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A retrospective cohort study of workers' compensation indicators from an occupational safety and health perspective

Alan D. Verdonk
Edith Cowan University

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**A Retrospective Cohort Study of Workers' Compensation
Indicators from an Occupational Safety and Health Perspective**

By

Alan D. Verdonk

Student Number 0987980

A Thesis Submitted in Partial Fulfilment of the Requirements
for the Award of PhD (Occupational Health and Safety)

At the Faculty of Communications, Health and Science
Edith Cowan University
Joondalup Campus

| | |
|-----------------------|------------------|
| Principal Supervisor: | Dr Milos Nedved |
| Associate Supervisor: | Dr Janis Mussett |

Date: February 2002

USE OF THESIS

The Use of Thesis statement is not included in this version of the thesis.

ABSTRACT

Since 1984 the role of the government in Western Australia, has changed in relation to occupational safety and health. This study considers the effect of the occupational safety and health legislation using workers' compensation accident data.

Academic and general staff accident data from a Western Australian University were researched. The time period is 20 years - 1979 through 1998 inclusive. 2,773 worker's compensation claims were analysed using Mann Whitney -U tests and cross-tabulations of safety prevention expenditure against the claims.

The work environment provides the full spectrum of workplace activities ranging from domicile duties (student housing services) to heavy machinery work (mechanical maintenance) through to construction activity (building and operations), along with exposures to hazardous substances through research programs, and different types of office work activities.

The staff numbers were 2949 staff in 1979 increasing to 6938 staff in 1998. The ages of the staff population were from school leavers to staff retirement age (in the latter years this being beyond the age of 65 years). The demographics indicated an aging workforce population with the predisposition to remain in the employ of the University for extended periods of their working lives. There were more female staff members

than male staff members and a greater number of male staff hold more senior positions. This tendency was changing in the latter years.

The study is unique in that it studies the topic of occupational health and safety from a 'micro' perspective of safety performance on a tertiary education work environment.

There were more hazard types reported and less injury types as well as less parts of the body injured after the Act. It was found from the comparative rates when comparing before and after the Western Australian Act and Regulations were introduced in 1988, the trends in cost of claims per \$100 of payroll, frequency, incidence, and severity rates were declining.

When comparing before and after 1988, it was found there was a statistically reliable difference ($p = 0.05$) in the five categories of total costs of claims; the compensation paid out; the lost time claims; the claims with common law settlement; and the rehabilitation, legal and administration costs. It was found the total costs for claims increased after the Act. There were more common law payment costs associated with claims after the Act. The costs for rehabilitation, legal costs, and administration cost were higher for the claims after the Act – this corresponds directly with the category total costs of claims.

There were less costs for workers' compensation claims with 'time off' claims after the Act and this was attributed to having fewer days off work from injuries or diseases.

The study has been beneficial in that it confirms the Robens Committee recommendations reduce injuries and diseases in the workplace. It was shown from this study, whilst costs associated with claims rose after the Act, the comparative rates show a trend downward on the numbers of claims. The impact on lost time claims also declined. Therefore this study illustrated the additional management directives and resources provided that were directly attributed to the introduced of the occupational safety and health legislation, promulgated in Western Australia in 1988, did impact in a positive way on the workers compensation claim numbers.

DECLARATION

I certify that this thesis does not, to the best of my knowledge and belief;

- (i) incorporate without acknowledgment any material previously submitted for a degree or diploma in any institution of higher education;
- (ii) contain any material previously published or written by another person except where due reference is made in the text; or
- (iii) contain any defamatory material.

Declaration note:

The contents of the introduction and components of the Literature Review that directly relate to this study have already been used in the Authors non-published Thesis to obtain the Degree of Masters of Public Health from Curtin University of Technology.

Signature _____

Date 27 FEBRUARY 2002

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1. INTRODUCTION

"In the middle of difficulty lies opportunity." Albert Einstein

1.1 Background to the study

Imagine the setting of an office environment in 1979. Relatively speaking not that long ago. Now look at your own office environment today - no doubt there are differences between your image of yesteryear and your office of today. Some differences would include the arrangement of your 'personal space' along with the computer, photocopier and printer made available to you by your employer. For an employee in Western Australia, these twenty plus years have meant many changes. Occupational safety and health, in concert with workers' compensation, have undergone major transformation. Specifically, and pertaining to this research, since 1984 the role of the government in Western Australia has changed in relation to occupational health and safety. This study investigates the effect of occupational health and safety legislation promulgated by the Western Australian Government in 1984, using workers' compensation accident data of a multi-site organisation for the period of 1979 to 1998 inclusive.

Managing the occupational safety and health program has become one of management's most important responsibilities because failure to manage this area may lead to injuries, illness, property damage and environmental damage. Managing an occupational safety and health program is no different from managing other areas of responsibility. All managers and supervisors,

regardless of their specific positions, industry, or organisation must organise and review the activities under their control. A traditional measure of safety performance has depended upon accident statistics and in particular workers' compensation data. This traditional approach, in measuring safety performance, is used in this research to indicate the impact by the occupational health and safety legislation introduced into Western Australia.

Workers' compensation data provides an historical perspective and therefore lends itself to retrospective studies of the performance of occupational safety and health legislative requirements. The implementation of a coordinated safety program and the measurement of safety performance are complementary activities and this study is designed to assist in understanding the impact of the Western Australian occupational safety and health legislation using workers' compensation data.

1.2 Hypothesis

The hypothesis for this research is as follows;

The Western Australian Occupational Safety and Health Act 1984 (as amended) had a positive impact on reducing workers' compensation claims.

This hypothesis was addressed by completing an historical case-study analysis, using the workers' compensation data from a Western Australian University,

for the twenty years 1979 to 1998 inclusive. The effects of interventions in the form of the change in Western Australian occupational safety and health legislation in 1984, with amendments promulgated in 1988, resulting in safety program initiatives required by this legislation along with the executive management changes, through out the 20 years, are investigated, analysed and discussed. The effect of occupational safety and health legislative requirements and executive management policy directives are scrutinized against the workers' compensation claims history. The University placed a major emphasis on the management of occupational safety and health at the time of the promulgation of the Western Australian Occupational Safety, Health and Welfare Act 1984 with Regulations (in 1988).

After 1988, the University allocated one percent of the total salaries each year, for preventative measures and payment of the workers' compensation premium. This was in excess of \$1 million per annum. In 1997, the University achieved a silver award for workplaces safety and health - acknowledging it as the only educational institution in Western Australian to meet the requirements of the WorkSafe WA safety-plan audit requirements. The "WorkSafe WA Plan" audits the management practices needed to establish and maintain working environments where employees are not exposed to hazards.

Safe working environments, with safe work practices, plant and systems of work, are the important components of the general duties outlined in the Western Australian occupational health and safety legislation.

The WorkSafe Plan (1995, pp. 4 - 7) states:

"Establishing and maintaining control is the basis of sound business management and this includes the management of occupational safety and health. Effective management should result in working environments where risks are controlled and goods and services are produced efficiently and safely."

Establishing effective safety management systems is a lot more than simply identifying hazards, assessing risks and implementing risk controls, although these are essential processes. It is about a demonstrated commitment by the most senior people in an organisation to set safety objectives, oversee planning and implementation, consider feedback from performance reviews and continuously improve the system.

WorkSafe Plan is an assessment process that rates safety management systems and directs attention to areas that could be improved. It can be used to compare the performance of organisations in the same industry and it can be repeated to regularly check on progress. Whilst it is generally accepted that medium and large organisations require comprehensive management systems, using the WorkSafe Plan makes good sense for organisations of all sizes.

WorkSafe Plan can be used to:

- *provide information on desirable safety management practices;*
- *identify the strengths and weaknesses of management systems;*
- *provide a measure for safety performance; and*
- *direct attention to areas that could be improved.*

WorkSafe Plan encourages the continuous improvement of safety performance as part of a best practice approach to safety management

WorkSafe Plan Elements

WorkSafe Plan has five elements and each one has a standard that describes the performance expected for that element. The five elements are:

- *Management commitment*
- *Planning*
- *Consultation*
- *Hazard Management and*
- *Training."*

The five elements of the plan have a number of indicators that are used to measure the extent to which the standards have been achieved. There are 50 indicators across the five elements. Each indicator is given a score out of ten, using a graduated rating method, and the scores are averaged to provide an overall rating of performance in each element. This study uses the elements of the WorkSafe Plan to identify areas of interest that warrant closer inspection.

1.3 Definition of Terms

Claim: A claim for workers' compensation. Workers' Compensation and Rehabilitation Act 1981, Western Australia.

Claims Costs: Cost of claims received to date. (RiskCover Western Australia Annual Report 1998/99).

Claims Paid: Total amount paid on the claims received to date. RiskCover Western Australia Annual Report (1998/99).

Common law: The system of laws developed by successive decisions by the courts and the role of precedent. Brooks (1994, p. 16).

Cost of claims per \$100 of pay roll: Estimated cost of claims incurred (Actuarially Assessed) each year multiplied by 100 and divided by the Wages declared by that Agency. (RiskCover Western Australia Annual Report 1997/98).

Disease: Includes any physical or mental ailment, disorder, defect, or morbid condition whether of sudden or gradual development. (Workers' Compensation and Rehabilitation Act 1981, Western Australia).

Employee: A person by who work is done under a contract of employment. (Western Australian Occupational Safety and Health Act 1984).

Employer: A person by whom an employee is employed under a contract of employment. (Western Australian Occupational Safety and Health Act 1984).

Fault: Legal blame from a breach of a legal duty or term of contract – as opposed to the narrow legal definition of wilful or negligent misconduct in breach of a legal duty. (The Macquarie Dictionary 2nd ed. 1992 Macquarie University NSW).

Frequency Rate: The number of occurrences of injury/disease for each one million hours worked. (Australian Standard AS 1885, Workplace Injury and Disease Recording Standard).

Hazard: In relation to a person, means anything that may result in injury; to the person; or, harm to the health of the person. (Western Australian Occupational Safety and Health Act 1984).

Incidence Rate: The number of lost time injuries/diseases for each 100 workers employed. (Australian Standard AS 1885, Workplace Injury and Disease Recording Standard)

Loss Ratio: Total projected claims costs expressed as a percentage of the Annual Contribution. (RiskCover Western Australia Annual Report 1998/99)

LTI/D's: A lost time injury or disease representing one full day or shift of lost time from work. (Australian Standard AS 1885, Workplace Injury and Disease Recording Standard).

No-fault: Lack of legal blameworthiness. (The Macquarie Dictionary 2nd ed. 1992 Macquarie University NSW).

Premium: The levy based on the agency wage roll and payment in respect of the estimated costs of workers' compensation cases for a given financial year. (RiskCover Western Australia Annual Report 1998/99).

Prescribed Amount: Means the financial year ending on 30 June each year and the sum prescribed by the Act. For any subsequent financial year the nearest whole number of dollars obtained by varying the prescribed amount by the percentage by which the minimum award rate varies before the next financial year commences. (Workers' Compensation and Rehabilitation Act 1981, Western Australia).

Risk: In relation to any injury or harm, means the probability of that injury or harm occurring. (Occupational Safety and Health Act 1984, Western Australia).

Severity Rate : The number of lost time injuries or diseases within a particular time period that are classified as severe. This means one day lost time or more. (Australian Standard AS 1885, Workplace Injury and Disease Recording Standard)

Unfunded Liability: The net assets of an organisation are less than its net liabilities. (RiskCover Western Australia Annual Report 1998/99).

Workplace: A place, whether or not in an aircraft, ship, vehicle, building, or other structure, where employees or self-employed persons work or are likely to be in the course of their work. (Western Australian Occupational Safety and Health Act 1984).

1.4 Injury Classifications

The injury classification system used in this research was set out by WorkSafe Australia in the Australian Standard AS 1885, "Workplace Injury and Disease Recording Standard." Analysis of the accident rates - Frequency, Incidence, and Severity, were completed for the full research period.

1.4.1 The formulas

The formulae used in the numerous calculations in this study are outlined below.

1.4.1.1 Frequency rate (FR)

The Frequency Rate is a method of expressing the number of loss time claims occurring per 1 million hours worked. The lost time frequency rate is calculated using the formula;

$$\text{FR} = \frac{\text{Number of lost time injuries/diseases} \times 1,000,000}{\text{Total hours worked}}$$

Where number of lost time injuries/diseases equate to one day or more lost time.

1.4.1.2 Incidence Rate (IR)

The Incidence Rate is an appropriate measure to express the number of new work injuries occurring per unit population per unit of time. For this research

the time period being each calendar year 1979 to 1998 inclusive. The incidence rate as a percentage is calculated using the formula;

$$IR = \frac{\text{Number of occurrences} \times 100}{\text{Number of workers exposed}}$$

1.4.1.3 Severity Rate (SR)

The Severity Rate is a method to assess the average length of time lost per period of time. The severity rate is calculated using the formula;

$$SR = \frac{\text{Number of working days lost} \times 1,000,000}{\text{Total hours worked}}$$

2 METHODS AND MATERIALS

2.1 Introduction

The methodology and materials used for this case study research are outlined in this chapter. The workers' compensation data was analysed and documentation of occupational safety and health programs and expenditure was obtained through the University's Human Resources Department and Finance Department. A pilot study was performed on another University to ascertain if the methodology was robust and if the data was available in a form suitable to complete a more comprehensive study (see Section 2.3).

2.2 Workers' Compensation Data

The data outlining the workers' compensation performance was available from the University. For the purposes of this research study, the University and the insurers agreed to provide all data in electronic form subject to a confidentiality agreement. This data was validated against all hard copy records located at the University and coding irregularities were cross-checked and corrected.

The academic and general staff workers' compensation data from a Western Australian University was collated into categories. This data was coded using the Standards Association of Australia HB16-1988 and placed on the central

computer system at the University and processed using the SPSS statistical package for Windows version 10. The raw data was converted into accident rates - Frequency Rates, Incidence Rates, and Severity Rates as defined by Australian Standard AS 1855 part 1 (1990) and described in Section 1.4.

The time period was 20 years - 1979 through 1998 inclusive. The work environment provided a comprehensive range of workplace activities from domicile duties (student housing services) to heavy machinery work (mechanical maintenance) through to construction activity (building and operations) along with contrasting types of office work activities and hazardous chemical exposure through the numerous research situations.

The staff numbers were 2949 staff in 1979 increasing to 6938 staff in 1998. The ages of the staff population ranged from school leavers to staff of retirement age (in the latter years this being beyond the age of 65 years). The demographics indicate an aging workforce population with the staff remaining in the employ of the University for extended periods of their working lives. There were more female staff members than male staff members and a greater number of male staff held more senior positions. This tendency was changing in the latter years.

The annual reports for the University provided information on the number of staff, however this is shown as Full Time Equivalent (FTE) staffing numbers.

This does not reflect the actual number of staff, that is head count number, but rather the hours worked equivalent to standard hours worked per position. To overcome this "head count" requirement, for producing accident rates, the number of Group Certificates sent to the Australian Taxation Office for each year was obtained. The inference being the number of Group Certificates represents the actual number of staff.

The workers' compensation data was presented in calendar-year format and the dollar amounts were standardised by using the consumer price index obtained from the Australian Bureau of Statistics. All the dollar values were converted into 1998 dollars.

2.3 Pilot Study

A research pilot study was undertaken using historical workers' compensation data from another Western Australian University, for the six years, January to December, of 1993 through 1998, inclusive.

A modification to the existing Western Australian occupational safety and health legislation occurred in October 1995. Comparisons of intervention data in the form of :

- introduction of an occupational safety and health advisor in 1994
- 1995 amendment to the Act
- establishment of occupational safety and health committee and Occupational Safety and Health Representatives in 1995
- introduction of manual handling training in 1996

for the pilot study Universities were completed to test the methodology.

Both Universities used the same insurance company for these periods. The Universities and the insurer agreed to provide all data in a computerised electronic form. Therefore, no observations or questioning of persons were conducted. The occupational safety and health programs at the two Universities were fully researched and descriptions of the management changes directly influenced by legislative requirements were analysed.

The pilot study showed that the methodology used in this research was appropriate and reliable. (refer Chapter 5 page 92)

2.4 Data Analysis – Procedures

Evidence was researched to support if managers, employees or safety and health representatives had any formal or informal training on legislative responsibilities, hazard identification, assessment or control. For the twenty year

period 1979 to 1998, from 1991, this was registered on the University's Human Resources computing system. Prior to 1991 samples of archived and present Personnel Files were examined. In total sixty-eight managers personnel files were examined and six hundred and ninety four (10% of the total population in 1998) employee Personnel files were examined to find evidence of training on legislative responsibilities, hazard identification, assessment or control.

All safety policies, procedures and forms for the reporting and investigation of accidents, and hazard reporting were collected and reviewed. These were analysed against the workers' compensation claims experiences over the full 20 years.

Duty Statements or Position Descriptions were reviewed to ascertain reference of responsibilities for occupational safety and health.

2.5 The Intervention Dates

The 1979 to 1998 annual workers' compensation injury data were categorized into intervention indicator periods.

The intervention dates are based on;

- intervention indicator {1} (1984), represents the appointment of a Safety Officer to the University and the introduction to the Western Australian Occupational Safety, Health and Welfare Act 1984;

- intervention indicator {2} (1988), corresponds with promulgation of the Western Australian Occupational Safety, Health and Welfare Act 1984 (as amended) and the establishment of the University occupational safety and health committees along with the introduction of the University occupational safety and health policy;

- intervention indicator {3} (1989), corresponds with the appointment of University elected safety and health representatives;

- intervention indicator {4} (1991), represents the introduction of the University occupational safety and health training programs.

- intervention indicator {5} (1993), represents the introduction of the University Risk Management Unit with the introduction of a full time Rehabilitation Coordinator

- Intervention indicators periods {6} corresponds to the changes in senior management personnel to ascertain any correlation with senior management directives (and commitment) and occupational safety and health performance.

| | | | |
|----------------|------------|----|-------------------|
| (start) CEO1 = | Jan. 1979 | to | Feb. 1980 |
| CEO 2= | Feb. 1980 | to | Jan.1987 |
| CEO 3 = | Jan. 1987 | to | March 1988 |
| CEO.4 = | March 1988 | to | Jan.1997 |
| CEO 5 = | Jan.1997 | to | Dec.1998 (finish) |

The intervention period {1} to {6} will be analysed to determine any correlation between;

1. number of claims;
2. working days lost;
3. types of Injuries/Disease;
4. agent (hazards) causing Injuries/Disease;
5. site of body Injured/Diseased
6. costs;
7. lost time injuries
8. Common law payments

The interventions provided correlation data for the requirements of the Western Australian Occupational Health and Safety Act 1984 and workers' compensation claims experiences. In addition, to the data on workers' compensation, the total yearly expenditure on the safety program were evaluated against claims experiences.

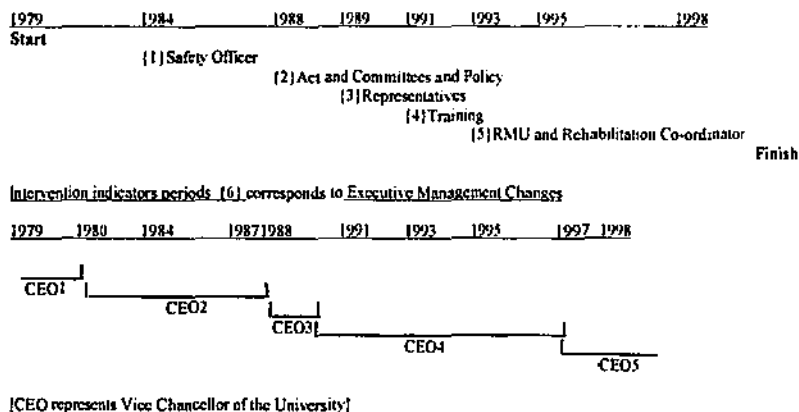


Figure 1
Timeline for Organisational Change relating to Occupational Safety and Health

2.6 Statistical Analysis - Procedures

Coakes and Steed, (1998) p. 202 advises,
 "the Mann-Whitney U test tests the hypothesis that two independent sample ;
 come from populations having the same distribution. That is, this test is the
 equivalent to the independent groups t-test."

As this research study evaluates workers' compensation claims from a
 Western Australian University this test was used to compare the different
 categories of claim types and costs.

As data for each of the intervention indicator periods are not normally
 distributed, the non-parametric equivalent of the 't' test to be used to analyse
 and compare the study periods, was the Mann-Whitney – U Test. The level of
 significance used to interpret the research results was $p = 0.05$. The computer
 statistical package used for the analysis was SPSS 10.0 for Windows.

As already mentioned, the accident rates as defined by Australian Standard
 AS 1885, were calculated for frequency rates, incident rates and severity rates
 for all 20 years of the study period.

2.6.1 Reliability

According to Sanders and McCormick (1992, p. 37) reliability is the;

"degree of consistency or stability of the measures of a variable over time or a
 cross representative samples."

A similar definition is provided by Christie (1988, p. 83) in which he states reliability is:

"the degree of stability exhibited when a measurement is repeated under identical conditions. Reliability refers to the degree to which the results of a measurement procedure can be replicated."

A check of the data for reliability was undertaken on the University Accident or Injury Forms provided by the employee. These were checked against the data provided on the Workers' Compensation Claim Form for consistency and reliability. This data was also checked against the injury coding. For accuracy of the coding data, corrections were made of differences that were observed by independently reviewing each of the claims in question.

To support the data used in this research on the question of reliability, legislative requirements dictate that the information supplied must be confirmed before the acceptance of liability for a workers' compensation claim. A claim shall not be approved unless the correct procedures have been undertaken.

The data to be used in this research is considered reliable because:

- the data was required in a prescribed form as a statutory requirement;
- most of the data provided was of a personal nature;
- there were no technical difficulties within the data;

- the data was provided to the insurer in a short time frame in the 1970's and early 1980's and within three days of the occurrence, since 1991 as it became a statutory requirement;
- the workers' compensation form on which the data was provided by the injured employee was checked and verified for consistency and correctness by four independent persons.

The checking process required:

- (a) a witness(s) to verify that the information provided was a true and accurate account of the accident and injury details. The witness(s) provided their signature on the form.
- (b) the employee's immediate supervisor was required to verify (a) above.
- (c) the treating medical practitioner was required to confirm the site of injury.
- (d) the insurer verified all of the above and other data supplied on the form.

2.6.2 Validity

While reliability is concerned with the consistency and repeatability, validity focuses on the accuracy of the results. A valid test is one that actually measures what it sets out to measure.

As Christie (1988, p. 83) suggests,

"validity is an expression of the degree to which a measurement measures what it purports to measure."

The data collected and used in this research study are workers' compensation data provided in a legally prescribed format and is typical of the data collected and used by all workers' compensation insurers, State and Commonwealth authorities. As per statutory requirements, recurrent costs and days lost associated to an injury after the annual period cut-off date were incorporated into the annual period that the injury was reported. Active workers' compensation claims may incur further costs and working days lost after the annual period in which they occurred. Given this, the costs used in this research study were all costs (including common law payments) incurred in the annual period in which the injury occurred, this being the actual costs until closure of claims, even for the 1998 period. Therefore, as all claims were 'finalised' the data is very unlikely to be further influenced in terms of additional costs and additional working days lost. That is the data set is complete.

In considering validity, the primary question of this research applies to the impact of the legislative change in Western Australia. The introduction of the occupational safety and health legislative requirements by policy, consultation through safety representatives and committees, management commitment, planning, hazard management and training are analysed against the workers'

compensation claims experiences of ten years prior to and ten years post introduction of this Western Australian legislation.

Total expenditure on the safety program and legislative requirements relating to the number of health and safety representatives and committees as well as audits and training provides data that can be quantified to assist addressing the validity question for this research. As workers' compensation data is used by governmental agencies to measure safety performance and liability has been accepted for all the claims to be used in this research and management commitment in the form of expenditure and executive directives with adherence to the legislative requirements - the data is considered reliable and valid.

2.7 Limitations

- The organisation chosen for this study may be categorised as community service based. This organisation contains a variety of work places that are used for this study. However the use of the results of this research study may not necessarily apply to other types of industries, particularly high-risk industries, for example nuclear industry, mining, major construction, long haulage transport etc. where the work practices such as shift work and exposure to hazardous materials are core to the existence of the organisation. This limitation follows on from the work of Genn (1993).

- There was some concern that under reporting of accidents was possible, however it was considered the number of non reported accidents, by staff, was not significant. All managers and most staff were informed (or, familiar) with the reporting system of telephoning '5' to report emergencies and accidents. It was also guaranteed that all accidents that required medical treatment (whether first aid only or from a doctor) at the University Health Service were reported in this study. Other on campus accidents that required medical attention off campus were reported through the workers' compensation system used in this study.
- The safety performance indicators were conducted for the years 1979 to 1998. The data for these years were considered adequate for this part of the analysis. It was considered these accident related data were representative of the work places under analysis. The work activities were always diverse and the rationale to average out the dollar costs to 1998 indexed costs and review the accident results was considered acceptable as it was understood all the work activities were influenced by an established safety program after the 1984 period.
- Total budget expenditure and number of committees as well as representatives along with policy directives and procedures measure the management performance. The quality of performance from these management measures may vary between individual staff performing their functions. Total dollars spent does not necessarily mean efficient and

effective spending and may not provide a true indication of the performance. It was only used as an indicator.

- A difficulty in using traditional measures of risk (accident data) was the limitation it had of measuring hazards causing occupational diseases when considering the safety program. That is, it is acknowledged there was a limitation of the measuring technique mainly due to the latent period associated with these occupational health factors. However, it is considered because the period of time for this study was 20 years this limitation may only effect to the claims for the latter years.
- All the work places used were dynamic in nature. That is, whilst the work places for this study changed over the years, these changes were not related to the general work nature, for this study, that being a University. It then follows that whilst components of the safety program were introduced at various intervals, and the accident data was taken from 1979 through to 1998 inclusive, it should be noted the work place changes may also have a latent time frame influence on the results. It is considered the 20-year period was adequate to accommodate this influence.

3. LITERATURE REVIEW

3.1 Introduction

This is an important research study in understanding the impact of the Western Australian occupational safety and health legislation on workers' compensation claims experience. There is little published research of this kind and the following provides an outline of the literature on this topic. There are fundamental principles underpinning organizational safety and health performance. In Western Australia, the Occupational Safety and Health Act 1984 (as amended), the Workers' Compensation and Rehabilitation Act 1981, insurance market and trends, and the management directives that unfold from these legislative requirements influence this performance.

To assist in understanding these principles for safety performance, after the section on related research, a review of the literature, is provided under the headings of Occupational Safety and Health, The Importance of Injury Statistics, Occupational Safety and Health Performance, The Relevance of Quality Safety Programs, Workers' Compensation, Rehabilitation, Insurance followed by a Summary of the Literature.

3.2 Relationship Between this Research Study and other Published Related Research

This is a unique research study in measuring the actions of management and the introduction of safety program initiatives over a twenty-year period. The methodology allows the interrogation of the accident data by reviewing all 2773 reported accidents/diseases. Intervention, in the form of legislation and the management initiatives brought about by this legislation, compliments the study period by being introduced ten years into the twenty-year timeline.

The Robens Committee (1972) made recommendations that affected the employees, the employers, the unions and the role of government with respect to occupational health and safety. The Robens committee research into safety and health at work in 1972 represented a radical change in thinking about the legal regulation of safety and health. The committee recommended changes for all participants in safety and health in the work place.

Genn (1993) informs us, the Robens committee formed the view that apathy was the greatest single contributing factor to accidents at work. The report claimed employees and employers were heavily conditioned to think of safety and health at work as a matter of detailed rules imposed by external agencies. The existing system encouraged too much reliance on state regulation where people thought safety could be ensured by ever more inspectors and legal regulations. There

was a lack of personal and organisational responsibility with respect to safety and health at the workplace.

Aalders and Wiltshagen (1997, p.6) comments that Robens in 1972 proposed;

"there are severe practical limits on the extent to which progressively better standards of safety and health at work can be brought about through negative regulation by external agencies We need a more effectively self regulating system... the objectives of future policy must therefore include not only increase the effectiveness of the state's contribution to safety and health at work but also, and more importantly, creating the conditions for more effective self regulation".

The Robens Committee made recommendations that affected the workers, the employers, unions and the role of government with respect to occupational health and safety. These recommendations formed the basis of new legislation for both Britain and Australia. The key to the philosophy of the Robens Reports was the notion of self-regulation. This meant, essentially, that employers and employees were to cooperate in order to promote health and safety; that the primary responsibility for health and safety lay with those who create the risks and those who work with them. Nichols (1990) continues to provide information on the Robens argument and advises efforts of employers and employees were to be aided and guided by the state rather than be subject to "negative regulation". This style of legislation needs greater acceptance of shared responsibility and more reliance on self-inspection and self-regulation and less on State regulation.

Hutter (1993) comments that for employers and employees this meant there would be a statutory duty on employers to consult and to involve employees in the promotion of health and safety in the workplace.

Gene (1993) also advises the Robens Committee recommended that within firms, safety and health objectives were to be clearly defined at all levels and employers were to be required to set out written statements of their safety and health policies. Hutter (1993) provides advice on the government role, being that the changes included a national authority for safety and health at work that included, among other things, representatives from the unions and people with industrial managerial experience.

Nichols (1990) reports that according to the Robens Committee recommendations, inspectors should inspect workplaces, investigate reported occurrences and complaints, offer advice and they should have time to prosecute. The role of the State was deemed to be almost watching from the sidelines, promoting self reliance in employers and employees for health and safety policy, making safety and health guidelines and integrating health and safety into general business policy.

In Britain, the Health and Safety at Work Act 1974 was a result of the Robens Committee. It placed an emphasis on employees as participatory rather than passive agents in the workplace. Gun, R T (1992) provides commentary relating

to the comparative measurement of the legislative philosophy relating to United Kingdom – Robens - and the United States of America, considering the regulator styles of self-enforcement compared to prescriptive regulation. Gun, argued, (in 1992) it is premature to downgrade the relative importance of regulations, and that future strategy should be based on technology transfer, supported by the judicious use of regulations, which clearly set out safe systems of work. This study of Gun (1992), whilst useful for some comparison to legislative philosophies does not address the micro issues considered in this research.

Aalders and Wilthagen (1997) comments, the change in regulatory policy from direct and stringent government regulation towards more flexible, lenient and accommodating control strategies, such as self regulation, changes the way that governments and businesses 'do' business with each other.

In this research study , this is measured using workers' compensation indicators to see the impact, in Western Australia, of the occupational safety and health legislation.

Mayhew C, et al. (1995) conducted an evaluation of the impact of Robens style legislation on the decision-making of builders, in Queensland and United Kingdom, with less than five employees over the years 1994 and 1995.

This WorkSafe Australia sponsored research project was designed to identify the impact of occupational health and safety legislation on small business workers. Small-scale and self-employed builders were selected. When this study was carried out the Robens model of occupational health and safety legislation had been in place for over 20 years in the United Kingdom and the Queensland Act about 5 years.

Six hundred self-employed and small business builders were interviewed and completed a questionnaire: 500 worked in Queensland and 100 in the southwest of England. The WorkSafe Australia web-site (August 2001) provides an abstract of this yet to be fully completed research and this abstract advises, the injury experiences, working situations, and levels of comprehension of occupational health and safety (OHS) legislation were compared.

The Mayhew C, et al. (1995) abstract states,

"widespread publicity about OHS protective regulations resulted in an improved understanding of OHS legislation in the UK domestic building industry. However, the more open UK building labour market, with less stringent entry controls, had increased levels of competition between builders for contracts to the point where OHS protective practices were frequently *knowingly* compromised in order to save money. In contrast, in Queensland the labour market was less open, understandings of the legislation were highly variable, and breakdowns in compliance were more frequently through ignorance. In Queensland, OHS compliance was best in mining towns and where builders had increased contact with officers from the state government agency; OHS legislative understandings and injury outcomes were poorest in 'outback' and high population growth areas in the south-east corner of Queensland."

As at August 2001 the research work was reported as still in progress and this

sponsored research is provided with a disclaimer, that a research update had been prepared by the Project Coordinator and did not necessarily reflect the views of the National Occupational Health and Safety Commission.

This research of Mayhew C, et al. (1995) provides useful information for this research. It provides some insight into the training and the occupational health and safety knowledge base relating to an organisation's compliance, however, like all other published research, it does not address the micro detailed experiences of the impact resulting from the change relating to the legislative requirements.

