

Second Workers' Compensation Claims: Who Is At Risk? Analysis of WorkSafe Victoria, Australia Compensation Claims

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ABSTRACT

Objective: To determine the risk factors associated with early repeat workers' compensation claims in Victoria, Australia and to compare our findings with those of a study on the Alberta's Workers' Compensation Board (WCB) in Canada.

Methods: We reviewed and described 178,630 claims from 1996-2009. Both persons with single and persons with multiple claims were included. Survival analysis was used to determine the impact of socio-demographic factors on the time between claims.

Results: A total of 37% of persons with an initial claim lodged a second claim. A reduced time to a second claim was observed in younger males in the manufacturing industry. Earlier second claims were more common in workers exposed to mental stress, sound and pressure, or chemical and other substances. These findings are similar to those of WCB Alberta.

Conclusion: There is a potential to reduce the socio-economic burden of workplace injury in both jurisdictions by enacting prevention programs targeted at workers with an increased risk of repeat claims.

Key words: Work-related; single claimants; repeat claims; risk factors; hazard ratios

La traduction du résumé se trouve à la fin de l'article.

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The problem of workplace injury resulting in further workers' compensation claims is gaining increasing focus internationally. Workers' compensation data can inform the development of injury prevention strategies. However, the vast majority of research treats claims as discrete events.^{1,2} An alternative approach is to treat the individual claimant as the unit of analysis and to examine the association of potential risk factors with the impact of subsequent claims. Recently, Cherry and colleagues³ explored the characteristics of workers from the Canadian province of Alberta who made a second claim. In that study, 49.2% of 490,230 workers submitted at least two claims during the period 1994-2004. In a previous study that used administrative data to address the impact of repeat workers' compensation claims in Victoria, Australia, 37% of claimants filed at least one further claim within a nine-year follow-up period.⁴ For claimants at highest risk of earlier repeat claim, 29% submitted the second claim for the same injury/disease. Recurrent back injuries are particularly disabling, with studies reporting second events occurring at a rate 80% higher than initial injuries.^{5,6} However, in these studies, the time between injuries was not measured.

Workers suffer from similar injuries/diseases across many jurisdictions; they have similar claiming patterns and return-to-work outcomes.⁷ Different jurisdictions share similar concerns over the problems associated with work incapacity, benefit payment and claim behaviour. A comparison of data across workers' compensation jurisdictions should enable a better understanding of the common risk factors for repeat claims. In so doing, it has the potential

to identify groups of workers at greater risk who benefit from an alternative injury prevention approach.⁸

Despite the high prevalence of repeat work-related injury, there is no such cross-jurisdictional comparison focusing on risk factors for subsequent claims. Using a methodological approach adapted from that of Cherry et al.,³ the aim of our study is to determine the patterns of, and risk factors for, repeat compensation claims in Victoria, Australia and to compare these findings with those reported for the province of Alberta, Canada.

METHODS

Compensation Research Database

In the state of Victoria, Australia, employers maintain workers' compensation insurance through the Victorian WorkCover Authority (VWA) unless they are able to self-insure or obtain insurance through one of the national workers' compensation schemes. Approximately 85% of workers in Victoria are insured by the VWA.

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Table 1. Relationship Between Gender, Age and a Second Claim

		First Claim, N	Second claim, N (%)	Mean (SD) Days Between 1 st and 2 nd Claim*	Median (IQR) Days Between Claims	HR [95% CI]†‡	
Age (years)	Men	15-24	29,405	12,451 (42.3%)	1024 (1056)	623 (210-1547)	1.07 [1.05-1.09]
		25-34	32,966	13,672 (41.5%)	1070 (1064)	693 (244-1596)	
		35-44	26,140	10,753 (41.1%)	1181 (1102)	813 (307-1784)	
		45-54	18,627	7166 (38.5%)	1152 (1055)	817 (315-1736)	
		55-64	8571	2411 (28.1%)	903 (869)	632 (241-1334)	
	Total	115,709	46,453 (40.1%)	1087 (1063)	717 (255-1633)		
	Women	15-24	11,303	2736 (24.2%)	1010 (1044)	626 (231-1489)	
		25-34	15,515	4294 (27.7%)	1114 (1082)	746 (261-1713)	
		35-44	17,082	6306 (36.9%)	1256 (1106)	927 (373-1902)	
		45-54	15,307	5359 (35.0%)	1141 (1012)	863 (335-1712)	
55-64		3714	809 (21.8%)	886 (854)	662 (228-1243)		
Total	62,921	19,504 (31.0%)	1143 (1062)	812 (305-1725)	1		
Both	15-24	40,708	15,187(37.3%)	1021 (1054)	623 (214-1538)	1.06 [1.03-1.08]	
	25-34	48,481	17,966 (37.1%)	1081 (1068)	704 (247-1620)	1	
	35-44	43,222	17,059 (39.5%)	1208 (1104)	861 (329-1825)	0.91 [0.89-0.93]	
	45-54	33,934	12,525 (36.9%)	1147 (1037)	841 (323-1727)	0.98 [0.96-1.01]	
	55-64	12,285	3220 (26.2%)	898 (865)	643 (240-1321)	1.23 [1.21-1.31]	
Total	178,630	65,957 (36.9%)	1104 (1063)	742 (268-1660)			

