Figure 16 – Incidence of work-related injury by age group, 2006, 2010, and 2014



	2006	2010	2014
15-24	76.2	56.9	44.6
25-34	57.9	47.1	39.8
35-44	64.0	48.4	44.3
45-54	67.5	64.7	46.4
55+	49.9	48.9	38.4

Source: Australian Bureau of Statistics, 6324.0 - Work-Related Injuries, Australia

Workers in the 25-34 age group reported the largest volume of WRIs across all three ABS surveys, followed closely by the 35-44 and 45-54 year age groups. After peaking in 2010, the volume of WRIs among older workers decreased to 87.8 thousand in 2014, though this number is still higher than 79.4 estimated for 2006. This is likely the result of an aging workforce, which has increased the overall numbers of older workers. This may include older workers who otherwise would have left the workforce for health reasons (see 'Discussion and conclusions' for a description of the 'healthy worker' and 'survival' biases). In contrast, the volume of workers in the 15-24 age groups has remained relatively consistent, while WRIs have dropped by 40% between 2006 and 2014 (Table 14).

Table 14 – Estimated volume of work-related injuries (000s) by age group, 2006, 2010, and 2014

	15-24 years		25-34 years		35-44 years		45-54 years		55+ years	
	WRIs	Workers	WRIs	Workers	WRIs	Workers	WRIs	Workers	WRIs	Workers
2006	154.0	2,020.6	137.3	2,372.4	159.9	2,497.3	159.0	2,355.5	79.4	1,592.7
2010	124.4	2,185.9	123.9	2,630.0	126.7	2,618.9	167.5	2,588.0	98.3	2,010.2
2014	91.3	2,046.5	114.9	2,888.3	118.3	2,671.5	119.7	2,579.8	87.8	2,284.8

Source: Australian Bureau of Statistics, 6324.0 - Work-Related Injuries, Australia

Compensation claims

The volume and incidence of workers' compensation claims declined in all age groups between 2009 and 2014. Most of the reduction occurred between 2012 and 2014, coinciding with the changes to New South Wales' workers' compensation legislation (Table 15 and Figure 17).

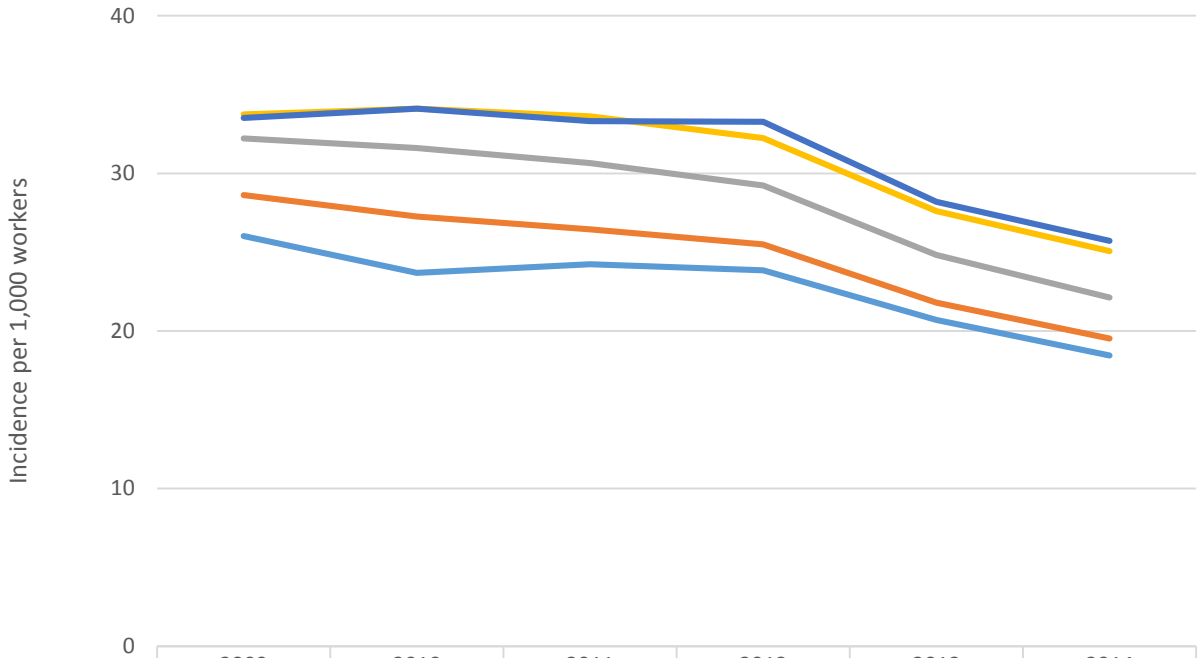
Claims incidence increased in step with age before levelling off between the 45-54 and 55+ age groups. Figure 17 illustrates the similarity between these groups in terms of incidence. Of note is the reversing of the association between age and incidence compared to WRIs: younger workers had amongst the highest WRI rate but the lowest claims rate, while older workers had the lowest WRI rate but highest claims rate. This suggests differences between age groups either in the nature of their injuries (e.g., type, severity, location), biological or psychological responses to injury, and/or claiming behaviour. As the ComPARE dataset offers little in the way to investigate these possible causes, we highlight this as an area for future research.

