

Analysis of work-related lower back pain cases reported to Work Cover

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1. Introduction

This report analyses characteristics of work related lower back pain cases reported to Work Cover NSW by nominal insurers between January 2008 and May 2011. The data used in this analysis was obtained by Dr Azhar Khan from the Work Cover NSW.

The analysis considers specific questions posed by Dr Khan. These could broadly be categorized as follows:

- Claimant Characteristics: age, gender
- Employer Characteristics: industry, employer category (size)
- Relationship between claimant characteristics and employer characteristics
- Relationship between claimant characteristics and duration of case
- Relationship between claimant and employer characteristics and case outcome, including:
 - Whether the case was closed in 12 months
 - Financial outcome: total claims paid and gross incurred cost in 12 months
- Referral to an injury management consultant, including:
 - Timing of referral
 - Relationship with demographic characteristics
 - Relationship with employer characteristics
 - Relationship to case outcome in 12 months
 - Relationship to case duration
 - Relationship between time to IMC review and outcome in 12 months
- Service with an interpreter
 - Number of cases that required an interpreter
 - Case outcome in 12 months

These questions are systematically considered in section 2.

2. The Analysis

All analysis was performed using IBM SPSS 21. Data was provided as a Microsoft Excel spreadsheet and was imported into SPSS. Many of the variables needed to be reformatted and/or labelled for analysis. In addition a few new variables (e.g. duration of case) were created from the data provided.

The analyses are presented in the subsections below:

2.1 Claimant Characteristics:

Age: Most of the claims (73%) were from people between the ages of 20 and 49 with an even distribution (approximately 24%) in each of the age groups: 20-29, 30-39 and 40-49. This was followed by the age group 50-59 with 17.5% of the cases. Complete information is presented in the Table 2.1.1 and Figure 2.1.1below:

Table 2.1.1 Frequency of Claims by Age Group

	Frequency	Percent
Valid	0-19	2101
	20-29	11560
	30-39	11753
	40-49	11615
	50-59	8379
	60-69	2338
	>70	65
	Total	47811

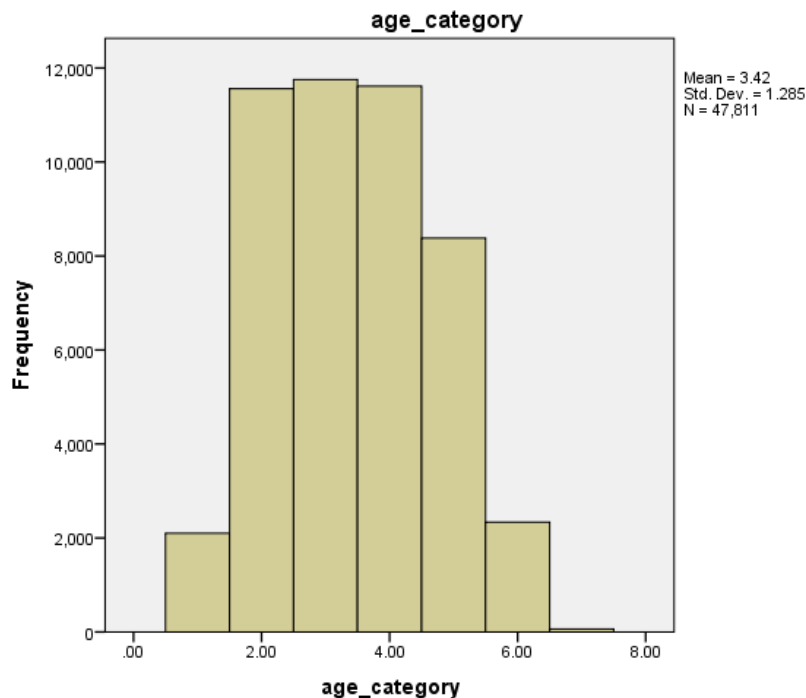


Figure 2.1.1: Frequency of Claims by Age Group

Gender: Approximately two-thirds of the cases (67.9%) were males and approximately one-third (32.1%) were female. This information is outlined in the table below, and depicted in the graph below.

Table 2.1.2: Frequency of Claims by Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
F	15346	32.1	32.1	32.1
Valid M	32465	67.9	67.9	100.0
Total	47811	100.0	100.0	

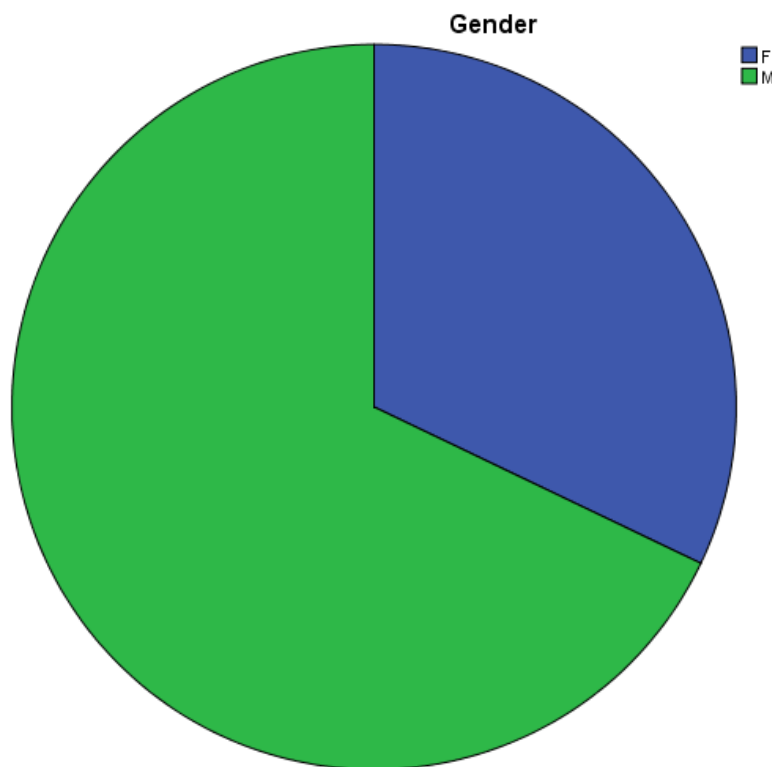


Figure 2.1.2: Frequency of Claims by Gender

2.2 Employer Characteristics:

Type of Industry: A large number of industries were represented in the sample. The largest cohort was from Manufacturing (20.1%). The cohorts from Health & Community (12.4%), Property & Business Services (11.5%), Retail Trade (10.3%), Construction (10.2%) were also fairly large. The cohorts from the other industries were less than 10%. Complete information is provided in Table 2.2.1 and Figure 2.2.1 below:

Table 2.2.1: Frequency of Claims by Industry

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A: Agriculture, Forestry and Fishing	1107	2.3	2.3
	B: Mining	457	1.0	3.3
	C: Manufacturing	9590	20.1	23.3
	D: Electricity, Gas and Water Supply	338	.7	24.0
	E: Construction	4896	10.2	34.3
	ERROR : Not Stated	193	.4	34.7
	F: Wholesale Trade	3681	7.7	42.4
	G: Retail Trade	4940	10.3	52.7
	H: Accommodation, Cafes and Restaurants	2999	6.3	59.0
	I: Transport and Storage	3474	7.3	66.3
	J: Communication Services	347	.7	67.0
	K: Finance and Insurance	677	1.4	68.4
	L: Property and Business Services	5495	11.5	79.9
	M: Government Administration and Defence	445	.9	80.8
	Missing	13	.0	80.8
	N: Education	1195	2.5	83.3
	O: Health and Community Services	5939	12.4	95.8
	P: Cultural and Recreational Services	815	1.7	97.5
	Q: Personal and Other Services	1210	2.5	100.0
	Total	47811	100.0	100.0