* Average time and standard deviation to the second claim (days).

† A fully adjusted Cox proportional hazard model for age, gender, nature and mechanism of affliction, occupation, industry and employment.

‡ HR = Hazard ratio with 95% confidence intervals (CI).

Table 2. Relationship Between the Nature of Affliction and a Second Claim

	First Claim, N	Second Claim, N (%)	Mean (SD) Days Between 1 st and 2 nd Claim*	Median (IQR) Days Between Claims†	HR [95%CI]†‡
Intracranial injuries	928	344 (37.1%)	1155 (1078)	832 (281-1819)	0.95 [0.85-1.06]
Fractures	10,323	3018 (29.2%)	1307 (1110)	990 (384-1989)	0.84 [0.84-0.87]
Wounds/lacerations/amputations/internal organ damage	51,357	19,271(37.5%)	1078 (1066)	696 (245-1620)	0.97 [0.95-0.99]
Burns	4255	1577 (37.1%)	1030 (1057)	623 (218-1528)	0.97 [0.91-1.03]
Injury to nerves/spinal cord	79	23 (29.1%)	831 (718)	659 (259-1146)	1.45 [0.96-2.19]
Musculoskeletal/connective tissues diseases	4632	1711(36.9%)	1042 (1051)	706 (191-1613)	1.09 [1.04-1.14]
Mental diseases	5240	1402 (26.8%)	1251 (1121)	967 (310-1960)	1.08 [1.02-1.13]
Systemic diseases	6827	2240 (32.8%)	1175 (1129)	808 (273-1768)	0.82 [0.76-0.88]
Infectious/parasitic diseases	439	147 (33.5%)	1175 (1240)	608 (232-1932)	0.88 [0.84-0.92]
Neoplasms (cancer)	53	17 (32.1%)	777 (1213)	630 (2-899)	0.84 [0.71-0.99]
Other diseases/conditions	7071	2733 (38.7%)	950 (1008)	571 (174-1395)	0.83 [0.51-1.34]
Traumatic joint/ligament/muscle/tendon injury	87,426	33,474 (38.3%)	1108 (1050)	757 (287-1654)	1
Total	178,630	65,957 (36.9%)	1104 (1063)	742 (268-1660)	

* Average time and standard deviation to the second claim (days).

† A fully adjusted Cox proportional hazard model for age, gender, nature and mechanism of affliction, occupation, industry and employment.

‡ HR = Hazard ratio with 95% confidence intervals (CI).

Workers' compensation claims data (1986-2009) were obtained from the VWA to establish the Compensation Research Database. Records include information on the claimant and benefits paid. The Australian Standard Type of Occurrence Classification System (TOOCS v3)⁹ was used to code the nature/mechanism of affliction. Occupation data were coded using Australian and New Zealand Standard Classification of Occupation (ANZSCO).¹⁰ The Australian New Zealand Standard Industry Classification (ANZSIC 2006) was used to code industry data.⁴ Ethics approval was gained from the Monash University Human Research Ethics Committee.

Data analysis

Data for the period 1996-2009 were extracted for male and female claimants who lodged their first claim during the period 1996 to 2000 and were 15-64 years of age (working age in Australia) at the time of the initial claim. Only the first two claims (closed or opened) were analyzed.

To assist with comparison of our data to the study of Cherry et al.,³ the condition categories: digestive, skin/subcutaneous tissue, nervous system/sense organ, respiratory and circulatory system

were collapsed into one systemic disease category. In addition, we included information on the claimant's employer in analyses.

A fully adjusted Cox proportional-hazards survival model was used to estimate the combined effects of the study factors (age, gender, affliction, occupation, industry and employment) on the time between claims. Hazard ratios (HR) were calculated relative to the category with the greatest proportion of initial claims. A repeat claim was defined as "earlier" if the HR was significantly (p<0.05) greater than the reference category. All assumptions for proportional HRs were tested and met. We used SPSS version 18.0 for all analyses.