Table 15 – Volume and incidence of accepted claims per injury type by age type, 2009 to 2014

	2009	2010	2011	2012	2013	2014	2009-2014	% change 2009 to 2014
Incidence of claims per 1,000 covered workers (volume)								
15-24	26.0 (50,347)	23.7 (45,357)	24.2 (46,320)	23.9 (45,182)	20.7 (38,743)	18.5 (34,283)	22.9 (260,232)	-29.1% (-31.9%)
25-34	28.6 (64,151)	27.3 (61,505)	26.4 (62,359)	25.5 (62,126)	21.8 (54,578)	19.5 (50,525)	24.7 (355,244)	-31.8% (-21.2%)
35-44	32.2 (71,386)	31.6 (69,897)	30.6 (69,367)	29.2 (66,967)	24.8 (58,134)	22.1 (52,475)	28.3 (388,226)	-31.3% (-26.5%)
45-54	33.7 (74,770)	34.1 (75,414)	33.6 (76,069)	32.2 (73,823)	27.6 (64,680)	25.1 (59,444)	31.0 (424,200)	-25.7% (-20.5%)
55+	33.5 (45,547)	34.1 (48,579)	33.3 (50,536)	33.3 (52,741)	28.2 (46,744)	25.7 (44,816)	31.1 (288,963)	-23.3% (-1.6%)

Source: Australian Bureau of Statistics, Estimate of workers covered or regulated by workers' compensation agencies*; Institute for Safety, Compensation and Recovery Research,* ComPARE dataset

Figure 17 – Incidence of claims per 1,000 workers by age group, 2009 to 2014



	2009	2010	2011	2012	2013	2014
15-24	26.0	23.7	24.2	23.9	20.7	18.5
25-34	28.6	27.3	26.4	25.5	21.8	19.5
35-44	32.2	31.6	30.6	29.2	24.8	22.1
45-54	33.7	34.1	33.6	32.2	27.6	25.1
55+	33.5	34.1	33.3	33.3	28.2	25.7

Source: Australian Bureau of Statistics, Estimate of workers covered or regulated by workers' compensation agencies*; Institute for Safety, Compensation and Recovery Research,* ComPARE dataset