Brooks, A (1988) abstract is also found on the WorkSafe Australia website (August 2001) and states, in part,

"Robens-style legislation, rather than individual pieces of legislation, is examined in context in all those states and territories that have adopted it, or moved to do so. This is important not only because no one Act is unique, but also because all these Acts and their implications cannot be properly understood or evaluated without seeing them as part of a process at work, both here and in Britain, of attempting to use legislation to prevent or limit occupational injury and disease."

This research of Brookes provides the basis of the Australian law in occupational health and safety and the similarities of legislation within Australia. It does not address the impact of this legislation but offers commentary of the continuing progress of the legislation in 1988.

As Genn (1993) advises, the fundamental prerequisites of the current system of self regulation are an awareness of obligations on the part of employers; a greater consciousness of danger; and improved knowledge about the means of improving standards; together with a clear definition of responsibility for health and safety within the organisation. This is complemented with the comments of Aalders and Wiltthagen (1997) in the advice that effective self regulation requires people at work to be actively involved in the identification of hazards, the prescription and implementation of controls, and the often neglected maintenance and monitoring of standards and activities.

Nichols (1990) concluded that few companies are truly self regulating and few companies can be left to their own devices.

In Britain, Genn (1993) studied intensively a sample of free enterprise companies, varying in size, risk and unionisation of the workforce. She concludes that Robens type of self regulation operated only under a very narrow range of conditions, though the strategy is in fact applied throughout. It is most successful in companies that have a 'natural interest' in safety matters, those that have a high potential for catastrophe either economic or political in the event of poor safety management. Management and workforce are most interested in health and safety in facilities where poor safety standards might threaten the very existence of the site e.g. oil refineries, chemical works, nuclear plants. Conversely if compliance with

regulations is not vital to the safety of the enterprise itself the significance of the cost of compliance is different for employers.

Genn (1993) argues that in certain situations only more vigorous enforcement obtains a significant and enduring change in the approach of employers to compliance with health and safety regulations. In The Netherlands, Aalders and Withagen (1997) found self regulation at the local level seems to depend strongly on economic conditions that have to do with the business cycle (recession), the structure of industry and employment and changes in the trade union organisation (declining membership leads to less influence).

Like Genn (1993), Aalders and Withagen (1997) found that self regulation of safety and health has clear limits. Without it being 'forced' on them, people will often not take matters of safety and health seriously until they come into direct contact with severe injury or death.

Hutter (1993) found that while there appears to be a high level of contact between health and safety inspectors and employers or managers, the level of contact between inspectors and employees has yet to reach the levels advocated by Robens in either Britain or Australia. There was also concern over sheer quantity of literature that needs to be assimilated in order to comply with the

law and that apart from being business managers there is now the need to be a 'safety expert' to ensure business success.

In considering these comments, this research has the intervention of a full time Safety Officer/Risk Management Unit with (relatively) considerable resources to manage the issues of occupational safety and health. The impact of these human and financial resources along with executive management directives will allow for commentary of the studies by Genn (1993), Aalders and Withagen (1997) and Hutter (1993).

Safety regulations do not always achieve spectacular reductions in work injury and fatality rates. Hersch and Netter (1990) found that the British Safety and Appliance Act of 1893 accommodated certain safety equipment for the railways. However, while fatality rates fell, injury rates from collisions and derailments increased. The better brakes also allowed greater speeds and heavier loads, increasing the amount and consequences of accidents. The implication of these results is that safety regulations can have unintended side effects and must consider the indirect effects of their actions. Neumann and Nelson in Hersch and Netter (1990) estimated that the Coal Mine and Safety Act of 1969 reduced coal mining fatalities nine percent but also increased overall accident rates by 25 percent.

A component of this research is to indicate the total costs and injury experiences of twenty years to allow for commentary on the trends.

Hersch and Netter (1990) also advises, that most studies on the impact of Occupational Safety and Health Administration (OSHA)(USA) Regulations have concluded the Regulations have had little impact on workplace industrial accidents. The Robens report may have generated increased interest in safety that helped overcome apathy and had a beneficial effect on management.

However, Nichols (1990) suggests that in light of the record since the 1974 Health and Safety Act, in Britain, it might be worth attempting to introduce much more rigorous external enforcement. This is suggested as appropriately severe fines and even custodial sentences, thereby implying that the anticipated benefits of the new Act have not been revealed.

Hersch and Netter (1990) consider there are several reasons why safety regulations could have insignificant or perverse effects on actual safety. It may be that some safety regulations may be ineffective if they are not enforced or they carry inadequate penalties. It may prove that the employers are unable to access or understand information relating to the hazards and possible controls for their workplace. Workers also need to be rewarded as to their level of involvement and responsibility in the process increases. By reducing actual or perceived risks, regulation can induce firms, workers and consumers to increase

the level of activity or decrease the amount of non-mandated resources devoted to risk reduction.

This research evaluates the safety program and policy changes as required by the intervention of Western Australian legislation. It considers the safety program detail and therefore analyses from a micro perspective some of these issues presented by Hersch and Netter (1990).

3.3 Industrial Relations and Occupational Safety and Health

When considering industrial relations and occupational safety and health, issues are raised in the literature such as collective bargaining and Mandlak (1998, p. 246) for example, highlights;

“in the present climate of enterprise bargaining there may be a temptation to trade off safety and health for other benefits such as salary, bonuses, fringe benefits.”

Nichols (1990 p.12) argues that this was not acceptable, including;

“there is no legitimate scope for ‘bargaining’ on safety and health issues. Occupational health and safety (should be) mostly regulated by law and not a common topic for collective bargaining”.

The study period for this research had a change in industrial relation management and these points raised on collective bargaining forms part of the safety program and executive policy initiatives.

In Western Australia the government administers the Act. Inspectors enforce the legislation. The government provides an advisory service and assists in workplace and community education about health and safety issues. There is a tripartite Commission that consists of representatives of the Government, Industry and Unions. This Commission provides advice on health and safety issues to the Minister.

Publications from the Western Australian Government agency managing occupational health and safety (WorkSafe WA) provide comparisons of accident data on a macro level – industry based approach. These publications are provided through a series of periodicals (State of the work Environment), web-based information and journal articles.

On review of the literature it appears there is very limited information on a micro-analysis level. From the literature review it appears that the impact of the Western Australian occupational health and safety legislation at the micro level using workers' compensation data has not been published.

Veltri (1991) conducted a study in USA of one hundred organisations, on safety strategy formulation and organisational structure, during 1988 to 1990. Veltri found there is a consensus (from those that responded to the survey) and there is a requirement to modify the methods for establishing performance criteria in measuring and evaluating safety function performance. This modification should include a way to evaluate the accountability of managers and

supervisory personnel for safety performance. The Occupational Safety and Health Administration, U.S. Department of Labour (Guidance Note 54: 3904-3916) also advocates on the strength of management policy directives to improve safety performance. This research will follow on from these findings by analysing the executive directives, resulting from new legislative requirements, which produced policies and procedures on occupational safety and health issues. The aim is to see what impact these directives have on workers' compensation claims experience.

The implementation of a co-ordinated safety program and the measurement of safety performance are complementary activities. The measurement of safety performance requires a total review with the co-ordinating factor being safety issues that can be quantified - for instance accidents, as well as management controls and procedures - such as expenditure.

A fundamental premise in managing occupational safety and health is to eliminate/reduce exposure to hazards. Since 1988, in Western Australia this has become a legislative requirement under the Occupational Safety and Health Act, 1984, as amended in 1987 and promulgated in September 1988.

Reporting and recording accidents are integral to the management of occupational safety and health. In fact, many Western Australian organisations take pride in quoting their 'accident rate' record. A common held belief is that

accident statistics are an acceptable way of measuring safety performance. Therefore some organisations rely on this type of measurement to make judgements on how safe and hazard free (or hazardous) is the work place and use this information in arguing occupational safety and health legislative compliance.

Significantly, the view that legislation does not influence performance but rather that it provides a vehicle for change is reported by Scott (1993, p. 20) who states,

"improvements in safety and health do not merely occur because of legislation, improvements occur as a result of safety and health principles and programs initiated at the workplace."

Supporting these research findings, the Industry Commission Report Work Health and Safety (1995, p. iv) commented,

"[that] the health and safety regulatory approach did not encourage real prevention, as it did not allow enough flexibility for workplace management who preferred to develop their own quality safety management systems."

Rosier (1997, p. 3) commented, "using accident and injury data to measure the effectiveness of a safety and health program can be misleading, as this type of measurement provides no information on initiatives or feedback of the systems within the program."

This is further examined and reported by Blewett (1997, p. 5) who commented,

"organisations are more likely to improve safety performance with the introduction of safety management principles, employee participation and consultation between employees and representatives."

These items form part of the Western Australian legislative requirements and are evaluated in this research.

Riding on the comments of Rosier (1997) and Blewett (1997) workers' compensation data and injury rates are not a good measure of performance. To base an organisations safety performance on injury statistics alone is flawed, as this data only reflects accidents and not the components of the safety and health program.

Roberts (1998, p.3) advises;
 "the University of California achieved significant savings in workers' compensation cost through the introduction of a safety and health program incorporating pre-work exercises for ground workers."

For Western Australian legislation, this research is fundamental as it is designed to address these commentaries from a micro-analysis perspective. The author, through personal experiences of safety performance, acknowledges the indicators should measure more than accident statistics. What is questioned in this research study, is not the safety performance per se but rather the results of the introduction of the Western Australian legislative driven safety program. Specifically, the question of impact is addressed by analysing the Western Australian occupational health and safety legislative requirements and its effect on workers' compensation claim experiences.

A review of the literature on the evaluation of the effectiveness of occupational safety and health programs, as required under Western Australian legislation, indicates the main focus is on the annual workers' compensation statistical data

published by Australian State Authorities. These Authorities include WorkCover Western Australia, and there is a statistical overview of work related injury and disease published by WorkSafe Western Australia. Very little data is available on the effectiveness of occupational safety and health programs in Australian tertiary educational institutions.

3.4 Occupational Safety and Health

Work in industry, regardless of type, often involves exposure to hazards to the worker and their environment. The occupational safety and health law, in Australia, provides a set of limits or minimum standards of protection for workers that must be adhered to by the owners of business enterprises. Western Australian workplaces are subject to both federal and state safety and health legislation that exist in the form of parliamentary Acts, Regulations and industry Standards.

In September 1999, the Hon David K Malcolm AC, Chief Justice of Western Australia (the Chief Justice) gave the keynote address to the 1999 WorkSafe Week Commission Function at the Hyatt Regency Perth, Western Australia. In this address the Chief Justice provided historical information on the occupational safety and health law. The information as supplied by the Chief Justice is presented below.

As Western Australia's occupational safety and health legislation is primarily based upon British law it is relevant to note, the first statute dealing with working conditions in factories in Great Britain was enacted as early as 1802.

The *Health and Morals of Apprentices Act 1802* addressed the hours and conditions of children working in cotton mills and was essentially an extension of the Elizabethan Poor Laws. This 1802 Act limited the number of hours children could be asked to work and provided a guarantee of certain conditions of employment including adequate accommodation. It did not, however, impose standards in terms of the safety of machinery utilised in the mills.

Standards for the maintenance and proper enclosure of factory machinery were not included in legislation until 1844. The *Factories Amendment Act 1844* provided for the fencing in of moving or dangerous parts of factory machinery. For the first time, in Great Britain, employers were required to report accidents causing physical injury to employees. In 1878, the provisions that had originally been applied to the cotton milling industry were extended to industries such as pottery, matchmaking, foundries, blast furnaces and copper mills.

The Chief Justice informs us, these obligations were consolidated in the *Factory and Workshop Act 1878*. This Act was to form the model for the first Australian statute dealing with the prevention of work-related injuries in Victoria. The *Victorian Supervision of Workrooms and Factories Statute 1879*

dealt with the hours and conditions of employees, much in the same way as the early English Statute.

Community pressure to improve working conditions generally led to the enactment of the Victorian *Factories and Shops Act 1885*. The occupational health and safety provisions of this Act were lifted almost verbatim from the English statute.

The Chief Justice goes on to inform, almost 20 years later Western Australia enacted its first legislation dealing with the regulation of safety and health in the workplace. As in Victoria, the *Western Australian Factories Act 1904* lifted a number of provisions directly from the English Act. This 1904 Act was not reviewed until 1920. It was then repealed and replaced by the *Western Australian Factories and Shops Act 1920*. This Act was intended as an amalgamation of the earlier *Factories Act* and the legislation regulating opening and closing hours for retail stores. The provisions relating to occupational safety and health remained unchanged.

The Chief Justice provides further comment that occupational safety and health legislation remained largely unchanged in most Australian States for another 50 plus years. The impetus for review and reform since the 1980s finds origin in the publication of the highly influential *Report of the British Committee on Safety and Health at Work*, "the Robens Report", in the United Kingdom in 1972. The recommendations of the Robens Report were incorporated into

Convention Nos. 155 and 164 of the International Labour Organisation in 1980. Throughout the early 1980s, all Australian States moved to implement the recommended reforms.

The Chief Justice concluded with the information that in Western Australia, the *Occupational Health, Safety and Welfare Bill 1984* was introduced both to implement the Robens recommendations and to comply with the ILO Convention in order to allow for its ratification. Despite the diversity and differing scope of occupational safety and health laws between the Australian States and Territories, and the Commonwealth, each separate piece of legislation reflects a common philosophical approach to workplace safety.

Cullen (1994, p.3) advises;

"[their] roots can be traced back to the Robens Committee of Inquiry on Workplace Safety, which was submitted to British Parliament in July 1972. Prior to the Robens Committee and the ensuing changes to legislation in Britain and Australia, there had been a long and detailed history of specific piecemeal legislation directed towards particular problems. Robens recommended that legislation should move away from prescriptive controls to a goal-setting system that combined flexibility with precision."

Although the Robens Committee was established to review the safety and health system in Great Britain, its findings were universal in their scope of application.

This point is reinforced by Creighton (1983, p. 844) who states;

"The [Robens] Report.... had an enormous influence upon the development of safety legislation in Australia (and elsewhere)" ...

There are several reasons why Robens findings were so influential in Australia. These reasons include the existing Australian and British legislation being very similar in terms of scope and philosophical basis, and in both countries the existing legislation had proven to be largely ineffective.

Wait (1990, p. 11) provides information on the Roben's Report and advises;

"[there] were three main criticisms of the existing statutory system. Firstly, there was too much law. Apathy was identified as the key factor behind all accidents and according to Robens, this could not be remedied while people thought the solution lay in an increasingly expanding body of legal regulations. Secondly, Robens argued the law was intrinsically unsatisfactory. It tended to be based on physical circumstances and for Robens other factors in safety and health such as attitudes, performance and organisational structures were not adequately covered in the legislation. Finally, the administrative jurisdictions were fragmented. This resulted in some workplaces being covered by several health and safety provisions and delays in policy formulation and law making."

According to Matthews (1993, p.23) the Robens Report led to;

"a revolution in the governance of health and safety in Australia. A body of old style legislation still exists, but it is being superseded by enabling legislation which lays down general duties on employers, workers and suppliers; Establishes basic rights and creates new structures through which standards may be developed, reforms the administration and enforcement of the law."

Wait (1990, p. 12) also informs us that Robens recommended a tripartite structure to be at the head of his reform system. In addition, Robens argued, it was also up to those involved in the workplace to ensure the safety of themselves and others.

South Australia and Tasmania were the first Australian States to adopt Robens style legislation, in 1972 and 1977 respectively. Western Australia was somewhat slower in its uptake of this form of legislation. It was not until 1984 that the transition was accomplished with the promulgation of the Occupational Safety, Health and Welfare Act 1984. The Act established a tripartite structure and was based on a preventative approach, which encouraged the participation of employers and workers in formulating and implementing policy.

In a public discussion document presented by the (then) Minister for Industrial Relations, the Hon. D. K. Dans (1983, p. 2) stated;

"Occupational Health and Safety is one of the most important industrial issues for our State and for Australia".

The thrust of the discussion paper was emphasising that the introduction of the Occupational Health, Safety and Welfare Act 1984, will reduce the chances of work-related death, injury and disease in Western Australia. Dans (1983, p. 5) also commented;

"statistics from the Australian Bureau of Statistics [for] Western Australia indicated that workers continue to be exposed to one chance in 12 of receiving a work-related injury."

Some 16 years on - the 1996/97 claims statistics produced by WorkSafe Western Australia and published in the State of the Work Environment, Occupational Injuries and Diseases Western Australia 1996/97, No 33 - indicate

that workers continue to be exposed to one chance in 24 of receiving a work related injury. Dans (1983, p. 10) confirmed;

"occupational safety and health legislation in Western Australia is based on the principles of the British system and the recommendations of the Report of the British Committee of Inquiry under the Chair of Lord Robens. The Robens Report (1972), stressed the need for a more consultative framework as well as replacing prescriptive rules with performance based standards supported by codes of practice. From this, for Western Australia, two major objectives emerged, these being;

- the creation of a unified and integrated statutory system to increase the effectiveness of the state's contribution to occupational safety and health, and
- the creation of a framework for a more effective self-regulating system."

Dans (1983, p. 12) fully supported the above two objectives emphasising that while health and safety at work are matters for efficient management, they are not matters of management prerogative, for real progress is not possible without the co-operation and commitment of all employees. Dans advocated there should be a statutory duty on every employee to consult with elected representatives and to provide for their participation in the development of preventive measures in their workplace.

In light of the above comments, it is interesting to note concerns raised in the Industry Commission Report - Work Health and Safety (1995, p. x), twelve years later, stating there;

"is a wide spread apathy and indifference about injury and disease at work."

This Industrial Commission Report (1995, p. xi - xii) continued to suggest,

"that many employers were unaware of their legal duty to ensure risk was adequately managed. Workers often accepted injury and disease as unavoidable and that employers did not realise that injury and disease can be reduced by design and committed management of the workplace."

These statements suggest that safety was not a high priority as well as indicating that prevention is costly. Prevention does come at a price, whether it is the allocation of human and financial resources by management or as a consequence of a penalty and subsequent prosecution and common law action.

Taking the above into account, the question as to whether the reduction of injury and disease from 1 in 12 in 1983, to 1 in 24 in 1996/97, is independently based on a direct result of legislation; employee participation; management intervention and initiatives; or a combination of all three, requires some further discussion and investigation.

Significantly, under the Australian Constitution, the Commonwealth government has never sought to intervene directly to enact and enforce standards, and as Matthews (1993, p. 32) advises, the Commonwealth has left the matter in the hands of each State. Consequently, Commonwealth laws will not be afforded a great deal of attention for this literature review.

Within the twenty year study period of this research, the Western Australian legislation does not encompass all industry. Most notably, the politically powerful mining sector is not covered by the Act and continues to have an exceptionally poor safety record. Matthews (1993, p. 29) informs us;

"in 1991, the Government released an independent report (the Kelly Report) which was scathing in its criticism of the mining sector and the legislation which applies to it. It recommended a complete revision of the *Mines Regulation Act*, which to date has not been forthcoming. Other sectors not

covered by the Occupational Health and Safety Act 1984 (as amended) include the offshore petroleum industry, Commonwealth Government workplaces and Commonwealth owned organisations."

In a review in November 1998, of the Western Australian legislation conducted by Allanson and Chambers (1998, p.1) paid attention to;

"whether coverage of the Act should be amended to include members of the police force and environmental tobacco smoke and employee health.

From this review recommendations concurred with the first statutory review of the operations of the Occupational Health, Safety and Welfare Act 1984 tabled in Parliament on 14 May 1992. Commissioner Robert Laing of the Australian Industrial Relations Commission conducted this first review. Both reviews acknowledge these topics have complex issues when considering coverage but coverage by the Act is highly advisable to allow occupational safety and health control in the Western Australian workplace including workplaces covered by the Crown.

Of interest some fourteen years on these topics - whilst acknowledged as difficult to administer - have not been dealt with to provide coverage under the Occupational safety and Health Act 1984. For the study period of this research smoking in the workplace was addressed in 1988 and the University was the first to undertake smoke free buildings and consequently smoke free work areas including defining 'the envelope' of the buildings (verandahs entrances air intake areas etc.) as non smoke areas.

3.5 Western Australian Legislation

3.5.1 Nomenclature of the Occupational Safety and Health Act

To assist in nomenclature for this research the Occupational Health, Safety and Welfare Act 1984 was amended and promulgated in 1988 and in 1995 renamed the Occupational Safety and Health Act 1984. For consistency the name Occupational Safety and Health Act 1984 will be used for this research study.

The Western Australian occupational safety and health legislation has been developed from the philosophical approach that there is a need to protect people from the actions of others and from their own actions and/or inaction.

According to the Department of Labour and National Service (1991, p. 5);

"the mere existence of occupational safety and health legislation is an admission that industry in general has been unable in the past to control the working environment it created. Ultimately, government's role in safety and health at work is a direct result of this failure and the legislative controls are aimed to combat industry's apathetic approach."

WorkSafe WA SafetyLine Web page (August 2001) advises;

"in Western Australia, the *Occupational Safety and Health Act 1984* and the *Occupational Health, Safety and Welfare Amendment Act 1987* [promulgated in 1988] are the principle mediums through which government exercises its perceived role. The Act imposes a 'duty of care' which says persons involved with workplaces have a responsibility to avoid causing harm to themselves or others. The duty of care principle can be traced back to Robens' view that the primary responsibility for doing something about accidents in the workplace rests with those who create the risks and those who work with them. The Act provides a framework where consultation, co-operation, regulations, codes of practice, workplace standards and procedures to resolve issues support the

general duty of care. The general duty of care is the guiding principle for all other parts of this Act."

The Occupational Safety and Health Regulations, made under the Occupational Safety and Health Act of 1984, describe some of the requirements that apply to specific work situations. Regulations are mandatory and failure to comply is an offence that may result in prosecution or fines.

The 1984 Act repealed legislative requirements previously in place in Western Australia. These repealed Acts were the Construction Safety Act 1972, the Machinery Safety Act 1974 and the Noise Abatement Act. Other Acts were amended and these amended Acts were the Shearers Accommodation Act 1908 and the Factories and Shops Act 1963.

The Regulations reviewed to accommodate the Occupational Safety and Health Act 1984 were Construction Safety Regulations; Machine Safety Regulations; Hearing Conservation in Workplaces Regulations; and Factories and Shops Act Regulations:

| | | |
|---|----------|--|
| Abrasive Blasting | Asbestos | Electric Accumulator |
| Factories and Shops (Registration Fees) | | Factories (Health and Safety) Regulations |
| Factories (Lead Materials) Regulations | | Factories (Poisonous Substances) Regulations |
| Factories (Prevention of Fire) Regulations | | Factories (Welfare) Regulations |
| Factories, Shops and Warehouses (General) Regulations | | |
| Fibreglass Regulations | | Foundry Regulations |
| Spray Painting Regulations | | Polyurethane Industry Regulations |
| Superphosphate Industry Regulations | | Welding and Cutting Regulations |
| Shops and Warehouses (Health, Safety and Welfare) Regulations | | |

WorkSafe WA SafetyLine Web page August 2001) also provides information on Codes of Practice, Guidance Notes and Australian Standards;

"In addition to the Act itself and the mandatory Regulations, government to influence workplace safety also uses Codes of Practice, Guidance Notes and Australian Standards. A Code of Practice does not have the same legal force as a Regulation, and is not sufficient reason itself for prosecution under this Act. It may however be used as evidence in court."

3.5.2 Administration of the Act

WorkSafe Western Australia administers the Act and inspectors, whose powers and functions are covered in Part V of the 1984 Act, enforce this legislation. Ultimately, WorkSafe WA inspectors are the visible component of governmental influence in the workplace. Inspectors have powers to enter and inspect any workplace, take samples or photographs and interview employees. As part of their enforcement role, inspectors may issue prohibition notices preventing work proceeding until a hazardous situation has been made safe, or improvement notices requiring a breach of the Act being rectified.

3.5.3 Concept of 'practicability'

The Department of Labour and National Service (1991, p. 7) provides information on the notion of 'practicability' which is perhaps one of the most misunderstood components of this Western Australian Act and its inclusion highlights one of the fundamental difficulties facing legislators.

"Where the Act states that a person's duty of care must be carried out "so far as is practicable", it means those responsible must determine whether something is capable of being done. Significantly, it takes cost into account, not affordability. Also difficulty referred to in this context stems from the axiom: "if you cannot enforce legislation, don't make it." As a result, governments tend to prescribe minimum requirements and escape clauses (ie. practicability) to ensure enforcement has every chance of being achieved."

Despite the legislative changes introduced since the Robens Report, workplace safety performances remain poor. The Industry Commission Inquiry into Occupational Safety and Health (1995, p. 1-101) highlighted several problem areas confronting government and the workplace. Of particular concern is the fact that apathy still exists and many employers still remain unaware of their legal duty to ensure risk is adequately managed. This report provides the inference that the government has not been able to solve this apathy problem despite their efforts.

Of interest to this research is the communication of responsibilities required to be undertaken by the Act and the executive directives resulting from these requirements. These issues are analysed, at the micro level, to see if executive decisions and policy and procedures have an influence in workers' compensation injury data.

In addition, safety and health legislation remains overly voluminous and complex and whilst precedent court decisions are becoming more numerous the legislation is still open to subjectivity and interpretation. Companies are often faced with assimilating a multitude of Acts, Regulations and Australian

Standards that often proves to be nearly impossible to meet. The Industry Commission Inquiry into Occupational Health and Safety (1995, p. 37) also argued that the Codes of Practice were of little practical use and attempts to achieve national uniformity had failed. The Industry Commission Inquiry into Occupational Safety and Health (1995, p. 99) in its final argument, argued that the focus of enforcement was wrong in that it did not focus on prevention through deterrence.

The literature on Western Australian occupational safety and health legislation, despite the 'revolution' in workplace legislation brought about by the Robens Report, highlights that the role of government continues to change. The existing approach does not appear to solve many of the problems its developers had hoped it would, and further changes are inevitable. But despite continuing criticism of the legislative framework within, Western Australia, and Australia as a whole, it does provide a minimum standard of protection that must be afforded to those exposed to hazards in the workplace. Taking an active role in safety and health at work and legislating to protect workers, requires governmental action (at all levels) to continue to be modified and reviewed. This research will assist in this review by providing insight into occupational safety and health program initiatives that directly result from the Governments efforts.

3.6 The Importance of Injury Statistics

Statistics on the number and characteristics of occupational injury and diseases are used as a tool to measure and monitor organisational safety performance. They provide an opportunity to identify and determine priorities for prevention strategies and assist in the assessment of performance.

As stated by Hevey (1998, p. 3) injury rates;

“can be used as a barometer to assess safety systems. They allow for the identification of trends, comparison of like for like workplaces and comparison of performance across industry.”

Jankiewicz (1997), Krause, T. (1997), and comments from Krause M. (1994) support the use of safety statistics. All cite their importance when monitoring safety improvement over time, as well as providing data that can be compared across industries. Also, Blewett and Shaw (1997, p. 19) support the use of accident data, commenting;

“they are the main measure for evaluation of performance, and should assist in leading an enterprise down the path of continuous improvement.”

Rosier (1997, p. 1) however, raises caution to the use of these traditional performance indicators. In a paper presented to the American Society of Engineers he suggested;

“researchers such as Heinrich, Bird and Germain have examined the accident-injury relationship between accident results and causes”, and in Rosier’s opinion, “organisations that rely on the traditional measurement and reporting system to gauge and improve safety are missing the point.”

Rosier (1997) advocates that although accident rates help to identify the overall status of a safety program, they provide little feedback for safety improvement.

It is acknowledged, by the author, that current accident reporting systems require the injured employee to report the injury, this is essentially reporting the final outcome of the safety process, not its controlling elements or critical components. This supports the theory of Rosier. It is the accident investigation that is concerned with the causal factors. Experience of the author suggests that injuries may not be reported for various reasons, while non-work related injuries might be reported as work related injuries to ensure that the costs of medical treatment are met via the workers' compensation system. If a robust system is in place these variances are dealt with by the controls that form part of the system.

Blewett (1997, p. 51) comments;

"if an enterprise wishes to develop a continuous improvement approach to occupational safety and health, consideration should be given to improved reporting systems and the use of useful performance measures rather than the traditional lost time injury frequency rates."

Although the literature supports the use of traditional measurement rates for the assessment of an organisations performance, some caution and criticism is also raised. For this research study, workers' compensation claims are used in conjunction with the executive management decisions that introduced new

initiatives and required considerable new expenditure. It is these components that are evaluated in this research study.

A review of the Western Australia data indicates that although lost time injuries/diseases (LTI/Ds) are decreasing, associated costs are increasing. As the bottom line uttered by the CEO of any organisation is 'how much does it cost?' irrespective if the number of injuries are decreasing, if lost time injuries or diseases costs are eating into company profits, it is important that the safety performance measurement system identifies this phenomenon. This assists in the validation of the decision to use workers' compensation data, for this research study, as it is the largest insurance cost to an organisation.

3.7 Occupational Health and Safety Performance

Controlling authorities in all Australian States provide annual statistical studies to compare injury rates and workers' compensation costs experienced in their jurisdiction.

For example, in Victoria, 31,369 claims were reported to Victorian WorkCover Authority (VWA) for the annual period of 1997/98, representing a total cost of \$51.7 million, compared against 33,264 for the previous annual period of 1996/97, representing a total cost of \$48.7 million. The data indicates a 6% increase in costs for the 1997/98 period. However, data published in the (VWA)

Annual Report 1998, indicate a continuous decrease in reported claims, time lost and claims associated to traumatic injuries.(VWA, 1998, pp 2-3).

The South Australian WorkCover Authority (SAWCA), registered 34,310 claims for the annual period of 1997/98, representing a total cost of \$7.176 million, compared against 39,340 for the previous annual period of 1996/97 at a total cost of \$6.026 million. SAWCA (1997/98, pp 6-8). The data indicates an 18% increase in costs for the 1997/98 period. Although both Victoria and South Australia have experienced a reduction in the total number of claims reported, both authorities have experienced an increase in total costs.

In Western Australia, the reports provided by WorkSafe Western Australia and WorkCover Western Australia paint a slightly different picture. This is primarily as a consequence of the differing workers' compensation systems and criteria required for reporting and recording of accidents and claims set down by each state authority. However, White (1995, pp 6-26) advises that in Western Australia in 1994/95, there were 29,968 lost time injuries and diseases (LTI/Ds) representing a total cost of \$164 million. A lost time injury or disease represents, "one full day or shift of lost time from work".

White (1996, pp 6-26) also advises that during 1995/96, there were 29,279 (LTI/Ds) representing a total cost of \$216 million, and White (1997, pp 6-26)

also provides in 1996/97, there were 29,562 (LTI/Ds) representing a total cost of \$283 million.

It is interesting to note, that Western Australia like Victoria and South Australia, has experienced a general trend in the reduction of either claims or lost time injuries or diseases however, all jurisdictions have experienced an increase in total costs. This fact is substantiated by the data provided by the WorkSafe Western Australia and the Educational Training and Accreditation Committee, (ETAC 1998, p. 2) which indicates the revised costs for the 1997/98 annual period were currently estimated at \$406.9 million.

In addition, WorkCover Western Australia indicate in their Annual Report (1997/98, p. xx) that;

“workers’ compensation claim costs are increasing at around 20% or \$82 million per year on total premiums of \$410 million. Common law was accounting for most of the increases. The Report further commented that 89% of common law claimants had a disability of less than 30%.”

White (1997, pp 6-26) provides information on the statistical analysis by WorkSafe Western Australia, which has also been able to summarise lost time injuries and diseases occurring to Educational Workers and comments;

“...in 1996/97, the duration rate for Educational Workers of 57.8 days lost per LTI/Ds was 18% higher on a comparison against that of the State average. Similarly, the average cost of a LTI/Ds for an Educational Worker in the same period was \$10,643, 10% higher on a comparison against that of the State average.”

Although this data provides a window on safety performance at the State and Educational Worker level, they are indicative of the number of work related LTI/Ds occurring across the industry. Of major importance, the general trend indicates that the number of LTI/Ds are decreasing however, the same comment cannot be said for costs.

There appears to be little information at the micro level and these industrial trends will be analysed against an educational institution for comparisons however more discussion is necessary on the micro level, to evaluate the reasons for these trends.

