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WorkCover Tasmania  
and Workplace Standards Tasmania

# **MANUAL HANDLING INJURIES TASMANIA 1999–2000**

**Compiled by Rehabilitation and Compensation Branch  
Workplace Standards Tasmania for the WorkCover Tasmania Board  
October 2001**

# MANUAL HANDLING INJURIES TASMANIA 1999–2000

## EXECUTIVE SUMMARY

### Historical Data

1. In both economic and human terms, a strong rationale exists for seeking significant improvements in the incidence of manual handling injuries in Tasmania.
2. Over the 11-year period between 1989–90 and 1999–2000, more than 54,500 manual handling injuries have been reported, accounting for 29% of all claims reported during the same period. The number of manual handling injuries averaged at approximately 4,960 each year.
3. The estimated total cost of manual handling injuries reported during the same 11-year period was \$522 million accounting for 44% of the total cost of all claims reported during the same period.
4. Using a conservative factor of five, the combined direct and indirect costs of manual handling injuries reported over the 11-year period would be equivalent to approximately \$2.6 billion.
5. Manual handling injuries incurring lost time of one day or more accounted for approximately 43% of all manual handling injuries, while other injuries incurring the same lost time accounted for 31% of the total number of other injuries.
6. In relative terms, the number of lost time manual handling injuries as a proportion of all lost time injuries has increased steadily since 1989–90. The opposite has happened in the case of lost time other injuries.
7. On average, severe cases of manual handling injuries (those incurring lost time of 60 days or more) constituted 45% of all severe injuries (on the bases of both number and estimated total cost), whereas other injuries constituted 55% of all severe cases. It is important to note that ‘other injuries’ comprise a group of injuries caused by a number of different factors including mental stress factors, falls, being hit by moving objects and vehicle accidents.

### Manual Handling Injuries 1999-2000

1. During the financial year 1999–2000, there were 3,955 manual handling injuries in Tasmania with an estimated total cost of \$35.4 million or an estimated average cost of \$8,940 per claim.
2. In overall terms, the gender distribution of manual handling injuries showed 65% for men and 35% for women. The manual handling frequency rate (MHFR) for men (15.6 manual handling injuries per million hours worked) was 13% higher than that for women.
3. MHFRs were higher for men than for women for each age group from 15–24 to 35–44, while MHFR was higher for women than for men in the age group 45–54.
4. Labourers and related workers recorded the highest MHFR (38.9 manual handling injuries per million hours worked), followed by intermediate production and related workers (21.8), and tradespersons and related workers (18.3). These MHFRs were also above the average rate for all occupations of 14.9 manual handling injuries per million hours worked.
5. The Forestry/Logging/Paper/Printing sector recorded the highest average MHFR for all persons (men and women, 23.9 manual handling injuries per million hours worked), followed by Manufacturing (22.3), Rural/Meat/Food/Beverage (19.8), and Construction/Local Government (18.6). The

Clothing/Footwear/Textiles/Miscellaneous sector recorded the lowest average MHFR (7.6), followed by Entertainment/Hospitality (10.4).

6. Comparison of MHFR by gender showed women to have recorded the highest MHFR in the Rural/Meat/Food/Beverage sector (25.0 manual handling injuries per million hours worked)—a rate that was significantly higher (by 37%) than the rate for men (18.3). The other sector where the average MHFR for women was relatively higher than the rate for men was the Entertainment/Hospitality sector (12.2 for women, 8.8 for men).
7. In 1999–2000, 85% of manual handling injuries resulted in sprains and strains with an estimated total cost of \$27.2 million.
8. The most common body parts affected by manual handling injuries were the trunk (particularly the back) and upper limbs, accounting for 81% of all bodily locations, with an estimated total cost of \$29.3 million
9. Non-powered handtools, appliances and equipment in the form of fastening, packing and packaging equipment and furniture and fittings were the most common agencies of injuries (27%), followed by materials and substances such as oil and fat, tree felled logs, sawn or dressed timber, ferrous and non-ferrous metals (22%), and animal, human and biological agencies consisting mainly of other persons such as hospital patients (13%).
10. In 1999–2000, 51% of all manual handling injuries were sustained by workers in the nine black spots occupations: trades assistants, nursing occupations, metal tradespersons, road transport drivers, cleaners, agricultural labourers, machine operators, school teachers and sales assistants.
11. The nursing occupations recorded the highest number of manual handling injuries (19%), followed by machine operators (15%), and metal tradespersons (14%). School teachers recorded the lowest number of manual handling injuries (4%).

# MANUAL HANDLING INJURIES TASMANIA 1999–2000

## **Purpose and scope of report**

This report presents statistical information relating to manual handling injuries in Tasmania. The report should be a useful reference material for implementing injury prevention programs to minimise the incidence of manual handling injuries in the State.

The areas covered in the report are:

- trends in the number and cost of manual handling injuries in comparison with other injuries
- trends in the number and cost of lost time manual handling injuries
- trends in the number and cost of severe manual handling injuries
- characteristics of workers at risk of sustaining manual handling injuries (eg, gender, age group, occupation, industry)
- types of injuries associated with manual handling
- parts of body affected by manual handling injuries
- agencies/causes of injuries associated with manual handling
- manual handling injuries in the black spots occupations

## **Why reduce the risk of manual handling injuries?**

Over the 11-year period between 1989–90 and 1999–2000, more than 54,500 manual handling injuries have been recorded on WorkCover Tasmania's workers' compensation database. This number accounted for 29% of all claims reported during that period (189,734).

The estimated total cost of manual handling injuries reported during the same 11-year period is \$522 million, \$459 million of which has been paid to the period ending December 2000, with another \$63 million estimated by insurers, at December 2000, as remaining to be paid. The estimated total cost of manual handling injuries accounted for 44% of the total cost of all claims reported during the same period (\$1.2 billion).

The known costs of workers' compensation claims are a relatively small proportion of the combined direct and indirect costs of workplace injuries. Using a conservative multiplier factor of five, the total direct and indirect costs of manual handling injuries reported over the 11-year period would be equivalent to approximately \$2.6 billion.

Indirect costs associated with workplace injuries include costs borne by employers due to lost production, recruiting and training of replacement staff; costs borne by workers such as inadequate compensation for lost earnings, unreimbursed medical and health expenses; and costs borne by the community through Medicare and social security payments. It is worth noting also that, generally, the multiplier factor does not take into account 'social costs', ie, costs of pain and suffering to the worker (and the worker's family members), loss of prospects for further career development, general decline in the quality of life, etc—although some of these 'social costs' may be reflected in a small number of claims linked to common law awards.

In light of the above, there is a very real and strong argument for promoting the view that occupational health and safety improvements in the area of manual handling are an investment in the future.

## **Manual handling injury defined**

The National Occupational Health and Safety Commission (NOHSC) has a system for coding workplace injuries according to the way injuries are described by workers on the claim forms. This system, *The Type of Occurrence Classification System Second Edition (TOOCS2, 1999)*, is closely followed by workers'

compensation jurisdictions to ensure consistency in the way occupational injuries are coded. The identification of manual handling injuries in Tasmania is made possible through this system.

Under TOOCS2, there are 46 different ways by which a worker can sustain an injury in the workplace. Only four of these categories fall into a group called ‘body stressing’, also commonly referred to as ‘manual handling’. The four categories of body stressing or manual handling as specified in TOOCS2 are:

- (a) muscular stress while lifting, carrying, or putting down objects;
- (b) muscular stress while handling objects other than lifting, carrying or putting down;
- (c) muscular stress with no objects being handled; and
- (d) repetitive movement, low muscle loading.

A publication by Worksafe Western Australia, *Manual Handling in the Meat Industry*, provides a detailed explanation of manual handling injuries. It is reproduced below:

‘Manual handling injuries are associated with overexertion of physical stress when lifting, carrying, moving or holding an object. Injuries from handling loads are usually sprains and strains to muscles, tendons, or bruises and fractures from dropped loads.

‘It is not only lifting that leads to manual handling injuries. Jobs that involve repetitive movements or working in an awkward position for a long time can lead to cumulative strain. Unlike a knife cut or broken bone, the injury does not occur at one particular moment, but is the cumulative effect of the daily strain and fatigue to muscles and ligaments.

‘Manual handling is also associated with occupational overuse syndrome (OOS) — also known as repetitive strain injury (RSI), which refers to a range of conditions characterised by discomfort or persistent pain in muscles, tendons and other soft tissues. Some of these are:

- carpal tunnel syndrome;
- epicondylitis; and
- tenosynovitis.’