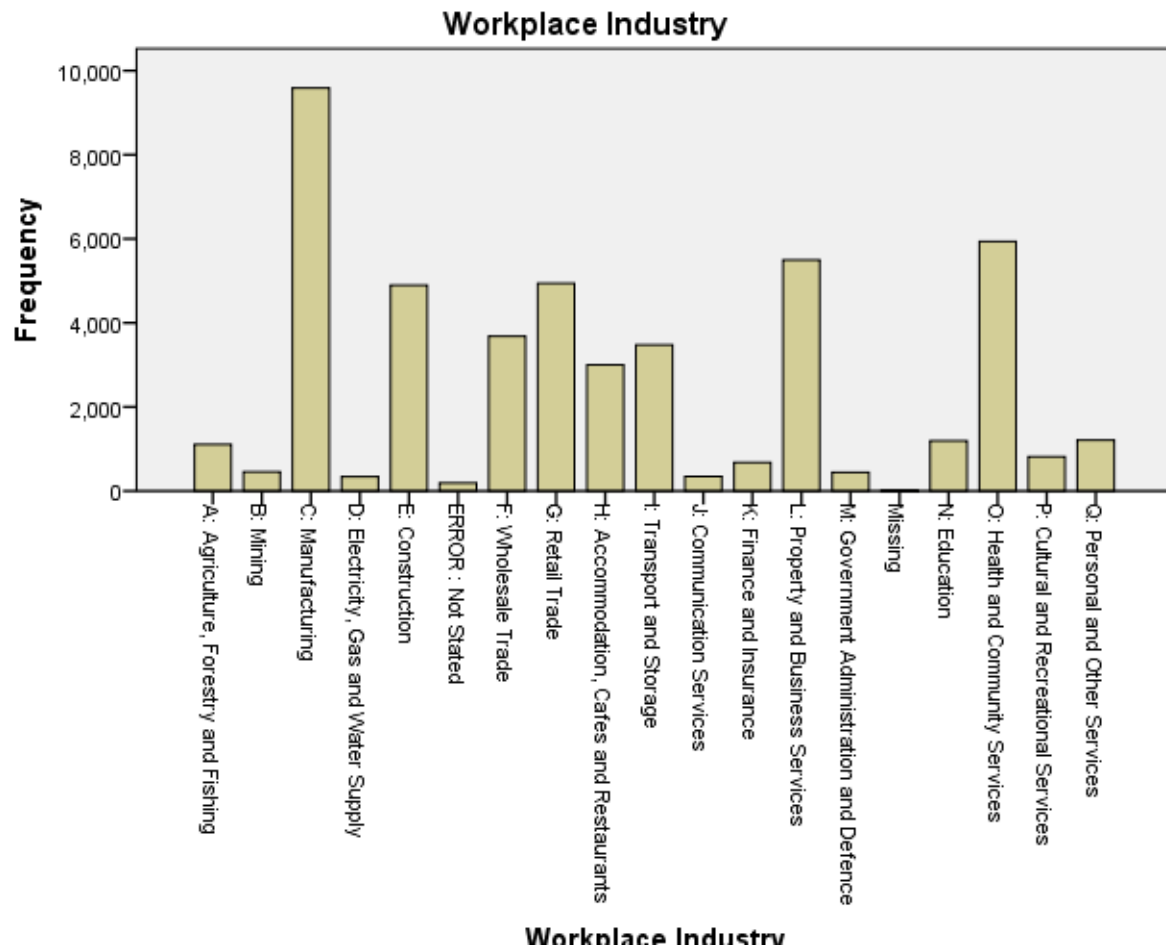


Figure 2.2.1: Frequency of Claims by Industry

Size of the Company: There was no information on company size for 198 (0.4%) of the claims. In addition, the employer category of 6 claimants (<0.0%) was listed as “Domestic Policies”. This information is not likely to be reliable. Furthermore, the employer category for 1104 (2.3%) was listed as “Retro-paid Employer”. The three larger categories were Medium (n = 22968, 48%), Large (n = 17904, 37.4%), Small (n = 5631, 11.8%). Complete information is provided in Table 2.2.2 and Figure 2.2.2 below:

Table 2.2.2 Frequency of Claims by Employer Size

	Frequency	Percent	Valid Percent	Cumulative Percent
(Blank Cells)	198	.4	.4	.4
0. Domestic policies	6	.0	.0	.4
4. Small	5631	11.8	11.8	12.2
5. Medium	22968	48.0	48.0	60.2
6. Large	17904	37.4	37.4	97.7
7. Retro-paid loss Employer	1104	2.3	2.3	100.0
Total	47811	100.0	100.0	

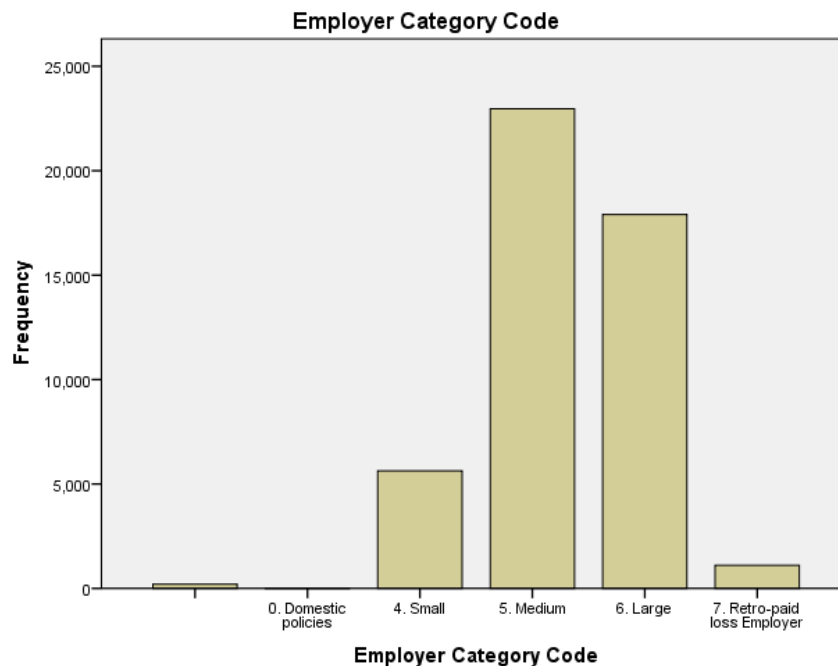


Figure 2.2.2 Frequency of Claims by Employer Size

2.3 Relationship between claimant characteristics and employer characteristics:

This section examines the demographic profiles of the claimants from each of the industries. Specifically, the gender and age make-up of each industry and employer category is examined.

Relationship between Gender and Employer Category: The highest percent of female claims came from Domestic Policies Cohort (66.7%) and the smallest from “Retropaid loss Employers” (23.6%). Other than the Large Employer Cohort (36%) and the Domestic Policies Cohort (66.7%), the percent of female claims for all other employer categories was below the average of 32.1%. Complete information is provided in Table 2.3.1 below:

Table 2.3.1: Breakdown of Claims by Gender and Employer Size.

		Gender		Total
		F	M	
(Blank)	Count	53	145	198
	% within Employer Category Code	26.8%	73.2%	100.0%
0. Domestic policies	Count	4	2	6
	% within Employer Category Code	66.7%	33.3%	100.0%
4. Small	Count	1613	4018	5631
	% within Employer Category Code	28.6%	71.4%	100.0%
5. Medium	Count	6906	16062	22968
	% within Employer Category Code	30.1%	69.9%	100.0%
6. Large	Count	6509	11395	17904
	% within Employer Category Code	36.4%	63.6%	100.0%
7. Retro-paid loss Employer	Count	261	843	1104
	% within Employer Category Code	23.6%	76.4%	100.0%
Total	Count	15346	32465	47811
	% within Employer Category Code	32.1%	67.9%	100.0%

Relationship between Age and Employer Category: There was no clear relationship. The information is provided in Table 2.3.2 below.

Table 2.3.2 Breakdown of Claims by Age Group and Employer Size.

		age group							Total
		0-19	20-29	30-39	40-49	50-59	60-69	>70	
(Blank)	Count	9	48	50	55	32	4	0	198
	% within Employer Category	4.5%	24.2%	25.3%	27.8%	16.2%	2.0%	0.0%	100.0%
0. Domestic policies	Count	0	1	1	2	1	1	0	6
	% within Employer Category	0.0%	16.7%	16.7%	33.3%	16.7%	16.7%	0.0%	100.0%
4. Small	Count	297	1318	1350	1300	1006	341	19	5631
	% within Employer Category	5.3%	23.4%	24.0%	23.1%	17.9%	6.1%	0.3%	100.0%
5. Medium	Count	1178	5952	5631	5401	3773	1013	20	22968
	% within Employer Category	5.1%	25.9%	24.5%	23.5%	16.4%	4.4%	0.1%	100.0%
6. Large	Count	579	3932	4446	4600	3390	931	26	17904
	% within Employer Category	3.2%	22.0%	24.8%	25.7%	18.9%	5.2%	0.1%	100.0%
7. Retro-paid loss Employer	Count	38	309	275	257	177	48	0	1104
	% within Employer Category	3.4%	28.0%	24.9%	23.3%	16.0%	4.3%	0.0%	100.0%
Total	Count	2101	11560	11753	11615	8379	2338	65	47811
	% within Employer Category	4.4%	24.2%	24.6%	24.3%	17.5%	4.9%	0.1%	100.0%

Relationship between Gender and Industry: For most industries, a larger share of the claims was from males. This was in keeping with the 68%/32% overall gender split for the cohort overall. The largest imbalance was in Construction (96.4% male), followed by Electricity, Gas and Water Supply (90.2% male), Transport & Storage (89.4%), Mining (89.1%) and Manufacturing (87%).

In contrast, the majority of claimants in some industries were female. These included Health & Community Services (83.9% Female), Education (65.7% Female), Finance & Insurance (62% Female), Accommodation, Cafes & Restaurants (53% Female).

Complete information is provided in Table 2.3.3.