‘Serious’ claims

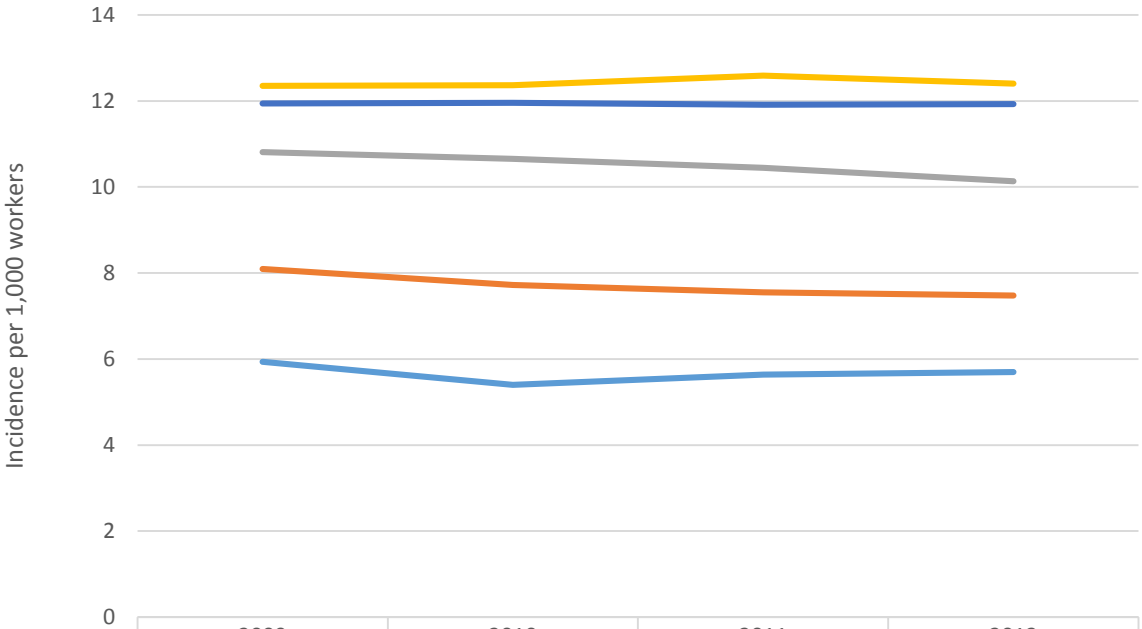
The incidence of ‘serious’ claims was similarly associated with age, generally increasing with each older group until levelling off between the 45-54 and 55+ age groups. Between 2009 and 2012, the 15-24 age group had the lowest incidence (5.7 ‘serious’ claims per 1,000 workers) and the older groups the highest. Interestingly, the 45-54 age group had a median half a week longer (12.4) than the 55+ age group (11.9) (Table 16 and Figure 18). In contrast to all claims, there was very little change in the overall rate of ‘serious’ injury claims across the study period in the various age groups.

Table 16 – Volume and incidence of accepted ‘serious’ injury claims by age group, 2009 to 2012

	2009	2010	2011	2012	2009-2012	% change 2009 to 2012
Incidence of ‘serious’ claims per 1,000 covered workers (volume)						
15-24	5.9 (11,484)	5.4 (10,340)	5.6 (10,779)	5.7 (10,791)	5.7 (43,394)	-4.5% (-6.0%)
25-34	8.1 (18,141)	7.7 (17,417)	7.6 (17,809)	7.5 (18,216)	7.7 (71,583)	-4.8% (0.4%)
35-44	10.8 (23,959)	10.7 (23,557)	10.4 (23,639)	10.1 (23,219)	10.5 (94,374)	-2.8% (-3.1%)
45-54	12.3 (26,332)	12.4 (26,438)	12.6 (27,219)	12.4 (26,932)	12.4 (106,921)	0.6% (2.3%)
55+	11.9 (16,227)	12.0 (17,030)	11.9 (18,070)	11.9 (18,913)	11.9 (70,240)	0.0% (16.6%)

Source: Australian Bureau of Statistics, Estimate of workers covered or regulated by workers’ compensation agencies*; Institute for Safety, Compensation and Recovery research,* ComPARE dataset