Here are some examples of manual handling injuries extracted from WorkCover Tasmania’s database:

*Strained lower back lifting vibrating plate off vehicle*  
*Strained lower back lifting lengths of gutter off truck*  
*Overuse injury to neck and chest—setting up mail on motorcycle*  
*Shoulder cracked when lifting carton of beer—bursitis*  
*Strained left shoulder moving hydro cooler bin on pallet trolley*  
*Sciatica—lifting ramp off trailer*  
*Carpal tunnel/epicondylitis to right arm—overuse due to working with paper machine*  
*Nerve damage to lower arm—repetitive keyboarding*  
*Lifting jack foot on drill rig—lower back strain*

As a joint initiative in 2000, WorkCover Tasmania and Workplace Standards Tasmania produced a booklet entitled, *Play it SAFE with manual handling — An introductory guide to reducing the risk of manual handling injuries in the workplace*. This booklet provided a brief description of manual handling and relevant guidelines based on the ‘The Play it SAFE’ steps of hazard management:

**Spot the hazard**  
**Assess the risk**  
**Fix the problem**  
**Evaluate results**

This guide has been reviewed and replaced by the publication, *Body Strain Prevention Kit—Your guide to avoiding manual handling injuries in the workplace*. The kit was launched during the Workplace Safety Week in October 2001.

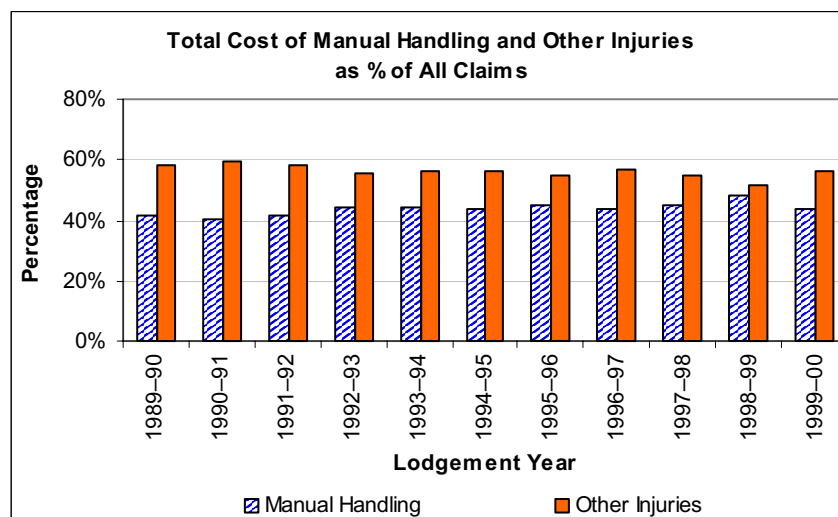
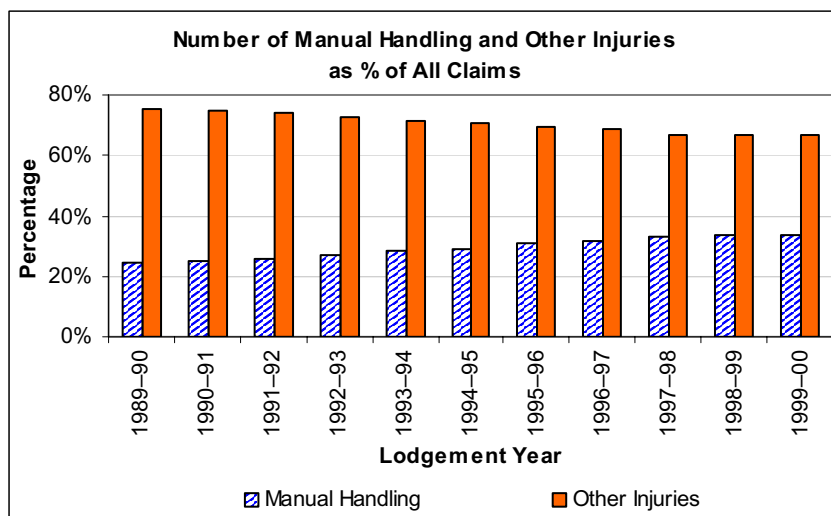
## Data Analysis

### Historical Data

The data used in this report have been extracted from WorkCover Tasmania’s workers’ compensation statistical collection. It includes workers’ compensation claims reported to WorkCover Tasmania. It does not include workplace injuries that do not result in claims being lodged by workers; in this sense, the numbers and costs presented in this report are underestimated and do not reflect the true extent of the incidence and costs of occupational manual handling injuries.

#### Number and total cost of manual handling injuries

Between 1989–90 and 1999–2000, the number of manual handling injuries averaged at approximately 4,960 each year. The highest number (5,638) was reached in 1993–94 while 1999–2000 recorded the lowest number (3,955). In absolute terms, there has been a slight improvement in the number of manual handling injuries in 1999–2000 relative to the previous year (a decline of 5.2%). In relative terms (ie, manual handling injuries as a percentage of all claims), however, the number of manual handling injuries as a proportion of all claims has increased steadily between 1989–90 and 1997–98 and has remained relatively stable in the past three years. On average, over the 11-year period from 1989–90 to 1999–2000, the number of manual handling injuries accounted for 29% of all claims.



By comparison, the number of other injuries has steadily declined in absolute terms since 1989–90. In relative terms, the number of other injuries declined continuously from 1989–90 to 1997–98 and has remained relatively stable between 1997–98 and 1999–2000. On average, over the 11-year period from 1989–90 to 1999–2000, the number of other injuries accounted for 71% of all claims.

The total cost of manual handling injuries reported over the 11-year period was \$522 million. On average, the total cost of manual handling injuries was approximately \$47.5 million each year.

While the number of claims as a proportion of all claims averaged at approximately 29%, the total cost of manual handling injuries as a proportion of the total cost of all claims was, on average, disproportionately higher (44%). By comparison, other injuries accounted for 71% of the total number of claims and 56% of the total cost of all claims.

The average cost of manual handling injuries based on 11-year data was \$9,569 while the average cost of other injuries was \$4,940.

Table 1. Number and Total Cost of Manual Handling and Other Injuries

Lodgement Year	Manual Handling		Other Injuries		All Claims	
	Number	Total Cost (\$m)	Number	Total Cost (\$m)	Number	Total Cost (\$m)
1989–90	5,399	31.972	16,801	44.858	22,200	76.829
1990–91	5,113	35.072	15,082	51.932	20,195	87.004
1991–92	5,100	44.720	14,476	62.410	19,576	107.130
1992–93	5,275	49.855	14,121	62.705	19,396	112.559
1993–94	5,638	56.956	13,994	72.431	19,632	129.387
1994–95	5,620	65.691	13,776	84.594	19,396	150.285
1995–96	5,227	60.163	11,752	72.819	16,979	132.982
1996–97	4,672	46.210	10,152	60.240	14,824	106.451
1997–98	4,372	47.282	8,885	58.179	13,257	105.460
1998–99	4,171	48.626	8,273	52.363	12,444	100.989
1999–00	3,955	35.357	7,880	45.341	11,835	80.698
Total	54,542	521.902	135,192	667.873	189,734	1,189.775

Table 2. Manual Handling and Other Injuries as % of All Claims

Lodgement Year	Manual Handling (No.)	Manual Handling (Total Cost)	Other Injuries (No)	Other Injuries (Total Cost)
1989–90	24.3%	41.6%	75.7%	58.4%
1990–91	25.3%	40.3%	74.7%	59.7%
1991–92	26.1%	41.7%	73.9%	58.3%
1992–93	27.2%	44.3%	72.8%	55.7%
1993–94	28.7%	44.0%	71.3%	56.0%
1994–95	29.0%	43.7%	71.0%	56.3%
1995–96	30.8%	45.2%	69.2%	54.8%
1996–97	31.5%	43.4%	68.5%	56.6%
1997–98	33.0%	44.8%	67.0%	55.2%
1998–99	33.5%	48.1%	66.5%	51.9%
1999–00	33.4%	43.8%	66.6%	56.2%
Average	28.7%	43.9%	71.3%	56.1%