3.8 The Relevance of Quality and Occupational Safety and Health Programs

As stated previously, very little data is available on the effectiveness of occupational safety and health programs in educational institutions. An American study conducted by Emery, Delclos, Cooper, and Hardy (1998) indicated that safety programs supporting academic institutions face many challenges because of the wide variety of potential hazards present and the possibility of exposure to an array of hazardous substances in a research programs. The study identified that there was a consistent lack of awareness of legislative responsibilities combined with activities such as hazard identification, hazard assessment and control. In addition, on average a

supervisor was held responsible for controlling a wide and diverse range of potential hazards.

Of interest, this concern of non-awareness is measured in this research study by being part of the intervention component with the introduction of the requirements of the Western Australian Occupational Safety and Health Act 1984.

Emery et al (1998) also noted that 89% of employees identified physical, chemical, and biological hazards as the greatest concern. In addition, it was found that workplace injuries were not being reported effectively or channelled back to the responsible occupational safety and health person. The study concluded that potentially hazardous conditions were remaining unchecked, possibly resulting in additional numbers of injuries. Of major importance, the study recognised the relationship between injuries and the costs associated to workers' compensation, emphasizing that the under reporting of hazards and increased number of injuries could lead to significant and unnecessary costs.

The very essence of tertiary educational institutions dictates that its' business is wide and diverse, for example, a typical institution would undertake teaching, learning and research activities, and they also participate in a host of industrial activities. These include, mechanical and building maintenance, grounds, catering, cleaning, printing and design and outdoor activities like 4-wheel driving training and more exotic activities such as aeronautics or suba diving.

These activities provide a myriad of occupational safety and health hazards that require attention, the management of which is dictated by the human, financial and physical resources allocated to the safety program.

Hager (1998, p. 2) states;

“for an organisation to continuously improve its safety and health program, the organisation should tap into employee creativity and unleash their best ideas such as encourage openness, employee participation and promote consultation between all employees and representatives.”

Dans (1983, p. 7) also commented;

“one of the major reasons for reform in Western Australia was the lack of employee participation in occupational safety and health at the workplace.”

A fundamental principle of the Western Australian occupational safety and health legislation is a framework for consultation with employees and elected safety and health representatives on safety matters at their workplace. Employers have the responsibility to establish systems that allow consultation on workplace issues, planning and control of hazards.

Management commitment, ownership, authority and responsibility consistently appear as ‘hot’ topics when discussing occupational safety and health. As previously stated, the findings in the Industry Commission Report (1995), Inquiry into Occupational Health and Safety, was not over complementary regarding management commitment or responsibility.

This phenomenon has been echoed by other authors, such as Pardy, who comments in Hevey (1998, p.4);

“accidents and operational errors are often symptoms of something wrong in the management system and highlights the importance of management responsibility to change conditions and workplace systems.”

Authors such as Charalambous (1998), Thornton (1998), Philson (1998) and Bailey (1998) raise the importance of change management and the delegation of responsibility for occupational safety and health. They discuss the importance of developing sound safety accountability systems to ensure that the new direction is monitored, enforced and updated. The conclusion from these readings are that if management's commitment to safety is based on actions (rather than words) such as consultation and employee participation, then employees will be more responsive and positive to change. This is another one of the issues being analysed in this research study.

3.9 Workers' Compensation

The relationship between occupational safety and health and workers' compensation is fairly evident - a safe system of work reduces the potential of accidents and injury, which in turn influences the costs of workers' compensation claims and contribution to annual premiums.

Financial incentives can play a powerful role in determining the level of workplace safety and health. The cost of workers' compensation and the

premium setting arrangements can provide an avenue to influence the prevention of workplace injuries and disease. Employers can reduce their premiums by investing in safety, essentially the higher the premium the greater the incentive to reduce it.

Brooks (1994, p. 913) advise that in Australia;

“each state and territory has its own compulsory workers’ compensation arrangements. These schemes although in principle the same, contain some significant variations, for example, access to common law and the capping of payments associated to disability and redemption. Overlaying these are two federal jurisdictions, one for Commonwealth government employees and the other for Seafarers.”

This essentially means that, in the study period, there are ten main workers’ compensation schemes currently operating in Australia.

There is justification - both morally and economically - for occupational safety and health legislation requiring an organisation to take responsibility for accidents in their workplace. All Australian State safety and health jurisdictions provide advice and information about general workplace hazards that are in most cases free of charge. Holding employers responsible for ongoing injury and accident costs should reinforce the incentives that emerge from quality systems, safety and health processes, especially if these costs are influencing the bottom line.

The workers' compensation and rehabilitation system in Western Australia is based on the “no Fault” system and provides injured workers with compensation

for loss of wages, medical, vocational rehabilitation, travelling expenses, and lump sum settlements in certain situations. The system is designed to return injured workers to gainful employment as quickly as possible through the process of medical and vocational rehabilitation. The “no-fault” (strict) liability rule means that as long as the injury or disease arose out of and in the course of the employment, the employer funds all compensation paid. According to the 1994 Industry Commission Report, *Workers’ Compensation in Australia* (1994, pp 40-42) there are two arguments for holding employers (rather than employees) liable:

- employers have better information and greater control over their workplaces; and
- if employers are forced to bear the costs, product prices will reflect the full costs of productivity which will include accident and injury costs.

Interestingly, Brooks (1994, p. 912) questions the relationship of the integrated legislation. He questions how could laws to prevent occupational injury and disease and laws to compensate those injured or contracting disease (where prevention has not succeeded) possibly be other than complementary.

Brooks (1994) suggests that compensation schemes have acted as a substantial disincentive to prevention. The argument provided - insurance is the way of managing the risk. The problem to this argument, as seen from the Western Australian Government literature by White (1995,1996,and 1997), is that in

recent times the insurance is no longer a cost-effective manner to manage the risk. In addition it may be argued injuries not 'accepted' as workers' compensation can be reported as not affecting the obvious 'bottom line' and therefore all claims should be challenged to assist in reducing the insurance premium.

The 1998, WorkCover Annual Report (1998, p. 44) indicates workers' compensation disputes reported in 1998, represented a 27% increase over the previous annual period. In light of this increase, it would appear, the argument suggested by Brook's requires further investigation.

3.9.1 Trends in Workers' Compensation

In Western Australia, employers are concerned about the increasing costs of workers' compensation and the so-called second gateway, which establishes a vehicle for common law action. In 1998, the (then) Western Australian Minister for Labour Relations, Ms Cheryl Edwards stated in a Media Statement (November 1998);

"A major cost blowout in our workers' compensation premiums was threatening the viability of many successful businesses which would mean the loss of hundreds of jobs in this State."

In support of the Minister's statement, the Australian Insurance Institute of Western Australia (1998, pp 1-5) commented;

- "days associated to lost time injuries continue to increase;
- the ability to access full weekly income including bonuses is a disincentive for successful return to work;

- there is difficulty in obtaining real suitable alternative employment;
- there was a reluctance of employers to engage previously injured or restricted capacity workers;
- the responsibility of employers to hold an injured workers job open for 12 months is economically unsustainable;
- workers are double dipping by using the social security system;
- the inability to redeem claims was not allowing workers to exit the system; and
- the continued and increasing influence of lawyers in the system interfered and frustrated work programs."

According to Fonceca (1994, p. 20) "a consequence of requirements embedded into the pre 1993 Workers' Compensation and Rehabilitation Act 1981, employers were experiencing a rapid escalation of costs and claims at common law. This escalation had a significant effect on the cost of premium renewal, productivity, profit margins, and market competitiveness as well as the security of employment."

Within Australia in general, the literature strongly suggests that this rapid escalation of costs and claims at common law has not abated. In New South Wales (NSW) Robinson (1994, pp 213-217) comments that the NSW WorkCover Authority's main reason for financial difficulties is associated to the term "partial deemed total" treatment of unemployed, partially incapacitated workers.

The significance of this is that, if a worker prior to a workplace injury was earning \$400 a week, but because of lasting incapacity was subsequently only able to earn \$300 a week, the scheme would provide a long term on-going benefit of \$100 to the worker, even if they had not found employment. Robinson (1994, p. 216) suggested that this type of benefit design was the main reason for the scheme's continuing financial difficulties.

The Australian Insurance Institute (1998, pp 3-5) commented that similar design faults are noted in the current Western Australian scheme. For example, the intent of the legislation is to essentially compensate injured workers for loss of earnings however, the access to common law has become increasingly easy. Injured workers are having little difficulty in persuading the courts to grant leave on the grounds of future economic loss. The Australian Insurance Institute (1998) also argued, that the ease of access, or second gateway as it is known, has not operated as intended and is allowing access to lump sum payments in excess of the prescribed amount. The Australian Insurance Institute (1998, p. 5) stated;

“based on current levels of applications being made to the District Court of Western Australia, the number of claims will increase common law costs to 54% of total costs and add approximately \$80 million to a total system costs.”

This is consistent with the Western Australian Minister for Labour Relations, Ms Cheryl Edwards, media statement in November 1998 and is an area being evaluated in this research study.

In principle, Hopkins (1994, p. 129) suggests that workers' compensation insurance is not in its simplest form a preventive measure - it is simply a way of distributing the costs of injury across all employers. Hopkins (1994) does suggest however, that if premium payments are structured correctly and based primarily on accident experience they may serve as an incentive towards prevention. The author supports this concept however, there are some uneasy

trade-offs involved in setting key design features to a well-managed workers' compensation portfolio.

Finally, the Industry Commission Report *Workers' Compensation in Australia* (1994, p. xxv) believed;

"the current Australian arrangements do not encourage ideal behaviour towards the management of workers' compensation. Although performance in some areas has improved, occupational health and safety regulation continues to be managed with insufficient regard for its cost effectiveness."

The author suggests workers' compensation premiums should be rated according to experience to increase the opportunities for prevention, as financial gains are an incentive to take occupational safety and health seriously. Through anecdotal evidence, obtained from the authors experiences, it would appear the present system has 'the big players' subsidising the small companies and even more alarming is that this subsidy is disproportionate to those smaller companies who are performing poorly. This also requires further investigation.

3.10 Rehabilitation

In this context the Workers' Compensation and Rehabilitation Act 1981, Western Australia Reprinted, (14 March 1994, p. 6) defines rehabilitation;

"the ongoing combined and coordinated use of medical, psychological, social, educational and vocational measures to restore function and assist the injured worker to return to gainful employment".

Rehabilitation is essentially an after event process for managing injury and disease. In an ideal workplace regulatory requirement, workers' compensation incentives and quality management should prevent injuries, therefore, there should be no need for rehabilitation as injuries and disease would not occur. We live however, in the real world, for example the WorkCover Western Australia Annual Report (1998), indicates that the number of rehabilitation cases reported to the Directorate in 1998 increased by 6% over 1997, and 18% over 1996. Rehabilitation costs for the annual period of 1998, have increased 80% over costs recorded in 1996.

The Industry Commission Report Workers' Compensation in Australia (1994, p. 90) drew attention to an organisations safety culture and suggested that successful and early return to work is influenced by the opportunity of early access to rehabilitation. Interestingly, the Victorian WorkCover Authority Annual Report (1992, pp 7-9) identified failure to provide early access to rehabilitation as the single most important factor in returning injured workers back to work.

Evaluating the effectiveness of rehabilitation requires assessing the expected benefits against the anticipated costs. There have been several cost benefit analyses conducted of rehabilitation. According to Anutech (1993) a review of the Commonwealth Rehabilitation Service's program estimated that for every dollar spent on rehabilitation approximately nine dollars were saved. Ganora

and Wright (1987, p. 334) provided case study data indicating that "rehabilitation provided a direct benefit with a cost ratio of 12.6 to 1." Hocking et al. (1993) on the other hand, commented on an evaluation of rehabilitation programs in Telecom and concluded that although rehabilitation was welcomed by employees, its application had not been totally successful.

The Industry Commission Report Workers' Compensation in Australia (1994, p 93) advised, "there is evidence to suggest that rehabilitation is generally beneficial and cost effective."

The Commission findings are strongly supported by several authors, Hager (1998), believed that the most important feature of a workers' compensation system are its return to work incentives. Similar to the comments raised by the Victorian Workers' Compensation Authority (1992), significant emphasis was placed on the design of the program, mainly the requirement for early referral.

Hager (1998), like Ganora and Wright (1987) commented that a properly designed program with a structured gradual return to work significantly cut workers' compensation payments and restored injured employees to the highest level of meaningful work. Shoebridge (1997), Wood, Morrison and MacDonald (1995), and Blackley (1993) reported that rehabilitation programs are becoming an increasingly important component in the management of workers' compensation cases involving permanent or temporary disability.

The concept of evaluating a workers performance during and after completion of a return to work program has caused concern. This criteria has significant importance as it provides the stepping stone of removing the injured worker from the compensation merry go round - back into the normal working environment. Yates (1992, p. 8) suggested;

"the evaluation process embodied into a rehabilitation program should be similar to that of any usual performance rating if the employee is to succeed after an injury or disease."

Yates (1992) further commented that the monitoring of rehabilitation performance allows an opportunity to set realistic goals for further improvements. Similarly, Fisher (1991, p. 12) addressed the issue of the lack of total quality key principles in rehabilitation programs, and states:

"Workers rarely believe that the insurance company managing their workers' compensation claim and rehabilitation program have the interests of the worker at heart, they believe that it is cost driven."

This may be a perception difficult to change and if costs permit then 'in house' rehabilitation servicing of staff may help address this perception, however this requires further investigation.

Rehabilitation is a major element in the University occupational safety and health program. A factor, for this research study, which is considered in addressing the total cost of workers' compensation claims.

3.11 Workers' Compensation Insurance

It is compulsory for employers in all Australian States and Territories to obtain workers' compensation insurance, unless they are self-insured. As mentioned previously, for the study period, and highlighted by Brooks (1994, pp 13-37), Australian State jurisdictions have some variations to their statutory provisions, for example, in all States except New South Wales and Victoria, cover for the full amount of workers' compensation liability is compulsory. In Victoria, employers may reduce their premium rates by insuring only for liability for the first ten days of a claim and reasonable medical expenses to a prescribed amount. In New South Wales, the employer is only required to insure against liability arising after the first \$500 of each claim.

In Western Australia, Part X, Division 1, Section 160(1) of the Workers' Compensation and Rehabilitation Act 1981, states;

"Subject to this Act, every employer shall obtain from an approved insurance office and shall keep current a policy of insurance for the full amount of his/her liability to pay compensation under this Act to any worker employed by him/her including any increase in amount occurring during currency of the policy".

There is a strong relationship between the cost of indemnity, workers' compensation claims costs and occupational safety and health.

The Industry Commission Inquiry into Occupational Health and Safety Report (1995, pp 583-597) discusses this relationship in terms of measuring the impact of premiums and experience rating on workplace safety.

An important aspect of this research study is to indicate, from an organisational perspective, is - if total costs of prevention as well as the introduced safety program has correlation with claims experience and total costs for workers' compensation. WorkCover WA provided considerable information on the Web page and the following commentary is from WorkCover WA general information Webpage (August 2001), the WorkCover WA mission was;

"to effectively administer the Workers' Compensation and Rehabilitation Act for the benefit of injured workers, at reasonable cost to employers and the community, and to advise Government on appropriate policy for this purpose".

The Workers' Compensation and Rehabilitation Act 1981 provides for a statutory, no-fault system of compensation for work-related injuries. In Western Australia employers are liable to pay compensation to a worker who suffers a disability as a result of the worker's employment, or to the dependants of a worker who is killed, if the injury arose out of or in the course of any employment.

Disability" is defined in The Workers' Compensation and Rehabilitation Act 1981 to include;

"an injury which occurs during an accident arising out of and in the course of the employment, or while acting on the employer's instructions
a disabling industrial disease (for example, poisoning or lung diseases)
a disease contracted in the course of employment, or a disease which recurs or is aggravated (as long as the employment significantly contributed to the disease, recurrence or aggravation)".

Since December 1994 injuries during travel to and from work are not covered

by the scheme. Also since, 1993 "Disability" does not include stress-related diseases if the stress was caused (wholly or predominantly) by the worker's dismissal or demotion or by disciplinary action taken against the worker, unless the employer acted unreasonably and harshly.

For the study period of this research study the workers' compensation liability remained in place for the University and as can be seen by the literature was a legal requirement.

3.12 Summary of the Literature

In evaluating the effectiveness of safety and health it is clear from the literature that management commitment, authority and defined responsibility are important criteria in measuring safety performance. Work related accidents have been questioned as a reliable way of measuring safety performance.

In addition, it is apparent that the evaluation process is dependent on the accuracy and consistency of the accident/injury reporting process. Associated to these indicators are the workers' compensation measurements.

This research study will provide insight in the impact of occupational safety and health as well as workers' compensation claims from an organisational perspective. It can be seen from the literature that there is a strong relationship between occupational safety and health, workers' compensation, rehabilitation

and indemnity insurance. This research study will evaluate the direct impact these topics have upon one another when the legislation is introduced and workers' compensation data is analysed from a micro-analysis view point.

3.13. Theoretical Framework

Occupational safety and health undertook a major prominence in Australia in the early 1980's. This was directly influenced by work undertaken in Britain by Lord Robens and the subsequent report produced in Britain in 1972. The recommendations of the Robens Report were incorporated into Convention Nos. 155 and 164 of the International Labour Organisation in 1980. Throughout the early 1980s, all Australian States moved to implement the recommended reforms. The philosophical change in managing occupational safety and health brought about by this Robens report is briefly discussed. Central to this research study is the Robens philosophy of addressing legislative change based upon:

- consolidating all workplace safety and health regulation under one Act which establishes duties for employers and employees and others
- creating more central regulating systems at the workplace level by moving to performance regulation and through the introduction of workplace agreements which encourage employee participation in decision making relating to workplace safety and health.

Work in industry, regardless of type, often involves exposure to hazards to the worker. Since the introduction and acceptance of the Robens philosophy, in Western Australia,

the law provides responsibilities and sets of limits or minimum standards of protection for workers that must be adhered to by the owners of business enterprises.

Western Australian workplaces are subject to both federal and state health and safety legislation, that exist in the form of parliamentary Acts, Regulations, and industry Standards. Due to the residual and independent powers of each Australian State and Territory and the delegated powers of the Commonwealth Government, each State and Territory has promulgated their own Act to address this topic.

Despite the diversity and differing scope of laws between the States, Territories and the Commonwealth, each piece of legislation reflects a common philosophical approach to occupational health and safety. Cullen (1994, p.3) states;

“[the] genesis of this philosophy can be traced back to the Robens Committee of Inquiry of Workplace Safety, which was submitted to the British Parliament in July 1972. Prior to this report and the ensuing changes to legislation in Britain and Australia, there had been a long and detailed history of specific and piecemeal legislation directed towards particular hazards.”

The Robens Committee (1972) made recommendations that affected the employees, the employers, the unions and the role of government with respect to occupational safety and health. These recommendations formed the basis of new legislation for both Britain and Australia. The key to the philosophy of the Robens Committee Report was the notion of self-regulation. This meant, essentially, that employees and employers were to cooperate in order to promote safety and health and that the primary responsibility for health and safety lay with those who create the risks and those who work with them.

The findings from the Robens Committee Report (1972) can be summarised as follows;

- Employers have responsibilities to prevent health risks arising from plant and processes
- Workers have the right to know the risks and have a duty to cooperate with the employer in occupational health and safety matters
- Standards for control are developed through consultation between industry and labour representatives
- The remedies should be proportional and appropriate to the risks and
- A high standard of compliance with legal requirements are expected and enforced by an expert inspectorate with strong powers.

The Robens Committee Report (1972) recommendations centred upon two important key elements;

1. Incorporating the concept of the common law of duty of care. It is the employers' onus to tackle the daily problems by identifying them and
2. Statutory duty on employers to consult with elected health and safety representative, therefore giving them voice in the running of safety committees and on occupational health and safety issues.

The intent of this research study was to review the worker's compensation data over the 20 years using intervention indicator periods that will test the impact of the Robens' philosophy. That is, the implementations of the legislation, based upon Robens' recommendations, were researched to understand how effectively this philosophy works – from a micro-analysis perspective - using workers' compensation data. The theoretical model is provided in pictorial form in Figure 1(a) on the next page.

$$\text{Risk} = \text{Frequency} \times \text{Consequence}$$

Prevention Activities

Post Accident Activities

Robens Philosophy

- one Act
- central regulating systems
- Incorporating the concept of the common law of duty of care
- self-regulation
- employees and employers were to cooperate in order to promote safety and health
- primary responsibility for health and safety lay with those who create the risks and those who work with them.
- Employers to prevent health risks
- employers to consult with elected health and safety representative
- Employee participation in decision making relating to safety and health.
- Employees have the right to know the risks
- Employees have a duty to cooperate with the employer in occupational health and safety matters
- Standards are developed through consultation between industry and labour representatives
- The remedies should be proportional and appropriate to the risks
- A high standard of compliance with legal requirements are expected
- Enforcement by an expert inspectorate with strong powers.
- Safety and Health Representatives have a 'voice' at the safety committees

| | |
|---|--|
| Report Investigate Record Control Monitor control actions | Report Compensate Rehabilitate Monitor/Evaluate |
|---|--|

Requirements Safety Initiatives

- safety policy
- preventative safety management
- responsibilities outlined
- consultative processes
- incidence/hazard reporting recording
- hazard identification, assessment, control
- training

Figure 1(a)
Theoretical Model

4. SAFETY PROGRAM

4.1 Introduction

In this Chapter a history of safety responsibilities and the safety program for the University is outlined. As reported in Hegney (1990), a safety program is a defined plan of action designed to manage hazards and prevent cases of occupational injury or disease. The safety program is required to enable management to measure performance and provide a framework for employee participation. By having an identifiable program the employer and the employee are better placed to meet their respective legal obligations, as required by the Western Australian Occupational Safety and Health Act 1984

4.2 History of Safety Responsibilities – Staff

In 1979, the University had a Security and Safety Officer primarily handling concerns about security and the paper work relating to workers' compensation. This situation remained until the impending legislation, in 1984, where the position of Safety Officer was developed and introduced at the same time of promulgation of the Occupational Safety, Health and Welfare Act 1984. This, in practice, separated the security and safety functions, thereby allowing a dedicated occupational safety and health

management component for the University. Whilst security was removed, two areas of responsibility remained with the Safety Officer - that of occupational safety and health and workers' compensation.

In February 1988 the Safety Officer was provided with an assistant to coordinate the requirements of the Act amendments and Regulations promulgated in September 1988. In January 1989 the Safety Unit expanded to a total four staff with a clerical assistant along with an Insurance Officer. The Healthy Lifestyle program was developed in 1988 and a Healthy Lifestyle Coordinator appointed to oversee this program. The introduction of responsibilities for rehabilitation of all University staff required a 0.5 Occupational Therapist (OT) position to be introduced in 1990. This position of Rehabilitation Coordinator (OT) became full time in March 1993. Radiation safety was funded from the safety budget however an academic staff member in the School of Physics managed radiation safety for the University.

4.3 Committees

There was a Security and Safety Committee already established by 1979 however the minutes indicated this committee had not met for that year. In 1980, the committee did meet to address the capital costs of introducing lighting to car parks. This was the only item minuted for the meeting for that year. The Security and Safety Committee is not recorded to have met in

1981, 1982, 1983 nor 1984. A new Safety committee was introduced in 1985. The terms of reference and membership did not meet with the legislation requirements until the amendments to the Act and Regulations were promulgated in 1988. The committee was re-named in 1988 the Occupational Safety and Health Policy Committee (OccS&HPC).

With the new name came the new membership and terms of reference to meet the Occupational Health, Safety and Welfare Act 1984 requirements. The Committee discussed University-wide issues, such as budget requirements, policy development and planning, monitoring of injury trends and determining training needs. The Committee could also take part in resolving major health and safety concerns as determined by the University's resolution of issue procedures.

Sub committees were also introduced in 1988. The sub committees of the OccS&HPC were the;

- Bio Safety Committee;
- Hazardous Chemical Committee;
- Safety and health Representatives Committees;
- Healthy lifestyle Committee; and
- Radiation Safety Committee.

The chair of each sub committee was a member of the OccS&HPC. These Committees continued for the rest of the study period and a budget was introduced in 1989. This budget was overseen by the OccS&HPC and managed

by the Safety Officer. The budgets and expenditure reconciliations were for calendar periods January to December 1989 to 1998 (Appendix 1).

4.4 Occupational Safety and Health Representatives

Occupational Safety and Health Representatives (OS&H Reps) were first introduced in 1989. Initially the number represented the four divisions and administration areas of the University. At this time in 1989 there were 14 OS&H Reps. The number of OS&H Reps doubled in number in 1991 to 28. This number accommodated academic representation and general staff representation within the relevant areas of the University. The number of OS&H Reps remained at 28 through out the rest of study period. As required by the legislation accredited (external) training was provided by the University to the OS&H Reps and every two years elections were held to re-elect or fill vacancies to have Representatives for the areas within the University.

4.5 Healthy Lifestyle Program

The University Web page (August 2001) provides information on the Healthy Lifestyle program. The following information on the Healthy Lifestyle program is presented from the web page and advises, the University was the first University in Western Australia to provide both students and staff with a diverse and comprehensive, on site health promotion program.

A working party consisting of representatives from academic, salaried and wages and their allied unions staff was set up in 1988 to assess the feasibility of developing a healthy lifestyle program. As a result of persistent lobbying among departments and faculties, funding was obtained to develop the program.

Initially, a Co-ordinator was employed for five hours a week to develop the program on an ad hoc basis. A needs assessment was issued to staff in 1989. The results were used to plan and develop a comprehensive work site health program that incorporates the identified areas of staff interest and need. These assessments were re-evaluated every two years and the identified health and lifestyle issues were addressed on a quarterly, cyclical basis. Support material, seminars and activities are planned to coincide with each campaign.

By 1990, 200 staff had become actively involved in this program. By 1991, 2,000 contacts had been made. This major increase in numbers was due to the implementation of the Health and Fitness policy allowing staff up to 2 hours off per week to become actively involved in the program and an increase in time and financial support by management for this Program. The University Healthy Lifestyle Program had a sub-committee of the University Occupational Health and Safety Committee ensuring it's continued support. The University Healthy Lifestyle Program (UHLP) had become an integral

part of University life with over half of all staff accessing the program in the latter part of the study period.

4.6 Risk Management

The Risk Management Unit was formed in 1993, with five full and two part time staff encompassing all responsibilities to co-ordinate occupational safety and health together with workers' compensation and rehabilitation. A Risk Management Directory of Service was introduced in 1995 (Appendix 2) and reviewed/updated every year for the remaining years of the study period.

The staff from the Risk Management Unit was available at all times to provide assistance and advice on occupational safety and health issues. Services available included, information and training, safety audits and workplace assessments, assistance in resolving safety and health issues, information on controlling hazards, occupational rehabilitation for injured staff and information on and claims processing for workers' compensation.

4.7 Safety Initiatives

The safety program introduced to the University was directly aligned to the legislative requirements in occupational health and safety. The components of this program included the safety policy, responsibilities outlined,

consultative processes, hazard inspections, incidence /hazard reporting recording, and controls of hazards. The complete representations of the documents were researched and a generic precise is presented in this chapter.

4.7.1 Policy Statement

The policy statement for the University was promulgated in 1988 (Appendix 3) and was reviewed every two years. The policy indicates the University was committed to best practice by the integration of safety and health into line management systems. In addition, there were certain responsibilities placed on managers, supervisors and employees under the Occupational Safety and Health Act to ensure a safe and healthy workplace.

The following is an outline of the documentation provided, within the study period, to the University supervisors and line managers as a reference to their occupational safety and health responsibilities. The documentation was complemented by practical training sessions, commencing in 1991, run by the Safety Officer and later staff from the Risk Management Unit to assist the responsible personnel in implementing these processes.

4.7.2 Responsibilities for Safety and Health

The Occupational Safety and Health Act, 1984 placed a general duty of care upon managers to ensure, as far as practicable, their employees were not

exposed to hazards. The Act also placed responsibilities on employees, where they must ensure they did not expose themselves or others to hazards. Other responsibilities required by the Act related to contractors, suppliers of materials and equipment, and people who design and or maintain the workplace.

4.7.3 Responsibilities of any person in a Supervisory role (Managers)

Managers had an overall responsibility to ensure that people under their supervision were not exposed to hazards at work. To meet these responsibilities specific duties were outlined.

4.7.3.1 Provide and maintain workplaces, equipment and systems of work that did not expose employees and students to hazards.

For the research period, to achieve this, a manager was expected to:-

- Assess items before purchase to ensure staff, students and visitors were not be exposed to hazards
- Assess any intended changes to duties or work practices to ensure staff, students and visitors were not be exposed to hazards
- Arrange for equipment, processes or work practices to be modified to ensure staff, students and visitors were not exposed to hazards
- Budget for provision and maintenance of appropriate equipment to enable work to be carried out safely
- Develop and maintain departmental safety policies and guidelines on safe work procedures, e.g. what to do in the case of a chemical spill
- Determine safe methods of work and ensure staff perform their work in a safe manner

- Identify hazards in their work area
- Investigate hazards and incidents to find ways of controlling or preventing them.

4.7.3.2 Provide information, instruction, training and supervision so employees and students performed their work safely.

For the research period, to achieve this, a manager was expected to:-

- Keep information on managing the known hazards in their work area, such as University policies and safe work procedures, Australian Standards and Codes of Practice, and Material Safety Data Sheets (MSDSs) on hazardous substances used in their work area
- Make sure staff and students were familiar with appropriate safety guidelines, policies, standards, codes and MSDSs that related to their work
- Provide training to staff about safe work procedures
- Keep records of what training had been provided, when and to whom.

4.7.3.3 Consult and cooperate with employees and their Safety and Health Representatives (SHRs).

For the research period, to achieve this, a manager was expected to:-

- Know who was the SHR for their work area
- Inform the SHR as a hazard or incident was reported in their work area
- Work with the SHR to investigate hazards and incidents and determine control measures
- Make decisions about how to resolve safety and health issues, after discussing it with the SHR and employees
- Consult employees and SHRs about proposed changes to equipment, processes or work practices in their work area.

4.7.3.4 Provide adequate protective clothing and equipment where hazards could not be avoided.

For the research period, to achieve this, a manager was expected to:-

- Know what protective clothing and equipment was required for the hazards in their work area
- Make sure the appropriate protective clothing and equipment was available, and there were facilities for cleaning, maintenance and storage where necessary
- Provide instruction and training on how to use the protective clothing and equipment correctly.

4.7.4 Responsibilities of Employees

The Act also lists a number of specific responsibilities for employees:

- Take reasonable care to protect their own safety and health and the safety and health of others
- Cooperate with their manager to make their workplace safe
- Report hazards, incidents and injuries that occur
- Follow instruction and training, use personal protective equipment provided and not interfere with anything set up to ensure safety and health.

4.7.5 As Far As Is Practicable

The duty of care under the Act and the responsibilities that they incur apply 'as far as is practicable'. This meant reasonable measures must be taken, bearing in

mind:

- the severity of the hazard
- the likelihood of the hazard occurring
- how much was known about the hazard and how to remove or control it
- the availability, suitability and cost of safeguards.

4.7.6 Other Documentation

In order to fulfil the above responsibilities for occupational health and safety, the following processes and procedures were documented to be in place;

- Incident/hazard investigation – introduced in 1985
- Consultative processes - introduced with OccS&HPC in 1988 and S&H Reps in 1989
- Control of workplace hazards – introduced through direct budget allocations in 1989
- Incident/hazard reporting – introduced in 1989
- Hazard inspections – introduced in 1992

4.7.7 Hazard and Risk

Within the study period, the documentation contained information on;

What was a hazard and what was risk?

A hazard was defined for managers and staff as a potential source of harm to life, health and property. There were seven major groupings of workplace hazards;

- physical (e.g. noise, electrical, heat and cold, radiation),
- chemical (e.g. solids, liquids, gases),
- ergonomic (e.g. manual handling, workstation design, task design),
- mechanical (e.g. machinery),
- psychological (e.g. shift work, workload),
- biological (e.g. viral or bacterial infections),
- general (e.g. slips, trips).

A risk was the measure of how likely it was that injury or loss would occur in a given hazardous situation. Risk analysis may therefore have involved assessment of the nature and severity of hazard, the likelihood of exposure to the hazard and the number of persons involved.

The documentation provided the basic guide to hazard inspection and Incident/Hazard Investigation.