Figure 18 – Incidence of 'serious' claims by age group, 2009 to 2012



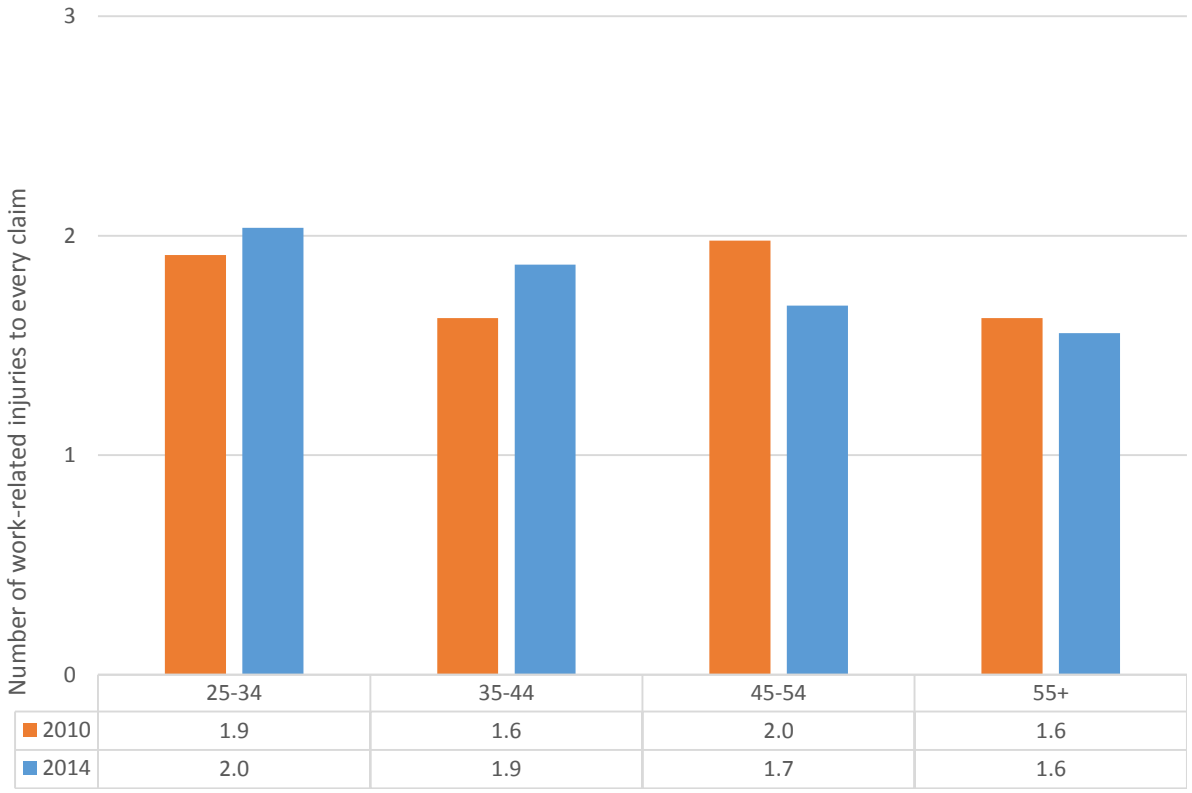
	2009	2010	2011	2012
15-24	5.9	5.4	5.6	5.7
25-34	8.1	7.7	7.6	7.5
35-44	10.8	10.7	10.4	10.1
45-54	12.3	12.4	12.6	12.4
55+	11.9	12.0	11.9	11.9

Source: Australian Bureau of Statistics, Estimate of workers covered or regulated by workers' compensation agencies*; Institute for Safety, Compensation and Recovery Research,* ComPARE dataset

Ratio of injury to claims

Unlike the findings for injury type and gender, there appeared to be little association between worker age and the ratio of injury-to-claims (Figure 19). Generally, the 55+ age group had the lowest ratio at 1.6 WRIs per claim, indicating that their injuries were more likely to become a compensated claim than younger groups. It was not possible to report data from the 15-24 age group due to discrepancies in denominators provided by the ABS (total workers) and Safe Work Australia (covered workers).

Figure 19 – Injury-to-claims ratio by age group, 2006, 2010, and 2014



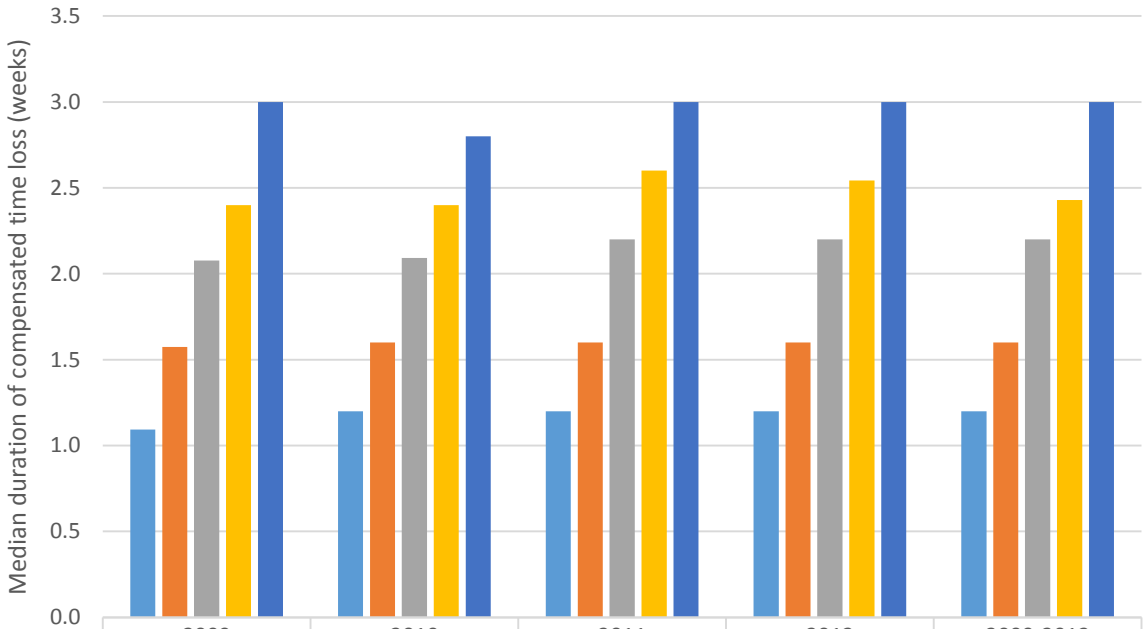
	25-34	35-44	45-54	55+
2010	1.9	1.6	2.0	1.6
2014	2.0	1.9	1.7	1.6