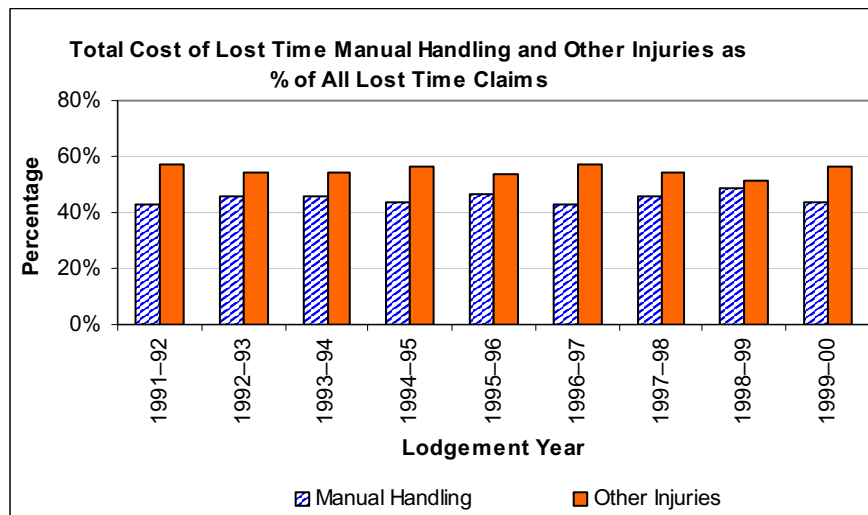
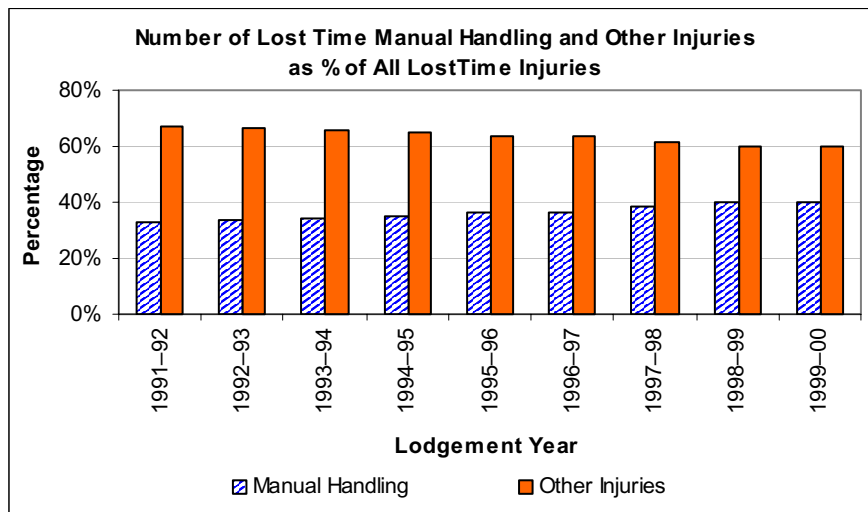
## Lost time injuries—manual handling and other injuries

Collection of data on lost time by WorkCover Tasmania began only from July 1991. For this reason, statistics presented in this section cover only the nine-year period from 1991–92 onwards.

On average, based on nine-year data, lost time manual handling injuries (ie, those incurring lost time of one day or more) accounted for 43% of all manual handling injuries, while lost time other injuries accounted for 31% of the total number of other injuries.

Viewed differently, on average, again based on nine-year data, lost time manual handling injuries account for 36% of all lost time injuries, while lost time other injuries accounted for 64% of all lost time injuries.

Both indicators suggest, when viewed against the total claim numbers presented in the previous section, that in relative terms manual handling injuries are more likely to result in lost time injuries.



On average, lost time manual handling injuries accounted for 76% of the total cost of all manual handling injuries, while lost time other injuries accounted for 72% of the total cost of other injuries.

On average, lost time manual handling injuries accounted for 45% of the total cost of all lost time injuries, while lost time other injuries accounted for 55% of the total cost of all lost time injuries.

The estimated total cost of lost time manual handling injuries reported over the nine-year period was \$394 million while the estimated total cost of lost time other injuries reported during the same period was \$482 million.

The estimated average cost of lost time manual handling injuries was \$16,898 while the estimated average cost of lost time other injuries was \$11,458.

In relative terms, the number of lost time manual handling injuries as a proportion of all lost time injuries has increased steadily since 1989–90. The opposite has happened in the case of lost time other injuries.

Table 3. Lost Time Injuries—Manual Handling and Other Injuries

Lodgement Year	Manual Handling		Other Injuries		All Lost Time Claims	
	Number	Total Cost (\$m)	Number	Total Cost (\$m)	Number	Total Cost (\$m)
1991–92	2,844	37.044	5,900	49.133	8,744	86.177
1992–93	2,922	45.324	5,781	54.341	8,703	99.664
1993–94	3,366	50.367	6,536	60.531	9,902	110.898
1994–95	3,352	56.737	6,295	73.373	9,647	130.110
1995–96	2,833	55.236	4,872	64.490	7,705	119.726
1996–97	2,399	39.924	4,147	52.925	6,546	92.849
1997–98	2,000	40.314	3,174	47.534	5,174	87.849
1998–99	1,870	40.068	2,800	42.867	4,670	82.935
1999–00	1,739	29.122	2,606	37.296	4,345	66.418
Total	23,325	394.135	42,111	482.489	65,436	876.625

Table 4. Lost Time Injuries—Manual Handling and Other Injuries  
As % of All Lost Time Claims

Lodgement Year	Manual Handling (No)	Manual Handling (Total Cost)	Other Injuries (No)	Other Injuries (Total Cost)
1991–92	32.5%	43.0%	67.5%	57.0%
1992–93	33.6%	45.5%	66.4%	54.5%
1993–94	34.0%	45.4%	66.0%	54.6%
1994–95	34.7%	43.6%	65.3%	56.4%
1995–96	36.8%	46.1%	63.2%	53.9%
1996–97	36.6%	43.0%	63.4%	57.0%
1997–98	38.7%	45.9%	61.3%	54.1%
1998–99	40.0%	48.3%	60.0%	51.7%
1999–00	40.0%	43.8%	60.0%	56.2%
Average	35.6%	45.0%	64.4%	55.0%

#### Severe injuries—manual handling and other Injuries

A severe injury as defined in this report relates to those injuries incurring lost time of 60 days or more. This differs from the approach taken in the production of the *Occupational Black Spots* report that was published by the Workplace Safety Board in July 1999. The methodology applied in the *Occupational Black Spots* report was more complicated and was undertaken only for that special project.

Between 1991–92 and 1999–2000, there were 3,152 severe manual handling injuries with an estimated total cost of approximately \$262 million. The estimated average cost per severe manual handling injury is \$83,018. By comparison, the number of other injuries considered severe was 3,798 with an estimated total cost of approximately \$312 million or an estimated average cost of \$82,225.

Based on nine-year data, 6% of all manual handling injuries were severe, accounting for 50% of the total cost of all manual handling injuries. By comparison, only 3% of other injuries were considered severe,

accounting for 47% of the total cost of other injuries. As a matter of interest, the main causes of other injuries are mental stress factors, falls, being hit by moving objects and vehicle accidents.

As shown in the following tables, severe manual handling injuries constituted 45% of all severe claims on average (on the basis of both number and total cost), whereas other injuries constituted 55% of all severe claims.

Table 5. Severe Injuries, Manual Handling and Other Injuries

Lodgement Year	Manual Handling		Other Injuries		All Severe Claims	
	Number	Total Cost (\$m)	Number	Total Cost (\$m)	Number	Total Cost (\$m)
1991–92	245	24.645	339	27.013	584	51.659
1992–93	322	28.070	435	33.338	757	61.408
1993–94	381	29.902	479	37.606	860	67.508
1994–95	407	36.051	529	43.955	936	80.006
1995–96	431	33.742	502	39.561	933	73.303
1996–97	374	29.125	416	35.751	790	64.876
1997–98	374	30.438	403	36.011	777	66.449
1998–99	363	30.229	382	32.932	745	63.161
1999–00	255	19.471	313	26.124	568	45.594
Total	3,152	261.674	3,798	312.291	6,950	573.965

Table 6. Severe Injuries, Manual Handling and Other Injuries  
As % of All Severe Injuries

Lodgement Year	Manual Handling (No.)	Manual Handling (Total Cost)	Other Injuries (No.)	Other Injuries (Total Cost)
1991–92	42.0%	47.7%	58.0%	52.3%
1992–93	42.5%	45.7%	57.5%	54.3%
1993–94	44.3%	44.3%	55.7%	55.7%
1994–95	43.5%	45.1%	56.5%	54.9%
1995–96	46.2%	46.0%	53.8%	54.0%
1996–97	47.3%	44.9%	52.7%	55.1%
1997–98	48.1%	45.8%	51.9%	54.2%
1998–99	48.7%	47.9%	51.3%	52.1%
1999–00	44.9%	42.7%	55.1%	57.3%
Total	45.4%	45.6%	54.6%	54.4%

### Manual handling injuries—1999–2000

This section presents statistics on manual handling injuries lodged during the financial year 1999–2000 (beginning 1 July 1999 and ending 30 June 2000).

During the year, there were 3,955 manual handling injuries in Tasmania with an estimated total cost of \$35.4 million or an estimated average cost per manual handling injury of \$8,940. It is worth mentioning that the estimated total cost of claims is generally underestimated for claims reported in most recent years, particularly the latest financial year. As claims develop and more information become available to insurers, the estimates get revised to reflect as closely as possible the expected total cost of the claims.