Table 2.3.3 Break-down of Claims by Gender and Industry

		Gender		Total
		F	M	
A: Agriculture, Forestry and Fishing	Count	229	878	1107
	% within Industry	20.7%	79.3%	100.0%
B: Mining	Count	50	407	457
	% within Industry	10.9%	89.1%	100.0%
C: Manufacturing	Count	1244	8346	9590
	% within Industry	13.0%	87.0%	100.0%
D: Electricity, Gas and Water Supply	Count	33	305	338
	% within Industry	9.8%	90.2%	100.0%
E: Construction	Count	175	4721	4896
	% within Industry	3.6%	96.4%	100.0%
ERROR : Not Stated	Count	49	144	193
	% within Industry	25.4%	74.6%	100.0%
F: Wholesale Trade	Count	769	2912	3681
	% within Industry	20.9%	79.1%	100.0%
G: Retail Trade	Count	2006	2934	4940
	% within Industry	40.6%	59.4%	100.0%
H: Accommodation, Cafes and Restaurants	Count	1590	1409	2999
	% within Industry	53.0%	47.0%	100.0%
I: Transport and Storage	Count	367	3107	3474
	% within Industry	10.6%	89.4%	100.0%
J: Communication Services	Count	60	287	347
	% within Industry	17.3%	82.7%	100.0%
K: Finance and Insurance	Count	420	257	677
	% within Industry	62.0%	38.0%	100.0%
L: Property and Business Services	Count	1777	3718	5495
	% within Industry	32.3%	67.7%	100.0%
M: Government Administration and Defence	Count	89	356	445
	% within Industry	20.0%	80.0%	100.0%

Missing	Count	6	7	13
	% within Industry	46.2%	53.8%	100.0%
N: Education	Count	785	410	1195
	% within Industry	65.7%	34.3%	100.0%
O: Health and Community Services	Count	4981	958	5939
	% within Industry	83.9%	16.1%	100.0%
P: Cultural and Recreational Services	Count	311	504	815
	% within Industry	38.2%	61.8%	100.0%
Q: Personal and Other Services	Count	405	805	1210
	% within Industry	33.5%	66.5%	100.0%
Total	Count	15346	32465	47811
	% within Industry	32.1%	67.9%	100.0%

Relationship between Age and Industry: There was no clear relationship. However, a larger number of claims (30% or over) appear to be from the 20-29 age group in the following industries: Construction (30%), Retail Trade (31.2%) and Cultural & Recreational Services (33.6%). The information is provided in Table 2.3.4 below.

Table 2.3.4 Breakdown of claims by age group and industry

		age group							Total
		0-19	20-29	30-39	40-49	50-59	60-69	>70	
A: Agriculture, Forestry and Fishing	Count	62	288	255	252	186	62	2	1107
	% within Industry	5.6%	26.0%	23.0%	22.8%	16.8%	5.6%	0.2%	100%
B: Mining	Count	12	126	113	110	74	22	0	457
	% within Industry	2.6%	27.6%	24.7%	24.1%	16.2%	4.8%	0.0%	100%
C: Manufacturing	Count	384	2129	2428	2555	1672	415	7	9590
	% within Industry	4.0%	22.2%	25.3%	26.6%	17.4%	4.3%	0.1%	100%
D: Electricity, Gas and Water Supply	Count	8	54	77	88	94	16	1	338
	% within Industry	2.4%	16.0%	22.8%	26.0%	27.8%	4.7%	0.3%	100%
E: Construction	Count	308	1467	1342	967	618	187	7	4896
	% within Industry	6.3%	30.0%	27.4%	19.8%	12.6%	3.8%	0.1%	100%
ERROR : Not Stated	Count	7	40	54	47	32	11	2	193
	% within Industry	3.6%	20.7%	28.0%	24.4%	16.6%	5.7%	1.0%	100%
F: Wholesale Trade	Count	101	815	964	972	640	186	3	3681
	% within Industry	2.7%	22.1%	26.2%	26.4%	17.4%	5.1%	0.1%	100%
G: Retail Trade	Count	429	1543	1108	977	670	204	9	4940
	% within Industry	8.7%	31.2%	22.4%	19.8%	13.6%	4.1%	0.2%	100%
H: Accommodation, Cafes and Restaurants	Count	221	835	631	651	520	137	4	2999
	% within Industry	7.4%	27.8%	21.0%	21.7%	17.3%	4.6%	0.1%	100%
I: Transport and Storage	Count	76	753	967	873	570	234	1	3474
	% within Industry	2.2%	21.7%	27.8%	25.1%	16.4%	6.7%	0.0%	100%
J: Communication Services	Count	0	77	118	77	53	21	1	347
	% within Industry	0.0%	22.2%	34.0%	22.2%	15.3%	6.1%	0.3%	100%
K: Finance and Insurance	Count	16	154	225	145	110	25	2	677
	% within Industry	2.4%	22.7%	33.2%	21.4%	16.2%	3.7%	0.3%	100%
L: Property and Business Services	Count	177	1320	1469	1275	962	288	4	5495
	% within Industry	3.2%	24.0%	26.7%	23.2%	17.5%	5.2%	0.1%	100%
M: Government	Count	11	71	106	118	100	37	2	445

Administration and Defence	% within Industry	2.5%	16.0%	23.8%	26.5%	22.5%	8.3%	0.4%	100%
Missing	Count	3	2	3	2	2	1	0	13
	% within Industry	23.1%	15.4%	23.1%	15.4%	15.4%	7.7%	0.0%	100%
N: Education	Count	34	198	251	319	305	88	0	1195
	% within Industry	2.8%	16.6%	21.0%	26.7%	25.5%	7.4%	0.0%	100%
O: Health and Community Services	Count	158	1115	1120	1734	1470	325	17	5939
	% within Industry	2.7%	18.8%	18.9%	29.2%	24.8%	5.5%	0.3%	100%
P: Cultural and Recreational Services	Count	40	274	214	163	96	27	1	815
	% within Industry	4.9%	33.6%	26.3%	20.0%	11.8%	3.3%	0.1%	100%
Q: Personal and Other Services	Count	54	299	308	290	205	52	2	1210
	% within Industry	4.5%	24.7%	25.5%	24.0%	16.9%	4.3%	0.2%	100%
Total	Count	2101	11560	11753	11615	8379	2338	65	47811
	% within Industry	4.4%	24.2%	24.6%	24.3%	17.5%	4.9%	0.1%	100%

2.4. Relationship between claimant characteristics and duration of case

There were three possible measures of Duration of case:

1. Duration from Claim Date to Claim Closure
2. Duration from First Notification to Claim Closure
3. Duration from Injury to Claim Closure

Therefore, the tables in this section contain information on all these variables.

While these can be expected to be related, there are slight differences due to delays in notification and/or making the claim. Therefore, the tables also contain information on days from injury to notification.

Furthermore, some cases were missing information on the closure date or claim date or injury date or date of first notification. As a result, a total of 3363 missing cases for “days from claim date to closure date” and “days from injury to case closure”; 3379 missing for “days from injury to case closure”.

The average (mean) duration of case [from Claim to Closure] was 222 days with a standard deviation of 250.4.

The average (mean) number of days from first notification to claim closure was also 222 days with a standard deviation of 250.7.

The similarity in these numbers suggests that cases were attempted to promptly after first notification.

The average (mean) number of days from injury to case closure was 239 days with a standard deviation of 260.6.

The average (mean) number of days from injury to case closure was 20 days with a standard deviation of 69.9.

These numbers suggest an average delay of 17-20 days between injury and notification. The difference in this statistic (17 obtained as the difference between 239 & 222 above and 20 obtained directly) could be due to the fact that some cases with delayed notification were not yet closed.

The comments in the rest of this section relate to “Duration from Claim Date to Claim Closure”, which is considered the primary measure. The other columns presented in the tables are included for comparison only.

2.4.1 Claimant Characteristics versus Duration of Case

Gender: The Case Duration was approximately 2 weeks shorter for males (mean = 218 days, SD = 250) than for females (mean = 231 days, SD = 250.8). Additional information is provided in Table 2.4.1.1 below:

Table 2.4.1.1 Average Days to Claim Closure and Notification by Gender

Gender Coded		Days from Claim Date to Case Closure	Days from Notification to Case Closure	Days from Injury to Case Closure	Days from injury to notification
Female	Mean	231.0930	230.9690	247.9722	19.27
	N	14341	14336	14341	15346
	Std. Deviation	250.76846	251.12269	259.86751	69.456
Male	Mean	217.5734	217.6556	234.8449	19.93
	N	30107	30096	30107	32465
	Std. Deviation	250.00442	250.43471	260.80056	70.086
Total	Mean	221.9354	221.9512	239.0804	19.72
	N	44448	44432	44448	47811
	Std. Deviation	250.32817	250.73133	260.56924	69.884

Age: There appeared to be an increasing trend with age, with the shortest mean case duration (175 days) for the 0-19 age group and the longest (238 days) in the 70+ age group. The trend appears to be non-linear with big jumps in the duration between 0-19 (175 days) to 20-29 (204 days) to 30-39 (228 days). There appears to be stabilization at 234-237 days thereafter. This suggests a logarithmic trend. Complete details are provided in Table 2.4.1.2 below.