Source: Australian Bureau of Statistics, 6202.0 – Labour Force, Australia; *Australian Bureau of Statistics* Estimate of workers covered or regulated by workers' compensation agencies; *Institute for Safety, Compensation and Recovery Research,* ComPARE dataset

Duration of time off work

Consistent with prior research, time loss duration was significantly correlated with age for both any time loss and 'serious' claims ($p < .001$) as is illustrated in Figure 22 and Figure 23. The youngest age group recorded median time loss of 1.2 weeks, which rose to 3.0 weeks in the oldest age group (Figure 20). For 'serious' claims, there was more than a week and a half's difference between the 15-24 (6.4), 25-34 (8.0), and 35-44 age groups (9.8), though the difference was much smaller – even insubstantial – amongst older groups; between 2009 and 2012, the difference was 0.6 weeks between the 35-44 and 45-54 age groups and 0.2 weeks between 45-54 and 55+ age groups (Figure 21).

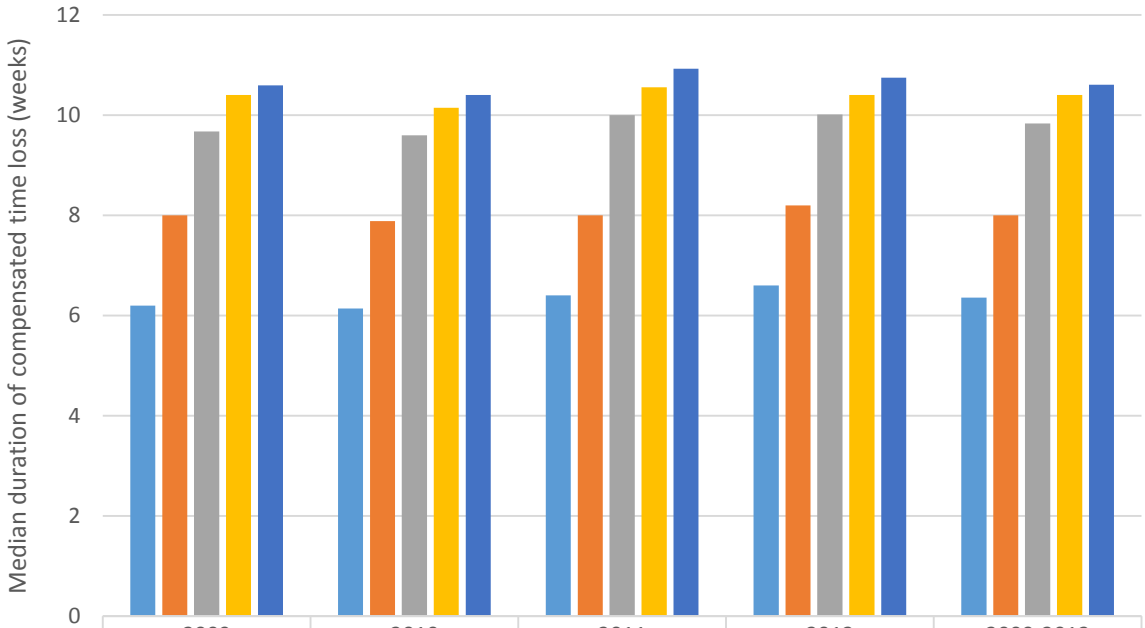
Figure 20 – Median duration of time loss in weeks for claims with any time loss (excluding Victoria and South Australia) in weeks, by age group, 2009 to 2012