## Characteristics of workers at risk of sustaining manual handling injuries

### Gender of worker:

The gender distribution of manual handling injuries shows 65% for men and 35% for women. The manual handling frequency rate (MHFR) for men (15.6 manual handling injuries per million hours worked) was 13% higher than that for women (13.8 manual handling injuries per million hours worked). The estimated total cost of manual handling injuries sustained by women workers in 1999–2000 was \$12.2 million while the estimated total cost for men was \$23.2 million. The average cost of manual handling injuries for women (\$8,739) was only slightly lower than the average cost for men (\$9,049).

Table 7. Manual handling injuries, by gender of worker, 1999–2000

Gender	Number	Total Cost (\$m)	Average Cost (\$)	Manual Handling Frequency Rate
Males	2,561	23.174	9,049	15.6
Females	1,394	12.183	8,739	13.8
Total	3,955	35.357	8,940	14.9

### Age of worker:

In 1999–2000, workers between 35 and 44 years old lodged the majority of manual handling injuries (30%), followed by the 25–34 year age group (26%), and the 45–54 year age group (22%). Male workers recorded higher manual handling injuries in all age groups compared to female workers. MHFRs were higher for men for each age group up to 44 years, while MHFR was higher for women than for men in the age group 45–54. The rate was approximately the same between the genders in the older age group 55 years and over.

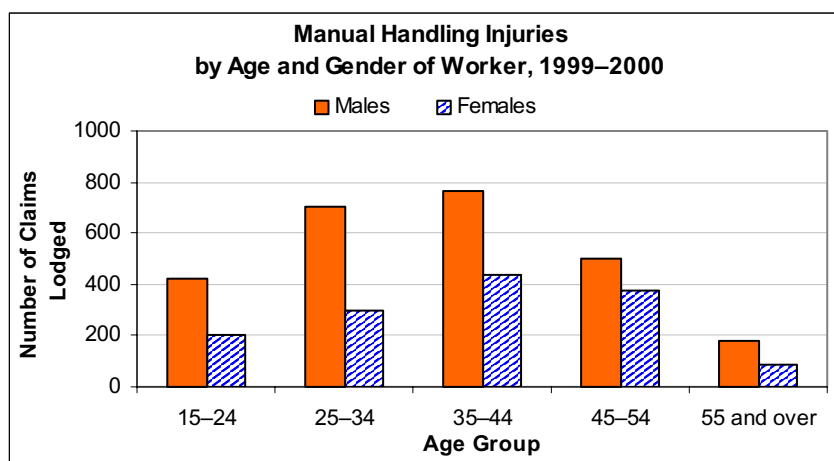


Table 8. Manual handling injuries, by age group of worker, 1999–2000

Age Group	Persons	Male	Female	Total Cost (\$m)	Average Cost (\$)	Manual Handling Frequency Rate		
						Persons	Male	Female
15–24	625	422	203	3.275	5,240	13.7	15.5	11.0
25–34	998	704	294	9.167	9,186	15.1	16.7	12.3
35–44	1,199	762	437	11.232	9,368	17.1	17.5	16.3
45–54	873	497	376	9.533	10,920	14.3	13.7	15.2
55 and over	260	176	84	2.150	8,270	11.6	11.6	11.8
Total	3,955	2,561	1,394	35.357	8,940	14.9	15.6	13.8

### Occupation of worker:

The data relating to workers' occupations were based on the Australian Bureau of Statistics, Australian Standard Classification of Occupations Second Edition (ASCO2)—a new classification adopted for coding workers' compensation data from July 1999. All data previously coded based on ASCO First Edition were globally converted to the new classification.

Manual handling injuries were most prevalent among workers employed as labourers and related workers (27%), followed by intermediate production and transport workers (18%), tradespersons and related workers (17%), and intermediate clerical, sales and service workers (14%). Advanced clerical and service workers recorded the lowest number of manual handling injuries.

Based on MHFR, labourers and related workers also recorded the highest rate (38.9 manual handling injuries per million hours worked), followed by intermediate production and related workers (21.8), and tradespersons and related workers (18.3). These MHFRs were also above the average rate for all occupations of 14.9 manual handling injuries per million hours worked.

Both the total cost and average cost of manual handling injuries were highest among labourers and related workers (\$13.9 million total cost, \$12,924 average cost) and intermediate production and transport workers (\$7.2 million total cost, \$10,104 average cost).

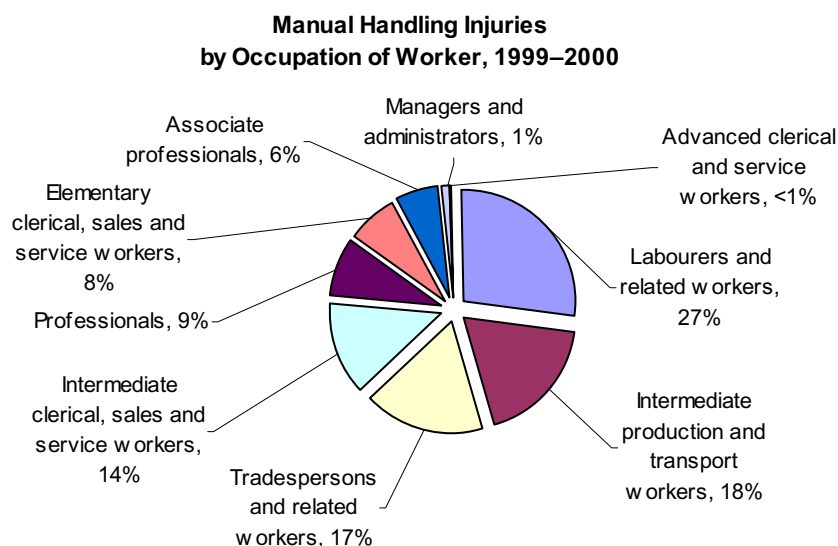


Table 9. Manual handling injuries, by occupation of worker, 1999–2000

Occupation	Number	Total Cost (\$m)	Average Cost (\$)	MHFR
Labourers and related workers	1,076	13.906	12,924	38.9
Intermediate production and transport workers	710	7.174	10,104	21.8
Tradespersons and related workers	686	4.519	6,588	18.3
Intermediate clerical, sales and service workers	541	4.216	7,793	11.5
Professionals	337	2.180	6,468	7.0
Elementary clerical, sales and service workers	299	1.723	5,762	12.6
Associate professionals	252	1.423	5,646	9.2
Managers and administrators	40	0.108	2,699	2.8
Advanced clerical and service workers	14	0.108	7,708	1.9
Total	3,955	35.357	8,940	14.9

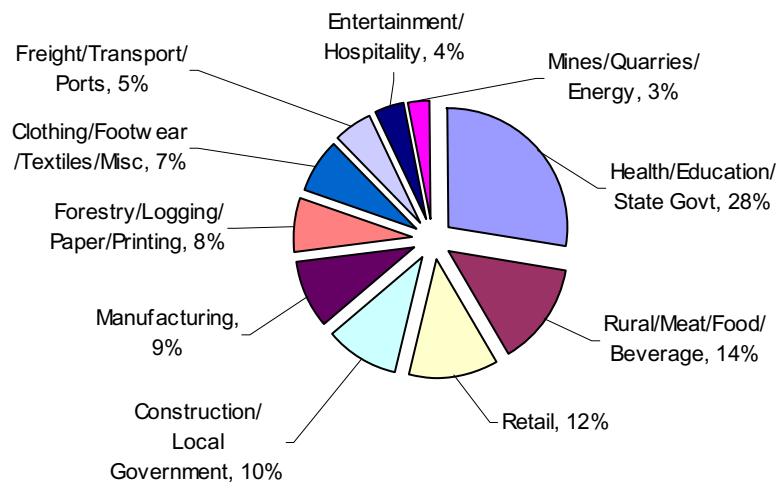
**Industry of worker:**

Manual handling injuries were most frequent in the Health/Education/State Government sector (28%), Rural/Meat/Food/Beverage (14%), Retail (12%), and Construction/Local Government (10%).

A marked difference was noted in the gender distribution across the sectors. Women workers accounted for 65% of manual handling injuries in the Health/Education/State Government. More than half (54%) of manual handling injuries reported in the Entertainment/Hospitality sector were also female. Men accounted for higher numbers of manual handling injuries in the Rural/Meat/Food/Beverage, Forestry/Logging/Wood/Paper/Printing, Freight/Transport/Ports, and Mines/Quarries/Energy sectors—sectors that are predominantly male populated in terms of workforce composition. 96% of manual handling injuries occurred among male workers in the Manufacturing sector, which consisted mainly of heavy manufacturing sectors such as petroleum, coal, chemical and associated product manufacturing, metal product manufacturing and machinery and equipment manufacturing.