Table 2.4.1.2 Average Days to Claim Closure and Notification by Age Group

age group		Days from Claim Date to Case Closure	Days from Notification to Case Closure	Days from Injury to Case Closure	Days from injury to notification
0-19	Mean	174.5790	174.2709	191.2494	17.84
	N	2045	2045	2045	2101
	Std. Deviation	200.94523	200.88672	213.23140	64.986
20-29	Mean	203.7092	203.5783	219.3573	17.49
	N	11085	11080	11085	11560
	Std. Deviation	231.41359	231.63364	239.72373	61.966
30-39	Mean	227.9338	227.8860	245.0736	19.98
	N	10876	10872	10876	11753
	Std. Deviation	254.22104	254.38104	264.02390	70.282
40-49	Mean	233.4607	233.6228	250.1892	20.25
	N	10594	10592	10594	11615
	Std. Deviation	262.64475	263.37670	272.17721	75.726
50-59	Mean	232.7216	232.6041	251.4911	21.17
	N	7648	7646	7648	8379
	Std. Deviation	258.90399	259.04414	271.62245	70.110
60-69	Mean	235.0635	236.2380	256.6415	23.01
	N	2142	2139	2142	2338
	Std. Deviation	263.32049	265.25041	277.55382	77.650
>70	Mean	237.9655	237.7241	257.0517	26.98
	N	58	58	58	65
	Std. Deviation	236.35447	236.61100	244.27490	56.512
Total	Mean	221.9354	221.9512	239.0804	19.72
	N	44448	44432	44448	47811
	Std. Deviation	250.32817	250.73133	260.56924	69.884

2.4.2 Employer Characteristics versus Duration of Case

Employer Size versus Duration of Case: The Case Duration was shortest for the cohort for whom employer size information was unavailable (mean = 119 days, SD = 141.1). Of the cohorts where employer size was known, the shortest duration was for the “Retro-paid loss Employer” cohort (mean = 285 days, SD = 284.7). The longest was for the Small Employer Cohort (mean = 159 days, SD = 164). Complete information is provided in Table 2.4.2.1 below.

Table 2.4.2.1 Average Days to Claim Closure and Notification by Employer Size

Employer Category Code		Days from Claim Date to Case Closure	Days from Notification to Case Closure	Days from Injury to Case Closure
(Blank)	Mean	119.3214	118.1888	128.6276
	N	196	196	196
	Std. Deviation	147.01737	147.12196	147.54796
0. Domestic policies	Mean	266.1667	267.1667	298.1667
	N	6	6	6
	Std. Deviation	261.16464	262.12319	242.52787
4. Small	Mean	285.1841	285.4745	313.3058
	N	4765	4761	4765
	Std. Deviation	284.73832	285.36711	300.90339
5. Medium	Mean	218.4269	218.5589	236.0773
	N	21300	21293	21300
	Std. Deviation	245.01939	245.33851	254.98745
6. Large	Mean	213.7230	213.5577	227.7193
	N	17133	17129	17133
	Std. Deviation	248.84284	249.27078	256.96195
7. Retro-paid loss Employer	Mean	158.8635	158.5645	168.6842
	N	1048	1047	1048
	Std. Deviation	164.04107	164.11579	168.12249
Total	Mean	221.9354	221.9512	239.0804
	N	44448	44432	44448
	Std. Deviation	250.32817	250.73133	260.56924

Industry versus Duration of Case: The lowest case durations were for the cases where the industry was missing or not stated (156/160 days). Of the cases where industry information was available, the shortest durations were for Government (173 days) and Electricity, Gas & Water Supply (180 days). The longest duration was for the Finance and Insurance Industry (260 days), followed by Communication Services (254) and Construction (245). Table 2.4.2.2 below provides means for all industries (SD is omitted in order to keep the table to a useful size).

Table 2.4.2.2 Average Days to Claim Closure and Notification by Industry

Mean

Industry	Days from Claim Date to Case Closure	Days from Notification to Case Closure	Days from Injury to Case Closure	Days from injury to injury mgmt consult
A: Agriculture, Forestry and Fishing	223.9067	223.7120	239.1278	411.24
B: Mining	195.1362	200.1362	220.1948	221.72
C: Manufacturing	211.7989	211.9793	227.0888	266.19
D: Electricity, Gas and Water Supply	179.8731	179.8036	189.6375	328.60
E: Construction	244.8346	244.7815	264.2478	299.84
ERROR : Not Stated	156.5455	173.6000	526.4091	358.30
F: Wholesale Trade	220.6896	221.4951	240.2223	290.81
G: Retail Trade	227.6107	227.3556	244.7514	307.98
H: Accommodation, Cafes and Restaurants	231.8540	231.5878	247.8151	208.60
I: Transport and Storage	228.4802	228.5832	244.2850	283.36
J: Communication Services	254.1807	253.6791	269.4579	392.11
K: Finance and Insurance	259.5323	259.1165	280.6724	295.12
L: Property and Business Services	215.3806	214.9825	233.4700	295.38
M: Government Administration and Defence	172.8765	172.2517	181.4848	167.25
Missing	160.8333	159.8333	332.0000	
N: Education	199.4031	198.7775	215.4389	257.30
O: Health and Community Services	223.4508	223.0710	235.4680	239.28
P: Cultural and Recreational Services	214.2774	213.9884	230.3084	267.26
Q: Personal and Other Services	215.5923	215.7605	234.9014	268.13
Total	221.9354	221.9512	239.0804	277.55

As seen above, the mean claim duration was 222 days. Table 2.4.3 presents descriptive statistics for those industries, for which the case duration varies from the mean claim duration by at least 10 days.

Table 2.4.2.2 Average Days to Claim Closure and Notification by Selected Industries

Industry		Days from Claim Date to Case Closure	Days from Notification to Case Closure	Days from Injury to Case Closure
B: Mining	Mean	195.1362	200.1362	220.1948
	N	426	426	426
	Std. Deviation	236.64278	243.23376	256.81552
D: Electricity, Gas and Water Supply	Mean	179.8731	179.8036	189.6375
	N	331	331	331
	Std. Deviation	209.32586	209.39076	225.63958
E: Construction	Mean	244.8346	244.7815	264.2478
	N	4390	4389	4390
	Std. Deviation	266.72034	266.82606	279.98496
J: Communication Services	Mean	254.1807	253.6791	269.4579
	N	321	321	321
	Std. Deviation	280.74421	280.79205	285.97861
K: Finance and Insurance	Mean	259.5323	259.1165	280.6724
	N	635	635	635
	Std. Deviation	260.55948	260.26981	266.14760
M: Government Administration and Defence	Mean	172.8765	172.2517	181.4848
	N	429	429	429
	Std. Deviation	220.06713	220.14916	226.80432
N: Education	Mean	199.4031	198.7775	215.4389
	N	1146	1146	1146
	Std. Deviation	201.55266	201.76966	212.18175
Total	Mean	221.9354	221.9512	239.0804
	N	44448	44432	44448
	Std. Deviation	250.32817	250.73133	260.56924

2.5 Relationship between claimant and industry characteristics and case outcome:

This section examines the relationship between claimant characteristics and case outcome in 12 months. Specifically, the following questions are considered:

1. Was the case closed within 12 months?
2. What is the financial outcome in 12 months?

Financial outcome further consists of 2 considerations:

- a. Total claim payments
- b. Gross incurred cost

2.5.1 Case Closure within 12 months:

This section examines the characteristics that were closed within 12 months and the ones which remained open after 12 months. Specifically, closure of cases is examined by age, gender, and employer category and industry.

Relationship with Age: The largest percent of cases closed within 12 months was in the 0-19 age group (89.8%), followed by 20-29 (85.1%). As seen from the Table 2.5.1.1 below, there is a clear decreasing trend: as age increase, the percent of claims closed within 12 months decreases. The lowest percent of cases closed within 12 months is for the over 70 age group (72.3%).

Table 2.5.1.1 Break-down of Claims Closed within 12 months by Age Group

		age group							Total
		0-19	20-29	30-39	40-49	50-59	60-69	>70	
N	Count	214	1726	2425	2617	1914	547	18	9461
	% within age group	10.2%	14.9%	20.6%	22.5%	22.8%	23.4%	27.7%	19.8%
Y	Count	1887	9834	9328	8998	6465	1791	47	38350
	% within age group	89.8%	85.1%	79.4%	77.5%	77.2%	76.6%	72.3%	80.2%
Total	Count	2101	11560	11753	11615	8379	2338	65	47811
	% within age group	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Relationship between Gender and Closure within 12 months: There is no clear relationship: 80.1% of female claims and 80.3% of male claims were closed within 12 months (see Table 2.5.1.2 below):

Table 2.5.1.2 Break-down of Claims Closed within 12 months by Gender

			Gender		Total
			F	M	
Claim Closed in 12 months?	N	Count	3060	6401	9461
		% within Gender	19.9%	19.7%	19.8%
	Y	Count	12286	26064	38350
		% within Gender	80.1%	80.3%	80.2%
Total		Count	15346	32465	47811
		% within Gender	100.0%	100.0%	100.0%

Relationship between Employer Category (Size) and Closure within 12 months: There lowest percent of claims closed within 12 months was in the small employer cohort (63.3%). For all other cohorts, the percent of claims closed within 12 months exceeded 80% (see Table 2.5.1.3 below).