- WHAT should be inspected?
- WHO should conduct Job Safety Analyses and hazard inspections?
- WHEN should tasks have been analysed and workplaces been inspected?
- HOW should have the job safety analysis and hazard inspections been performed?
- WHAT should be reported?
- WHO should report the accident/incident, near miss or hazard?.
- WHEN should the report be completed and submitted?
- HOW can accidents, incidents, near-misses or hazards be reported?
- WHAT should be investigated?
- WHO should conduct the investigation?
- WHEN should the investigation process be completed?
- HOW is an incident/hazard investigation completed?

4.8 Management Information

At total of 694 personnel files were reviewed for evidence of knowledge and or training in the requirements of the occupational safety and health legislation.

Since 1992 all Position descriptions required a generic commentary relating to occupational safety and health. The following is part of the proforma for all Position Descriptions;

"In line with a changing social, economic, and legislative environment, University policies, procedures and practices require continual review. All staff, particularly supervisors and managers, are required to keep up to date with these, ensuring observance, implementation and, where appropriate, participation through the appropriate channels to keep them relevant. This includes areas such as Occupational Health and Safety, and Equal Employment Opportunity/Affirmative Action/Diversity*."

Also since 1992, for management positions this commentary has required a component of the selection criteria to include acknowledge of occupational safety and health practices.

Of the six hundred and ninety four personnel files reviewed 98 (14%) had commentary of occupational safety and health knowledge. There is no record if the selection criteria included a question on occupational safety and health.

4.9 Summary of the Safety Program

This safety program documentation is dynamic in nature. As new developments occur changes were implemented. The period of study for this research was 1979 to 1998 inclusive and changes to the documents were introduced as and when changes occurred.

The forgoing in this chapter is a amalgam of the documents and the latter year versions have been applied. The 1998 version of documentation in the Safety Manual is (Appendix 4).

This research study evaluated the safety program as it was based upon the requirements of the Western Australian Occupational safety and Health Act.

5. PILOT STUDY

5.1 Introduction

To assist with the research methodology a pilot study was completed on another Western Australian University for a shorter time span. This pilot study was completed with the generous support of Mr Mike Gavin and the findings from this report were evaluated with his assistance. The pilot study time span was 1993 to 1998. A thorough analysis of the claims history was conducted to ensure that the data was available.

The Pilot study workers' compensation claims were based on all the pilot study University employees, academic, general, part time, sessional and employees on fixed term contracts. This represented a total University population of 1,897 staff in 1993 through to 2,809 staff in 1998.

To check the data for reliability the University Accident Injury Forms provided by the employee were checked against the data provided on the Workers' Compensation Claim Form for consistency and reliability. This data was also checked against the insurers injury coding. Where differences were observed the corrections were made by reviewing the claim forms on the files at the pilot study University.

Between January 1993, and December 1998, there were 493 reported workers' compensation claims lodged with the insurer. Liability, for all 493 claims, was accepted and all the claims were finalised.

The injury classification system set out by WorkSafe Australia in the Australian Standard AS 1885, "Workplace injury and disease recording standard" for the classification of injuries by site of injury is extensive. Given this, as the pilot study data indicated a low number of injuries and costs associated to some types of injuries, in terms of classification, injuries associated to the head, face and mouth were combined into a single injury category. A similar approach was used for the classification of injuries occurring to the upper back, middle back, lower back, hand, fingers, thumb and wrist. The site and agency classifications were also condensed into smaller categories. This allowed for more efficient recording and analysis of the workers' compensation claims.

5.2 Data Collection

The data outlining the pilot study University's workers' compensation performance was readily available from the University's Occupational Safety and Health Office. For the purposes of the pilot research study, the University and the insurer agreed to provide all data in a computerised electronic form. No workplace observations or questioning of claimants were conducted.

All workers' compensation claims costs were converted to 1998 dollar cost values using the quarterly consumer price index. Therefore, a direct comparison of costs between study periods could be made.

5.3 Pilot data analysis – Procedure

The 1993 to 1998 annual workers' compensation injury data were categorised into four independent study groups. Each study group was divided into a before and after study period by a pre-determined intervention date, that is the cut off point separating the study periods. The intervention dates were based on:

- Pilot study group No 1, represented the appointment of an occupational safety and health adviser to the University in October 1994;
- Pilot study group No 2, corresponded with the 1995 amendments to the Occupational Safety and Health Act 1984 and introduction of a cohesive safety program;
- Pilot study group No 3, -consultation- represented the establishment of occupational safety and health committees, working groups and the appointment of elected safety and health representatives in 1996 and
- Pilot study group No 4, represented the completion of a University manual handling training program at the end of 1996 introduced in 1997..

Differences in claims; Lost Time Injury or Disease (LTI/D), days lost, and costs before and after the pilot study intervention periods were analysed to see the influence of these four legislative requirements.

5.4 Pilot Study Information

The review of the pilot study University's occupational safety and health program prior to 1995 showed the program was piecemeal and very limited in formal documentation. The occupational safety and health program after 1995, was subject to ongoing structural and administrative changes since the appointment of an Occupational Safety and Health Adviser in October 1994

Significantly, in late 1994, a formal occupational safety and health strategic and operational plan was developed in consultation with senior management, and workplace elected employees. The plan addressed safety and health prevention programs, training, appointment of safety and health representatives, accountability and responsibility of senior managers, line managers as well as employees. The issue of human and financial resources was budgeted for in 1996 to ensure that safety and health initiatives once generated were able to continue functioning.

Following the acceptance of the occupational safety and health plan in November 1995, the existing occupational safety and health committee was dismantled and representatives resigned their office. In line with the new plan and supported by the senior management (Chancellery), the level of the previous committee was elevated to a University policy committee incorporating executive, senior academic and management representatives. Over the years 1995 and 1996 a tier of sub-committees and working parties

were established at each of the four campuses and within individual faculties to deal with matters at the local level.

In 1996 and 1997 formal accredited legislative training and on going training was introduced for elected and management representatives with clear workplace performance objectives. In accordance with the Act, all safety and health representatives attended an accredited introductory safety and health training course conducted by an external provider.

In 1996 forms for the reporting and recording of workplace accidents and hazard reporting were developed and implemented.

University policies covering safety were developed and implemented during the annual periods of 1996, 1997 and 1998. Special emphasis was placed on the development of a rehabilitation program in an attempt to halt the escalation in the number of working days lost as a result of work related injuries.

5.5 Pilot Study Information Conclusions

When considering the Occupational Safety and Health Program at the pilot study University an investigation indicated that prior to October 1994, a safety committee was partly active however there was no senior management involvement. The committee had no ties or reporting accountability through to

senior management. There was no evidence or documents to support that managers, employees or safety and health representatives had any formal or informal training on legislative responsibilities, hazard identification or control. Although there was a safety policy, it did not conform to legislative requirements as it did not outline relevant responsibilities nor was it signed by the Vice Chancellor.

There was no evidence of formal procedures or forms for the reporting and investigation of accidents, hazard reporting or issue resolution. Duty Statements or alternatively Job Descriptions did not have any reference towards the assessment of manager's responsibilities for occupational safety and health.

With the introduction of an occupational safety and health adviser, in October 1994, there was an occupational safety and health plan established and accepted. With the implementation of this plan the legislative requirements to meet occupational safety and health responsibilities were actioned and this formed a part of the pilot study for this research.

5.6 Pilot Study Summary of the Findings

The pilot study used the data of the six years January 1, 1993 to December 31, 1998 inclusive from the pilot study university. The purpose of the pilot study

was to ascertain if the data was available and able to be analysed for the bigger more robust study. The pilot timeframe was:

| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|--------|--------|--------|--------|--------|
| (1) Safety Adviser (2) Safety Program (3) Consultation (4) Training | | | | | |

The before and after periods were no greater than 3 years and provided a small number of claims and therefore few degrees of freedom for analysis. However, this data did provide significantly reliable statistical differences in (less) claim numbers and (less) days lost for the impact of (2) Safety program and the impact of (3) Consultation, thereby providing the opportunity to confirm the methodology for a larger more robust study.

5.6.1 Pilot study group No 1, (appointment of an occupational safety and health adviser)

The Mann-Whitney U test indicates that there is no statistical significance ($p = 0.05$) between the before and after study periods in any of the test categories. This indicates the appointment of the Safety Adviser for this short study period did not make a statistical significant difference in the numbers of claims numbers, Lost Time Injuries or Diseases, days lost, nor total costs.

5.6.2 Pilot study group No 2, (1995 amendments to the Occupational Safety and Health Act 1984 and introduction of a cohesive safety program)

The Mann-Whitney U test indicates that there is no statistical significance ($p = 0.05$) between the before and after study periods for LTI/D's and costs. However there is a statistical difference in the claims and days lost. This indicates that before the amendments and introduction of a cohesive safety program, there were less claims and less costs than after the changes in 1995. Whilst this is an interesting outcome, no real conclusions can be made due to the short time period involved of three years. The impact may have been achieved however a longer period was required to ascertain the level of impact.

5.6.3 Pilot study group No 3, - Consultation (occupational safety and health committees, working groups and the appointment of elected safety and health representatives).

The Mann-Whitney U test indicates that there was no statistical significance ($p = 0.05$) between the before and after study periods for LTI/D's and costs. However there was a statistical difference in the claims and days lost. This indicated that before the occupational safety and health committees, working groups and the appointment of elected safety and health representatives there were more claims and more costs than after the occupational safety and health committees, working groups and the appointment of elected safety and health representatives. Again caution

should be applied to these findings because of the time frames being only two years.

5.6.4 Pilot study group No 4. (manual handling training program)

The Mann-Whitney U test indicated that there was no statistical significance ($p = 0.05$) between the before and after study periods in any of the test categories. This indicated the introduction of the training in manual handling for this short study period of two years did not make a statistical significant difference in the numbers of claims numbers, Lost Time Injuries or Diseases, days lost, nor total costs.

5.7 Conclusions Drawn from the Pilot Study

The Pilot study set out to determine if the methodology was reasonable for a larger research period using the number of workers' compensation claims, work related injuries or disease, days lost and cost.

At a lower level, sub-questions were asked to determine if the data had been influenced by:

- a University wide occupational safety and health program;
- implementation of specific injury prevention strategies; and
- amendments to the Occupational Safety and Health Act 1984, in October 1995.

The pilot study findings indicated that legislative amendments did not influence changes to the data nor did it provide statistically reliable data on the effectiveness of

the safety and health program at the pilot study University. These interventions acted as a catalyst in providing a vehicle for change and a longer study period of time will provide more reliable analysis. This supports the work of by Scott (1993, p. 20) and the Industry Commission Report Work Health and Safety (1995). The results of this pilot study suggest that there were multifactorial events that influenced changes to the data. A larger sample of data will assist to address the effectiveness of the occupational safety and health program.

The pilot study findings indicated that there was a statistical significance in only some categories. The methodology was robust enough to allow the research to continue with a 20-year data set.

5.8 Summary of the Pilot Study for this Research Study

From the results of the pilot study it was evident that a more comprehensive study and analysis over a longer period would provide a more reliable answer as to whether the statutory amendments influence changes to workers' compensation data. The pilot study methodology did provide data and information to allow for a more complete study and gave rise to this more comprehensive study.

6. PRESENTATION of the DATA

6.1 Introduction

This Chapter presents the data obtained from this research study. The data are presented in table and graph format. Descriptors are identified and commentaries on the data are provided. The arrangement of the data is provided to complement the findings and conclusions, as presented in the next Chapters.

6.2 Dollar-value Indexation

Because of the changing value of the dollar, the dollar values were indexed to the 1998-dollar value by using the CPI values provided by the Australian Bureau of Statistics found in publications on the Web page [Http://www.abs.gov.au/ausstats/ABS](http://www.abs.gov.au/ausstats/ABS). The conversion factors are shown in Table 1.

Table 1
CPI Rates for the Years 1979 to 1998 Conversion to 1998 Dollars

| Year | CPI to 1998 Dollars | Year | CPI to 1998 Dollars |
|------|---------------------|------|---------------------|
| 1979 | \$2.82 | 1989 | \$1.28 |
| 1980 | \$2.58 | 1990 | \$1.18 |
| 1981 | \$2.38 | 1991 | \$1.12 |
| 1982 | \$2.14 | 1992 | \$1.11 |
| 1983 | \$1.94 | 1994 | \$1.09 |
| 1985 | \$1.75 | 1995 | \$1.05 |
| 1986 | \$1.62 | 1996 | \$1.01 |
| 1987 | \$1.47 | 1997 | \$1.00 |
| 1988 | \$1.37 | 1998 | \$1.00 |

6.3 Staffing Numbers of the University for the Period 1979 - 1998

Table 2 provides the number of staff, and Full Time Equivalent positions (FTE) of the staff, that were employed by the University for the twenty-year study period.

Table 2
Number of Staff, Full Time Equivalent (FTE's) Positions
for 1979 through to 1998

| Year | Number of Staff | FTE's |
|------|-----------------|-------|
| 1979 | 2949 | 1574 |
| 1980 | 3139 | 1563 |
| 1981 | 3162 | 1710 |
| 1982 | 3054 | 1672 |
| 1983 | 2945 | 1720 |
| 1984 | 3327 | 1682 |
| 1985 | 3680 | 1598 |
| 1986 | 3958 | 1646 |
| 1987 | 4342 | 1803 |
| 1988 | 4930 | 2703 |
| 1989 | 5161 | 1996 |
| 1990 | 5335 | 1962 |
| 1991 | 5568 | 2069 |
| 1992 | 5732 | 2212 |
| 1993 | 5934 | 2348 |
| 1994 | 6155 | 2256 |
| 1995 | 6274 | 2366 |
| 1996 | 6422 | 2449 |
| 1997 | 6556 | 2475 |
| 1998 | 6938 | 2461 |

Chart 1 (next page) shows a representation of the total number of staff employed by the University for the twenty-years 1979 through to 1998. It is seen from Table 2 and Chart 1 there was a consistent increase in the number of staff each year ranging from 2949 staff in 1979 to 6938 staff in 1998 (except in 1982 and 1983 where a slight decline occurred).

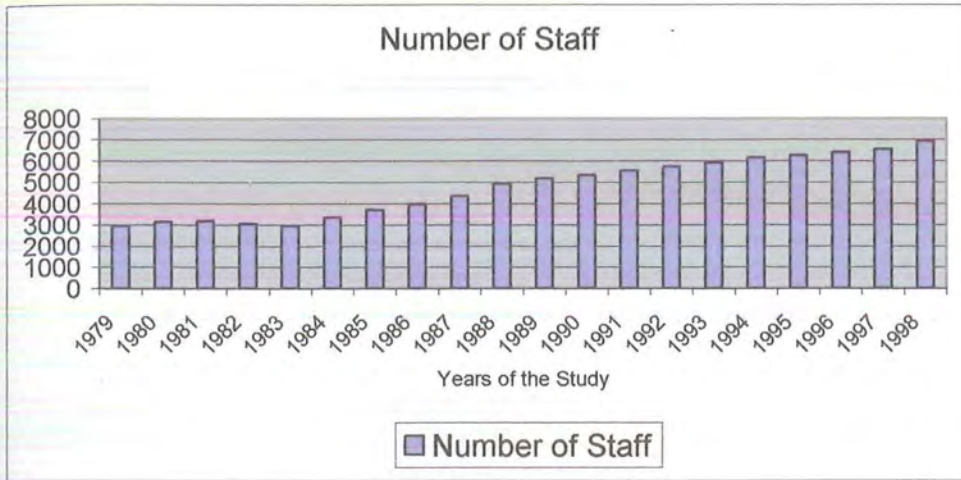


Chart 1
Representation of Total Staff Numbers for the years 1979 to 1998

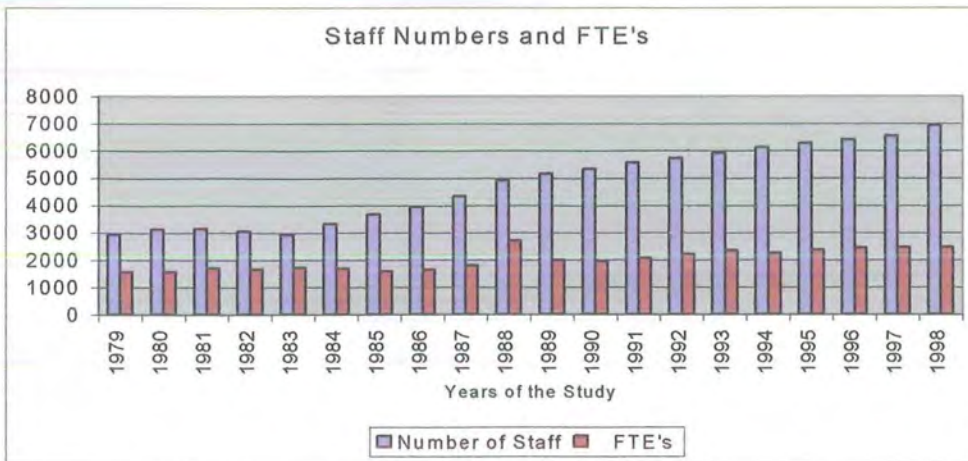


Chart 2
Representation of Total staff Numbers and FTE's for each year
1979 through to 1998

Chart 2 shows the comparison of the total number of staff, by year, employed by the University and the total number of full time equivalent positions (FTE's) for the twenty years.

6.4 Number of Hours Worked By Staff at the University over the Twenty Years

Table 3 and Chart 3 (next page) provide the total number of hours per year worked by the staff at the University.

**Table 3
Total Number of Hours Worked by the
Staff at the University**

| Year Hours Worked For The University | |
|--------------------------------------|-----------|
| 1979 | 2,881,800 |
| 1980 | 2,921,400 |
| 1981 | 2,935,800 |
| 1982 | 3,043,800 |
| 1983 | 3,187,800 |
| 1984 | 3,398,400 |
| 1985 | 3,380,400 |
| 1986 | 3,412,800 |
| 1987 | 3,299,040 |
| 1988 | 3,500,880 |
| 1989 | 3,474,780 |
| 1990 | 3,539,160 |
| 1991 | 3,600,230 |
| 1992 | 3,910,120 |
| 1993 | 4,086,040 |
| 1994 | 3,924,740 |
| 1995 | 4,115,970 |
| 1996 | 4,260,560 |
| 1997 | 4,306,850 |
| 1998 | 4,282,490 |

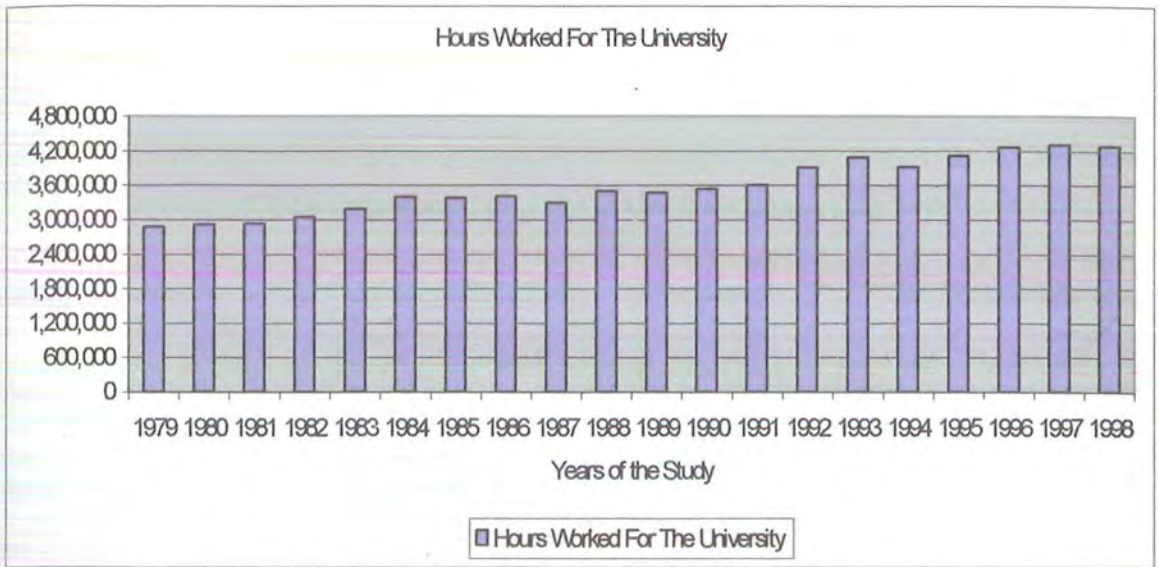


Chart 3
Representation of the Total Number of Hours Worked by
the Staff at the University.

Table 3 and Chart 3 show the total hours worked has increased, over the years, except for 1987 and 1994, where there was a small decrease. There was an uneven increase in hours worked by staff at the University.

6.5 Hazards Reported at the University within the Twenty Year Study Period

There were twenty-three categories of hazards (agent) causing injury or disease, and the numbers of claims associated to the hazards causing injuries or disease that were reported in the twenty year period are shown, by year, in Table 4.

To assist in analysing this data charts are presented later in this chapter produced from the data in Table 4.

Table 4
Number of Claims resulting from the Hazard Categories by Year

| HAZARDS | YEARS | | | | | | | | | | | | | | | | | | | | |
|---------------|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|
| | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | Total |
| Manual Hand | 11 | 29 | 33 | 23 | 23 | 19 | 21 | 19 | 27 | 30 | 29 | 27 | 32 | 56 | 44 | 59 | 33 | 26 | 26 | 29 | 596 |
| Trp fall | 10 | 28 | 21 | 17 | 14 | 18 | 14 | 16 | 14 | 14 | 20 | 14 | 16 | 22 | 30 | 19 | 18 | 16 | 16 | 26 | 363 |
| Machinery | 4 | 3 | 12 | 10 | 16 | 27 | 36 | 27 | 43 | 33 | 19 | 24 | 25 | 18 | 5 | 4 | 6 | 17 | 10 | 3 | 342 |
| Motor Vehicle | 9 | 12 | 14 | 25 | 14 | 24 | 15 | 11 | 12 | 21 | 16 | 26 | 25 | 26 | 25 | 7 | 4 | | 4 | 3 | 293 |
| Chemicals | 6 | 20 | 14 | 18 | 15 | 19 | 13 | 11 | 20 | 15 | 20 | 14 | 14 | 14 | 15 | 11 | 13 | 19 | 10 | 9 | 290 |
| Other Agent | 8 | 7 | 19 | 11 | 11 | 16 | 18 | 12 | 1 | 5 | 9 | 5 | 9 | 3 | 10 | 7 | 11 | 5 | 13 | 5 | 185 |
| Indoor work | | | | 3 | 15 | 6 | 16 | 11 | 4 | 6 | 10 | 10 | 20 | 6 | 9 | 8 | 11 | 3 | 8 | 2 | 148 |
| Animal | 1 | 4 | | | 2 | 1 | 2 | 1 | | | 1 | 4 | | | 1 | | | | | | 17 |
| Insect | 2 | 1 | 1 | 4 | 2 | 2 | 3 | | 1 | 4 | 5 | | 2 | 3 | | 3 | 2 | | 1 | | 36 |
| Hot water | 1 | | | | | | 1 | | | | | | | 1 | | | 1 | | | | 4 |
| Not known | 2 | 1 | 3 | 2 | | | | 3 | | | | | | | | | | | | | 11 |
| Hand tool | 1 | 6 | 6 | 9 | 8 | 6 | 5 | 19 | 6 | 2 | 7 | 12 | 5 | 8 | 10 | 3 | 3 | 5 | 5 | 5 | 131 |
| Typing | | | | 3 | 1 | 19 | 45 | 13 | | 1 | | 1 | 3 | 15 | 9 | 7 | 2 | 6 | 5 | 3 | 133 |
| Workload | 1 | | 1 | | 1 | | 1 | | 2 | 1 | 3 | 2 | 1 | 2 | 5 | 1 | 4 | 10 | 9 | 11 | 55 |
| Glass | 3 | 7 | 8 | 4 | 6 | 10 | 10 | 8 | 5 | 3 | 2 | 1 | | 1 | 4 | 3 | 4 | 11 | 9 | 6 | 105 |
| Outdoor work | | | | 3 | 8 | | | | | | | | | 4 | 2 | 2 | | | 1 | | 20 |
| Nail | | | | | | 2 | 2 | | 1 | | | | 1 | 1 | 1 | | | | | | 8 |
| Metal work | | | | | | | | | | | | | 2 | 3 | 2 | 5 | | 1 | | | 13 |
| Sporting eq. | | | | | | | | | | | | | 1 | 1 | 3 | | | | | | 5 |
| Pushbike | | | | | | | | | | | | | 1 | | 1 | | 1 | | | | 3 |
| Wood work | | | | | | | | | | | | | | | 1 | 1 | | | | | 2 |
| Syringe | | | | | | | | | | | | | | 1 | | | 3 | | | | 4 |
| Other Person | | | | | | | | | | | | | | 3 | 1 | 4 | | | | 1 | 9 |
| TOTAL | 59 | 118 | 132 | 132 | 136 | 169 | 202 | 151 | 136 | 135 | 141 | 140 | 161 | 186 | 178 | 142 | 116 | 119 | 117 | 103 | 2773 |

Figure 2 (next page) represents the summary of the types of hazards (agent causing injury or disease) by year, encountered at the University over a twenty-year period. The various graphs presented in Figure 2 represents the categorises of the types of hazards. The X-Axis being the years 1979 to 1998, and Y-axis the number of claims per year associated with the hazard category.

It can be seen from Table 4 and shown in Figure 2 the most numerous form of hazards reported to cause a workers' compensation claim over the twenty years study period is manual handling hazards.

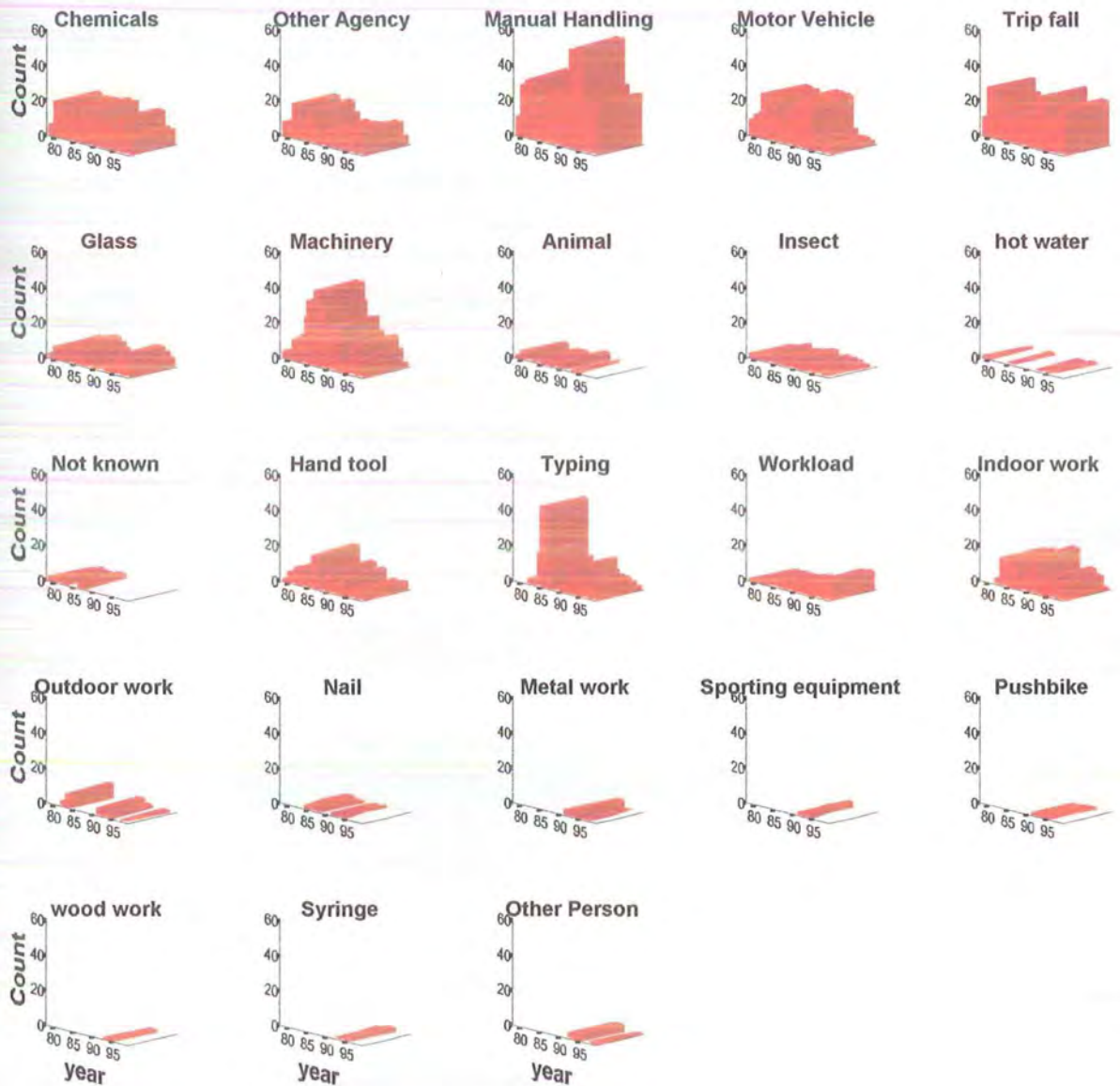


Figure 2
Agent (Hazard) that Caused Injuries Over the Study Period

The hazards causing injuries/disease are ranked;

Manual Handling (21.5%), Trip fall (13.1%), Machinery (12.3%), Motor vehicle (10.6%), Chemical (10.5%), Other agency (spectacles) (6.7%), Indoor work environment (5.3%), Typing (4.8%), Hand tool (4.7%), Glass (3.8%), Workload (2.0%), Insect (1.3%), Outdoor work (0.7%), Animal (0.1%), Metal work (0.5%), Not Known (before the Act) (0.4%), Nail (0.3%), Other person (0.3%), Sporting equipment (0.2%), Hot water (0.1%), Pushbike (0.1%), Syringe (0.1%), Wood work (0.1%).

Table 4 provides the data for the following Charts (Chart 4 through to Chart 26) which show the number of claims per year by the type of hazard.

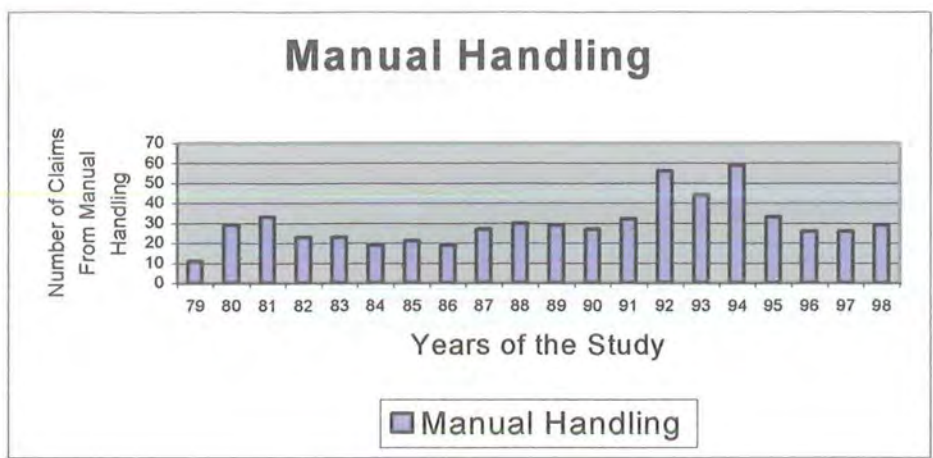


Chart 4
Manual Handling Claims by Year

Chart 4 provides the (21.5%) spread of claims over the twenty years that were caused by Manual Handling.