In terms of MHFR, the Forestry/Logging/Paper/Printing sector recorded the highest average MHFR for all persons (23.9 manual handling injuries per million hours worked), followed by Manufacturing (22.3), Rural/Meat/Food/Beverage (19.8), and Construction/Local Government (18.6). The Clothing/Footwear/Textiles/Miscellaneous sector recorded the lowest average MHFR (7.6), followed by Entertainment/Hospitality (10.4). Comparison of MHFR by gender shows women to have recorded the highest MHFR in the Rural/Meat/Food/Beverage sector (25.0 manual handling injuries per million hours worked)—a rate that is significantly higher (by 37%) than the rate for men at 18.3 manual handling injuries per million hours worked. Most of these injuries occurred in the food processing industries such as meat and meat product processing and fruit and vegetable processing. The other sector where the average MHFR for women was relatively higher than the rate for men was the Entertainment/Hospitality sector (12.2 for women, 8.8 for men). As in all persons, MHFRs were relatively high for both men and women in the Forestry/Logging/Paper/Printing sector (24.6 for men and 20.2 for women).

The estimated total cost of manual handling injuries was highest in the Rural/Meat/Food/Beverage (\$7.4 million) and lowest in Mines/Quarries/Energy (\$1.0 million). The average cost per manual handling injury was also highest in the Rural/Meat/Food Beverage sector at \$13,458 and lowest in Health/Education/State Government at \$5,904 per manual handling injury.



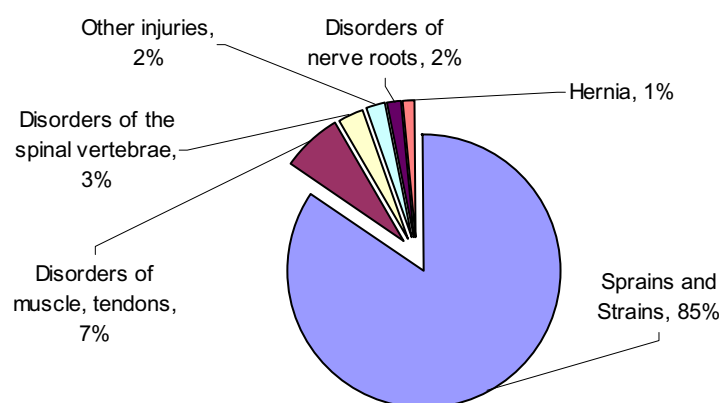
**Manual Handling Injuries  
by Industry Sector 1999-2000**

Table 10. Manual handling injuries, by industry sector, 1999–2000

Industry Sector	Persons	Males	Females	Total Cost (\$m)	Average Cost (\$)	MHFR		
						Persons	Male	Female
Health/Education/State Gov	1,102	387	715	6.507	5,904	16.2	15.0	16.8
Rural/Meat/Food/Beverage	550	397	153	7.402	13,458	19.8	18.3	25.0
Retail	466	293	173	3.463	7,432	11.0	11.3	10.6
Construction/Local Government	398	357	41	4.300	10,803	18.6	20.3	10.7
Manufacturing	362	349	13	2.814	7,773	22.3	23.8	8.3
Forestry/Logging/Paper/Printing	297	258	39	2.965	9,983	23.9	24.6	20.2
Clothing/Footwear/Textiles/Misc	294	142	152	3.644	12,395	7.6	7.0	8.2
Freight/Transport/Ports	215	193	22	1.711	7,958	13.3	14.5	7.6
Entertainment/Hospitality	147	67	80	1.502	10,217	10.4	8.8	12.2
Mines/Quarries/Energy	124	117	7	1.049	8,463	15.8	16.3	10.2
Total	3,955	2,560	1,395	35.357	8,940	14.9	15.6	13.8

### Types of Injuries resulting from manual handling

In 1999–2000, 85% of manual handling injuries resulted in sprains and strains of joints and adjacent muscles (3,344), with an estimated total cost of \$27.2 million. The other two predominant types of injuries were disorders of muscles and tendons (276 injuries, total cost of \$3.9 million), and disorders of the spinal vertebrae (131 injuries, total cost of \$2.4 million). The following pie chart shows the most common types of injuries involving manual handling.



**Manual Handling Injuries  
by Type of Injury 1999–2000**

Table 11. Types of injuries resulting from manual handling, 1999–2000

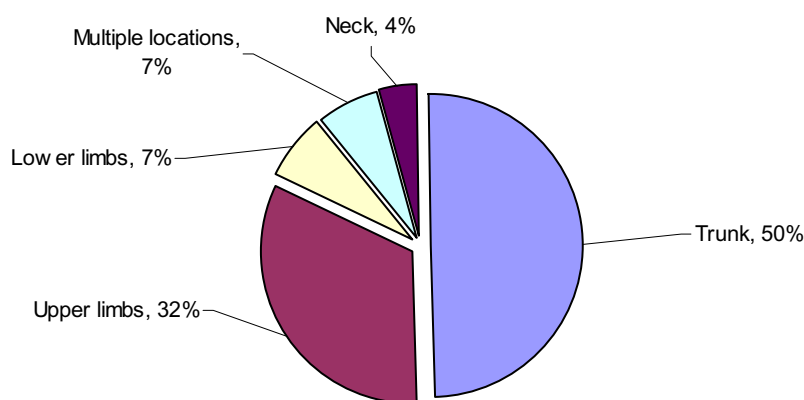
Type of Injury	Number	Total Cost (\$m)	Average Cost (\$)
Sprains and Strains	3,344	27.166	8,124
Disorders of muscle, tendons	276	3.887	14,083
Disorders of the spinal vertebrae	131	2.402	18,334
Other injuries	85	0.376	4,420
Disorders of nerve roots	65	1.226	18,865
Hernia	54	0.301	5,570
Total	3,955	35.357	8,940

### Parts of body affected by manual handling injuries

The most common body parts affected were the trunk (49%, predominantly the back) and upper limbs (32%, mainly the shoulder, wrist, elbow, hand, fingers and thumb, and forearm). These body parts accounted for 81% (3,237) of all bodily locations affected by manual handling injuries in 1999–2000 and had an estimated total cost of \$29.3 million.

Table 12. Parts of body affected by manual handling injuries, 1999–2000

Part of Body	Number	Total Cost (\$m)	Average Cost (\$)
Trunk	1,956	16.247	8,306
Upper limbs	1,281	13.022	10,166
Lower limbs	287	1.322	4,607
Multiple locations	270	3.983	14,753
Neck	161	0.782	4,786
Total	3,955	35.357	8,940



**Manual Handling Injuries  
by Part of Body Affected 1999–2000**

### Agencies of manual handling injuries

Based on Worksafe Australia's *TOOCS2*, the breakdown agency of injury refers to the object, substance or circumstance that was principally involved in, or most closely associated with, the point at which things started to go wrong and which ultimately led to the most serious injury or disease. For the purpose of this report, the breakdown agency of injury will be simply referred to as agency of injury.

As shown in the following pie chart and table, the most common agencies of manual handling injuries were non-powered hand tools, appliances and equipment (27%, consisting mainly of fastening, packing and packaging equipment and furniture and fittings), materials and substances (22%, predominantly materials and substances such as oil and fat, tree felled logs, sawn or dressed timber, ferrous and non-ferrous metal and fragments such as metal, glass or wood), and animal, human and biological agencies (13%, which consisted mainly of other persons, eg hospital patients, and other animal parts or products, eg, carcasses).