RESULTS

A total of 178,630 individuals lodged an initial claim during the five-year study period. Of those, 36.9% claimants had at least one further claim during the period 1996-2009. The median time between the first and second claims was 742 (IQR 268-1,660) days. Overall, males were at higher risk of earlier second claim (HR=1.07) with the median time between claims being 717 days. Younger claimants were at highest risk of an earlier subsequent claim. Workers aged 55-64 years

Table 3. Relationship Between the Mechanism of Injury and a Second Claim

	First Claim, N	Second Claim, N (%)	Mean (SD) Days Between 1 st and 2 nd Claim*	Median (IQR) Days Between Claims	HR [95%CI]†‡
Fall/trip/slip of a person	29,435	9748 (33.1%)	1171 (1078)	826 (307-1792)	0.99 [0.96-1.01]
Hitting objects with a part of the body	16,682	6150 (36.9%)	1083 (1047)	724 (25-1641)	1.04 [1.00-1.07]
Being hit by moving objects	35,508	13,784 (38.8%)	1084 (1064)	714 (246-1633)	1.03 [1.00-1.06]
Sound/pressure	1331	368 (27.6%)	985 (1069)	634 (156-1500)	1.14 [1.02-1.23]
Heat/electricity/other environmental factors	3879	1460 (37.6%)	1021 (1055)	615 (213-1475)	1.02 [0.09-1.15]
Chemicals/other substances	5971	2420 (40.5%)	986 (1057)	570 (199-1449)	1.11 [1.05-1.16]
Biological factors	580	199 (34.3%)	906 (923)	573 (211-1379)	1.23 [1.07-1.40]
Mental stress	2643	677 (25.6%)	1052 (985)	786 (223-1641)	1.34 [1.26-1.53]
Vehicle incidents/other	15,027	5089 (33.9%)	1123 (1099)	744 (252-1721)	1.01 [0.98-1.05]
Body stressing	67,574	26,062 (38.6%)	1110 (1055)	756 (288-1647)	1
Total	178,630	65,957 (36.9%)	1104 (1063)	742 (268-1660)	

* Average time and standard deviation to the second claim (days).

† A fully adjusted Cox proportional hazard model for age, gender, nature and mechanism of affliction, occupation, industry and employment.

‡ HR = Hazard ratio with 95% confidence intervals (CI).

Table 4. Relationship Between the Occupation and a Second Claim

	First Claim, N	Second claim, N (%)	Mean (SD) Days Between 1 st and 2 nd Claim*	Median (IQR) Days Between Claims	HR [95%CI]†‡
Unknown	207	101 (48.8%)	608 ± 880	501 (109-815)	
Managers	8501	2179 (25.6%)	1215 ± 1078	916 (344-1863)	0.95 [0.91-0.99]
Professionals	25,547	7991 (31.3%)	1219 ± 1092	893 (347-1846)	0.97 [0.94-1.01]
Technicians/trades workers	37,855	15,421 (40.7%)	1060 ± 1054	682 (243-1574)	1.01 [0.99-1.04]
Community/personal service workers	14,209	5953 (41.9%)	1102 ± 1008	788 (314-1650)	1.04 [1.01-1.08]
Clerical/administrative workers	9738	2287 (23.5%)	1248 ± 1085	965 (365-1874)	0.91 [0.87-0.95]
Sales workers	7798	1909 (24.5%)	1198 ± 1128	800 (296-1862)	0.93 [0.89-0.98]
Machinery operators/drivers	19,264	8102 (42.1%)	1068 ± 1034	721 (259-1594)	1.01 [0.98-1.03]
Labourers	55,511	22,014 (39.7%)	1075 ± 1068	692 (243-1614)	1
Total	178,630	65,957 (36.9%)	1104 ± 1063	742 (268-1660)	

* Average time and standard deviation to the second claim (days).

† A fully adjusted Cox proportional hazard model for age, gender, nature and mechanism of affliction, occupation, industry and employment.

‡ HR = Hazard ratio with 95% confidence intervals (CI).

were less likely to file a second claim as those close to retirement would have less time to be at risk of a second claim.

Nature and mechanism of affliction

Second claims were associated with workers whose previous claims were due to traumatic joint/ligament/muscle/tendon injuries (38.3%), and wounds/lacerations/amputation/internal organ damages (37.5%) (Table 2). Claimants whose initial claim was due to musculoskeletal/connective tissue or mental diseases (HR ~ 1.09) had the highest risk of an earlier repeat claim.