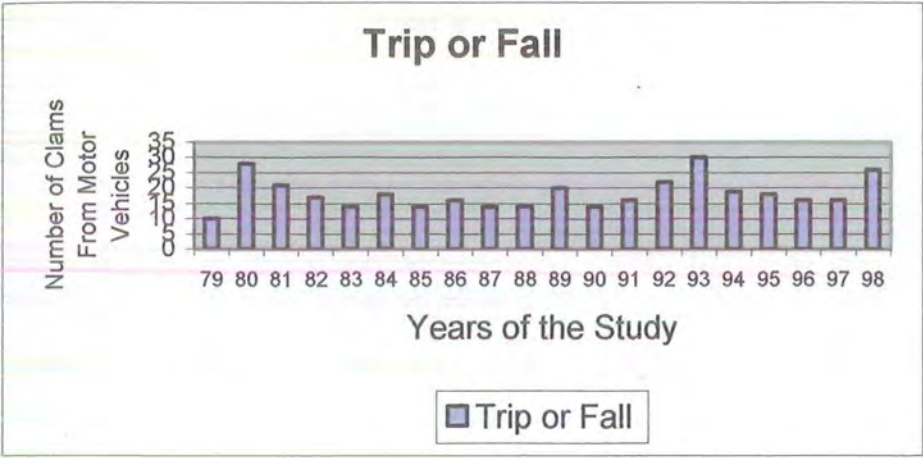


Chart 5
Trip or Fall Claims by Year

Chart 5 provides the (13.1%) spread of claims over the twenty years that were caused by Trips or Falls.

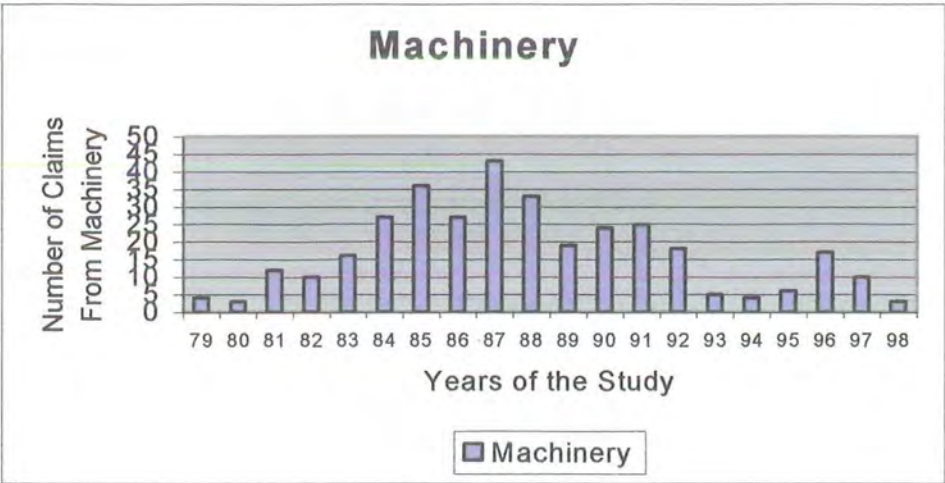


Chart 6
Machinery Claims by Year

Chart 6 provides the (12.3%) spread of claims over the twenty years that were caused by Machinery.

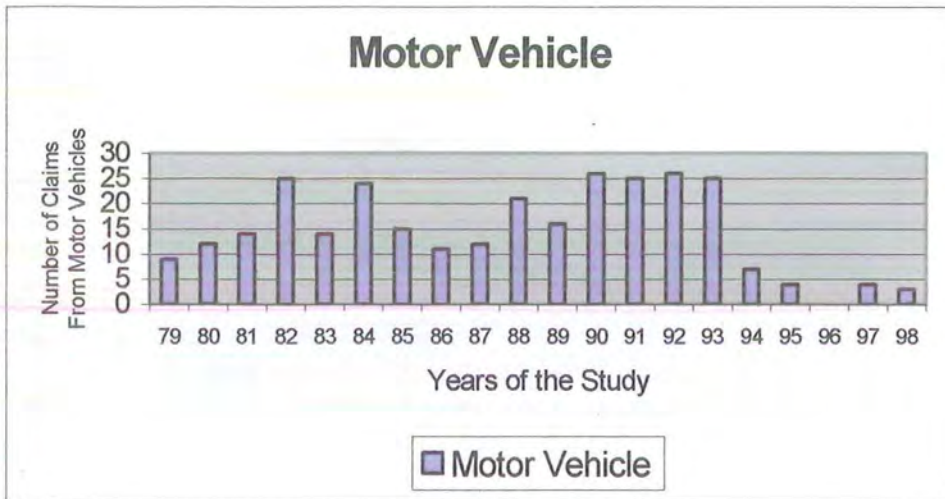


Chart 7
Motor Vehicle Claims by Year

Chart 7 provides the (10.6%) spread of claims over the twenty years that were caused by Motor vehicles.

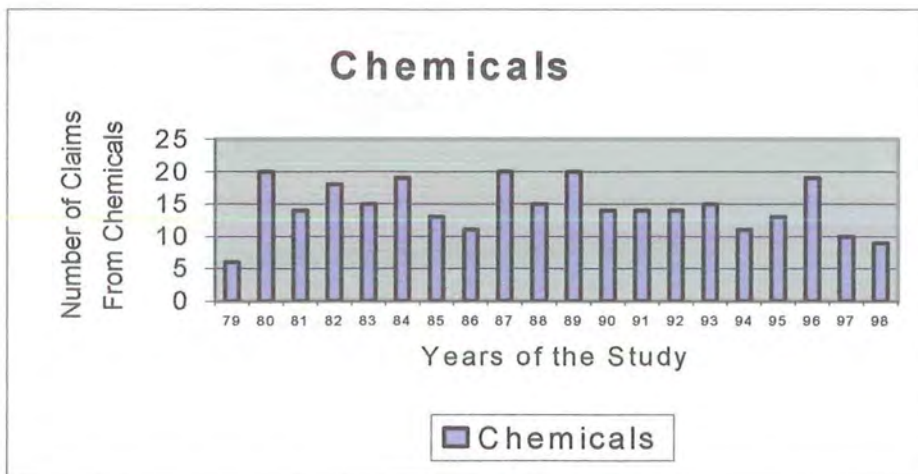


Chart 8
Chemical Claims by Year

Chart 8 provides the (10.5%) spread of claims over the twenty years that were caused by Chemical exposure.



Chart 9
Other Agent Claims by Year

Chart 9 provides the (6.7%) spread of claims over the twenty years that were caused by other agent. This category of hazard corresponds to the spectacle claims.

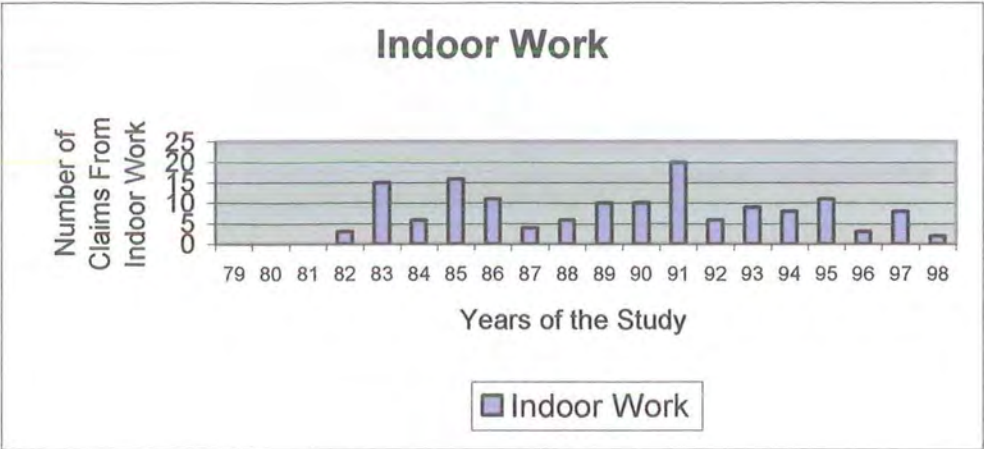


Chart 10
Indoor Work hazard Claims by Year

Chart 10 provides the (5.3%) spread of claims over the twenty years that were caused by Indoor work hazards.

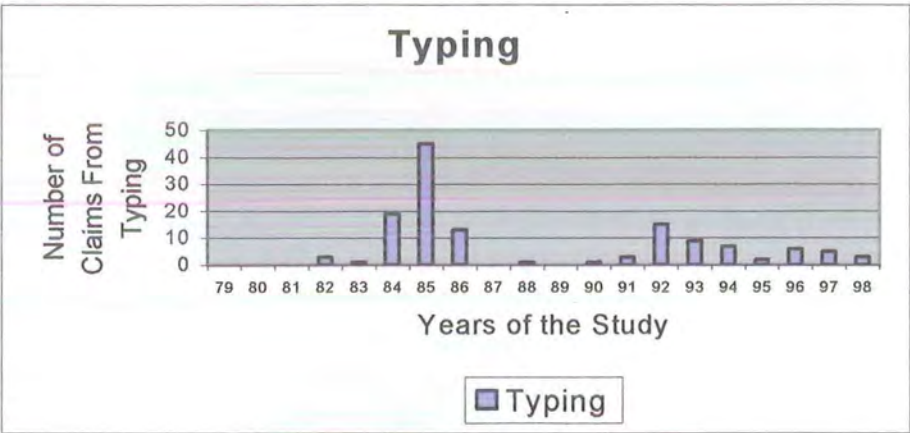


Chart 11
Typing Claims by Year

Chart 11 provides the (4.8%) spread of claims over the twenty years that were caused by Typing.

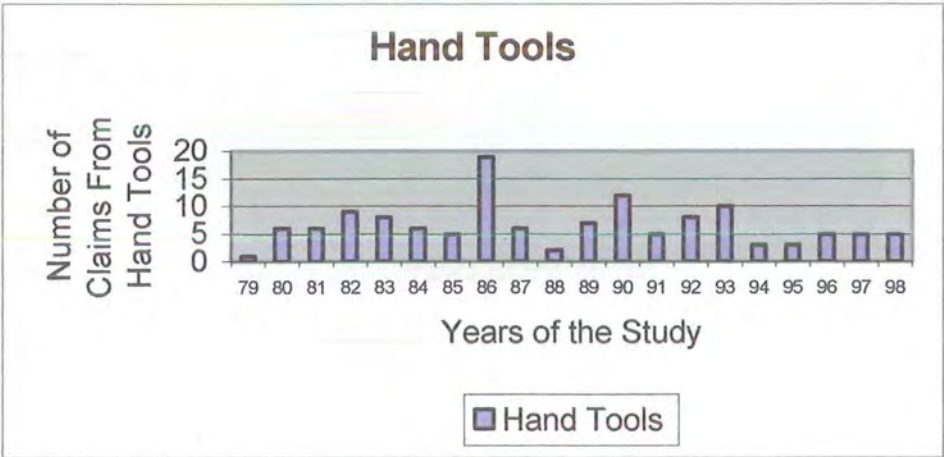


Chart 12
Hand tools Claims by Year

Chart 12 provides the (4.7%) spread of claims over the twenty years that were caused by Hand tools.

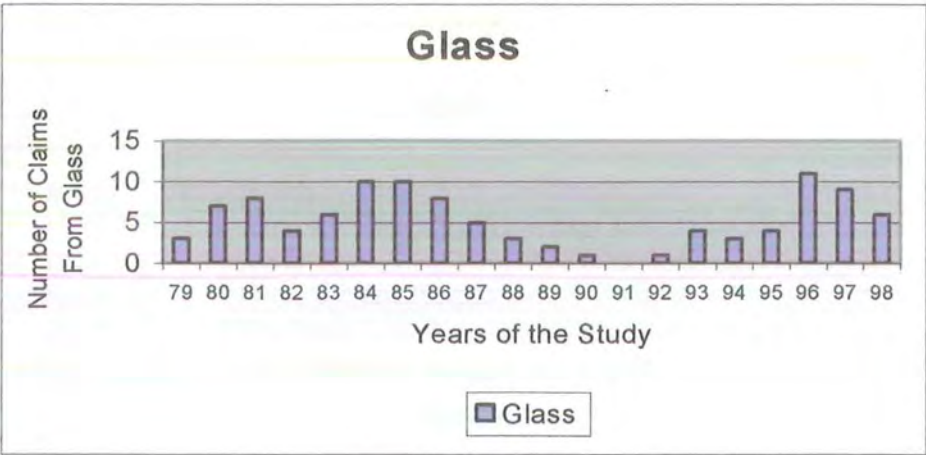


Chart 13
Glass Claims by Year

Chart 13 provides the (3.8%) spread of claims over the twenty years that were caused by Glass.

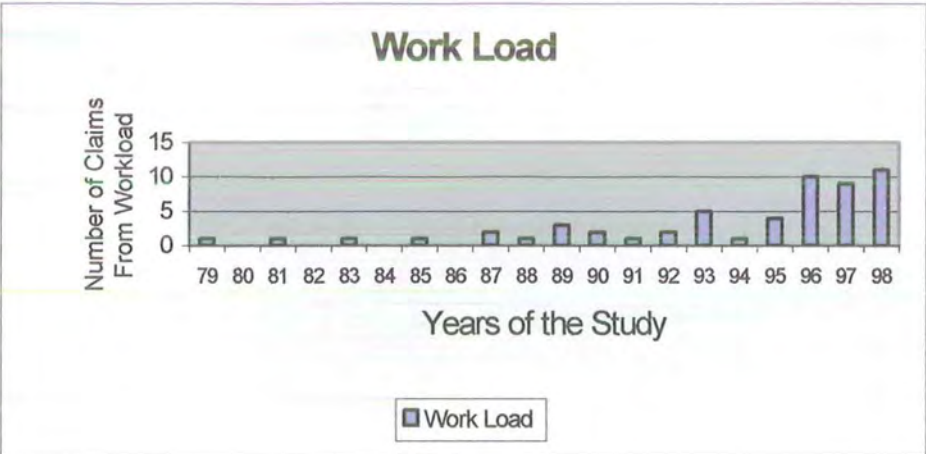


Chart 14
Workload Claims by Year

Chart 14 provides the (2.0%) spread of claims over the twenty years that were caused by Workload.

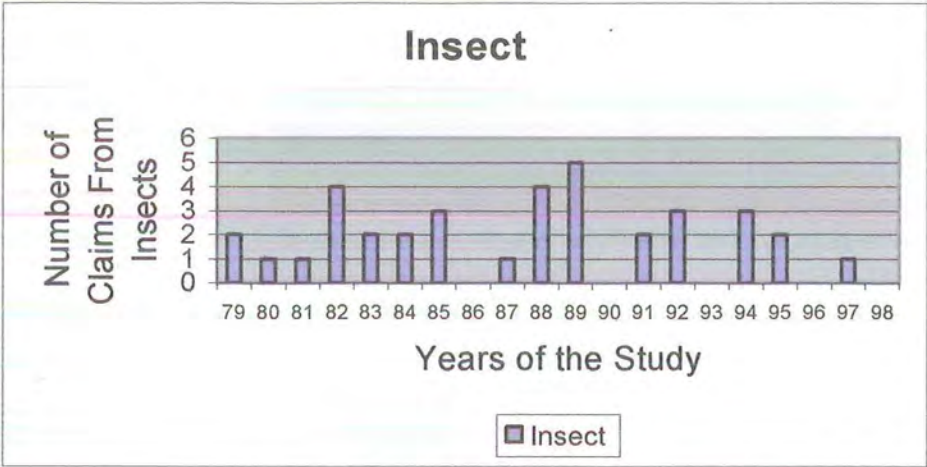


Chart 15
Insect Claims by Year

Chart 15 provides the (1.3%) spread of claims over the twenty years that were caused by Insect bites.

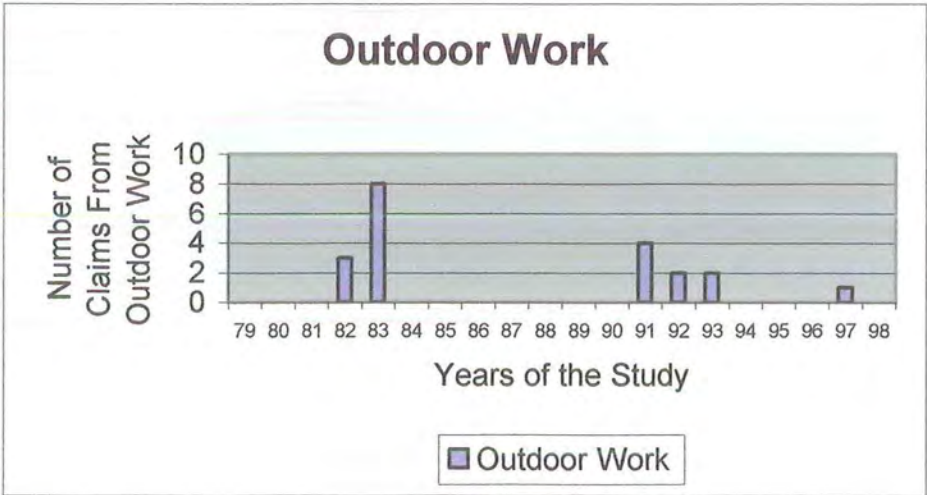


Chart 16
Outdoor Work hazard Claims by Year

Chart 16 provides the (0.7%) spread of claims over the twenty years that were caused by Outdoor work hazards.

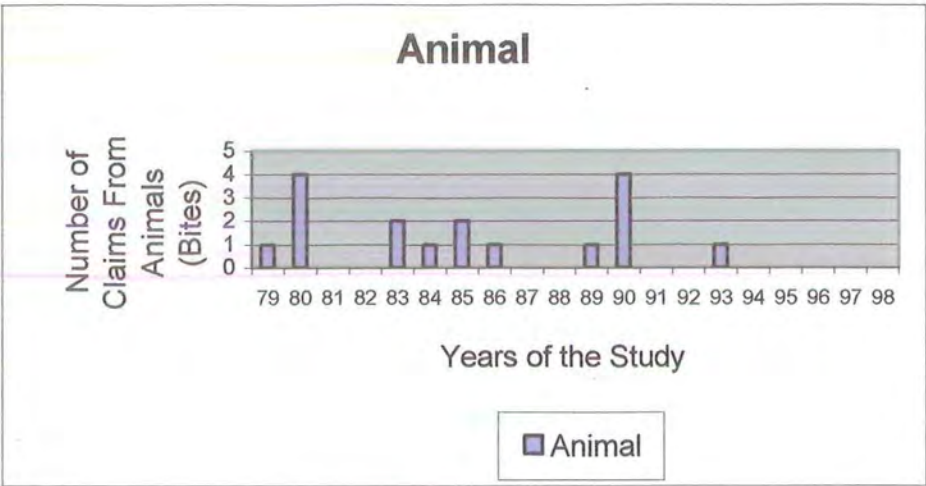


Chart 17
Animal Claims by Year

Chart 17 provides the (0.1%) spread of claims over the twenty years caused by Animal bites.

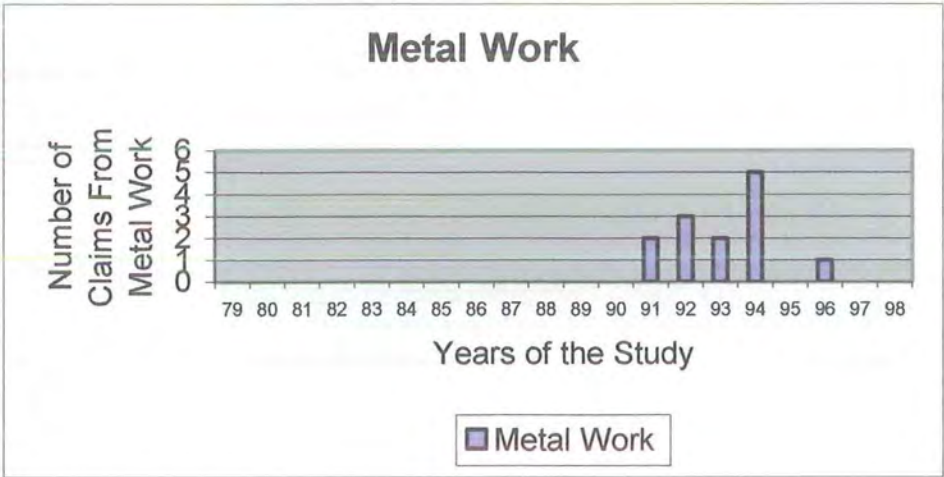


Chart 18
Metal Work Claims by Year

Chart 18 provides the (0.5%) spread of claims over the twenty years caused by Metal Work hazards.

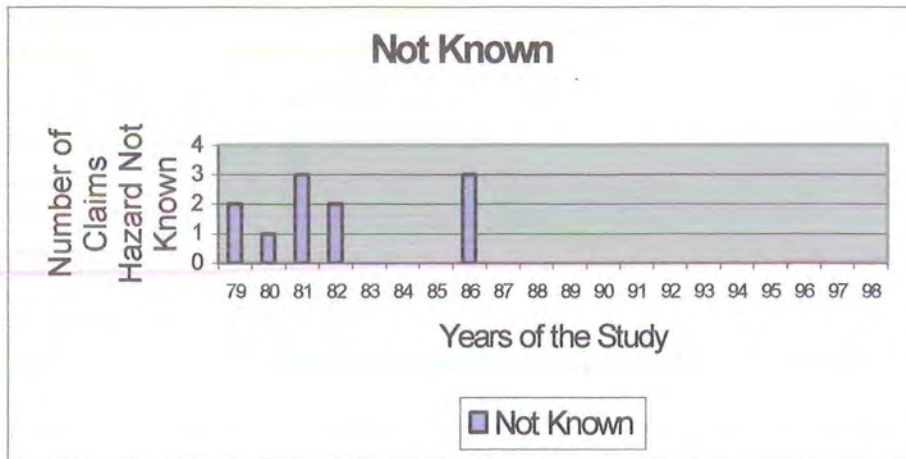


Chart 19
Claims Where the Hazard is Not Known shown by Year

Chart 19 provides the (0.4%) spread of claims over the twenty years where the hazards are not reported and therefore not known.

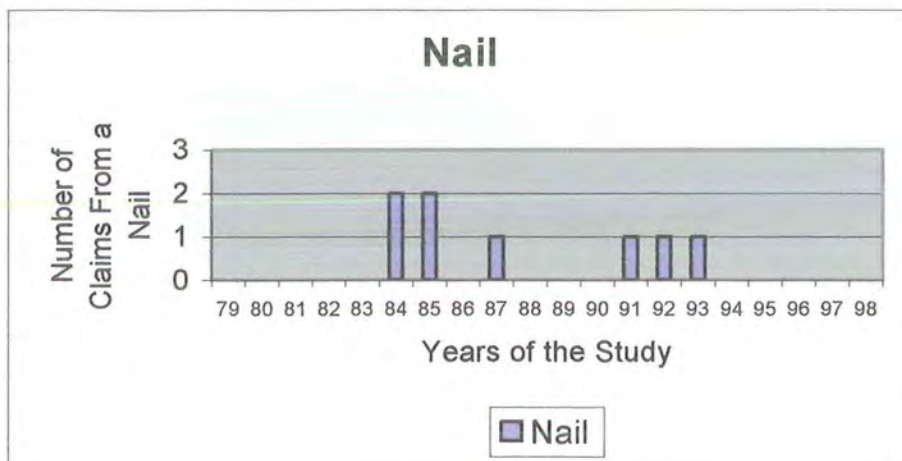


Chart 20
Nail hazard Claims by Year

Chart 20 provides the (0.3%) spread of claims over the twenty years caused by a nail hazard.

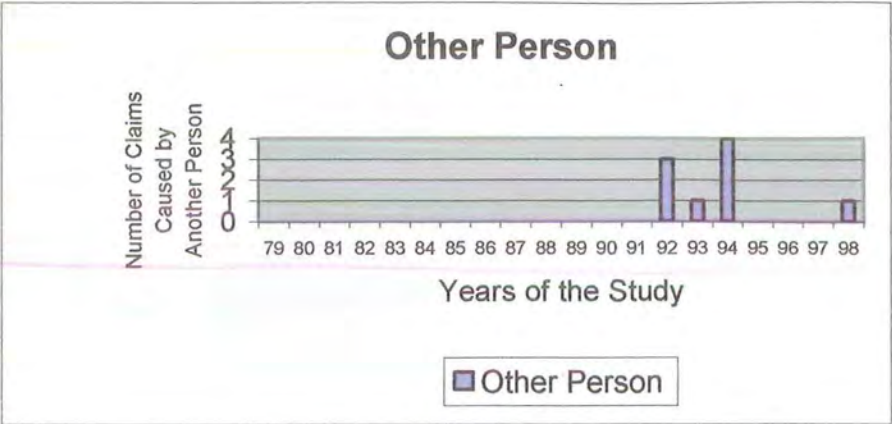


Chart 21
Claims Caused by the actions of Another Person shown by Year

Chart 21 provides the (0.3%) spread of claims over the twenty years caused by the inappropriate actions of another person.

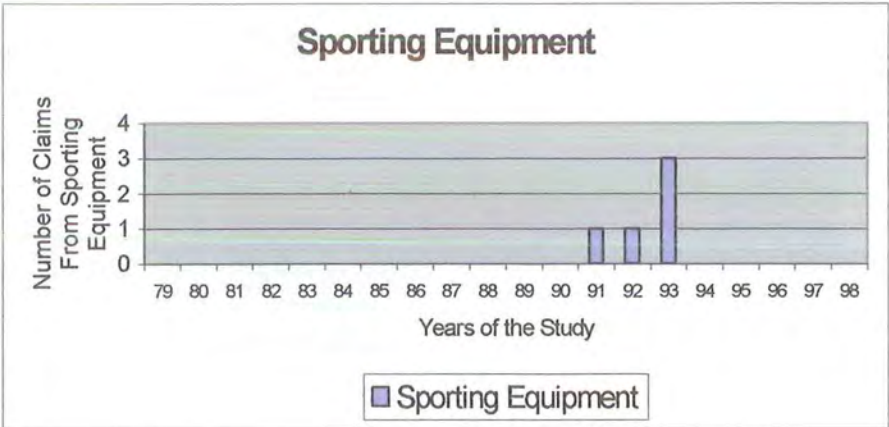


Chart 22
Sporting Equipment Claims by Year

Chart 22 provides the (0.2%) spread of claims over the twenty years caused by the University condoned activities when using Sporting Equipment.

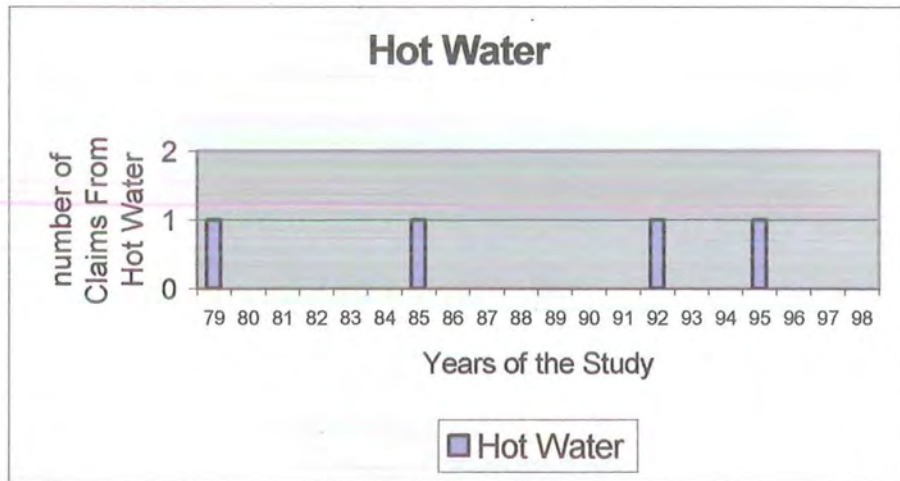


Chart 23
Hot Water Claims by Year

Chart 23 provides the (0.1%) spread of claims over the twenty years caused by Hot Water.

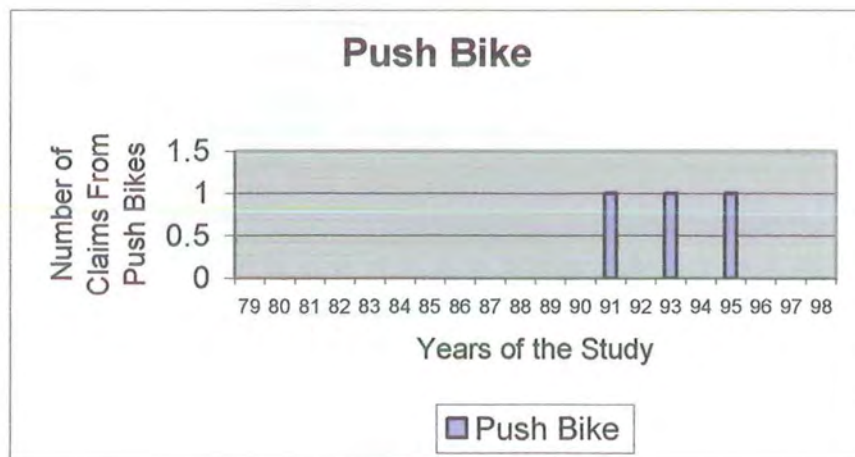


Chart 24
Push Bike Claims by Year

Chart 24 provides the (0.1%) spread of claims over the twenty years caused by Push Bikes.

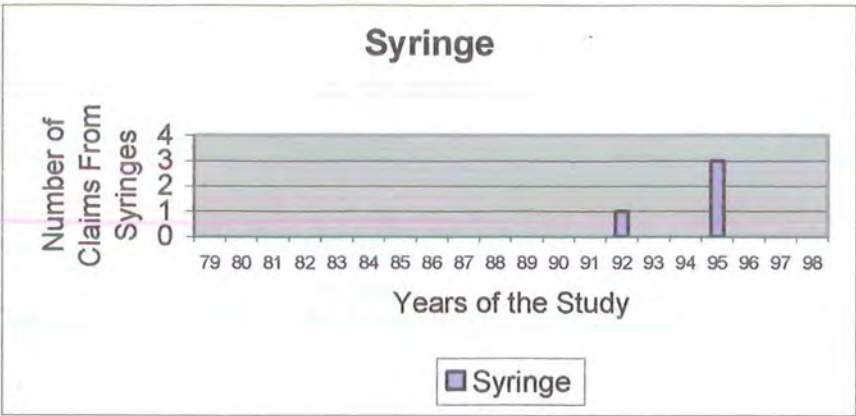


Chart 25
Syringe Claims by Year

Chart 25 provides the (0.1%) spread of claims over the twenty years caused by inappropriate disposal of syringes.

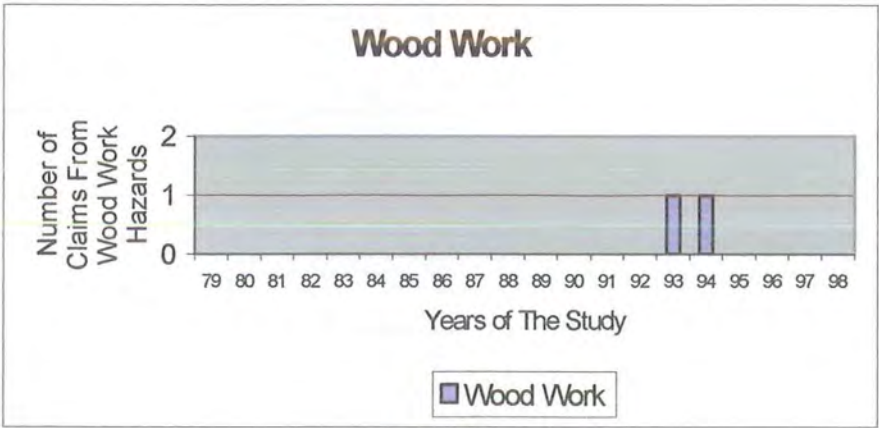


Chart 26
Wood Work Claims by Year

Chart 26 provides the (0.1%) spread of claims over the twenty years caused by hazards when completing Wood Work activities.

6.6 Types of Injuries

The number of injuries for which claims were lodged in the twenty year period is shown in Table 5. Damaged spectacles are paid as a claim through the workers' compensation system and are included in the analysis.