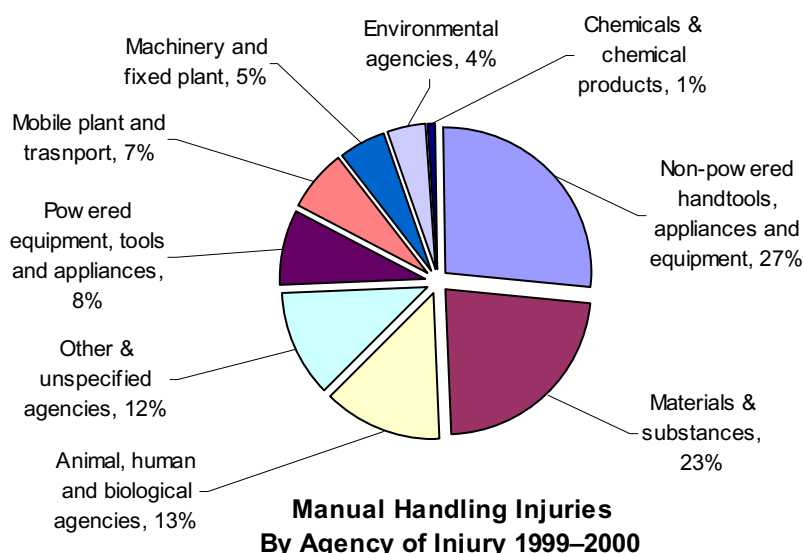


Table 13. Agencies of manual handling injuries, 1999–2000

Agency of Injury	All	Total Cost (\$m)	Average Cost (\$)
Non-powered handtools, appliances and equipment	1,057	10.360	9,802
Materials & substances	885	9.063	10,241
Animal, human and biological agencies	522	3.123	5,983
Other & unspecified agencies	466	2.898	6,218
Powered equipment, tools and appliances	328	4.065	12,393
Mobile plant and transport	283	2.766	9,774
Machinery and fixed plant	209	2.115	10,119
Environmental agencies	169	0.885	5,237
Chemicals & chemical products	36	0.082	2,274
Total	3,955	35.357	8,940

## Manual handling injuries in the black spots occupations—1999–2000

### Number and total cost

This section presents statistics on the black spots occupations identified in the section on *Occupational Black Spots Tasmania*, which is part of the report, *Potential Target Areas for the Strategic Prevention of Workplace Injuries*. The data presented relate to 1999–2000. This section has been included in this report to provide benchmark information that can be used by WorkCover Tasmania during the initial stages of its manual handling campaign program.

The black spots occupations identified in the *Black Spots* report fall into nine groups: trades assistants; nursing occupations; metal tradespersons; road transport drivers; cleaners; agricultural labourers; machine operators; school teachers; and sales assistants.

In 1999–2000, the number of manual handling injuries was 3,955. Of these, 2,027 (51%) belong to the black spots occupations. The nursing occupations have the highest number of manual handling injuries (378), followed by machine operators (303) and metal tradespersons (280). School teachers recorded the lowest number of manual handling injuries (74).

Table 14. Number and total cost of manual handling injuries in black spots occupations, 1999–2000

<b>Occupational Group</b>	<b>Number</b>	<b>Total Cost (\$m)</b>	<b>Average Cost (\$)</b>
Trades Assistants	229	3.437	15,007
Nursing Occupations	378	2.860	7,567
Metal Tradespersons	280	2.058	7,351
Road Transport Drivers	154	1.758	11,416
Cleaners	177	1.715	9,688
Agricultural Labourers	205	2.306	11,250
Machine Operators	303	3.482	11,490
School Teachers	74	0.378	5,113
Sales Assistants	227	1.218	5,367
<b>Total</b>	<b>2,027</b>	<b>19.212</b>	<b>9,478</b>

The total cost of manual handling injuries in the black spots occupations for 1999–2000 was \$19.2 million. Of this, \$9.6 million has already been paid to December 2000, with another \$9.6 million estimated to be paid by insurers, at December 2000.

The average cost of manual handling injuries in the black spots occupations was \$9,478. The average cost was highest among trades assistants (\$15,007) and lowest among school teachers (\$5,113).

#### Lost time injuries

Of the 2,027 manual handling injuries in the black spots occupations, 976 (48%) were lost time injuries (those with lost time of one day or more). The frequency of occurrence of lost time injuries among the black spots occupations followed the same pattern as in the total number of manual handling injuries in these occupations.

Table 15. Lost time manual handling injuries in black spots occupations, 1999–2000

<b>Occupational Group</b>	<b>Number</b>	<b>Total Cost (\$m)</b>	<b>Average Cost (\$)</b>
Trades Assistants	99	2.891	29,199
Nursing Occupations	223	2.507	11,240
Metal Tradespersons	110	1.812	16,473
Road Transport Drivers	73	1.701	23,296
Cleaners	87	1.189	13,668
Agricultural Labourers	106	2.005	18,917
Machine Operators	152	2.796	18,396
School Teachers	35	0.319	9,104
Sales Assistants	91	1.094	12,027
<b>Total</b>	<b>976</b>	<b>16.314</b>	<b>16,715</b>

The total cost of lost time manual handling injuries in the black spots occupations was \$16.3 million. This accounted for 85% of the total cost of manual handling injuries in this group. The average cost for all black spots occupations was \$16,715. The average cost was highest among trades assistants (\$29,199), closely followed by road transport drivers (\$23,296), agricultural labourers (\$18,917), and machine operators (\$18,396). The average cost was lowest among school teachers (\$9,104).

## Severe injuries

There were 149 cases of severe manual handling injuries (those with 60 days or more lost due to injury) in the black spots occupations. This number constituted 7% of all manual handling injuries in this group (2,027). Severe manual handling injuries were most common among the nursing occupations (32), followed by machine operators (26) and trades assistants (24).

The total cost of these severe cases was \$10.8 million or 56% of the total cost of all manual handling injuries in this group. The average cost of severe manual handling injuries in the black spots group was \$72,383. Average cost was highest among road transport drivers (\$110,257), followed by metal tradespersons (\$103,778), trades assistants (\$91,764), and sales assistants (\$82,158).

Table 16. Severe manual handling injuries in black spots occupations, 1999–2000

<b>Occupational Group</b>	<b>Number</b>	<b>Total Cost (\$m)</b>	<b>Average Cost (\$)</b>
Trades Assistants	24	2.202	91,764
Nursing Occupations	32	1.408	44,000
Metal Tradespersons	8	0.830	103,778
Road Transport Drivers	12	1.323	110,257
Cleaners	15	0.661	44,070
Agricultural Labourers	19	1.370	72,093
Machine Operators	26	1.959	75,358
School Teachers	3	0.210	69,931
Sales Assistants	10	0.822	82,158
Total	149	10.785	72,383

## Black spots occupations by industry of worker

### ***Trades Assistants:***

Manual handling injuries to trades assistants commonly occurred in food and beverage manufacturing (49%), and wood and paper product manufacturing (36%).

Table 17. Trades Assistants, by industry of worker, 1999–2000

<b>Industry of Worker</b>	<b>Number</b>	<b>Total Cost (\$m)</b>	<b>Average Cost (\$)</b>
Food and beverage manufacturing	113	1.848	16,351
Wood and paper product manufacturing	81	0.741	9,148
Commercial fishing	14	0.300	21,434
Agriculture	8	0.243	30,416
Other industries	13	0.305	23,427
Total	229	3.437	15,007

### ***Nursing Occupations:***

The predominant industry associated with manual handling to the nursing occupations was the health services industry (91%).

Table 18. Nursing Occupations, by industry of worker, 1999–2000

<b>Industry of Worker</b>	<b>Number</b>	<b>Total Cost (\$m)</b>	<b>Average Cost (\$)</b>
Health services	344	2.688	7,815
Community services	25	0.152	6,076
Other industries	9	0.020	2,234
Total	378	2.860	7,567

**Metal Tradespersons:**

Manual handling injuries to metal tradespersons were prevalent in machinery and equipment manufacturing (45%), and metal product manufacturing (22%).

Table 19. Metal Tradespersons, by industry of worker, 1999–2000

Industry of Worker	Number	Total Cost (\$m)	Average Cost (\$)
Machinery and equipment manufacturing	125	1.048	8,385
Metal product manufacturing	61	0.618	10,124
Construction trade services	15	0.056	3,751
Food, beverage and tobacco manufacturing	14	0.018	1,310
Petroleum, coal, chemical and associated product mfg	8	0.068	8,562
General construction	7	0.111	15,885
Metal ore mining	7	0.033	4,757
Motor vehicle retailing and services	7	0.003	451
Wood and paper product manufacturing	7	0.002	344
Other industries	29	0.099	3,428
Total	280	2.058	7,351

**Road Transport Drivers:**

Road transport is the industry in which manual handling injuries among road transport drivers commonly occurred (52%).

Table 20. Road Transport Drivers, by industry of worker, 1999–2000

Industry of Worker	Number	Total Cost (\$m)	Average Cost (\$)
Road transport	80	0.815	10,186
Other services	8	0.119	14,858
Basic material wholesaling	7	0.055	7,804
Food, beverage and tobacco manufacturing	7	0.054	7,773
Metal ore mining	7	0.020	2,900
Construction trade services	5	0.027	5,411
Government administration	5	0.042	8,378
Personal and household good wholesaling	5	0.011	2,210
Other industries	30	0.615	20,500
Total	154	1.758	11,416

**Cleaners:**

Manual handling injuries were most frequent among cleaners in the education and health services industries—34% and 27%, respectively.