Table 2.5.1.3 Break-down of Claims Closed within 12 months by Employer Size

		Claim Closed in 12 months (Coded)?		Total
		No	Yes	
Blank	Count	11	187	198
	% within Employer Category Code	5.6%	94.4%	100.0%
0. Domestic policies	Count	0	6	6
	% within Employer Category Code	0.0%	100.0%	100.0%
4. Small	Count	2064	3567	5631
	% within Employer Category Code	36.7%	63.3%	100.0%
5. Medium	Count	4573	18395	22968
	% within Employer Category Code	19.9%	80.1%	100.0%
6. Large	Count	2674	15230	17904
	% within Employer Category Code	14.9%	85.1%	100.0%
7. Retro-paid loss Employer	Count	139	965	1104
	% within Employer Category Code	12.6%	87.4%	100.0%
Total	Count	9461	38350	47811
	% within Employer Category Code	19.8%	80.2%	100.0%

Relationship between Industry and Closure within 12 months: There is no clear relationship between industry and closure of claims within 12 months. For most industries, the percent of cases closed within ranges between 72.9% (Communication Services) and 87% (Electricity, Gas and Water Supply). Low per cents of claim closure within 12 months were recorded for the cohorts with missing (or unstated) industry information. An abbreviated table (Table 2.5.1.4) with the percent for each industry is presented below (counts are excluded to make the table easier to read):

Table 2.5.1.4 Abbreviated Table of Break-down of Claims Closed within 12 months by Industry

	Claim Closed in 12 months (Coded)?		Total
	No	Yes	
A: Agriculture, Forestry and Fishing	23.3%	76.7%	100.0%
B: Mining	19.0%	81.0%	100.0%
C: Manufacturing	17.3%	82.7%	100.0%
D: Electricity, Gas and Water Supply	13.0%	87.0%	100.0%
E: Construction	25.7%	74.3%	100.0%
ERROR : Not Stated	86.5%	13.5%	100.0%
F: Wholesale Trade	21.6%	78.4%	100.0%
G: Retail Trade	20.7%	79.3%	100.0%
H: Accommodation, Cafes and Restaurants	17.6%	82.4%	100.0%
I: Transport and Storage	19.1%	80.9%	100.0%
J: Communication Services	27.1%	72.9%	100.0%
K: Finance and Insurance	25.1%	74.9%	100.0%
L: Property and Business Services	20.0%	80.0%	100.0%
M: Government Administration and Defence	10.1%	89.9%	100.0%
Missing	38.5%	61.5%	100.0%
N: Education	16.5%	83.5%	100.0%
O: Health and Community Services	16.7%	83.3%	100.0%
P: Cultural and Recreational Services	16.8%	83.2%	100.0%
Q: Personal and Other Services	20.2%	79.8%	100.0%
Total	19.8%	80.2%	100.0%

The complete breakdown is presented in Table 2.5.1.5 below:

Table 2.5.1.5 Complete Table of Break-down of Claims Closed within 12 months by Industry

		Claim Closed in 12 months?		Total
		N	Y	
A: Agriculture, Forestry and Fishing	Count	258	849	1107
	% within Industry	23.3%	76.7%	100.0%
B: Mining	Count	87	370	457
	% within Industry	19.0%	81.0%	100.0%
C: Manufacturing	Count	1660	7930	9590
	% within Industry	17.3%	82.7%	100.0%
D: Electricity, Gas and Water Supply	Count	44	294	338
	% within Industry	13.0%	87.0%	100.0%
E: Construction	Count	1256	3640	4896
	% within Industry	25.7%	74.3%	100.0%
ERROR : Not Stated	Count	167	26	193
	% within Industry	86.5%	13.5%	100.0%
F: Wholesale Trade	Count	795	2886	3681
	% within Industry	21.6%	78.4%	100.0%
G: Retail Trade	Count	1021	3919	4940
	% within Industry	20.7%	79.3%	100.0%
H: Accommodation, Cafes and Restaurants	Count	529	2470	2999
	% within Industry	17.6%	82.4%	100.0%
I: Transport and Storage	Count	663	2811	3474
	% within Industry	19.1%	80.9%	100.0%
J: Communication Services	Count	94	253	347
	% within Industry	27.1%	72.9%	100.0%
K: Finance and Insurance	Count	170	507	677
	% within Industry	25.1%	74.9%	100.0%
L: Property and Business Services	Count	1099	4396	5495
	% within Industry	20.0%	80.0%	100.0%
M: Government Administration and Defence	Count	45	400	445
	% within Industry	10.1%	89.9%	100.0%
Missing	Count	5	8	13
	% within Industry	38.5%	61.5%	100.0%
N: Education	Count	197	998	1195

	% within Industry	16.5%	83.5%	100.0%
O: Health and Community	Count	990	4949	5939
Services	% within Industry	16.7%	83.3%	100.0%
P: Cultural and Recreational	Count	137	678	815
Services	% within Industry	16.8%	83.2%	100.0%
Q: Personal and Other	Count	244	966	1210
Services	% within Industry	20.2%	79.8%	100.0%
Total	Count	9461	38350	47811
	% within Industry	19.8%	80.2%	100.0%

2.5.2 Financial Outcomes:

This section examines the relationships between financial outcomes and age, gender, industry and employer category. The relationships between gross cost incurred and age, gender, industry and employer category are also examined.

As seen previously, financial outcomes may be measured in two ways:

1. Total claim payments
2. Gross incurred cost

The relationships between each of these financial outcomes and age, gender, industry and employer category are also examined.

Total claim payments and gross cost incurred are highly correlated ($r = 0.826$). So there is similarity in the relationships examined.

Relationships with age: Total claim payments appear to increase with age. The lowest mean claim payments were for the 0-19 age group (mean = 3523.39) and the highest were for the over 70 age group (mean = 8095.48) The total claim payments for the 50-59 age group are anomalous, being lower than for the 60-69 age group.

As expected, the relationship is similar for gross cost incurred at 12 months. The lowest mean claim payments were for the 0-19 age group (mean = 6409.62) and the highest were for the 50-59 age group (mean = 14216.65), after which there is a slight decrease for the 60-69 and over 70 age groups. This appears to be consistent with an increasing trend with age within the ages that may be considered the normal working years for most people.

Details are provided in the Table 2.5.2.1 below:

Table 2.5.2.1 Claim payments to date and Gross cost incurred at 12 months by Age group

Age group		Claim Payments to date	Gross incurred cost at 12 months
0-19	Mean	3523.3855	6409.6262
	N	2085	2085
	Std. Deviation	8338.56908	39695.98462
20-29	Mean	5542.9073	9556.3001
	N	11478	11478
	Std. Deviation	12680.81093	34074.38690
30-39	Mean	7645.7299	14007.3307
	N	11633	11633
	Std. Deviation	16573.15569	39622.28279
40-49	Mean	8000.5891	14136.3497
	N	11497	11497
	Std. Deviation	15668.15919	35048.45219
50-59	Mean	7879.6826	14216.6449
	N	8289	8289
	Std. Deviation	17482.20853	43659.07841
60-69	Mean	8050.1048	12740.6250
	N	2302	2302
	Std. Deviation	15672.45535	28857.75654
>70	Mean	8095.4812	13472.2652
	N	65	65
	Std. Deviation	13010.93796	27192.44364
Total	Mean	7101.8508	12599.4331
	N	47349	47349
	Std. Deviation	15373.94976	37620.57943

Relationship with Gender: The mean total claim payments were lower for females (mean= 5977.99) than for males (mean = 7633.83). This may have been skewed by a few very high total claim payments for male. For example, the maximum total claim payments for males were 789205.52; as compared to this, the maximum for females was 175104.76. The medians for the two groups were approximately the same (1530.71 for females and 1535.30 for males).

The relationship is similar for gross cost incurred at 12 months. Mean gross incurred cost for females is 9887.014, compared to 13883.31 for males; the difference may be due to the high maximum for males (2268996.92) compared to females (475924.35). The medians are similar for both (1579.88 for females and 1577 for males).

A complete summary is provided in the Table 2.5.2.2 below:

Table 2.5.2.2 Claim payments to date and Gross cost incurred at 12 months by Gender

Gender		Claim Payments to date	Gross incurred cost at 12 months
Female	Mean	5977.9868	9887.1014
	Median	1530.7100	1579.8800
	Minimum	.00	.00
	Maximum	175104.76	475924.35
	Std. Deviation	11582.59450	25610.71013
	Std. Error of Mean	93.91018	207.64834
	N	15212	15212
Male	Mean	7633.8302	13883.3112
	Median	1535.3000	1577.0000
	Minimum	.00	.00
	Maximum	789205.52	2268996.92
	Std. Deviation	16848.15101	42067.43865
	Std. Error of Mean	93.98306	234.66234
	N	32137	32137
Total	Mean	7101.8508	12599.4331
	Median	1533.2200	1577.6500
	Minimum	.00	.00
	Maximum	789205.52	2268996.92
	Std. Deviation	15373.94976	37620.57943
	Std. Error of Mean	70.65291	172.89008
	N	47349	47349

Relationship with Industry: On average, the highest claims paid were for claims by construction workers (mean = 10985.81), followed by Agriculture, Forestry and Fishing Industry workers (10326.80). High claims were also paid to the cohort who did not state their industry (mean = 10063.45). The lowest average claims paid were to Electricity, Gas and Water Supply workers (mean = 3034.22).