Table 5
Injuries Experienced Over the Twenty Year Study Period

| INJURIES | YEARS | | | | | | | | | | | | | | | | | | | Total | |
|-------------------------|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|------|
| | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | | 98 |
| Strain | 21 | 35 | 46 | 46 | 57 | 57 | 64 | 59 | 67 | 67 | 63 | 65 | 92 | 92 | 96 | 77 | 57 | 49 | 51 | 51 | 1212 |
| Laceration | 7 | 17 | 17 | 19 | 20 | 28 | 22 | 27 | 22 | 14 | 16 | 28 | 24 | 23 | 23 | 11 | 9 | 19 | 13 | 15 | 374 |
| Bruise | 6 | 16 | 16 | 20 | 16 | 19 | 22 | 19 | 16 | 18 | 20 | 10 | 10 | 20 | 14 | 18 | 13 | 11 | 13 | 7 | 304 |
| Foreign Body | 8 | 13 | 10 | 11 | 8 | 12 | 9 | 9 | 12 | 10 | 17 | 9 | 14 | 11 | 11 | 9 | 6 | 9 | 5 | 7 | 200 |
| Spectacles | 8 | 7 | 19 | 11 | 11 | 17 | 20 | 13 | 2 | 5 | 10 | 5 | 9 | 4 | 10 | 7 | 11 | 5 | 13 | 5 | 192 |
| RSI | | | | 3 | 1 | 19 | 45 | 14 | | 1 | | 1 | 3 | 13 | 8 | 6 | 2 | 6 | 5 | 3 | 130 |
| Burn | 1 | 4 | 6 | 3 | 4 | 4 | 6 | 4 | 8 | 4 | 1 | 6 | 3 | 4 | 2 | 2 | 2 | 4 | 4 | 2 | 74 |
| Fracture | 2 | 4 | 4 | 3 | 6 | 4 | 1 | | 1 | 6 | 1 | 5 | 1 | 5 | 6 | 1 | 3 | | 2 | | 55 |
| Stress | | | 1 | | 1 | | | | 3 | 1 | 3 | 2 | 1 | 3 | 5 | 1 | 4 | 10 | 9 | 11 | 55 |
| Bite (animal or insect) | 3 | 5 | 1 | 4 | 4 | 3 | 5 | 1 | 1 | 4 | 6 | 4 | 2 | 3 | 1 | 3 | 2 | | 1 | | 53 |
| Dermatitis | | 2 | 2 | 3 | 3 | 1 | 2 | | | 1 | 2 | 1 | 1 | 4 | 1 | 1 | 3 | | 1 | | 28 |
| Multiple injuries | 2 | 6 | 3 | 4 | 2 | | 1 | 1 | 2 | 2 | 1 | | | | | 2 | | | | 1 | 27 |
| Respiratory | | 4 | | 1 | | 3 | 1 | 1 | 1 | | 1 | | 1 | | 1 | 1 | 3 | 6 | | | 24 |
| Conjunctivitis | | 1 | 2 | 2 | | | | 3 | | | | | | 1 | | | | | | | 9 |
| Dislocation | | 1 | | 1 | 1 | | 3 | | | | | 1 | | 1 | | | 1 | | | | 9 |
| Hernia | | 2 | 1 | | | 1 | | | 1 | | | 3 | | 1 | | | | | | | 9 |
| Concussion | | | | | 2 | 1 | | | | | | | | 1 | | 1 | | | | | 5 |
| Hearing Loss | | | 1 | | | | | | | 1 | | | | | | 2 | | | | 1 | 5 |
| Heart Attack | 1 | | 1 | | | | 1 | | | | | | | | | | | | | | 3 |
| Amputation | | 1 | | 1 | | | | | | | | | | | | | | | | | 2 |
| Dental injury | | | 1 | | | | | | | 1 | | | | | | | | | | | 2 |
| Cancer | | | 1 | | | | | | | | | | | | | | | | | | 1 |
| TOTAL | 59 | 118 | 132 | 132 | 136 | 169 | 202 | 151 | 136 | 135 | 141 | 140 | 161 | 186 | 178 | 142 | 116 | 119 | 117 | 103 | 2773 |

Figure 3 (next page) represents the summary of the type of injuries encountered, as claims against the University over a twenty-year period. The various graphs present the types of injuries with the X-axis being the years 1979 to 1998. The Y-

axis indicates the total number of injuries, per year, resulting in a workers' compensation claim on the University.

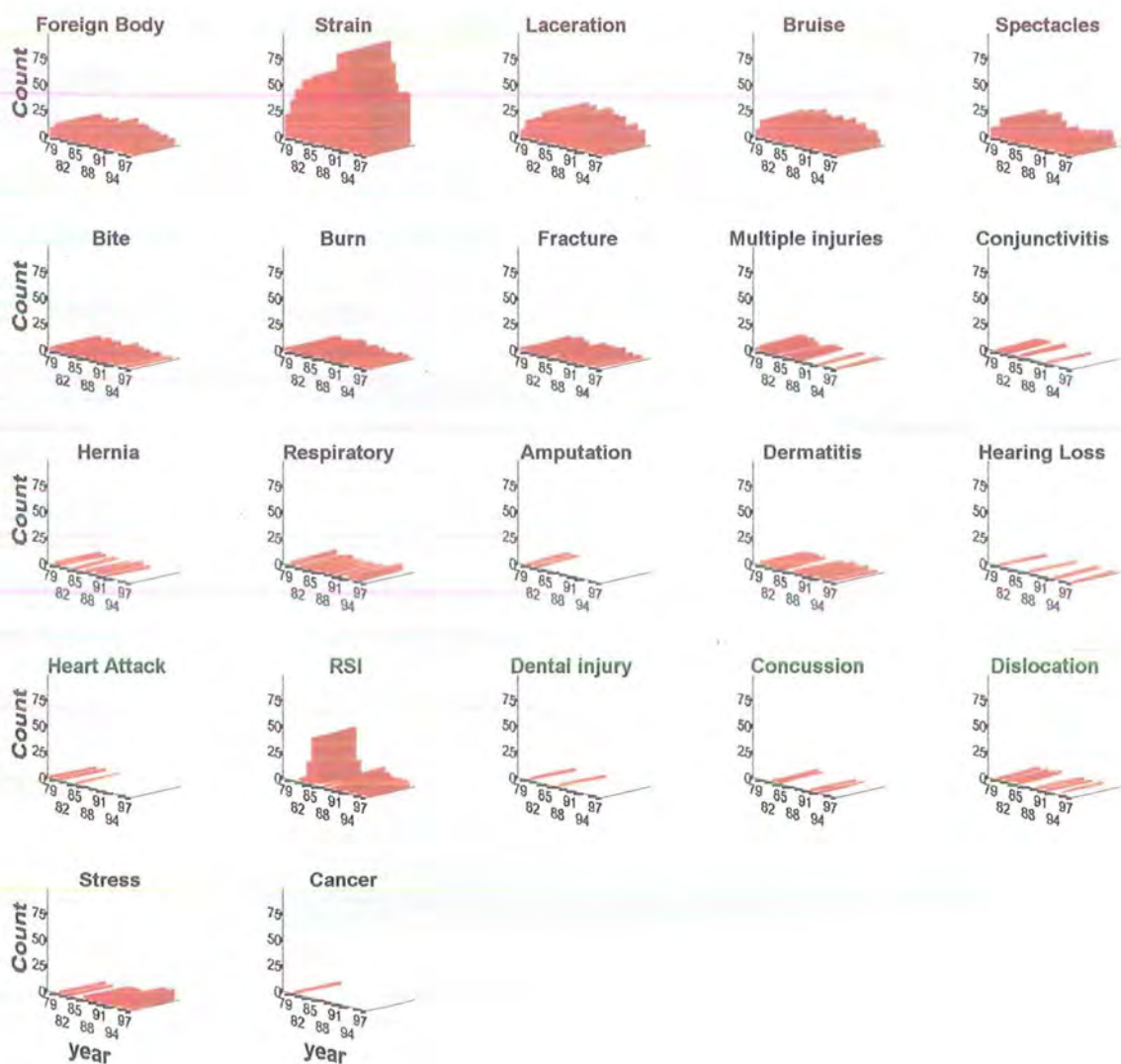


Figure 3
Types of Injuries Experienced at the University

There were twenty two categories of injuries and the number of injuries and represented per year are shown in Table 5 and Figure 3.

The percentages injuries reported over the study period were ranked;

Strain (43.7%), Laceration (13.5%), Bruise (11.0%), Foreign Body (7.2%), Spectacles * (6.9%), RSI (4.7%), Burn (2.7%), Fracture (2.0%), Stress (2.0%), Bite (1.95%), Dermatitis (1.0%), Multiple (1.0%), Respiratory (0.9%), Conjunctivitis (0.3%), Hernia (0.3%), Dislocation (0.3%), Concussion (0.2%), Hearing Loss (0.2%), Amputation (0.1%), Heart Attack (0.1%), Dental injury (0.1%), and Cancer (1 case registered).

* Damaged spectacles are reported and paid for by the workers' compensation system.

The following Charts (Chart 27 through to Chart 47) show the number of claims that indicate the type of injury by year through out the study period.

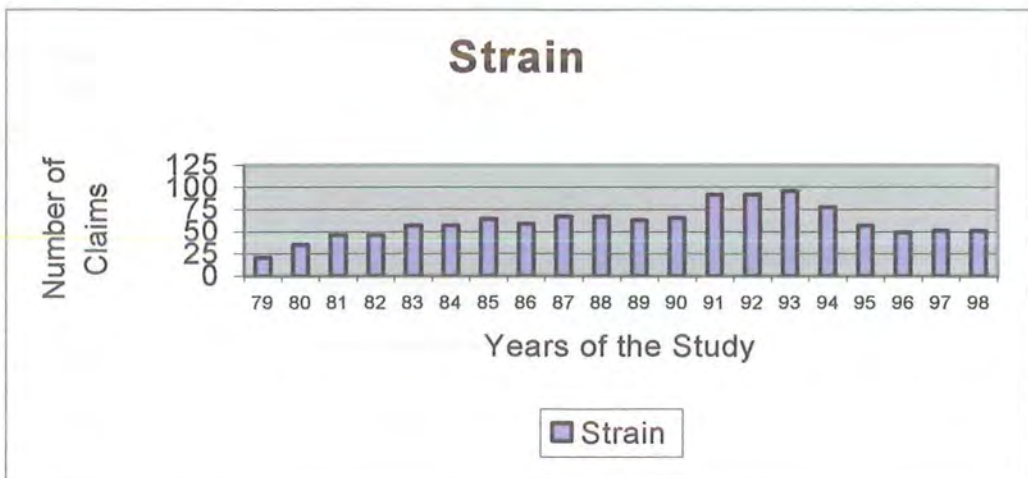


Chart 27
Strain Injuries by Year

Chart 27 provides the (43.7%) claims over the twenty years that resulted from Strain Injuries.

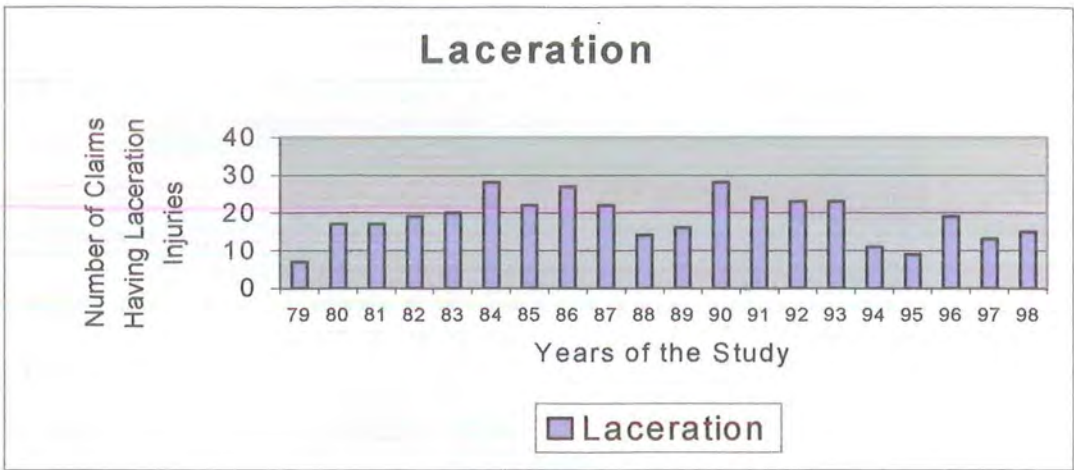


Chart 28
Laceration Type Injuries by Year

Chart 28 provides the (13.5%) claims over the twenty years that resulted from Laceration injuries

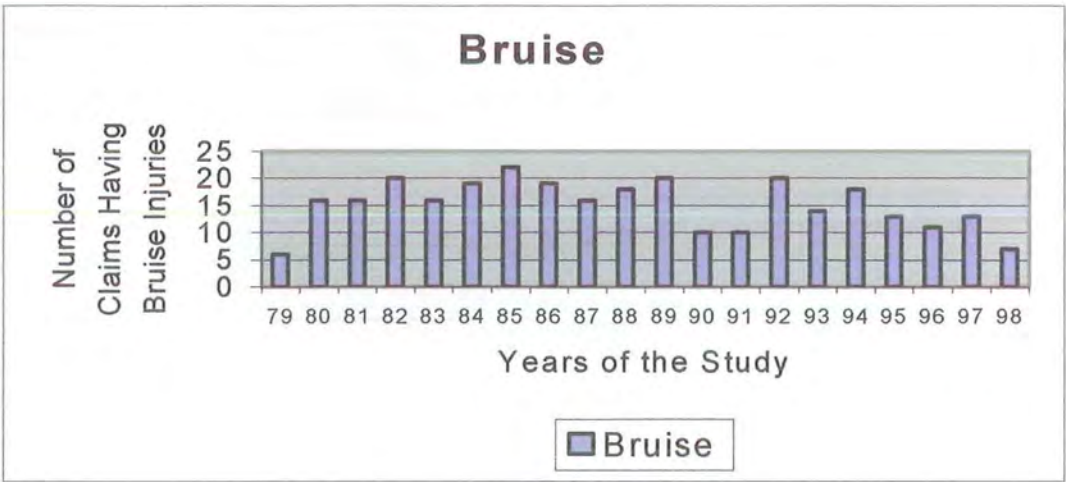


Chart 29
Bruise Type Injuries by Year

Chart 29 provides the (11%) claims over the twenty years that resulted from Bruise injuries.

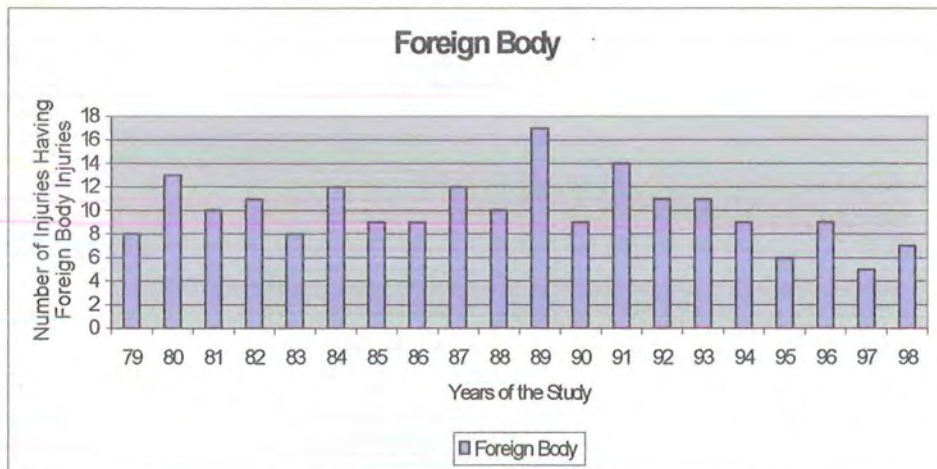


Chart 30
Foreign Body type Injuries by Year

Chart 30 provides the (7.2%) of claims over the twenty years that resulted from foreign body injuries. Most of these claims are dust in eye or chemicals in eye type injuries.

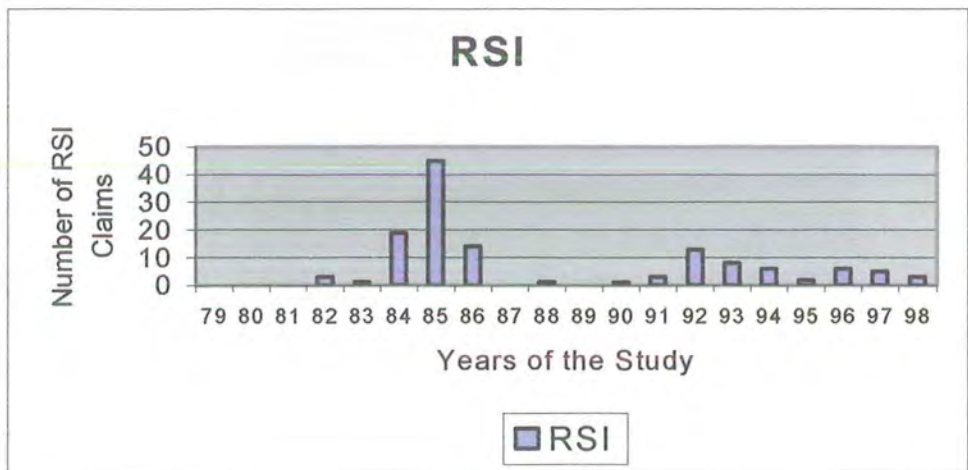


Chart 31
RSI Injuries by Year

Chart 31 provides the (4.7%) of claims over the twenty years that resulted from RSI type injuries.

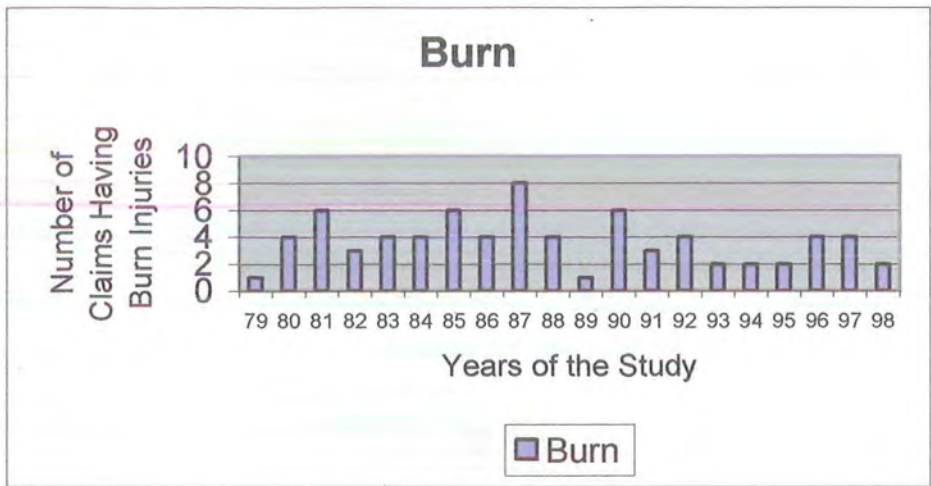


Chart 32
Burn Injuries by Year

Chart 32 provides the (2.7%) of claims over the twenty years that resulted from Burn injuries.

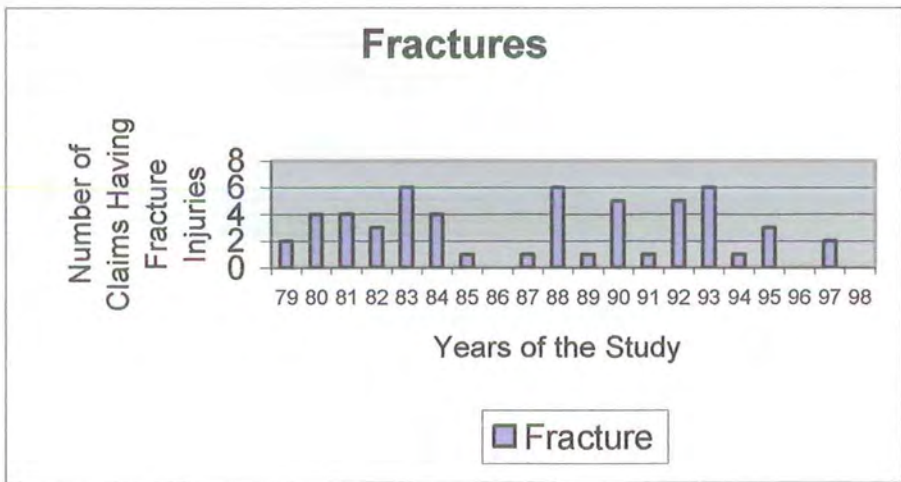


Chart 33
Fracture Injuries by Year

Chart 33 provides the (2%) of claims over the twenty years that resulted from Fracture injuries.

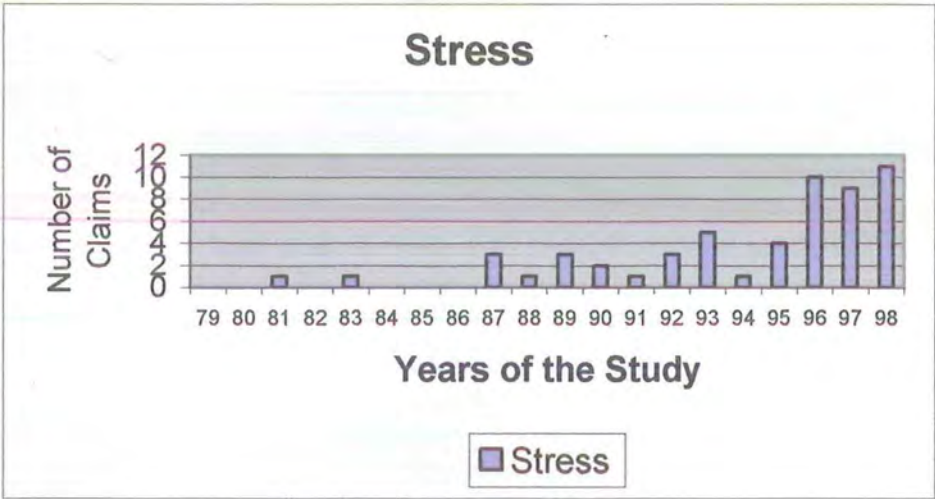


Chart 34
Stress claims by Year

Chart 34 provides the (2%) of claims over the twenty years that resulted from Stress type injuries.

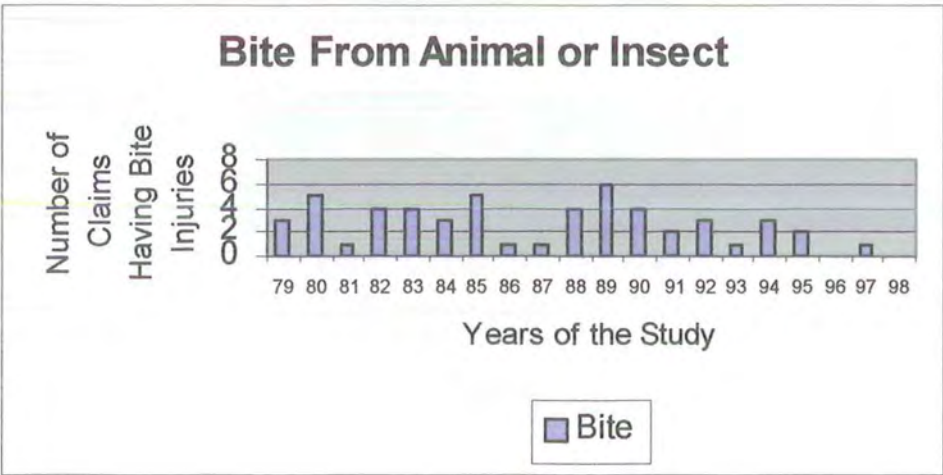


Chart 35
Bite Injuries by Year

Chart 35 provides the (1.9%) of claims over the twenty years that resulted from Bite injuries.

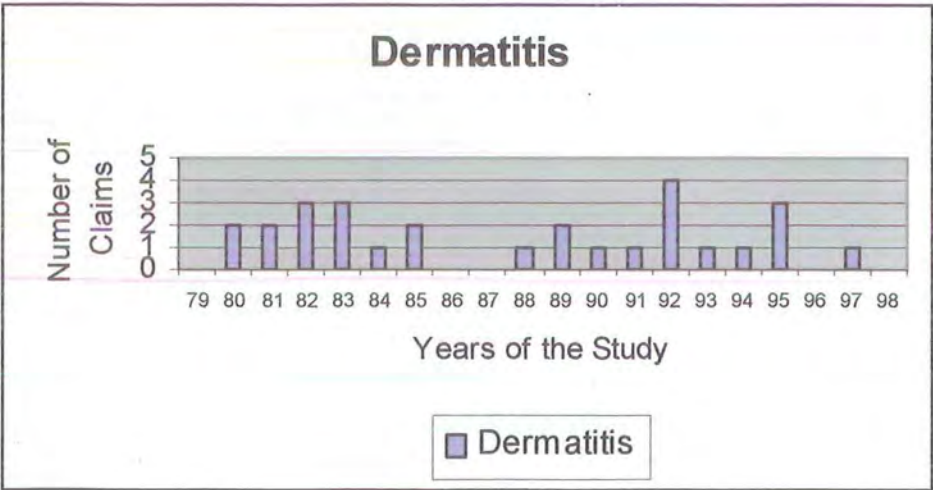


Chart 36
Dermatitis type Claims by Year

Chart 36 provides the (1%) of claims over the twenty years that resulted from Dermatitis.

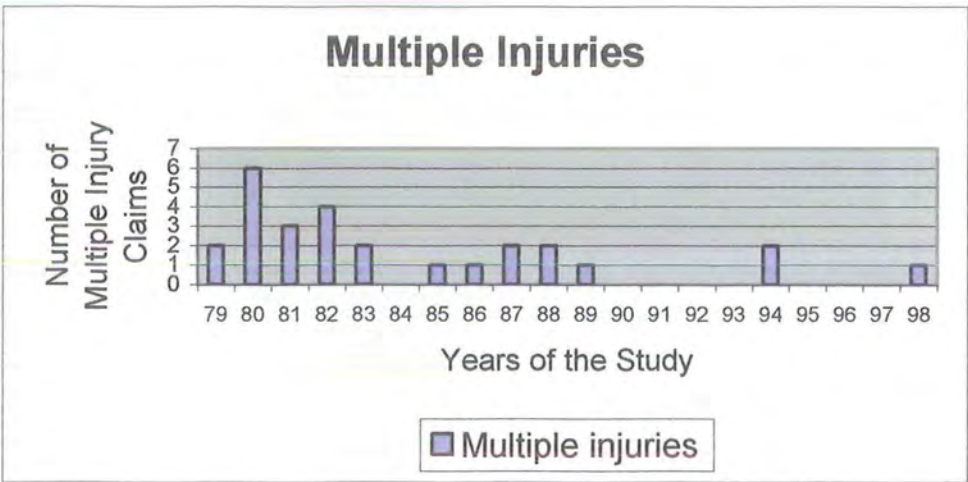


Chart 37
Multiple Injuries Claims by Year

Chart 37 provides the (1%) of claims over the twenty years that resulted in Multiple Injuries.

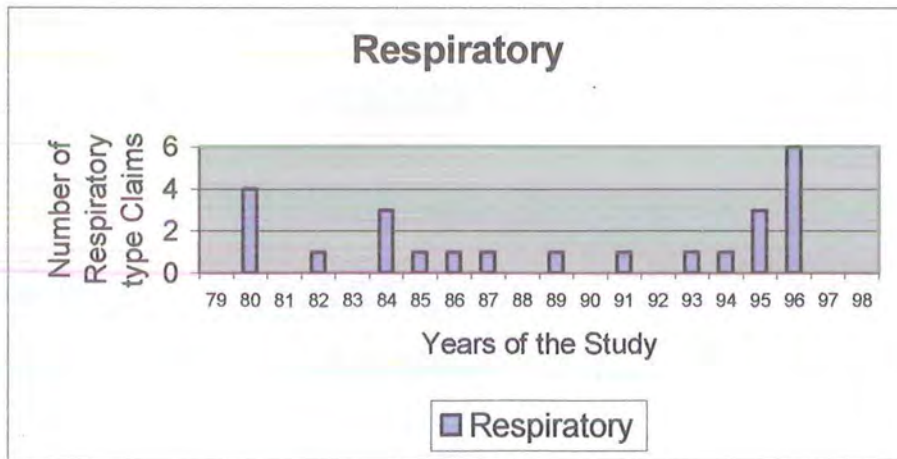


Chart 38
Respiratory type Claims by Year

Chart 38 provides the (0.9%) of claims over the twenty years that resulted in Respiratory type Claims

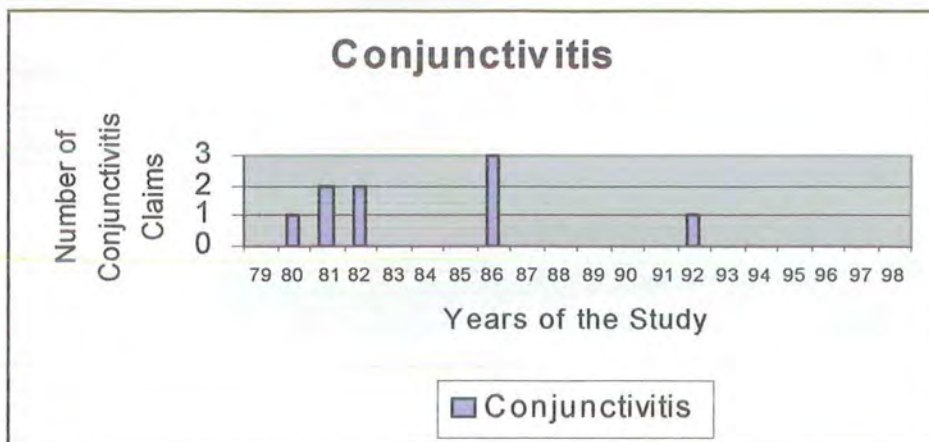


Chart 39
Conjunctivitis type Claims by Year

Chart 39 provides the (0.3%) of claims over the twenty years that resulted from Conjunctivitis illness.

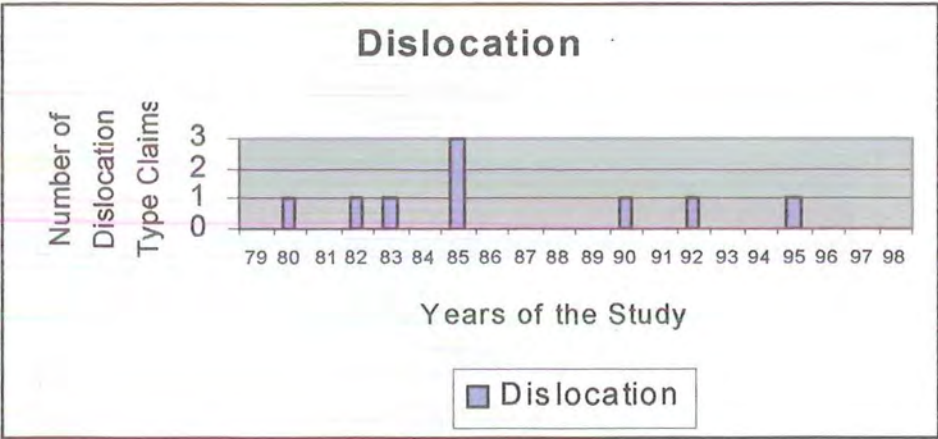


Chart 40
Dislocation claims by Year

Chart 40 provides the (0.3%) of claims over the twenty years that resulted in Dislocation type injuries.

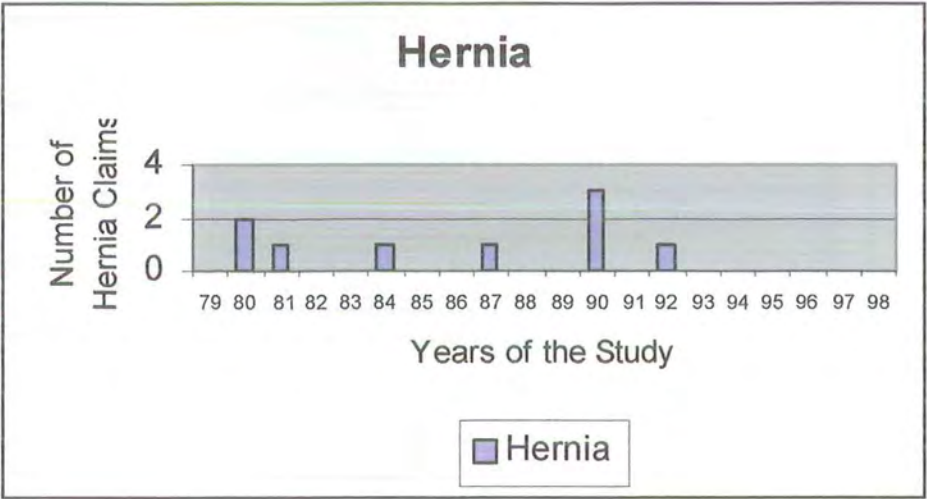


Chart 41
Hernia Injuries by Year

Chart 41 provides the (0.3%) of claims over the twenty years that resulted from Hernia Injuries.