	2009	2010	2011	2012	2009-2012
15-24	1.1	1.2	1.2	1.2	1.2
25-34	1.6	1.6	1.6	1.6	1.6
35-44	2.1	2.1	2.2	2.2	2.2
45-54	2.4	2.4	2.6	2.5	2.4
55+	3.0	2.8	3.0	3.0	3.0

Source: Institute for Safety, Compensation and Recovery Research, ComPARE dataset

Figure 21 – Median duration of time loss for 'serious' claims in weeks, by age group, 2009 to 2012



	2009	2010	2011	2012	2009-2012
15-24	6.2	6.1	6.4	6.6	6.4
25-34	8.0	7.9	8.0	8.2	8.0
35-44	9.7	9.6	10.0	10.0	9.8
45-54	10.4	10.1	10.6	10.4	10.4
55+	10.6	10.4	10.9	10.8	10.6

Source: Institute for Safety, Compensation and Recovery Research, ComPARE dataset

Discussion and Conclusions

This report finds substantial and significant differences in the incidence of work related injury, workers compensation claims, and duration of time loss following injury amongst Australian workers. These differences were observed between jurisdictions, injury types, gender and age groups.

The incidence of WRIs and workers' compensation claims in Australia declined substantially over the study period: WRIs by 19.9% and claims by 28.1% between 2009 and 2014. Between 2009 and 2012, incidence of 'serious' injury claims (those lasting more than two weeks in duration) fell only 2.1%, contrasted with the 6.4% for all claims in the same time period, which was also reflected in an increase in median time loss. The trend suggests either that all claims are increasing in duration, or that the subset of claimants that return to work more quickly has been reduced. One possible explanation is that Australian workplaces are becoming safer, though safety efforts have been most effective in reducing less severe, complex, or time-intensive injuries.

Another posits that changes to the nation's workers' compensation systems have restricted access to compensation among less severely injured workers; at the same time, greater restrictions may increase adversarial interactions with the system and challenges to legitimacy of claims, which has been associated with longer periods of time off work (Kilgour, Kosny, McKenzie, & Collie, 2015). This is an area for future research, as it will be extremely important to explore when examining the impact of policy and practice on time loss durations.

There are substantial variations between incidence of WRIs and claims between jurisdictions, as demonstrated in the injury-to-claims ratio. Multiple factors are likely to contribute to this finding. For example, the lowest incidence of claims was observed in Victoria, arguably the jurisdiction with arguably the highest 'barriers' to entry: an employer excess of ten days of compensated time off work and $677[9] in treatment and medical expenses incurred for most employers. Note that this does not mean injured workers are not being compensated, only that the employer is covering the first part of expenses, and such compensation does not appear in the NDS/ComPARE dataset. However, South Australia has a similar employer excess of ten days (though no excess for medical expenses) and one of the lowest injury-to-claims ratios. The highest claims incidence was observed in Tasmania, which also recorded the highest incidence of WRIs; however, it also had the highest proportion of workers living in the most disadvantaged socio-economic quintile of in Australian postcodes (Collie et al., 2016). These observations suggest strongly that claiming access to compensation is not merely a result of biomedical injury phenomena such as injury severity or injury type. Rather there are a range of policy, demographic, societal, and psychological factors that affect the reporting of injuries and the decision to pursue a workers' compensation claim. Further, this report supports prior research suggesting that WRI statistics, particularly workers' compensation claims data, should not be considered to be indicators of workplace safety (O'Neill et al., 2013).

Between 2009 and 2012, the national median duration of time loss was two weeks for claims with any time loss and 9.2 weeks for 'serious' claims (exceeding two weeks' time loss). Victoria had the longest duration and greatest variability in compensated time loss and Tasmania and Queensland the lowest of both, consistent with prior research (Collie et al., 2016). As yet, it is unclear what factors account for these differences, although a recent paper from the ComPARE project demonstrates that the differences persisted after accounting for a range of worker, workplace and societal factors, suggesting that workers compensation system policy and practice are having a significant impact on duration (Collie et al., 2016).