Table 21. Cleaners, by industry of worker, 1999–2000

Industry of Worker	Number	Total Cost (\$m)	Average Cost (\$)
Education	61	0.422	6,922
Health services	48	0.429	8,933
Business services	15	0.303	20,204
Accommodation, cafes and restaurants	12	0.135	11,285
Sport and recreation	12	0.017	1,432
Motor vehicle retailing and services	6	0.219	36,464
Property services	5	0.002	383
Other industries	18	0.187	10,412
Total	177	1.715	9,688

**Agricultural Labourers:**

Agriculture (40%), commercial fishing (18%), and forestry and logging (14%) were the industries with the highest number of manual handling injuries sustained by agricultural labourers.

Table 22. Agricultural Labourers, by industry of worker, 1999–2000

Industry of Worker	Number	Total Cost (\$m)	Average Cost (\$)
Agriculture	84	1.087	12,942
Commercial fishing	36	0.322	8,948
Forestry and logging	28	0.178	6,372
Government administration	22	0.104	4,716
Food, beverage and tobacco manufacturing	10	0.249	24,884
Basic material wholesaling	5	0.111	22,280
Other industries	20	0.254	12,724
Total	205	2.306	11,250

**Machine Operators:**

Manual handling injuries were most common among machine operators employed in food and beverage manufacturing (32%), and wood and paper product manufacturing (28%).

Table 23. Machine Operators, by industry of worker, 1999–2000

Industry of Worker	Number	Total Cost (\$m)	Average Cost (\$)
Food and beverage manufacturing	96	1.377	14,349
Wood and paper product manufacturing	85	0.671	7,896
Textile, clothing, footwear and leather manufacturing	37	0.526	14,226
Business services	13	0.019	1,463
Printing, publishing and recorded media	13	0.280	21,536
Commercial fishing	10	0.094	9,440
Food retailing	7	0.004	635
Health services	7	0.025	3,550
Petroleum, coal, chemical and associated product mfg	7	0.087	12,466
Other industries	28	0.397	14,163
Total	303	3.482	11,490

**School Teachers:**

School teachers employed in secondary education (42%) and primary education (36%) sustained the most number of manual handling injuries.

Table 24. School Teachers, by industry of worker, 1999–2000

Industry of Worker	Number	Total Cost (\$m)	Average Cost (\$)
Secondary education	31	0.149	4,808
Primary education	27	0.158	5,855
Special school education	8	0.053	6,672
Other education	8	0.018	2,236
Total	74	0.378	5,113

**Sales Assistants:**

Manual handling injuries among sales assistants were most predominant in food retailing (47%) and personal and household good retailing (28%).

Table 25. Sales Assistants, by industry of worker, 1999–2000

Industry of Worker	Number	Total Cost (\$m)	Average Cost (\$)
Food retailing	107	0.575	5,375
Personal and household good retailing	63	0.274	4,343
Basic material wholesaling	13	0.009	668
Accommodation, cafes and restaurants	10	0.037	3,685
Personal and household good wholesaling	8	0.039	4,844
Other industries	26	0.285	10,974
Total	227	1.218	5,367

**Black spots occupations by type of injury****Trades Assistants:**

The most common types of injuries associated with manual handling that involve trades assistants were sprains and strains (83%) occupational overuse syndrome (OOS) or repetitive strain injury (RSI, 10%).

Table 26. Trades Assistants, by type of injury, 1999–2000

Type of Injury	Number	Total Cost (\$m)	Average Cost (\$)
Sprains and strains	189	2.451	12,968
RSI/OOS/Synovitis	22	0.448	20,359
Other injuries/diseases	18	0.538	29,875
Total	229	3.437	15,007

**Nursing Occupations:**

Sprains and strains (88%), spinal disorders (7%) and RSI/OOS (3%) were the most prevalent types of injuries occurring to workers in the nursing occupations as a result of poor manual handling practices.

Table 27. Nursing Occupations, by type of injury, 1999–2000

Type of Injury	Number	Total Cost (\$m)	Average Cost (\$)
Sprains and strains	334	2.258	6,760
Spinal disorders	25	0.374	14,950
RSI/OOS/Synovitis	12	0.167	13,929
Other injuries/diseases	7	0.062	8,800
Total	378	2.860	7,567

**Metal Tradespersons:**

The most prevalent types of injuries to metal tradespersons were sprains and strains (89%) and repetitive strain injury/occupational overuse syndrome (6%).

Table 28. Metal Tradespersons, by type of injury, 1999–2000

Type of Injury	Number	Total Cost (\$m)	Average Cost (\$)
Sprains and strains	248	1.812	7,308
RSI/OOS/Synovitis	18	0.106	5,872
Other injuries/diseases	14	0.140	10,017
Total	280	2.058	7,351

**Road Transport Drivers:**

Sprains and strains (88%), hernia (4%) and spinal disorders (3%) were the injuries most common to road transport drivers.

Table 29. Road Transport Drivers, by type of injury, 1999–2000

Type of Injury	Number	Total Cost (\$m)	Average Cost (\$)
Sprains and strains	135	1.578	11,690
Hernia	6	0.023	3,863
Spinal disorders	5	0.088	17,612
Other injuries/diseases	8	0.069	8,583
Total	154	1.758	11,416

**Cleaners:**

The most common injuries associated with manual handling occurring among cleaners were sprains and strains (80%), repetitive strain injury or occupational overuse syndrome (11%), and spinal disorders (5%).

Table 30. Cleaners, by type of injury, 1999–2000

Type of Injury	Number	Total Cost (\$m)	Average Cost (\$)
Sprains and strains	142	1.412	9,943
RSI/OOS/Synovitis	20	0.204	10,180
Spinal disorders	8	0.049	6,170
Other injuries/diseases	7	0.05	7,122
Total	177	1.715	9,688

**Agricultural Labourers:**

The majority of injuries to agricultural labourers arising from manual handling were sprains and strains (85%), repetitive strain injury (8%), and spinal disorders (3%).

Table 31. Agricultural Labourers, by type of injury, 1999–2000

Type of Injury	Number	Total Cost (\$m)	Average Cost (\$)
Sprains and strains	174	1.789	10,282
RSI/OOS/Synovitis	17	0.244	14,352
Spinal disorders	7	0.246	35,211
Other injuries/diseases	7	0.027	3,801
Total	205	2.306	11,250

**Machine Operators:**

The most prominent types of injuries to machine operators in 1999–2000 were sprains and strains (83%), repetitive strain injury or occupational overuse syndrome (9%), and diseases of the nervous system (4%).

Table 32. Machine Operators, by type of injury, 1999–2000

Type of Injury	Number	Total Cost (\$m)	Average Cost (\$)
Sprains and strains	251	2.250	8,966
RSI/OOS/Synovitis	27	0.847	31,385
Diseases of the nervous system	13	0.300	23,069
Other injuries/diseases	12	0.084	6987
Total	303	3.482	11,490

**School Teachers:**

Sprains and strains (84%) and spinal disorders (7%) were the injuries that occurred most frequently to school teachers as a result of inappropriate manual handling practices.

Table 33. School Teachers, by type of injury, 1999–2000

Type of Injury	Number	Total Cost (\$m)	Average Cost (\$)
Sprains and strains	62	0.335	5,406
Spinal disorders	5	0.018	3,553
Other injuries/diseases	7	0.025	3,633
Total	74	0.378	5,113

**Sales Assistants:**

The most prevalent types of injuries to sales assistants were sprains and strains (88%), repetitive strain injury or occupational overuse syndrome (4%), and spinal disorders (4%).

Table 34. Sales Assistants, by type of injury, 1999–2000

Type of Injury	Number	Total Cost (\$m)	Average Cost (\$)
Sprains and strains	199	1.083	5,440
RSI/OOS/Synovitis	10	0.028	2,848
Spinal disorders	9	0.068	7,523
Other injuries/diseases	9	0.04	4,400
Total	227	1.219	5,367

**Black spots occupations by agency of injury****Trades Assistants:**

The most common agencies of manual handling injuries to trades assistants were sawn or dressed timber (26%), other animal part or product such as meat and frozen chickens (13%), food (12%), and knives and cutlery (10%).

Table 35. Trades Assistants, by agency of injury, 1999–2000

Agency of Injury	Number	Total Cost (\$m)	Average Cost (\$)
Sawn or dressed timber	61	0.742	12,157
Other animal part or product	29	0.495	17,059
Food	27	0.384	14,235
Knives and cutlery	22	1.008	45,805
Agency not apparent	12	0.083	6,922
Crates, cartons, boxes, cases, drums, kegs, barrels	9	0.072	7,999
Other agencies	69	0.653	9,466
Total	229	3.437	15,007

**Nursing Occupations:**

Other persons such as hospital patients accounted for the most common agency of injury among the nursing occupations (66%), followed by hospital beds (9%).