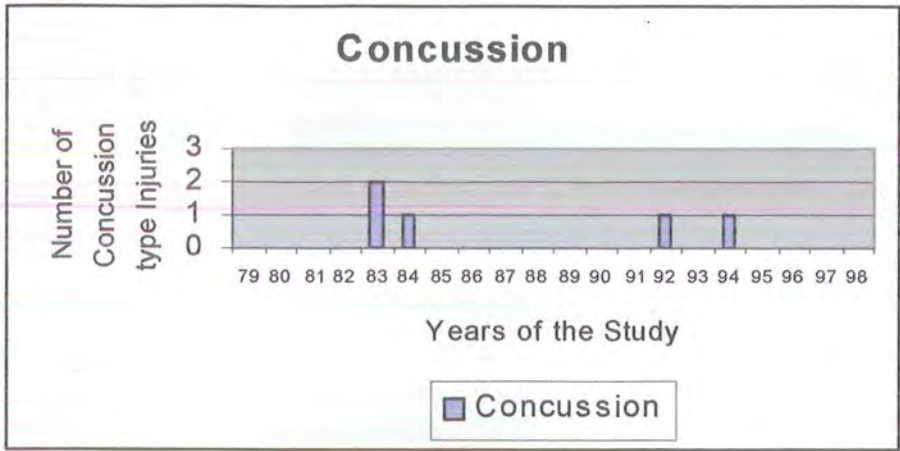


Chart 42
Concussion Type Injuries

Chart 42 provides the (0.2%) of claims over the twenty years that resulted from Concussion type injuries.

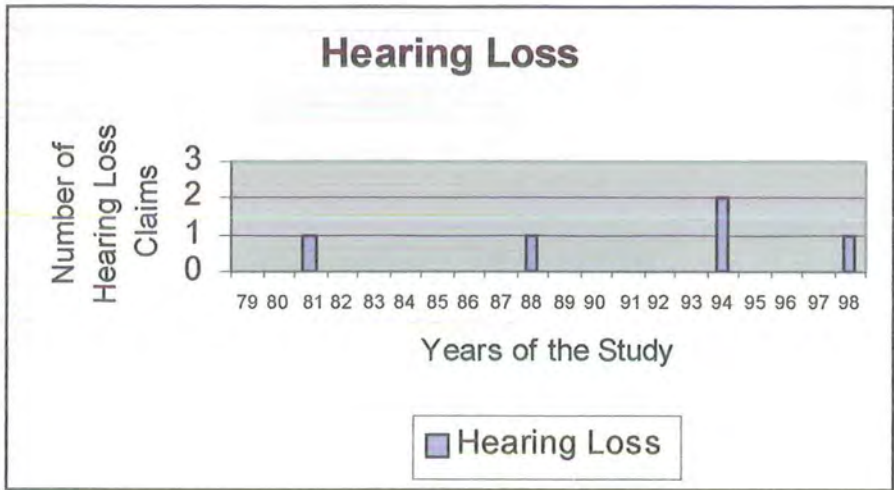


Chart 43
Hearing Loss Claims by Year

Chart 43 provides the (0.2%) of claims over the twenty years that resulted from Hearing Loss.

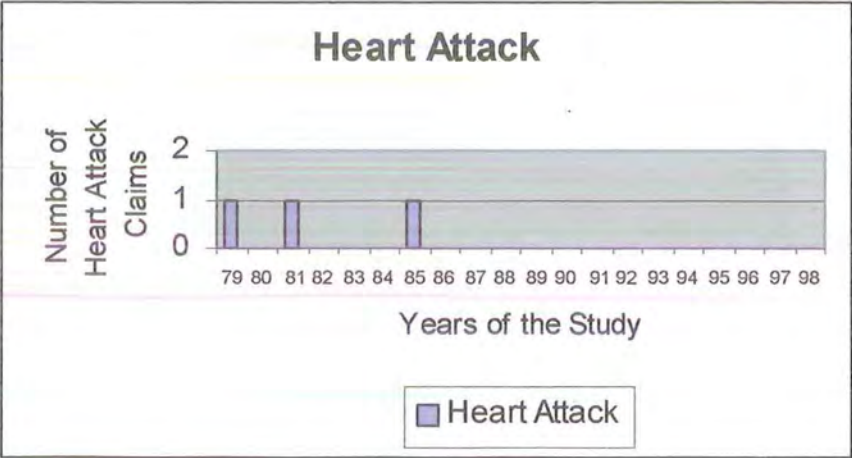


Chart 44
Heart Attack Claims by Year

Chart 44 provides the (0.15%) of Claims that resulted from Heart attacks.

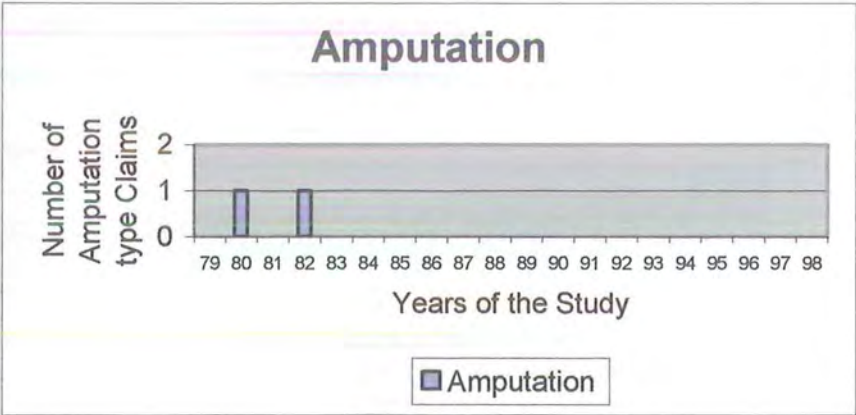


Chart 45
Amputation Claims by Year

Chart 45 provides the (0.06%) of claims over the twenty years that resulted from amputation injuries.

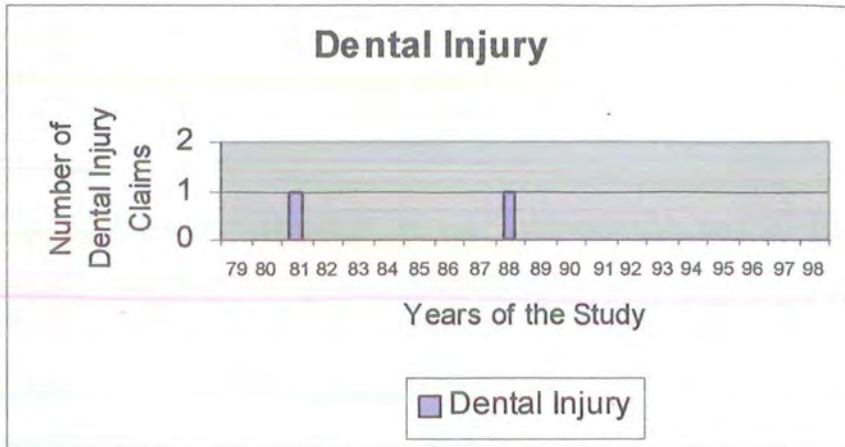


Chart 46
Dental Injuries by Year

Chart 46 provides the (0.06%) of claims over the twenty years that resulted from Dental injuries.

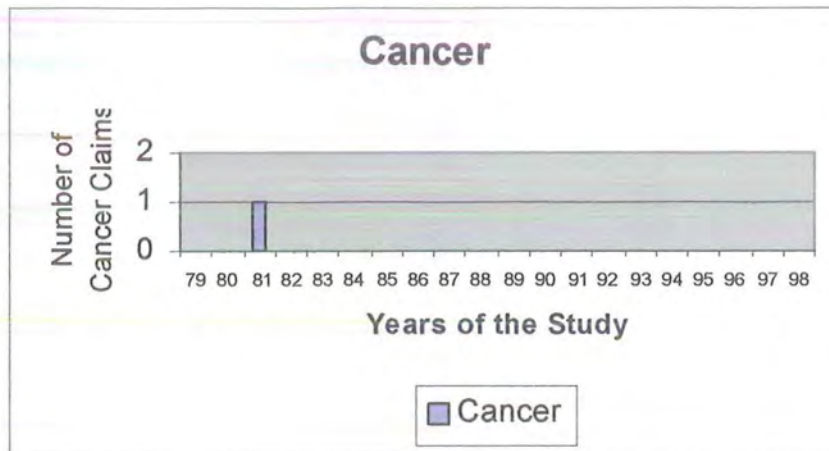


Chart 47
Cancer Claim by Year

Chart 47 shows the year of the Cancer claim for the study period.

6.7 Part of the Body Injured

The twenty-seven categories of site represents the part of body injured (including spectacles) experienced within the University for the twenty year study period. The number of injuries to the site of the body injured experienced over the twenty year period are shown in Table 6.

Table 6
Frequency of the Part of Body Injured by Staff at the University

| Part of Body Injured | Number | Percentage |
|-----------------------------|---------------|-------------------|
| Spine or Back | 521 | 18.8 |
| Finger(s) | 247 | 8.9 |
| Eye(s) | 216 | 7.8 |
| Spectacles | 192 | 6.9 |
| Arm | 167 | 6 |
| Wrist | 163 | 5.9 |
| Knee | 151 | 5.4 |
| Hand | 134 | 4.8 |
| Shoulder | 129 | 4.7 |
| Ankle | 118 | 4.3 |
| Leg | 104 | 3.8 |
| Foot | 64 | 2.3 |
| Head | 63 | 2.3 |
| Abdomen | 59 | 2.1 |
| Nervous Disorder | 55 | 2 |
| Groin | 50 | 1.8 |
| Chest | 46 | 1.7 |
| Face | 42 | 1.5 |
| Hip | 42 | 1.5 |
| Thumb | 34 | 1.2 |
| Toe(s) | 31 | 1.1 |
| Multiple | 25 | 0.9 |
| Lungs | 24 | 0.9 |
| Ear | 9 | 0.3 |
| Skin | 4 | 0.1 |
| Heart | 3 | 0.1 |
| TOTAL | 2773 | 100 |

Figure 4 (next page) provides a representative summary of the part of the

body (site) injured encountered by the University over a twenty-year period. The various graphs present the different parts of the body injured that resulted in a workers' compensation claim on the University. The X-axis shows the years and the Y-axis indicates the total number of claims relating to that part of the body injured.

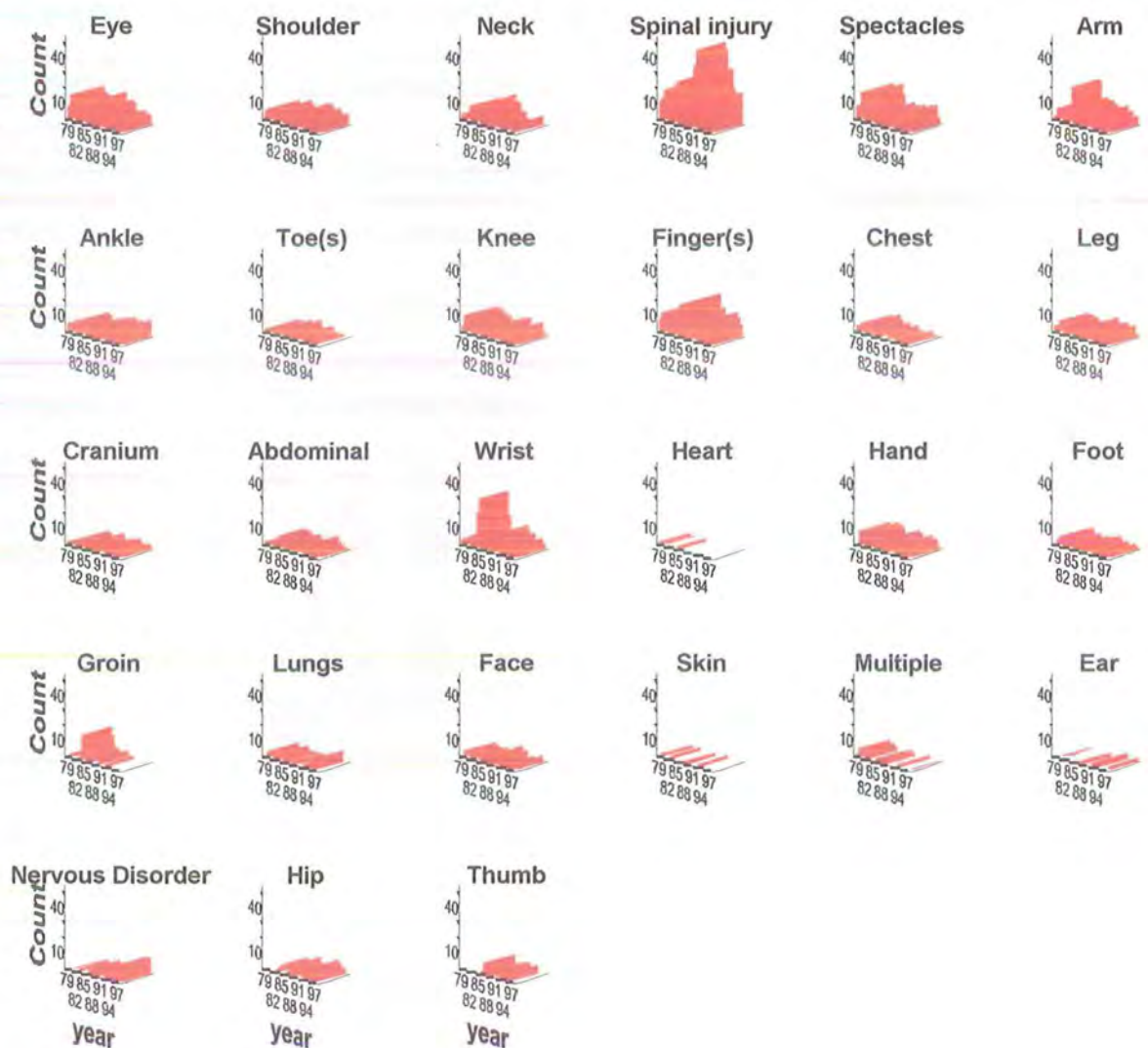


Figure 4
Part of Body Injured Experience by Staff of the University

Charts 48, 49 and 50 provide representation on the total number in each category of hazard, injuries, and part of body injured. Chart 48 represents the hazards (agent) on X- axis and the Y-axis shows the total number (count) of claims for each hazard through out the twenty years. Chart 49 represents the total injury count at the University that caused a workers' compensation claim over the twenty year period. Chart 50 represents the total count of the part of the body injured (site) from workers' compensation claims at the University, in the twenty years.

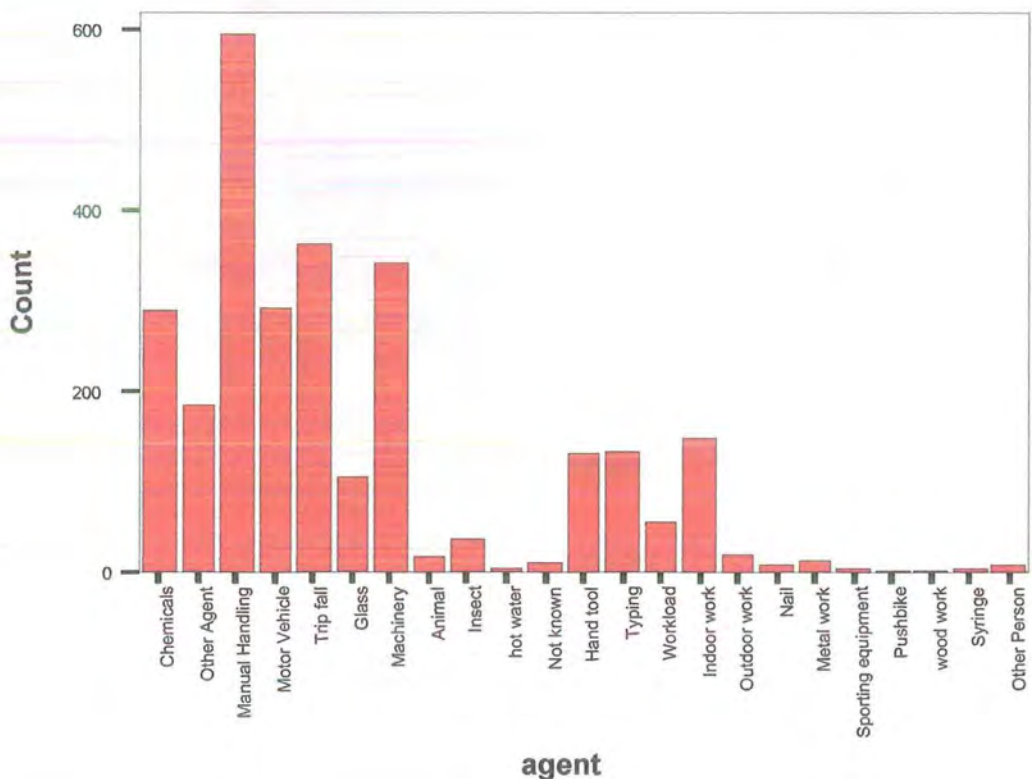


Chart 48
Total Count of (agent) Hazards

Chart 48 and Table 4 (page 111) show that the most common hazards causing workers' compensation claims at the University for the twenty years were manual handling, trip fall, machinery, motor vehicle, chemicals, and typing.

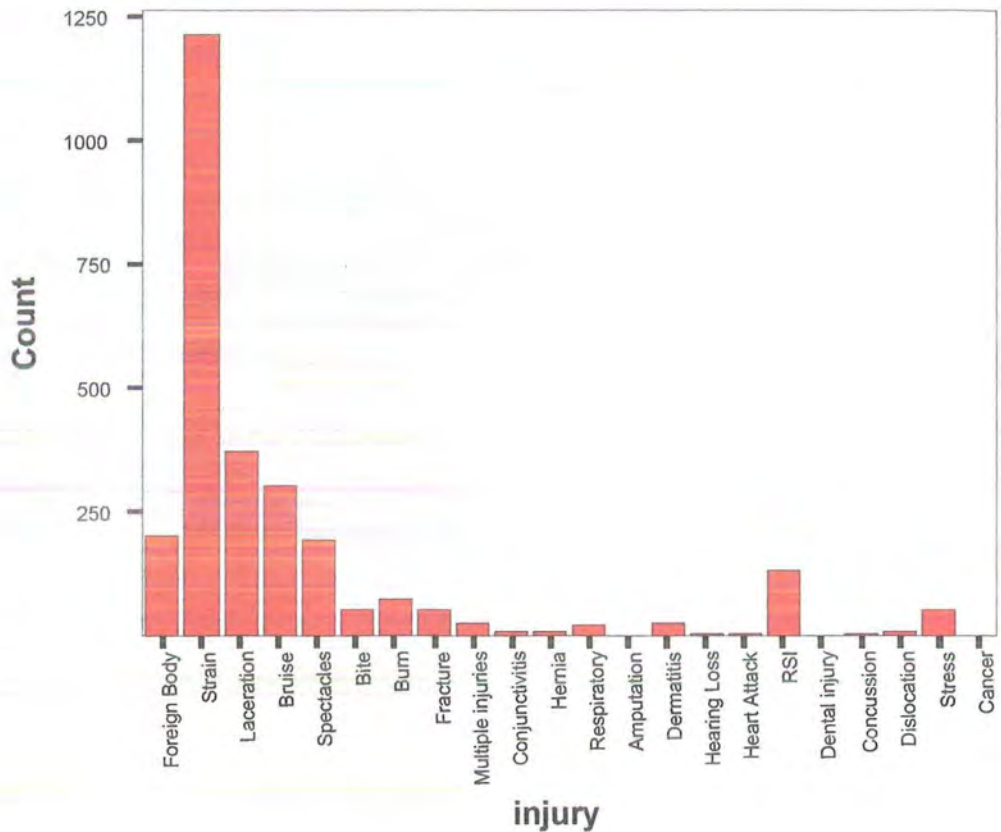


Chart 49
Total Count of Injuries

It can be seen from Chart 49 and Table 5 (page 125) strains, lacerations, bruises and foreign bodies (mainly in eyes) and RSI contributed to majority of the injuries experienced through out the twenty year study period.

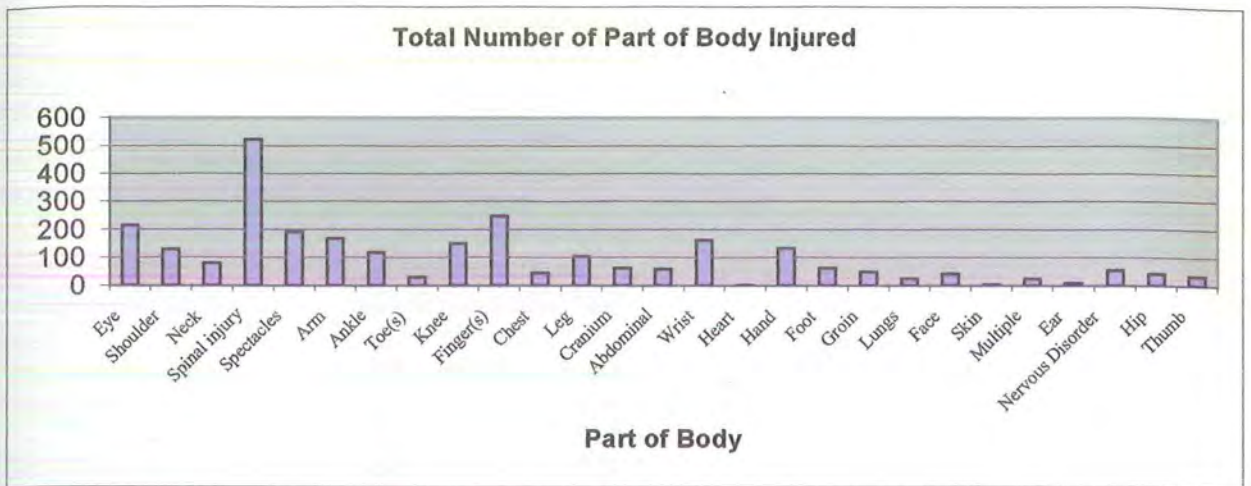


Chart 50
Total count of Part of Body Injured

It also can be seen from Chart 50 and Table 6 (page 134) the most injured part of the body for staff at the University, over the twenty years, were injuries to the spinal (in particular back) finger(s), eye, arm, wrist, and knee.

6.8 Workers' Compensation Claims Experience of the University for the Twenty Years

Table 7 and Chart 51 (next page) provide the total number of Workers' Compensation claims experienced by the University, shown per year, over the twenty years of the study period. It is apparent from Table 7 and Chart 51 there was an increase in the number of claims in 1984, 1985 and 1986 as well as in increase in claims in 1991, 1992 and 1993. The increase in the number of claims in 1984 and 1985 and 1986 were mainly due to RSI injury claims. The

increase in the number of claims in 1991, 1992 and 1993 were mainly due to manual handling hazards.

Table 7
Number of Workers' Compensation Claims by each year
1979 through to 1998

| Year | Workers' Compensation Claims |
|------|------------------------------|
| 1979 | 59 |
| 1980 | 118 |
| 1981 | 132 |
| 1982 | 132 |
| 1983 | 136 |
| 1984 | 169 |
| 1985 | 202 |
| 1986 | 151 |
| 1987 | 136 |
| 1988 | 135 |
| 1989 | 141 |
| 1990 | 140 |
| 1991 | 161 |
| 1992 | 186 |
| 1993 | 178 |
| 1994 | 142 |
| 1995 | 116 |
| 1996 | 119 |
| 1997 | 117 |
| 1998 | 103 |

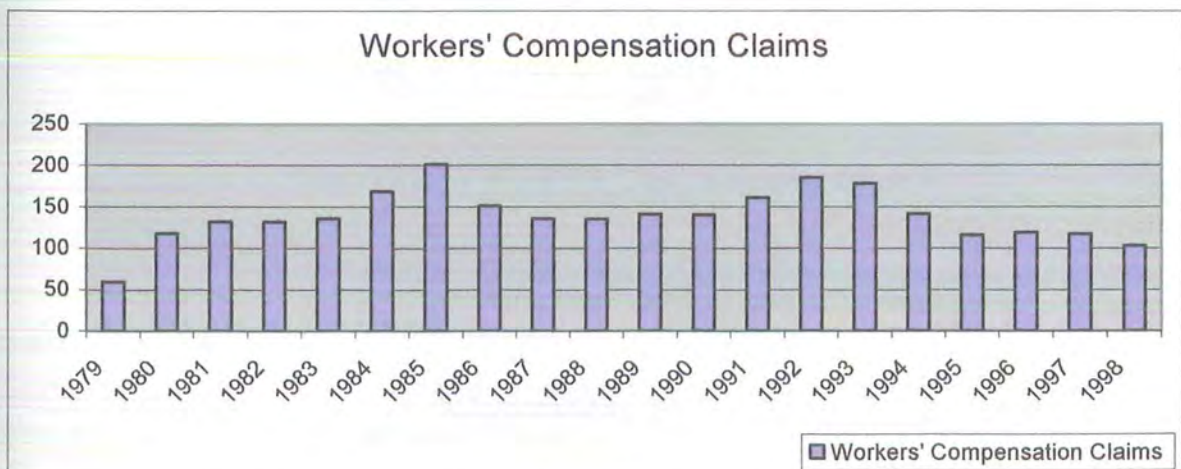


Chart 51
Representation of Workers' Compensation Claims by each year
1979 through to 1998.

6.9 Total Cost (in 1998 Dollars) to the University for the Workers' Compensation Claims

Table 8 and Chart 52 shows the total cost (in 1998 Dollars) to the University for the workers' compensation claims, shown by each year, of the twenty-year period of the study.

Table 8
Total Cost to the University for Workers' Compensation
For 1979 to 1998

| Year | Total cost of Workers' Compensation Claims |
|------|--|
| 1979 | \$133,190 |
| 1980 | \$343,049 |
| 1981 | \$339,591 |
| 1982 | \$220,923 |
| 1983 | \$485,953 |
| 1984 | \$1,221,420 |
| 1985 | \$935,746 |
| 1986 | \$834,783 |
| 1987 | \$226,826 |
| 1988 | \$435,389 |
| 1989 | \$651,961 |
| 1990 | \$515,332 |
| 1991 | \$282,899 |
| 1992 | \$573,491 |
| 1993 | \$313,945 |
| 1994 | \$600,321 |
| 1995 | \$205,499 |
| 1996 | \$539,950 |
| 1997 | \$683,814 |
| 1998 | \$853,644 |

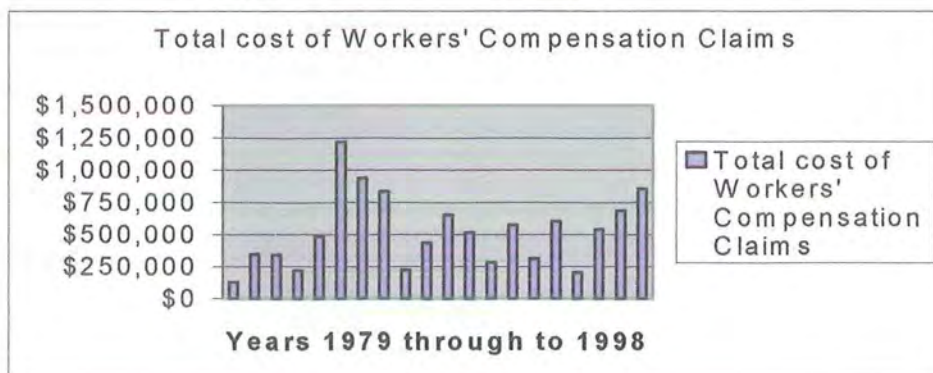


Chart 52
Total Cost to the University for Workers' Compensation For 1979 to 1998

Figure 5 (next page) represents the disbursement of payments for workers' compensation claims by the University. These payments are shown by year. To assist in the presentation of the 2773 claims and the costs resulting from these claims, the dollar amounts, in 1998 Dollars, have been ranked into categories of dollar amounts as shown in Table 9. The intervals are not evenly sized because aggregation into \$1,000 intervals would cause loss of information at the lower end of the scale.

Table 9
Categories of the Ranking of Dollars for the Costs of Workers' Compensation

| Rank of Dollars Expenditure | CPI to 1998 Dollars Categories |
|------------------------------------|---------------------------------------|
| Rank 1 | \$0 to \$100 |
| Rank 2 | \$101 to \$200 |
| Rank 3 | \$201 to \$300 |
| Rank 4 | \$301 to \$400 |
| Rank 5 | \$401 to \$500 |
| Rank 6 | \$501 to \$600 |
| Rank 7 | \$601 to \$700 |
| Rank 8 | \$701 to \$800 |
| Rank 9 | \$801 to \$900 |
| Rank 10 | \$901 to \$1000 |
| Rank 11 | \$1,001 to \$2,000 |
| Rank 12 | \$2,001 to \$3,000 |
| Rank 13 | \$3,001 to \$4,000 |
| Rank 14 | \$4,001 to \$5,000 |
| Rank 15 | \$5,001 to \$10,000 |
| Rank 16 | \$10,001 to \$20,000 |
| Rank 17 | \$20,001 to \$30,000 |
| Rank 18 | \$30,001 to \$40,000 |
| Rank 19 | \$40,001 to \$50,000 |
| Rank 20 | \$50,001 to \$100,000 |
| Rank 21 | \$100,001 to \$200,000 |
| Rank 22 | \$200,001 to \$300,000 |
| Rank 23 | \$300,001 to \$400,000 |
| Rank 24 | \$400,001 to \$500,000 |
| Rank 25 | \$500,001 to \$1,000,000 |

Figure 5 represents the number of claims falling into the categorisation rankings as shown in Table 9 (page 141) for the twenty year study period.

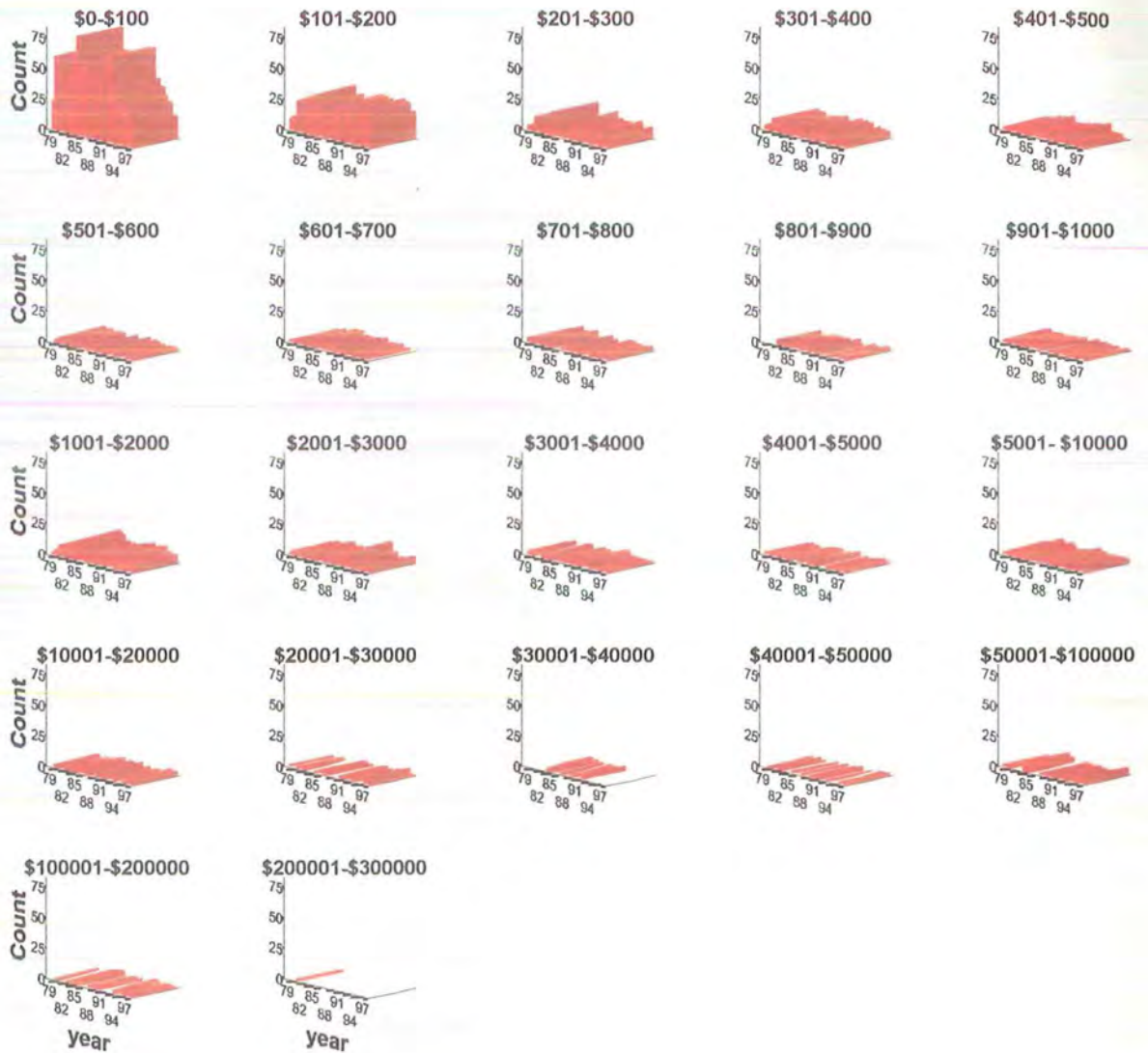


Figure 5
Workers' Compensation Claims Costs in 1998 Dollars Expended Throughout the Twenty-year Period

Figure 6 shows the count of the number of workers' compensation claims by year processed by the University falling into the rank categories as defined by 9 (page 141).