The relationship is similar for gross cost incurred at 12 months. On average, highest cost incurred was for construction workers (mean = 21040.41) and the lowest was for Electricity, Gas and Water Supply workers (mean = 4748.29). High costs were also incurred for the cohort who did not state their industry (mean = 25286.62).

An abbreviated summary with the percent for each industry is presented in Table 2.5.2.3 below (counts and standard deviations are excluded to make the table easier to read):

Table 2.5.2.3 Mean Claim payments to date and Mean Gross cost incurred at 12 months by Industry

Industry	Claim Payments to date	Gross incurred cost at 12 months
A: Agriculture, Forestry and Fishing	10326.8035	20302.5751
B: Mining	8308.1453	15438.7475
C: Manufacturing	6325.9798	11211.3109
D: Electricity, Gas and Water Supply	3034.2217	4748.4929
E: Construction	10985.8097	21040.4075
ERROR : Not Stated	10063.4516	25286.6182
F: Wholesale Trade	7604.5080	13496.4637
G: Retail Trade	6854.7250	12094.1405
H: Accommodation, Cafes and Restaurants	6147.0918	10220.8732
I: Transport and Storage	8034.6624	14472.8675
J: Communication Services	8530.9467	16257.8674
K: Finance and Insurance	6086.6222	9795.7183
L: Property and Business Services	7040.4787	12561.6084
M: Government Administration and Defence	3914.7610	6238.1939
Missing	5141.6608	9944.3500
N: Education	4737.0488	6823.0895
O: Health and Community Services	5548.9314	8749.1825
P: Cultural and Recreational Services	5011.4608	7999.4118
Q: Personal and Other Services	7307.9404	13425.0408
Total	7101.8508	12599.4331

A more complete summary (including counts and standard deviations) is provided in Table 2.5.2.4 below:

Table 2.5.2.4 Claim payments to date and Gross cost incurred at 12 months by Industry

Industry		Claim Payments to date	Gross incurred cost at 12 months
A: Agriculture, Forestry and Fishing	Mean	10326.8035	20302.5751
	N	1097	1097
	Std. Deviation	18504.69770	49528.56331
B: Mining	Mean	8308.1453	15438.7475
	N	440	440
	Std. Deviation	39998.35401	111021.50836
C: Manufacturing	Mean	6325.9798	11211.3109
	N	9517	9517
	Std. Deviation	13364.62506	32075.35684
D: Electricity, Gas and Water Supply	Mean	3034.2217	4748.4929
	N	336	336
	Std. Deviation	7237.60211	15798.70261
E: Construction	Mean	10985.8097	21040.4075
	N	4848	4848
	Std. Deviation	22446.56312	49074.36267
ERROR : Not Stated	Mean	10063.4516	25286.6182
	N	87	87
	Std. Deviation	17845.31558	39377.01689
F: Wholesale Trade	Mean	7604.5080	13496.4637
	N	3641	3641
	Std. Deviation	14694.37666	33732.02785
G: Retail Trade	Mean	6854.7250	12094.1405
	N	4904	4904
	Std. Deviation	13722.27649	33125.07168
H: Accommodation, Cafes and Restaurants	Mean	6147.0918	10220.8732
	N	2982	2982
	Std. Deviation	11903.17726	26240.39770
I: Transport and Storage	Mean	8034.6624	14472.8675
	N	3457	3457
	Std. Deviation	17049.25078	49247.19551
J: Communication Services	Mean	8530.9467	16257.8674
	N	346	346
	Std. Deviation	16504.74016	40373.43901

K: Finance and Insurance	Mean	6086.6222	9795.7183
	N	668	668
	Std. Deviation	11746.16136	24561.93026
L: Property and Business Services	Mean	7040.4787	12561.6084
	N	5461	5461
	Std. Deviation	15027.57887	37025.08286
M: Government Administration and Defence	Mean	3914.7610	6238.1939
	N	445	445
	Std. Deviation	9628.17820	21536.57420
Missing	Mean	5141.6608	9944.3500
	N	12	12
	Std. Deviation	6855.59282	13737.00974
N: Education	Mean	4737.0488	6823.0895
	N	1186	1186
	Std. Deviation	10951.39765	19603.02416
O: Health and Community Services	Mean	5548.9314	8749.1825
	N	5917	5917
	Std. Deviation	10936.85003	24072.20006
P: Cultural and Recreational Services	Mean	5011.4608	7999.4118
	N	810	810
	Std. Deviation	11307.14744	23471.47472
Q: Personal and Other Services	Mean	7307.9404	13425.0408
	N	1195	1195
	Std. Deviation	14236.07226	55029.15873
Total	Mean	7101.8508	12599.4331
	N	47349	47349
	Std. Deviation	15373.94976	37620.57943

Relationships with Employer Category: On average, the highest claims paid to the small employer cohort (mean = 13142.11). The lowest average claims paid were to the “Domestic Policies Cohort” (mean = 3287.49).

The relationship is similar for gross cost incurred at 12 months. On average, highest cost incurred was for the small employer cohort (mean = 26916.98) and the lowest was for “Domestic Policies Cohort” (mean = 3287.49).

A summary is provided in Table 2.5.2.5 below.

Table 2.5.2.5 Claim payments to date and Gross cost incurred at 12 months by Employer Size

Employer Category		Claim Payments to date	Gross incurred cost at 12 months
Blank	Mean	2357.5684	2794.9605
	N	198	198
	Std. Deviation	5965.81459	9165.70633
0. Domestic policies	Mean	3287.4883	3287.4883
	N	6	6
	Std. Deviation	2855.86458	2855.86458
4. Small	Mean	13142.1047	26916.9834
	N	5527	5527
	Std. Deviation	22420.36823	57830.42557
5. Medium	Mean	7270.9046	13080.2682
	N	22755	22755
	Std. Deviation	14858.00390	37082.59866
6. Large	Mean	5158.2687	7917.1959
	N	17764	17764
	Std. Deviation	12774.90966	28967.07201
7. Retro-paid loss Employer	Mean	5515.6323	8138.9383
	N	1099	1099
	Std. Deviation	13746.55314	26155.13346
Total	Mean	7101.8508	12599.4331
	N	47349	47349
	Std. Deviation	15373.94976	37620.57943

2.6 Referral to Injury Management Consultant:

This section examines the characteristics of claims that were referred to an injury management consultant (IMC).

Timing of Referral: 2380 Claims (5%) were referred to an injury management consultant within the 12 month period. Of these, 943 claims (2%) were referred within the first 3 months, 682 (1.4%) were referred to an IMC between 3 and 6 months from filing the claim and the remaining 755 (1.6%) were referred to an IMC between 6 and 12 months after filing the claim. The following Table 2.6.1 provides a break-down:

Table 2.6.1: Frequency of referral to IMC by Timing

	Frequency	Valid Percent
<3 mo	943	2.0
3-6 mo	682	1.4
6-12 mo	755	1.6
no IMC first 12 mo	45431	95.0
Total	47811	100.0

Relationship between gender and referral to an IMC: As seen from the table below, the percent of female claims (5.8%) claims were referred to IMC was slightly higher than the percent of male claims referred to an IMC (4.6%). The difference is most noticeable in the first 3 month period when 2.6% of female cases are referred to an IMC as compared to 1.7% of male cases. A summary is provided in Table 2.6.2 below

Table 2.6.2: Breakdown of Timing of referrals to IMC by Gender

		<3 mo	3-6 mo	6-12 mo	no IMC first 12 mo	Total
Female	Count	392	250	246	14458	15346
	% within Gender	2.6%	1.6%	1.6%	94.2%	100.0%
Male	Count	551	432	509	30973	32465
	% within Gender	1.7%	1.3%	1.6%	95.4%	100.0%
		Count	943	682	755	45431
		% within Gender	2.0%	1.4%	1.6%	95.0%
						100.0%

Relationship between age and referral to an IMC: As seen from the table below, there is an increase in referrals with age. The lowest percent of cases referred is for the 0-19 age group (3%) and the highest is for the over 70 age group (7.6%). The 50-59 age groups and the 60-69 age groups are anomalous; the percent of claimants referred in the 50-59 age group (5.5%) is slightly lower than in the 40-49 age group (5.8%) and higher than in the 60-69 age group (4.5%). The percent of referrals in the 50-59 age group is also lower than in the 40-49 age group.