Table 36. Nursing Occupations, by agency of injury, 1999–2000

Agency of Injury	Number	Total Cost (\$m)	Average Cost (\$)
Other person	249	1.801	7,235
Agency not apparent	34	0.281	8,250
Beds, hospital beds	25	0.165	6,607
Other materials and objects	11	0.024	2,205
Trolleys, handcarts	9	0.030	3,294
Other and unspecified furniture and fittings	9	0.017	1,868
Other agencies	41	0.543	13,235
Total	378	2.860	7,567

**Metal Tradespersons:**

Manual handling injuries to metal tradespersons were commonly due to handling of ferrous and non-ferrous metal (21%) and arc welding equipment (9%).

Table 37. Metal Tradespersons, by agency of injury, 1999–2000

Agency of Injury	Number	Total Cost (\$m)	Average Cost (\$)
Ferrous and non-ferrous metal	60	0.478	7,969
Agency not apparent	33	0.096	2,901
Arc welding equipment	26	0.588	22,604
Wrenches, spanners, sockets	15	0.035	2,321
Other equipment	14	0.019	1,351
Hammers, mallets	11	0.080	7,229
Abrasive, planing, cutting powered tools	10	0.105	10,465
Buildings and other structures	7	0.013	1,923
Other handtools	6	0.127	21,099
Ladders	6	0.002	379
Other materials and objects	6	0.026	4,342
Other agencies	86	0.490	5,702
Total	280	2.058	7,351

**Road Transport Drivers:**

Trucks, semi-trailers and lorries accounted for the highest number of manual handling injuries occurring among road transport drivers (17%), followed by buses, trolleybuses, minibuses (8%), and crates, cartons, boxes, cases, drums, kegs, barrels (6%).

Table 38. Road Transport Drivers, by agency of injury, 1999–2000

<b>Agency of Injury</b>	<b>Number</b>	<b>Total Cost (\$m)</b>	<b>Average Cost (\$)</b>
Trucks, semi-trailers, lorries	26	0.234	9,013
Buses, trolleybuses, minibuses	13	0.030	2,294
Agency not apparent	11	0.018	1,608
Crates, cartons, boxes, cases, drums, kegs, barrels	10	0.053	5,294
Food	9	0.019	2,131
Other and unspecified furniture and fittings	7	0.090	12,804
Other equipment	7	0.002	240
Traffic and ground surfaces other	6	0.012	2,061
Stationery and paper products	4	0.219	54,702
Other materials and objects	4	0.064	16,009
Other agencies	57	1.018	17,853
Total	154	1.758	11,416

**Cleaners:**

Cleaning equipment such as vacuum cleaners and floor polishers was the most common agency of injury leading to manual handling injuries among cleaners (22%), followed by other materials and objects including bins and rubbish.

Table 39. Cleaners, agency of injury, 1999–2000

<b>Agency of Injury</b>	<b>Number</b>	<b>Total Cost (\$m)</b>	<b>Average Cost (\$)</b>
Cleaning equipment	39	0.261	6,705
Agency not apparent	18	0.246	13,640
Other materials and objects	15	0.088	5,881
Other and unspecified furniture and fittings	11	0.135	12,298
Brooms, mops	8	0.012	1,438
Other handtools	8	0.262	32,764
Crates, cartons, boxes, cases, drums, kegs, barrels	7	0.052	7,491
Seating furniture	7	0.150	21,385
Beds, hospital beds	7	0.006	897
Other agencies	57	0.502	8,811
Total	177	1.715	9,688

***Agricultural Labourers:***

Various forms of vegetation such as branches, bark, hedges, shrubs, fruit and vegetables commonly caused manual handling injuries to agricultural labourers (12%), followed by scissors (7%).

Table 40. Agricultural Labourers, by agency of injury, 1999–2000

<b>Agency of Injury</b>	<b>Number</b>	<b>Total Cost (\$m)</b>	<b>Average Cost (\$)</b>
Vegetation	25	0.298	11,911
Agency not apparent	24	0.343	14,273
Scissors	14	0.093	6,643
Other equipment	8	0.071	8,846
Chainsaws	7	0.020	2,902
Other animal part or product	7	0.018	2,532
Crates, cartons, boxes, cases, drums, kegs, barrels	6	0.108	18,019
Other materials and objects	6	0.017	2,865
Traffic and ground surfaces other	6	0.018	3,046
Tractors, agricultural or otherwise	5	0.152	30,420
Ferrous and non-ferrous metal	5	0.278	55,654
Other agencies	92	0.890	9,675
<b>Total</b>	<b>205</b>	<b>2.306</b>	<b>11,250</b>

***Machine Operators:***

Food such as bread, cheese and chocolates, accounted for the most common cause of manual handling injuries to machine operators ((17%). The other common agencies were stationery and paper products (7%), textile, clothing and footwear machinery (7%), and sawn or dressed timber (6%).

Table 41. Machine Operators, by agency of injury, 1999–2000

<b>Agency of Injury</b>	<b>Number</b>	<b>Total Cost (\$m)</b>	<b>Average Cost (\$)</b>
Food	52	0.691	13,279
Agency not apparent	34	0.535	15,744
Stationery and paper products	21	0.104	4,945
Textile, clothing and footwear machinery	20	0.252	12,618
Sawn or dressed timber	19	0.334	17,590
Paper, paperboard mill machinery	13	0.053	4,077
Crates, cartons, boxes, cases, drums, kegs, barrels	13	0.024	1,830
Other animal part or product	10	0.255	25,453
Packaging rolls	8	0.015	1,898
Clothing and footwear	7	0.225	32,196
Other equipment	7	0.014	2,021
Other materials and objects	7	0.004	596
Knives and cutlery	6	0.098	16,352
Other agencies	86	0.877	10,197
<b>Total</b>	<b>303</b>	<b>3.482</b>	<b>11,490</b>

**School Teachers:**

Other persons, principally students, accounted for the occurrence of a high number of manual handling injuries to school teachers (24%).

Table 42. School Teachers, by agency of injury, 1999–2000

Agency of Injury	Number	Total Cost (\$m)	Average Cost (\$)
Agency not apparent	21	0.055	2,598
Other person	18	0.080	4,426
Other and unspecified furniture and fittings	5	0.006	1,231
Entertainment electronics	3	0.010	3,353
Seating furniture	3	0.018	6,164
Bricks, tiles and concrete, cement and clay products	3	0.003	1,140
Other agencies	21	0.206	9,812
Total	74	0.378	5,113

**Sales Assistants:**

Food products accounted for the most common agency of manual handling injury to sales assistants (22%). Other common agencies were other materials and objects such as different types of grocery items (13%), and crates, cartons, boxes, cases, etc (7%).

Table 43. Sales Assistants, by agency of injury, 1999–2000

Agency of Injury	Number	Total Cost (\$m)	Average Cost (\$)
Food	50	0.374	7,479
Other materials and objects	29	0.159	5,472
Agency not apparent	23	0.039	1,675
Crates, cartons, boxes, cases, drums, kegs, barrels	16	0.020	1,273
Trolleys, handcarts	8	0.002	208
Vegetation	8	0.076	9,510
Clothing and footwear	6	0.009	1,428
Other (mainly) electronic office equipment	5	0.007	1,499
Pallets	5	0.004	722
Sawn or dressed timber	5	0.130	25,957
Other agencies	72	0.400	5,550
Total	227	1.218	5,367

**Conclusions**

This report highlights the importance of preventing manual handling injuries. Historical data based on workers' compensation claims provide strong evidence that there exists a strong rationale for seeking substantial improvements in the incidence of manual handling injuries in Tasmania.

The combined direct and indirect cost of manual handling injuries to the community in general is unacceptably high. On average, Tasmania spends \$47.5 million each year on the direct costs of manual handling injuries. The combined direct and indirect cost is approximately five times this amount.

By understanding the conditions in which they occur, manual handling injuries can be reduced. Identifying the characteristics of workers at risk of sustaining injuries is a step towards strategic prevention. This report has identified areas such as gender, age, occupation and industries of workers where the rates of frequency of occurrence of manual handling injuries are high. It has also provided some benchmark indicators for focusing on the nine identified black spots occupations where manual handling injuries are predominantly a problem.

In both economic and human terms, reductions in the occurrence of occupational injuries due to manual handling should translate into significant dollar savings and should contribute to the enhancement of the quality of life of the Tasmanian workforce and society as a whole.

Injury prevention needs to be an ongoing process. Simple measures such as following the 'Play it SAFE' steps of hazard management can have a significant impact on reducing and improving workplace safety. Remember:

**S**pot the hazard  
**A**ssess the risk  
**F**ix the problem  
**E**valuate results