Repeat claims were most frequent in workers whose initial claims were due to chemicals/other substances (40.5%); followed by the categories of "being hit by moving objects" and "body stressing" (Table 3). Workers affected by biological factors/chemicals/other substances or sound/pressure had the shortest duration between claims (median time of 570 days). Compared to the "body stressing" category, only the categories falls/trips/slips and vehicle incidents had longer time to a second claim. Overall, the highest risk of earlier repeat claims was associated with mental stress (HR=1.34).

Occupation and industry

The highest proportion of repeat claims was observed in technicians/traders (40.7%), community/personal service workers (41.9%) and machinery operators/drivers (42.1%) (Table 4). Estimated HRs for repeat claims were similar in all occupations.

Industry sectors were known for 98.6% of claimants (Table 5). Manufacturing accounted for the greatest proportion of both claims (25.7% first claim, 43.4% second claim) with a median time to second claim of 643 days. Health care/social assistance workers lodged 12.1% initial

claims with 36.2% subsequent claims. Education/training workers had the longest duration between the claims (median time of 1,076 days).

Employer and workplace location

Of those individuals who lodged a second claim, the majority (54.7%) were working for the same employer/workplace for both the initial and subsequent claim. A smaller but substantial percentage (34.9%) of claimants changed employers following the initial claim, while 10.4% changed their workplace but remained with the same employer. Workers who remained with the same employer/workplace had the highest risk of an earlier second claim (406 (IQR 150-932) days, HR=1) as compared to workers who changed their employer/workplace (1,544 (IQR 784-2,549) days, HR<1).

DISCUSSION

Using methodology similar to that of Cherry et al.,³ we conducted a study to identify factors associated with an increased risk of a second workers' compensation claim in Victoria, Australia.

We established that 36.9% of all initial claimants lodged a repeat claim; the average time to the second claim was 1,104 days. More repeat claims were lodged by males, with earlier subsequent claims occurring in workers aged 15-24. Younger workers lack experience and are more likely to be employed in high-risk occupations. The greatest proportion of early second claims were filed by persons whose initial claims were due to wounds/lacerations/amputations and internal organ damage/trauma. These injuries involve damage to blood vessels. Depending on the affected body region, complications including excessive bleeding, muscle shortening, wastage and infection may increase the risk of disability and likelihood of

Table 5. Relationship Between the Industry Sector and a Second Claim

	First Claim, N	Second Claim, N (%)	Mean (SD) Days Between 1 st and 2 nd Claim*	Median (IQR) Days Between Claims†	HR [95%CI]‡
Unknown	2541	944 (37.2%)	1128 ± 1030	777 (294-1730)	
Agriculture/forestry/fishing	4262	1223 (28.7%)	1141 ± 1083	756 (278-1768)	0.90 [0.85-0.96]
Mining	589	246 (41.8%)	1045 ± 1088	632 (235-1604)	0.99 [0.87-1.12]
Electricity/gas/water/waste services	953	372 (39.0%)	1162 ± 1044	812 (305-1887)	0.92 [0.83-1.02]
Construction	12,645	4738 (37.5%)	1153 ± 1100	774 (271-1767)	0.89 [0.86-0.92]
Wholesale trade	12,702	4517 (35.6%)	1099 ± 1071	724 (252-1649)	0.94 [0.91-0.97]
Retail trade	14,887	4257 (28.6%)	1148 ± 1103	772 (274-1751)	0.89 [0.86-0.93]
Accommodation/food services	6091	1628 (26.7%)	1180 ± 1105	797 (292-1832)	0.85 [0.81-0.90]
Transport/postal/warehousing	9367	3899 (41.6%)	1062 ± 1054	691 (248-1585)	0.98 [0.95-1.02]
Information media/telecommunications	302	104 (34.4%)	706 ± 977	268 (105-778)	1.45 [1.19-1.76]
Financial/insurance services	1421	261 (18.4%)	1398 ± 1243	988 (339-2280)	0.77 [0.68-0.88]
Rental/hiring/real estate services	1210	400 (33.1%)	1144 ± 1062	837 (279-1733)	0.90 [0.82-0.99]
Professional/scientific/ technical services	4108	918 (22.3%)	1178 ± 1065	866 (322-1799)	0.89 [0.83-0.95]
Administrative/public support services	12,614	4732 (37.5%)	1052 ± 1051	669 (227-1600)	0.96 [0.93-0.99]
Public administration/safety	3009	968 (32.2%)	1215 ± 1065	920 (331-1858)	0.86 [0.80-0.92]
Education/training	12,168	3813 (31.3%)	1359 ± 1115	1076 (437-2064)	0.79 [0.75-0.82]
Health care/social assistance	21,487	7776 (36.2%)	1140 ± 1044	807 (328-1683)	0.90 [0.87-0.93]
Arts/recreation services	5576	1935 (34.7%)	1125 ± 1059	787 (304-1724)	0.91 [0.86-0.95]
Other services	6667	3261 (48.9%)	1122 ± 1035	813 (310-1637)	0.89 [0.86-0.94]
Manufacturing	46,031	19,965 (43.4%)	1015 ± 1032	643 (227-1483)	1
Total	178,630	65,957 (36.9%)	1104 ± 1063	742 (268-1660)	