There is no clear trend in timing of referral: in all age groups, a larger share of the referrals appears to be within the first 3 months. A summary is provided in Table 2.6.3 below

Table 2.6.3: Breakdown of Timing of referrals to IMC by Age group

		<3 mo	3-6 mo	6-12 mo	no IMC first 12 mo	Total
0-19	Count	32	17	13	2039	2101
	% within age group	1.5%	0.8%	0.6%	97.0%	100.0%
20-29	Count	197	143	139	11081	11560
	% within age group	1.7%	1.2%	1.2%	95.9%	100.0%
30-39	Count	221	178	193	11161	11753
	% within age group	1.9%	1.5%	1.6%	95.0%	100.0%
40-49	Count	277	182	214	10942	11615
	% within age group	2.4%	1.6%	1.8%	94.2%	100.0%
50-59	Count	176	131	156	7916	8379
	% within age group	2.1%	1.6%	1.9%	94.5%	100.0%
60-69	Count	37	29	40	2232	2338
	% within age group	1.6%	1.2%	1.7%	95.5%	100.0%
>70	Count	3	2	0	60	65
	% within age group	4.6%	3.1%	0.0%	92.3%	100.0%
Total	Count	943	682	755	45431	47811
	% within age group	2.0%	1.4%	1.6%	95.0%	100.0%

Relationship between size of company and referral to an IMC: 5.2% of claims from small employers, 5.1% from medium sized employers and 4.8% of claims from a large employer were referred to an IMC. This shows a slight decreasing trend in referrals with increase in size of employer. However, this result may not be generalizable, given that the differences are small. In addition, 4.1% of claims from “retro-paid loss employers” were referred to an IMC. There appear to be no clear trends in when the referral was made. However, the small employer category appears to have a marginal delay in referral with only 1.5% referred in the first 3 months, with an increase to 1.7% in 3-6 months and 2.1% in 6-12 months. This differs from the general (average) trend for the entire cohort, where 2% were referred in the first 3 months with a decrease thereafter. A summary is provided in Table 2.6.4 below.

Table 2.6.4: Breakdown of Timing of referrals to IMC by Employer Size

		<3 mo	3-6 mo	6-12 mo	no IMC first 12 mo	Total
(Blank)	Count	3	0	1	194	198
	% within Employer Category	1.5%	0.0%	0.5%	98.0%	100.0%
0. Domestic policies	Count	0	0	0	6	6
	% within Employer Category	0.0%	0.0%	0.0%	100.0%	100.0%
4. Small	Count	82	94	119	5336	5631
	% within Employer Category	1.5%	1.7%	2.1%	94.8%	100.0%
5. Medium	Count	445	351	380	21792	22968
	% within Employer Category	1.9%	1.5%	1.7%	94.9%	100.0%
6. Large	Count	393	227	240	17044	17904
	% within Employer Category	2.2%	1.3%	1.3%	95.2%	100.0%
7. Retro-paid loss Employer	Count	20	10	15	1059	1104
	% within Employer Category	1.8%	0.9%	1.4%	95.9%	100.0%
Total	Count	943	682	755	45431	47811
	% within Employer Category	2.0%	1.4%	1.6%	95.0%	100.0%

Relationship between Industry and referral to an IMC: The largest percent of cases referred to an IMC is from the Accommodation, Cafes and Restaurants industry (7.2%) and the lowest from the Electricity, Gas and Water Supply Industry (1.5%). There are no clear trends in time to referral by industry, with the larger share of referrals occurring within the first 3 months for most industries. The two exceptions are Electricity, Gas & Water Supply and Personal & Other Services, both of which had lower referrals in the first 3 months than in the 3-6 month period. However, both these industries had lower than average per cents of referrals (see Table 2.6.5 below).

Table 2.6.5: Breakdown of Timing of referrals to IMC by Industry

	<3 mo	3-6 mo	6-12 mo	no IMC first 12 mo	
A: Agriculture, Forestry and Fishing	1.3%	0.9%	0.8%	97.0%	100.0%
B: Mining	1.5%	1.3%	0.7%	96.5%	100.0%
C: Manufacturing	1.6%	1.4%	1.4%	95.6%	100.0%
D: Electricity, Gas and Water Supply	0.3%	0.6%	0.6%	98.5%	100.0%
E: Construction	1.8%	1.7%	1.9%	94.5%	100.0%
ERROR : Not Stated		1.0%	1.6%	97.4%	100.0%
F: Wholesale Trade	1.9%	1.4%	1.8%	94.8%	100.0%
G: Retail Trade	1.8%	1.4%	1.8%	95.0%	100.0%
H: Accommodation, Cafes and Restaurants	2.9%	1.8%	2.6%	92.8%	100.0%
I: Transport and Storage	2.0%	1.6%	1.6%	94.7%	100.0%
J: Communication Services	2.0%	0.9%	1.7%	95.4%	100.0%
K: Finance and Insurance	1.9%	1.0%	2.4%	94.7%	100.0%
L: Property and Business Services	1.7%	1.0%	1.5%	95.8%	100.0%
M: Government Administration and Defence	1.6%	0.2%	0.4%	97.8%	100.0%
Missing				100.0%	100.0%
N: Education	2.3%	1.4%	1.3%	95.0%	100.0%
O: Health and Community Services	3.0%	1.8%	1.1%	94.2%	100.0%
P: Cultural and Recreational Services	1.3%	0.4%	1.3%	96.9%	100.0%
Q: Personal and Other Services	1.7%	2.1%	1.7%	94.5%	100.0%
Total	2.0%	1.4%	1.6%	95.0%	100.0%

Relationship between referral to an IMC and claim closure: As seen from the table below, there is a clear relationship between referral to an IMC and closure of the claim within 12 months. 82.8% of the cases that were not referred to an IMC were closed within 12 months. As compared to this, only 30.8% of the cases that were referred to an IMC were closed within 12 months. In addition, there is a clear trend in closure rates with time to referral. 50.5% of the claims that were referred within the first three months were closed within 12 months. For referrals between 3 and 6 months, 28.4% of claims were closed within 12 months and for referrals in the 6-12 month period, only 6.1% of claims were closed within 6 months. A summary is provided in Table 2.6.6 below.

Table 2.6.6: Breakdown of Timing of referrals to IMC by 12-month Case Closure Status

			<3 mo	3-6 mo	6-12 mo	no IMC first 12 mo	Total
Claim Closed in 12 months?	N	Count	467	488	709	7797	9461
		% within Referral Timing	49.5%	71.6%	93.9%	17.2%	19.8%
	Y	Count	476	194	46	37634	38350
		% within Referral Timing	50.5%	28.4%	6.1%	82.8%	80.2%
Total	Count		943	682	755	45431	47811
	% within Referral Timing		100.0%	100.0%	100.0%	100.0%	100.0%

Relationship between referral to an IMC, duration of case and time to notification: As seen from the table below, cases that were referred to an IMC earlier also had a shorter delay between injury and notification. The cases that were referred to an IMC within 3 months had the shortest delay between injury and notification (9 days), while the cases that were referred to an IMC in the 6-12 month period had the longest delay between injury and notification (28 days). For claims that were not referred to an IMC, the delay between injury and notification was 20 days.

There was a similar relationship for duration of case. Duration of case (days from claim date to closure) averaged 211 days for claims that were not referred to an IMC. In contrast average case duration exceeded one year for cases that were referred to an IMC. Of those referred to an IMC, duration of claim was shortest for those referred within 3 months (446 days) and longest for those referred after more than 6 months (650 days). A summary is provided in Table 2.6.7 below.

Table 2.6.7: Claim Length and Time to Notification by Timing of referrals to IMC

Referral Timing		Days from Claim Date to Case Closure	Days from Notification to Case Closure	Days from Injury to Case Closure	Days from injury to notification
<3 mo	Mean	446.3018	446.1556	455.6346	9.18
	N	739	739	739	943
	Std. Deviation	326.36206	326.21570	327.52226	12.435
3-6 mo	Mean	546.4805	546.7071	562.3272	15.60
	N	437	437	437	682
	Std. Deviation	312.89577	312.85504	313.21078	22.466
6-12 mo	Mean	649.9376	652.5144	679.7818	27.83
	N	417	416	417	755
	Std. Deviation	336.22145	335.98213	336.65122	55.859
no IMC first 12 mo	Mean	210.5923	210.5898	227.7616	19.86
	N	42855	42840	42855	45431
	Std. Deviation	239.19131	239.59787	250.16477	71.228
Total	Mean	221.9354	221.9512	239.0804	19.72
	N	44448	44432	44448	47811
	Std. Deviation	250.32817	250.73133	260.56924	69.884

Relationships between referral to IMC, total claim payments and gross incurred cost at 12 months: As seen previously, there total claim payments and gross incurred cost are strongly correlated ($r = 0.826$). Therefore relationship between each of these variables and a third variable are expected to be similar.

Total claim payments appear to increase with increase in time to IMC referral. The mean total claim payment for cases not referred to an IMC in the first 12 months was \$5966.52. In contrast, the mean total claim payment for cases referred to an IMC within 3 months was \$23332.69. This jumps to \$31307.42 for referrals between 3 and 6 months, and further increases to \$32692.21 for cases where referral takes place 6-12 months from injury.

The pattern is similar for gross cost incurred at 12 months (GCI-12). The mean GCI-12 for cases not referred to an IMC in the first 12 months was \$10392.52. In contrast, the GCI-12 for cases referred to an IMC within 3 months was \$40861.14. This jumps to \$58328.28 for referrals between 3 and 6 months, and further increases to \$67667.02 for cases where referral takes place 6-12 months from injury.

A summary is provided in Table 2.6.8 below.