Accepted work-related mental health claims are among the least common injury types, though are longest in duration. There are multiple possible explanations for this phenomenon, including that mental health conditions present a unique set of circumstances that inhibit rapid return to the workplace (such as the lack of availability of alternative duties for workers with mental health conditions), that barriers to workers' compensation are higher for mental health conditions (e.g., lower acceptance rate for mental health claims; see Safe Work Australia (2015c)), or that mental health conditions are less amenable to RTW interventions currently in place across national workers' compensation systems. Another alternative is that compensation systems may exacerbate the severity of mental health conditions via processes that seek to discourage or question the legitimacy of mental health conditions (Kilgour et al., 2015), and that this may lead to prolonged durations of time loss. Further investigation of the factors contributing to duration of time loss in Australian workers with work-related mental health conditions is warranted. These figures also indicate that mental health claims are going to become a larger proportion of the injuries with which compensation schemes must work, particularly among longer-tail claims. Nevertheless, musculoskeletal injuries still make up the majority of workers' compensation claims and cumulative time loss, and continue to represent a major opportunity for prevention and rehabilitation.

Male workers have a higher incidence of WRI and workers' compensation claims; however, female workers' injuries are less likely to result in an accepted claim. Female workers also tend to spend more time on compensation once those claims reach two weeks in duration. Part of the reason is

[9] In 2016 dollars; the medical and treatment excess is indexed annually.

likely due to the types of WRIs male and female workers experience: male workers are 1.4 times more likely to have a claim for a physical injury while female workers are 1.9 times more likely to have a claim for mental health (Berecki-Gisolf, Smith, Collie, & McClure, 2015). Such differences have been attributed to gendered occupational segregation, whereby male workers are sorted into jobs with more physical risk ('horizontal' segregation) and female workers into the lower and less autonomous roles where they experience more psychosocial risks ('vertical' segregation) (Campos-Serna et al., 2013). Mental health claims have lower acceptance rates (Safe Work Australia, 2015c) and, as the findings of this report and previous research reiterate (Collie et al., 2016; Smith et al., 2014), result in more time off work. However, this does not explain all the difference in time loss. The ComPARE Project's previous study found female workers had significantly longer time loss durations even when controlling for injury type (Collie et al., 2016). There also remains the possibility of other explanations for the differences in injury-to-claims ratio, such as variations in severity (i.e., female worker injuries generally being too minor to be eligible for workers' compensation), differences in claiming behaviour, and bias against female claimants, though it is difficult to assess such factors with these data.

Incidence and duration of claims both increased with age, though differences attenuated among older groups, similar to findings of existing research (Berecki-Gisolf, Clay, Collie, & McClure, 2012a; Smith & Berecki-Gisolf, 2014). Further, the youngest groups tend to have among the highest incidences of WRI, while the oldest group had the lowest incidences. There are a number of possible factors at play, interacting in complex ways. First is the nature of work and inherent risks that each group faces. Younger workers are more likely to have greater exposure to risk, both due to more dangerous jobs and less experience in managing safety; however, older workers, though generally in less dangerous jobs being more experienced with safety, are more physically vulnerable to injury and do not recover as well (Salminen, 2004). The result is that younger workers are injured more frequently, but injuries are more severe among older workers and more likely to result in a claim.

Further complicating this interaction is that older workers are not an older version of the younger cohort; over the course of decades, many younger workers leave the workforce for health reasons. While workers are generally healthier than the population at large, since the population at large includes those unable to work for health reasons, the difference is most magnified among older workers, as a higher proportion of older people are likely to have a condition that precludes work, otherwise known as the 'healthy worker effect' or 'survival bias' (Berecki-Gisolf et al., 2012a; Huijs et al., 2012; McMichael, 1976; Shah, 2009). This may explain in part why time loss increases by age but attenuates amongst older groups. Further, this makes attributions of differences to age difficult, as age is not the only difference between these groups: older workers reflect the more 'resilient' members of their age group while younger groups are more inclusive of less 'resilient' workers. Lastly, there may be differences in how each group interacts with the claims process, whether due to older workers being in workplaces less accommodating to their injury and the Return to Work process, eligibility for alternative sources of income such as retirement or superannuation that could remove older workers from the compensation system and give a false impression of a return of work capacity, and differences in family or home life that can affect recovery and Return to Work (Berecki-Gisolf et al., 2012a; Huijs et al., 2012).

In summary, this report identifies substantial and significant differences in the incidence of work-related injuries and workers' compensation claims, and the duration of time loss by jurisdiction, injury type, gender, and age group. In addition to elucidating differences between these groups and providing crucial insights for the ComPARE Project's objective of identifying the policies and

practices that are most efficient at returning injured workers to work, the report findings highlight areas for further policy and practice improvement, and research.

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