* Average time and standard deviation to the second claim (days).

† A fully adjusted Cox proportional hazard model for age, gender, nature and mechanism of affliction, occupation, industry and employment.

‡ HR = Hazard ratio with 95% confidence intervals (CI).

a second claim.⁶ Our findings are similar to those of Cherry et al.,³ who found that repeat claims were more common in younger males and workers exposed to mental stress, sound/pressure, or chemical/other substances.

While comparison of data between jurisdictions is a step forward in understanding risk factors in common for an earlier second claim, it is important to acknowledge differences in the findings. The overall proportion of repeat claims was lower in Victoria than in Alberta (49.2%) and the average time to the second claim was shorter in WCB claimants (744 versus 1,104 days). Methodological differences in the way data are classified and contextual differences between Victoria and Alberta may account for these differences. As the classification of the mechanism of injury/disease was different between the two jurisdictions, we are unable to make a direct comparison between the two schemes in this regard. The exploratory nature of our study did not take into account differences in the distribution of industries as well as differences in the climate in Alberta and Victoria which may increase the risk of re-injury.⁸ That the findings were so similar suggests that the effect of potential differences is likely to be small.

In the current study, the size of the estimated HRs was small. We cannot completely rule out the possibility of misclassification which may bias our findings towards the null. Given the lack of research in this important area, we felt it was important to study a range of factors that affect the chance of a second claim. It is important, therefore, to emphasize the direction of our results rather than their statistical significance. The identified HRs indicate factors that may be associated with earlier repeat claims. In doing so, they generate hypotheses about possible hazards of earlier repeat claims to be followed up in future research. Limitations of this study are that certain injuries may be under-reported given that this analysis only covers 85% of the working population in Victoria.¹¹ In addition, some workers may not be aware of their entitlement to submit a claim.¹² As no measure of severity of injury/disease was included, it is not possible to determine the impact of severity on the risk of a second claim.

Benchmarking claim rates between jurisdictions is critical to understanding the importance of context and system design to the risk of a second claim. Overall, our results identify certain groups of workers who need more consideration by OH&S, educators and policy-makers. That an increased risk of a second claim is associated with the workers' employment pattern post initial injury highlights the importance of examining claim behaviour for workers remaining in the same employment. Further research is needed to understand the drivers of repeat claims associated with subgroups, including manufacturing workers and workers who remain with the same employer.

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RÉSUMÉ

Objectif : Déterminer les facteurs de risque associés aux demandes d'indemnisation d'accidents du travail répétées à brève échéance dans l'État de Victoria (Australie) et comparer nos résultats avec ceux d'une étude sur la Commission des accidents du travail (CAT) de l'Alberta (Canada).

Méthode : Nous avons examiné et décrit 178 630 demandes présentées entre 1996 et 2009. Nous avons inclus les demandeurs uniques et les personnes ayant présenté plusieurs demandes. À l'aide d'une analyse de survie, nous avons déterminé l'effet des facteurs sociodémographiques sur le délai entre les demandes.

Résultats : Trente-sept p. cent des personnes ayant fait une demande d'indemnisation initiale en ont présenté une seconde. Un délai réduit entre la première et la seconde demande a été observé chez les jeunes hommes travaillant dans le secteur manufacturier. Une seconde demande à brève échéance était plus courante chez les travailleurs exposés au stress mental, au bruit et à la pression, ou aux produits chimiques et autres substances. Ces constatations sont semblables à celles de la CAT de l'Alberta.

Conclusion : Il serait possible de réduire le fardeau socioéconomique des accidents du travail dans l'État de Victoria et en Alberta en adoptant des programmes de prévention axés sur les travailleurs les plus susceptibles de présenter des demandes répétées.

Mots clés : travail; demandeurs uniques; demandes répétées; facteurs de risque; coefficients de danger