Table 2.6.8: Claim Payments and Gross Cost Incurred at 12 months by Timing of referrals to IMC

Referral Timing		Claim Payments to date	Gross incurred cost at 12 months
<3 mo	Mean	23332.6862	40861.1405
	N	943	943
	Std. Deviation	21290.82405	51165.30651
3-6 mo	Mean	31307.4242	58328.2750
	N	682	682
	Std. Deviation	22775.88305	58479.03048
6-12 mo	Mean	32692.2096	67667.0243
	N	752	752
	Std. Deviation	31448.55665	67270.57562
no IMC first 12 mo	Mean	5966.5260	10392.5335
	N	44972	44972
	Std. Deviation	13723.53747	34697.00205
Total	Mean	7101.8508	12599.4331
	N	47349	47349
	Std. Deviation	15373.94976	37620.57943

2.7 Service with an Interpreter:

This section examines the claims that required an interpreter during service. 721 of the Claimants (1.5%) required with an interpreter. Table 2.7.1 provides the break-down:

Table 2.7.1 Frequency of Service with an Interpreter

	Frequency	Percent
No	47090	98.5
Yes	721	1.5
Total	47811	100.0

Relationship with gender: There was no clear relationship with gender: 1.4% of females and 1.6% of males required an interpreter. Table 2.7.2 provide the break-down:

Table 2.7.2 Breakdown of Service with an Interpreter by Gender

			Service with Interpreter		Total
			No	Yes	
Gender	Female	Count	15138	208	15346
		% within Gender Coded	98.6%	1.4%	100.0%
	Male	Count	31952	513	32465
		% within Gender Coded	98.4%	1.6%	100.0%
Total		Count	47090	721	47811
		% within Gender Coded	98.5%	1.5%	100.0%

Relationship with age: There is a difference in the age distribution of claimants who required service with an interpreter and those who did not. Claimants who required an interpreter were generally older than those who did not. Details are provided in the Table 2.7.3 below:

Table 2.7.3 Breakdown of Service with an Interpreter by Age Group

	Service with Interpreter		Total
	No	Yes	
0-19	4.5%	0.7%	4.4%
20-29	24.4%	9.2%	24.2%
30-39	24.7%	19.0%	24.6%
40-49	24.2%	31.2%	24.3%
50-59	17.3%	33.1%	17.5%
60-69	4.9%	6.7%	4.9%
>70	0.1%	0.1%	0.1%
Total	100.0%	100.0%	100.0%

Relationship between service with an interpreter and claim closure: As seen from the table below, there is a clear relationship between service with an interpreter and closure of the claim within 12 months. 80.3% of cases that required an interpreter were not closed within 12 months. In contrast, only 18.9% of claims that did not require service with an interpreter remained open after 12 months. Details are provided in the Table 2.7.4 below.

Table 2.7.4 Breakdown of Service with an Interpreter by Claim Closure Status at 12 months

			Service with Interpreter		Total
			No	Yes	
Claim Closed in 12 months?	N	Count	8882	579	9461
		% within Service with Interpreter	18.9%	80.3%	19.8%
	Y	Count	38208	142	38350
		% within Service with Interpreter	81.1%	19.7%	80.2%
Total	Count		47090	721	47811
	% within Service with Interpreter		100.0%	100.0%	100.0%

Relationship between service with an interpreter, duration of case and time to notification: As seen from the table below, there was a substantial delay between injury and notification for claims that required an interpreter (56 days) compared to claims that did not require an interpreter (19 days). Similarly, the duration of case was substantially longer for claims that required service with an interpreter (589 days), as compared to 219 days for cases that did not require service with an interpreter. Details are provided in Table 2.7.4 below.

Table 2.7.4 Claim length and Time to notification by Service with an Interpreter

Service with Interpreter		Days from Claim Date to Case Closure	Days from Notification to Case Closure	Days from Injury to Case Closure	Days from injury to notification
No	Mean	218.6823	218.6905	235.5675	19.16
	N	44058	44042	44058	47090
	Std. Deviation	246.31314	246.73049	256.30102	67.798
Yes	Mean	589.4385	590.1667	635.9333	56.03
	N	390	390	390	721
	Std. Deviation	389.94750	388.87325	398.28948	149.448
Total	Mean	221.9354	221.9512	239.0804	19.72
	N	44448	44432	44448	47811
	Std. Deviation	250.32817	250.73133	260.56924	69.884

Relationships between service with an interpreter, total claim payments and gross incurred cost at 12 months: As seen previously, the total claim payments and gross incurred cost are strongly correlated ($r = 0.826$). Therefore relationship between each of these variables and a third variable are expected to be similar.

Total claim payments are substantially higher for claimants that require service with an interpreter. The mean total claim payment for claimants that did not require an interpreter was \$6740.20. In contrast, the mean total claim payment for claimants that required service with an interpreter was \$31593.30.

The pattern is similar for gross cost incurred at 12 months (GCI-12). The mean GCI-12 claimants that did not require an interpreter was \$11742.88. In contrast, required service with an interpreter was \$70606.42.

Details are provide in Table 2.7.5 below.

Table 2.7.5 Claim payments to date and Gross cost incurred at 12 months by Service with an Interpreter

Service with Interpreter		Claim Payments to date	Gross incurred cost at 12 months
No	Mean	6740.2004	11742.8790
	N	46660	46660
	Std. Deviation	14849.23560	36242.28508
Yes	Mean	31593.3035	70606.4200
	N	689	689
	Std. Deviation	26507.12246	70015.23659
Total	Mean	7101.8508	12599.4331
	N	47349	47349
	Std. Deviation	15373.94976	37620.57943

Comment: The differences noted in this section may be due to a delay in notification by those who required service with an interpreter.

3. Summary and Conclusions

The results of the analysis performed above, may be summarised as follows:

1. The age distribution of claimants was approximately normal, with 73% of claims between the ages of 20 and 49 with an even distribution (approximately 24%) in each of the age groups: 20-29, 30-39 and 40-49.
2. Approximately two-thirds of the cases (67.9%) were males
3. The largest percent of claims were from the Manufacturing (20.1%), Health & Community (12.4%), Property & Business Services (11.5%), Retail Trade (10.3%) and Construction (10.2%).
4. The largest proportion of claims was from medium-sized employers (48%) followed by large employers (37.4%)
5. There was no clear relationship between employer size and gender or age
6. Female claimants were most strongly represented in Health & Community Services (83.9%), Education (65.7%), Finance & Insurance (62%) and Accommodation, Cafes & Restaurants (53%).
7. There was no clear relationship between industry and age.
8. Duration of case appeared to increase with age.
9. Duration of case was approximately two weeks shorter for males than for females
10. The longest case duration was for claimant from the Finance and Insurance industry, followed by Communication Services and Construction; the shortest case duration was for claimants from the Government and Defence sector.
11. The longest case duration was for employees of small employers; on average this was over two months longer than for employees of medium-sized or large employers. The shortest case duration was for "Retro-paid loss employers"
12. As age increased, the percent of cases closed within 12 months appeared to decrease.
13. There was no relationship between gender and case closure within 12 months.
14. There was no clear relationship between industry and case closure within 12 months.
15. The lowest percent of cases to be closed within 12 months was in the small employer category.
16. There appeared to be an increase in claim payments as age increased. A similar relationship was observed for gross cost incurred.
17. The mean total claim payments were lower for females than for males. However, the medians were similar for both genders. The mean difference may have been skewed due to a few males who received very high large claim payments. A similar relationship was observed for gross cost incurred.

18. The highest claim payments were made for claims by construction workers and the lowest to Electricity, Gas and Water Supply workers. A similar relationship was observed for gross cost incurred.
19. The highest claim payments were made for claims to employees of small employers. A similar relationship was observed for gross cost incurred.
20. The proportion of female claims referred to an injury management consultant was slightly higher than the proportion of male claims. On average, female claims were also referred to an IMC earlier than male claims.
21. There was an increase in referrals to an IMC with age
22. There appeared to be a marginal delay in referral to an IMC for claims from employees of small employers.
23. The largest percent of cases referred to an IMC is from the Accommodation, Cafes and Restaurants industry and the lowest from the Electricity, Gas and Water Supply Industry. There were no clear trends in time to referral by industry.
24. The proportion of cases that were referred to an IMC, that closed within 12 months was substantially lower than average. There was a clear decrease in closure rates as time to referral increased.
25. On average, total claim payments as well as gross cost incurred at 12 months were substantially higher for cases that were referred to an IMC than those who were not referred to an IMC within 12 months. There appears to be an increase in total claim payments as well as gross cost incurred, as time to referral to an IMC increases.
26. There was no clear relationship between gender and service with an interpreter.
27. There was a difference in the age distribution of claimants who required service with an interpreter and those who did not. Claimants who required an interpreter were generally older than those who did not.
28. Substantially fewer claims of claimants who required an interpreter were closed within 12 months.
29. There were substantial delays in notification as well as referral to an IMC, for claimants who required service with an interpreter.
30. On average, total claim payments as well as gross cost incurred at 12 months was substantially higher for claimants that required service with an interpreter. This could be related to delay in notification or delay in referral to an IMC. These issues were not examined.

Several of these issues are worthy of further investigation. Specifically, the following claims of the following cohorts need to be examined in greater detail:

1. Claims from employees working for small employers
2. Claims from claimants that require service with an interpreter
3. Claims that are referred to an IMC, especially, the timing of the referral.

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