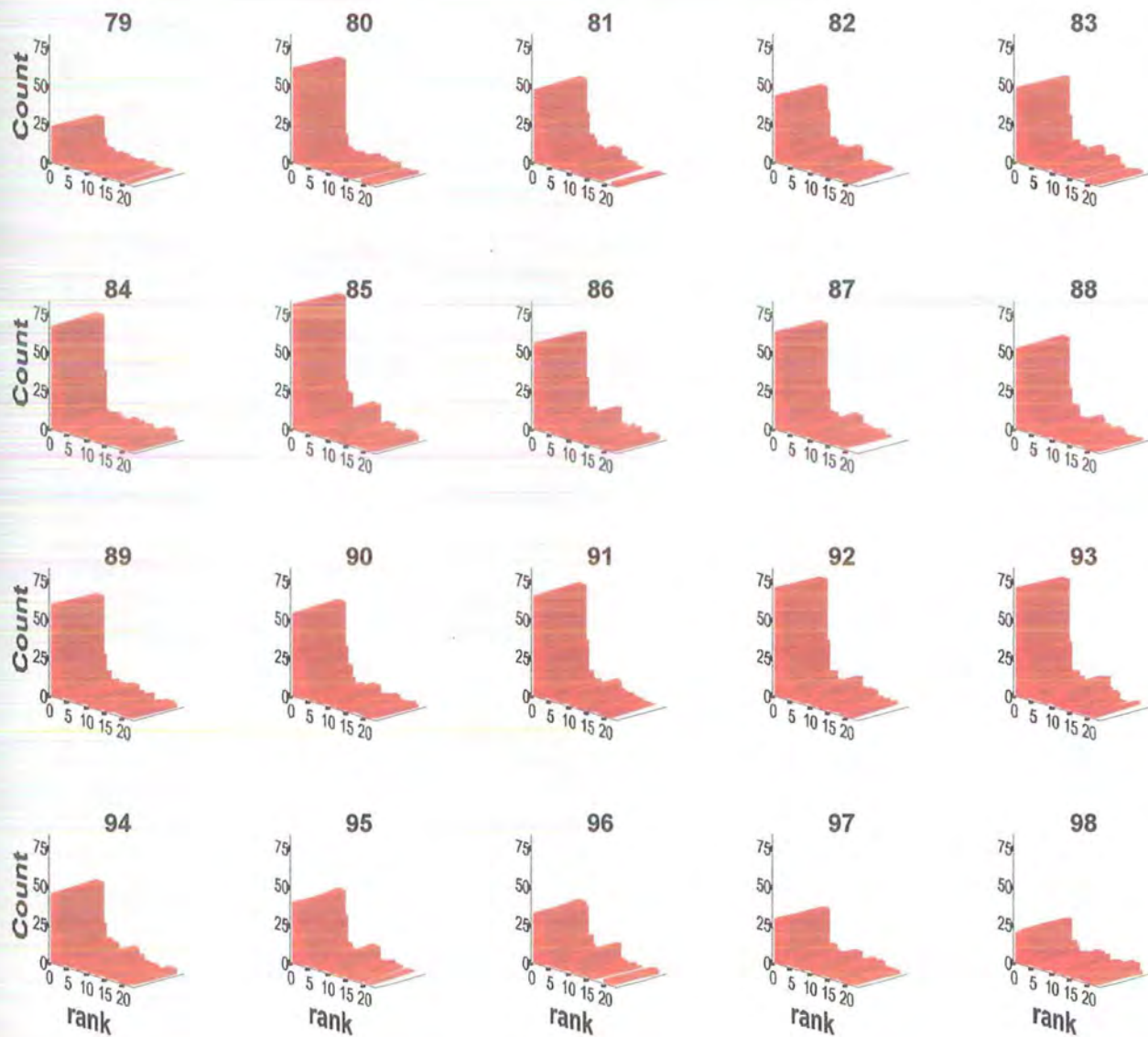


Figure 6
Expenditure of Payments by the University on Workers' Compensation
Claims shown by Year

Figure 7 represents the types of injuries sustained through out the twenty years.

These injuries are presented with the categories of costs as shown in Table 9 (page 141).

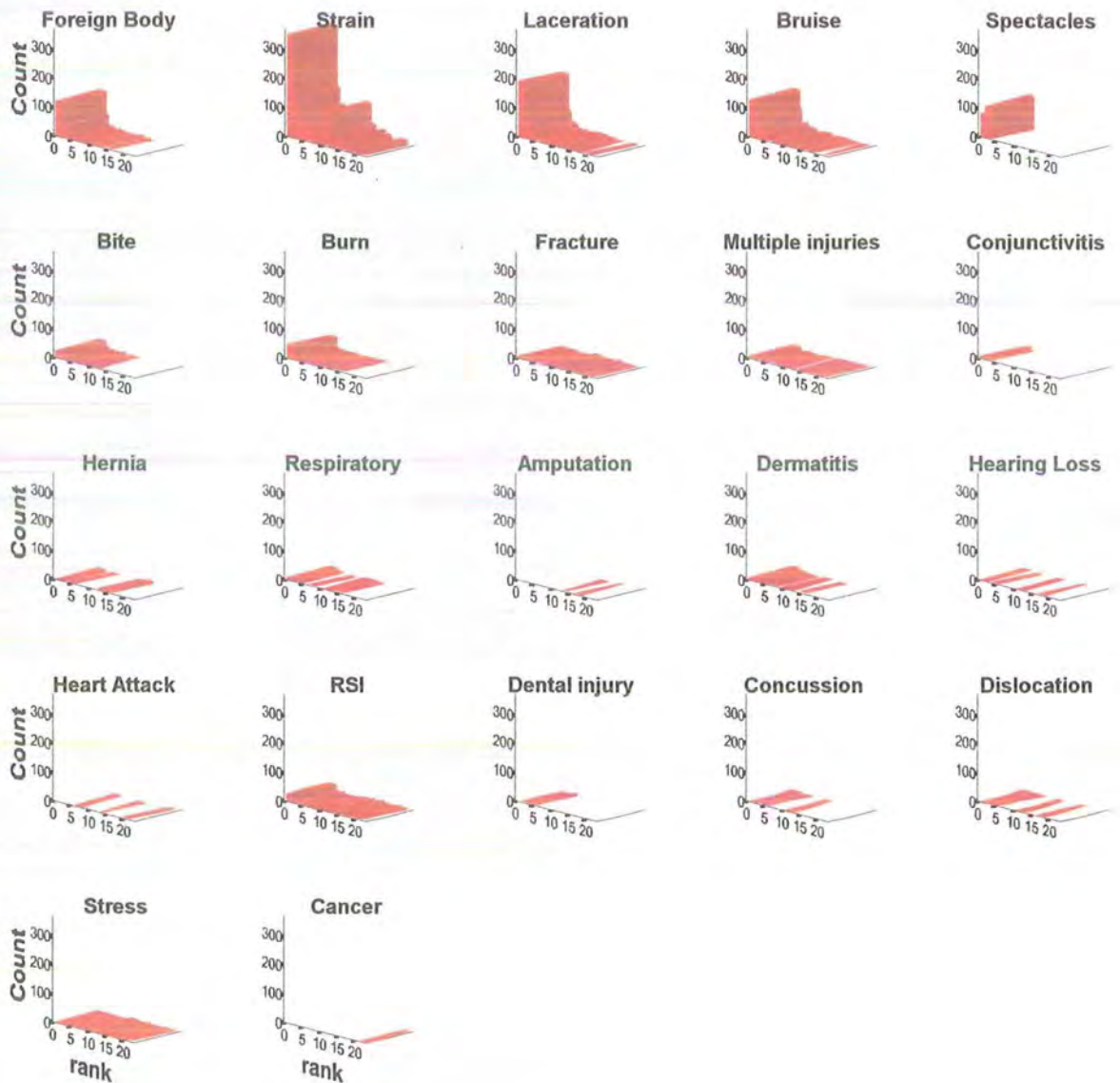


Figure 7
Types of Injury by Dollar Ranking as Shown in Table 9 (page 141)

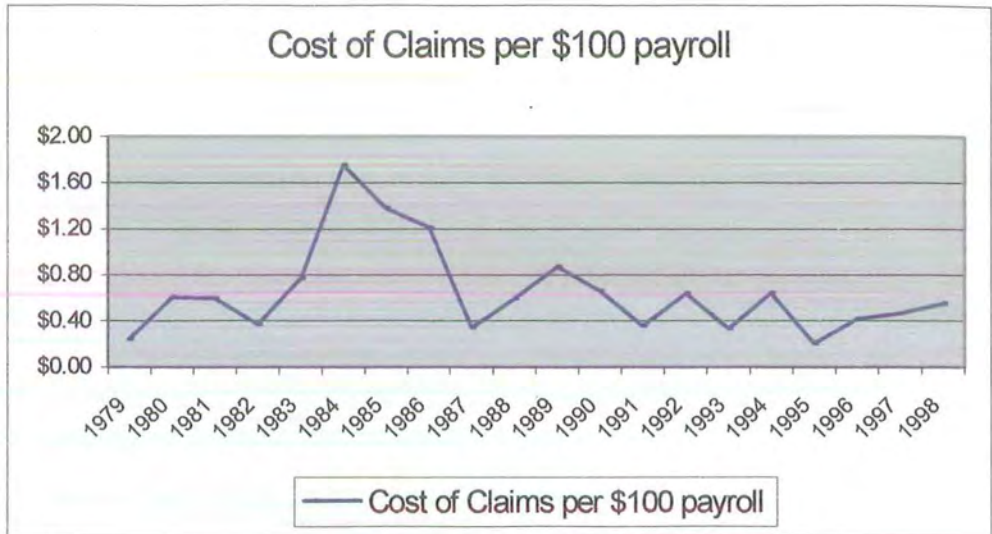
It is apparent from Figure 5 and Figure 6 that most of the claims costs to the University were below Rank 5. Therefore the largest number of workers compensation claims to the University over the twenty year period, were below \$500 with a great portion of these costs below \$200.

6.10 Rates Calculated from the Data

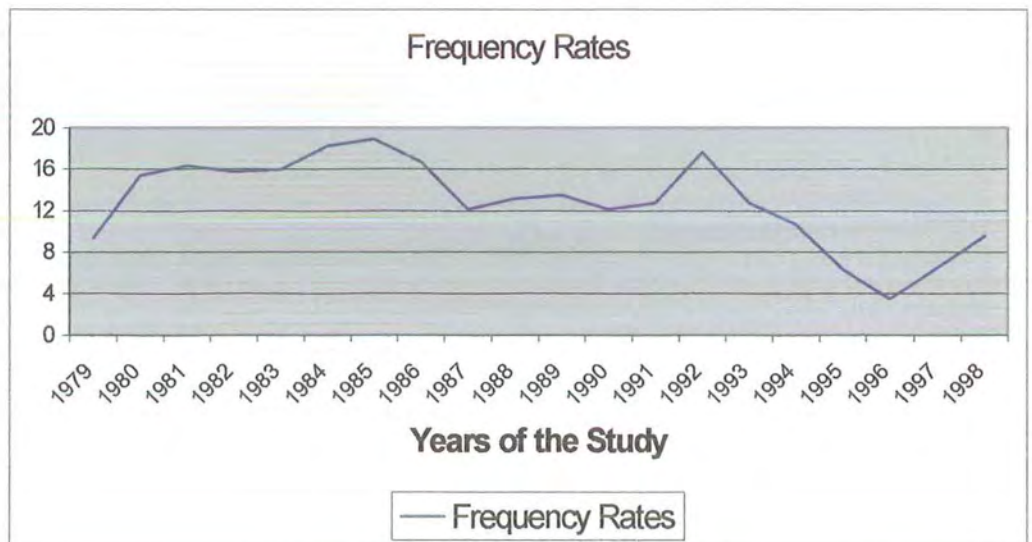
Table 10, and Graphs 1, 2, 3, and 4 (next pages) provide the number and representation of the rates for the University shown by each year of the study period. These rates are for the cost of workers' compensation claims per \$100 payroll, Frequency rates, Incidence rates and Severity rates. These rates allow weighted comparisons of the claims experience along with costs associated with those claims over the years of the study.

Table 10
Rates for each year of the study period Cost of Workers' Compensation
Claims per \$100 Payroll Frequency Rates, Incidence Rates and Severity Rates

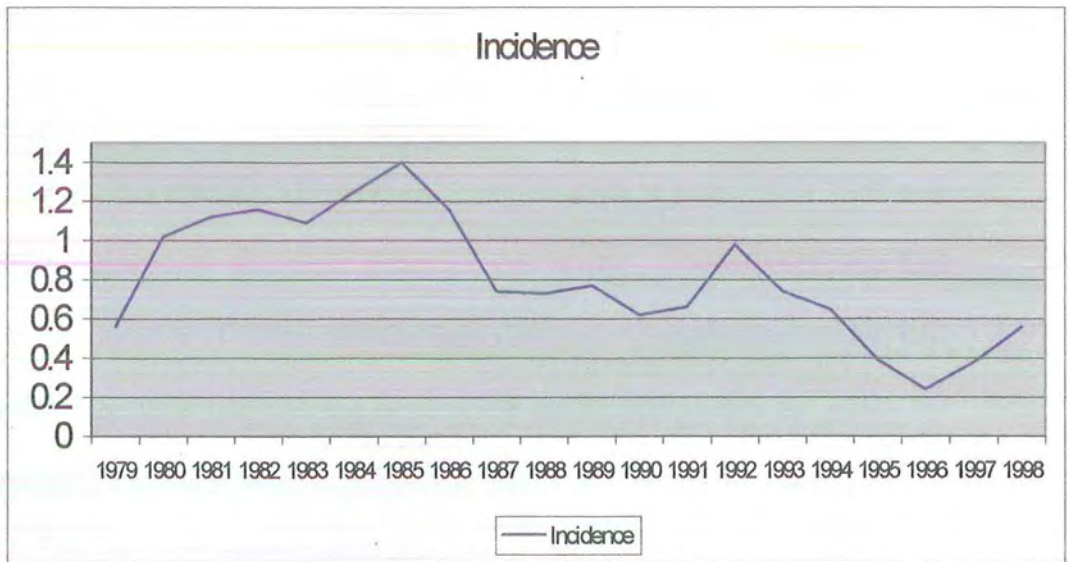
| Year | Cost of Workers' Comp Claims per \$100 payroll | Frequency Rate | Incidence Rate | Severity Rate |
|-------------|---|---------------------------|---------------------------|--------------------------|
| 1979 | 0.2396 | 9.37 | 0.56 | 96.82 |
| 1980 | 0.6054 | 15.43 | 1.02 | 458.34 |
| 1981 | 0.5952 | 16.34 | 1.12 | 81.75 |
| 1982 | 0.3706 | 15.77 | 1.16 | 259.54 |
| 1983 | 0.7721 | 15.99 | 1.09 | 527.64 |
| 1984 | 1.7525 | 18.24 | 1.25 | 1387.12 |
| 1985 | 1.3768 | 18.93 | 1.40 | 1132.71 |
| 1986 | 1.2104 | 16.7 | 1.16 | 929.44 |
| 1987 | 0.3438 | 12.12 | 0.74 | 237.34 |
| 1988 | 0.5923 | 13.13 | 0.73 | 303.35 |
| 1989 | 0.8714 | 13.52 | 0.77 | 646.66 |
| 1990 | 0.6612 | 12.14 | 0.62 | 448.98 |
| 1991 | 0.3573 | 12.77 | 0.66 | 119.16 |
| 1992 | 0.6381 | 17.64 | 0.98 | 471.59 |
| 1993 | 0.3341 | 12.72 | 0.74 | 149.78 |
| 1994 | 0.6458 | 10.7 | 0.65 | 518.25 |
| 1995 | 0.2058 | 6.31 | 0.39 | 140.18 |
| 1996 | 0.4158 | 3.52 | 0.24 | 295.03 |
| 1997 | 0.4667 | 6.5 | 0.38 | 299.29 |
| 1998 | 0.5493 | 9.57 | 0.56 | 537.3 |



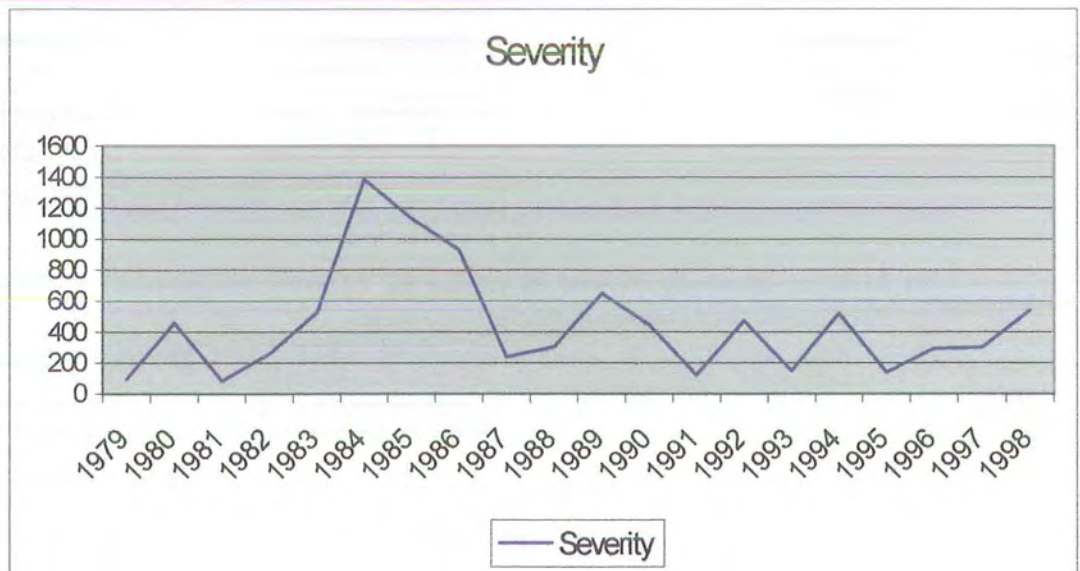
Graph 1
Cost of Workers' Compensation claims per \$100 Payroll



Graph 2
Frequency Rates



Graph 3
Incidence Rates

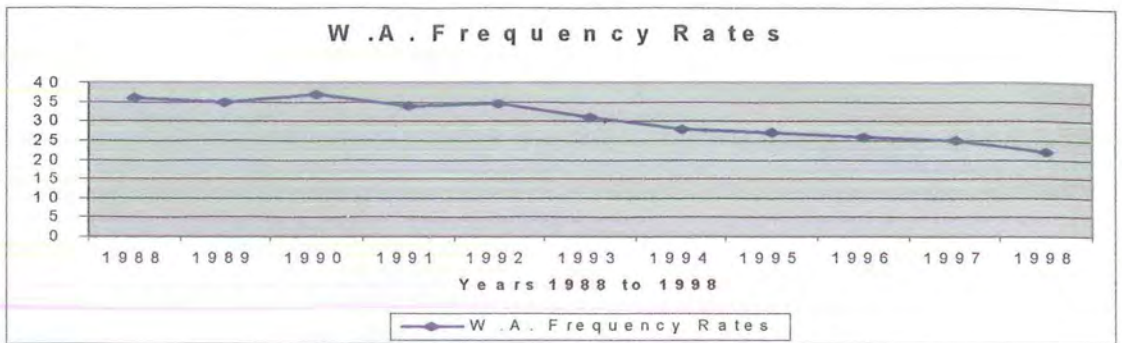


Graph 4
Severity Rates

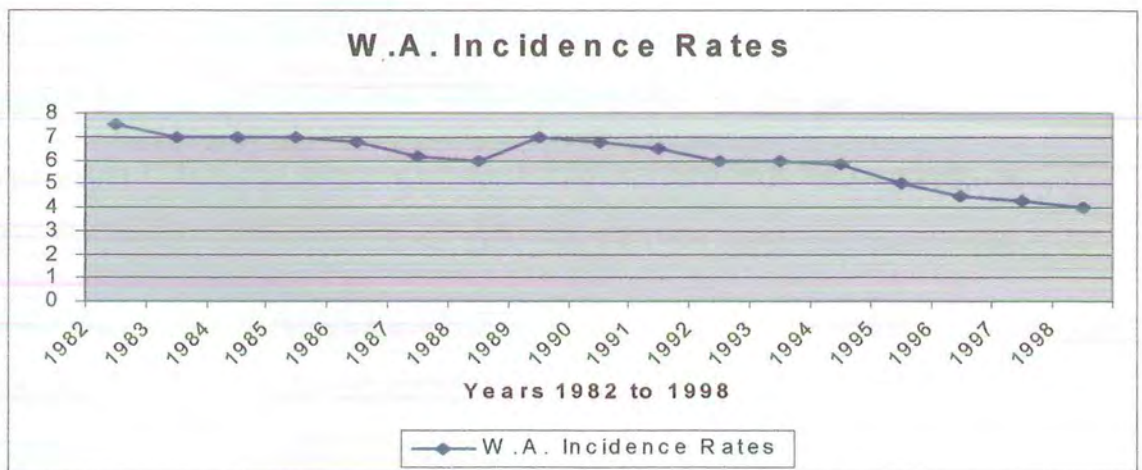
Graph 1 represents the ratio of the cost of the workers' compensation claims as against every \$100 of payroll for each year of the twenty years of the study period. This graph indicates there was a large amount of costs to the University associated to the workers' compensation in years 1984, 1985 and 1986 compared to the other years of this study. These years also had increased number of claims and the large costs were directly attributed to RSI claims. The subtle increase just before 1998 can be attributed to the additional (expensive) stress claims in the two proceeding years – see Chart 34 page 127. The impact of these claims can also be seen on Graph 4 –Severity Rates page on the previous page.

Graphs 2, 3, and 4 all have similar trends to Graph 1 for the nine years 1979 to 1987. This can be attributed to the claims to the University not being 'managed' until 1984. With the introduction of the Safety Officer in 1984, there is an impact on the number of claims as seen by the Frequency rates and Incidence rates and the costs of the claims as seen by the costs per \$100 pay roll and Severity rates. Thus there was a peak in costs just prior to the introduction of the Safety Officer in 1984.

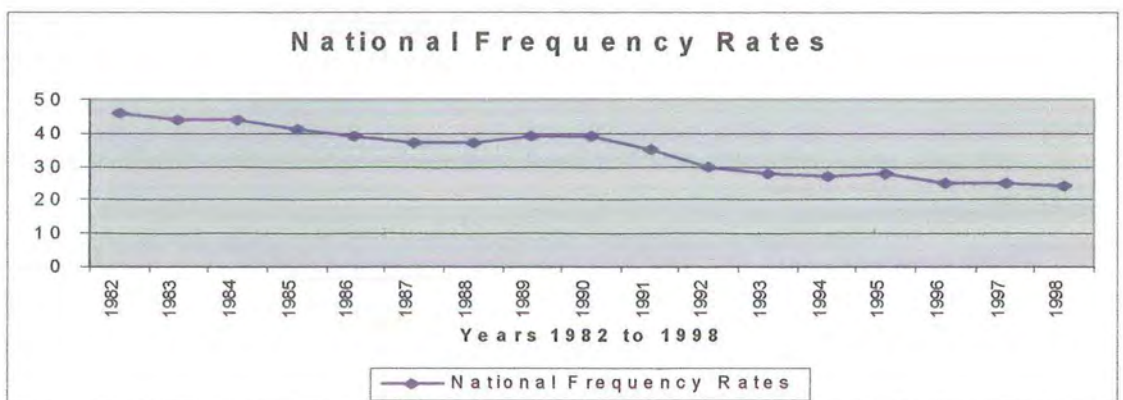
Graph 5, 6 and 7 (next page) show comparisons to the Universities performance. It is presented to indicate from a National level and State level these rates have similarities in downward trends.



Graph 5
W.A. Frequency Rates for All Industries 1988 to 1998



Graph 6
W.A Incidence Rates for ALL Industries 1982 to 1998



Graph 7
Australian Frequency Rates For ALL Industries 1982 to 1998

6.11 Safety Officer Appointment in 1984

Table 11 (next page) represents the statistical results of total Workers' Compensation expenditure, the compensation paid, the rehabilitation, legal and administration costs for the periods before and after the introduction of the Safety Officer and the introduction of the Safety Section to the University in 1984. The study found that there was no statistically reliable difference (at 0.05 level) in the common law claims or the total cost of the claims before and after the introduction of the Safety Officer and the introduction of the Safety Section to the University in 1984. There was however, a reliable difference (at 0.5 significance level) in the mean rank number of claims for lost time claims (LOSTIME), the compensation paid on claims (CPICOMP) and the rehabilitation, legal and administration costs (CP1OTHER) before and after the introduction of the Safety Officer and the Safety Section to the University in 1984.

The Safety Officer and the introduction of the Safety Section to the University in 1984 produced less lost time injuries resulting in less workers' compensation payments. There were more rehabilitation, legal and administration costs after the introduction of the Safety Officer and the Safety Section.

Table 11
The Statistical Results of the Number of Lost time, Common Law and the
Total Expenditure on Workers' Compensation Claims Before and After the
Introduction of the Safety Section

| Ranks | | N | Mean Rank | Sum of Ranks |
|-----------|--|------|-----------|--------------|
| LOSTIME | Before Occupational Safety and Health Section | 604 | 1475.22 | 891035.00 |
| | Occupational Safety and Health Section established | 2169 | 1362.43 | 2955118.00 |
| | Total | 2773 | | |
| COMLAW | Before Occupational Safety and Health Section | 604 | 1382.39 | 834961.50 |
| | Occupational Safety and Health Section established | 2169 | 1368.28 | 3011189.50 |
| | Total | 2773 | | |
| CPITOTAL | Before Occupational Safety and Health Section | 604 | 1350.35 | 815610.00 |
| | Occupational Safety and Health Section established | 2169 | 1397.21 | 3030541.00 |
| | Total | 2773 | | |
| CPICOMP | Before Occupational Safety and Health Section | 604 | 1478.35 | 892921.00 |
| | Occupational Safety and Health Section established | 2169 | 1361.56 | 2953230.00 |
| | Total | 2773 | | |
| CPIOOTHER | Before Occupational Safety and Health Section | 604 | 1250.34 | 755203.00 |
| | Occupational Safety and Health Section established | 2169 | 1425.06 | 3090948.00 |
| | Total | 2773 | | |

Test Statistics^a

| | LOSTIME | COMLAW | CPITOTAL | CPICOMP | CPIOOTHER |
|------------------------|----------|----------|----------|----------|------------|
| Mann-Whitney U | 601751.0 | 652251.5 | 632900.0 | 599865.0 | 572493.000 |
| Wilcoxon W | 2855118 | 834961.5 | 815610.0 | 2953230 | 755203.000 |
| Z | -3.672 | -1.019 | -1.272 | -3.834 | -4.744 |
| Asymp. Sig. (2-tailed) | .000 | .308 | .203 | .000 | .000 |

a. Grouping Variable: ADVISOR

It can be seen from Chart 53 there was a considerable increase in the number of strain injuries reported after the Safety Officer and Safety Section was introduced in the University in 1984. RSI and stress also increase in the total number of reported injuries after the introduction of the Safety Officer and Safety Section.

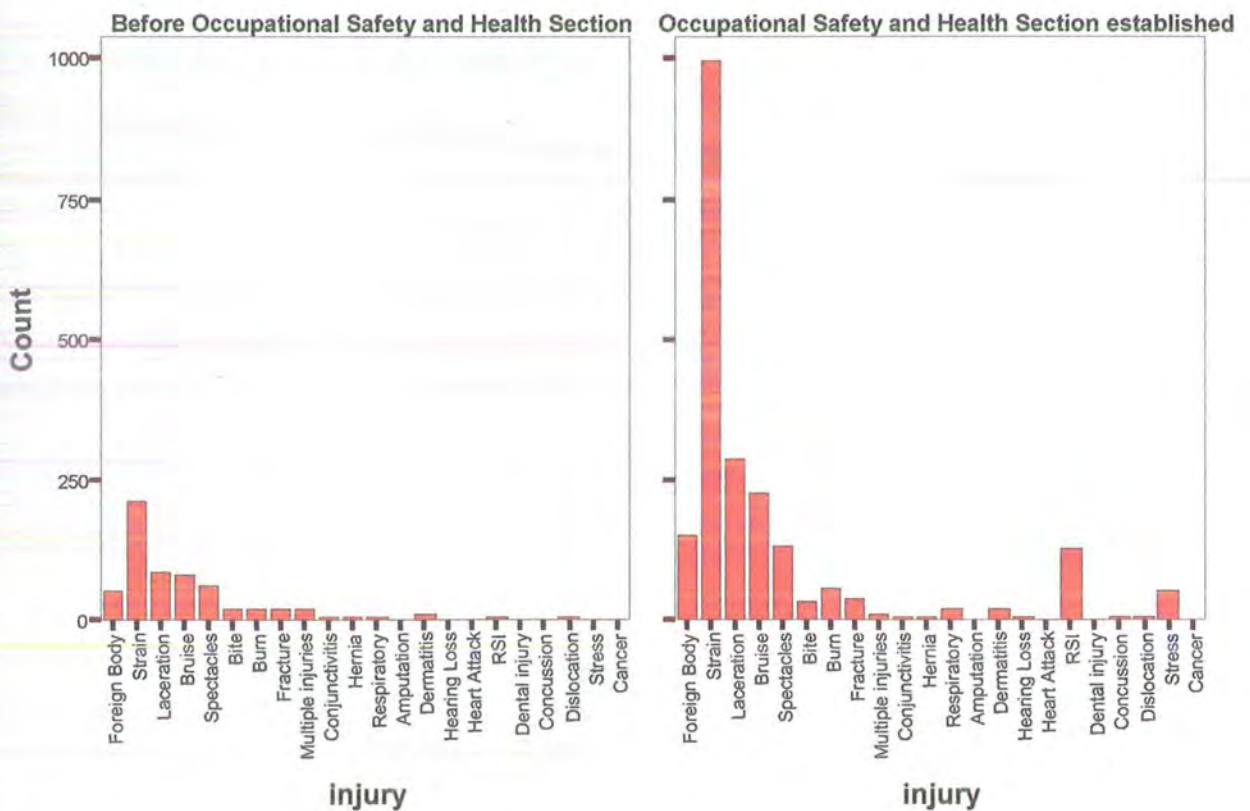


Chart 53
Representation of Injuries Before and After the Introduction of the Safety Officer and Safety Section to the University

6.12 Comparisons of Data Before (pre) and After (post) the Promulgation of The Western Australian Occupational Safety and Health Legislation

6.12.1 Categories of Total Expenditure Before and After the Act

Chart 54 represents the total expenditure of dollars (as categorised in the 1998 Dollar rankings shown in Table 9) (page 141) on workers' compensation. This is shown by before 1988 promulgation of the Western Australian Occupational Safety and Health Act and after 1988 promulgation of the Western Australian Occupational Safety and Health Act.

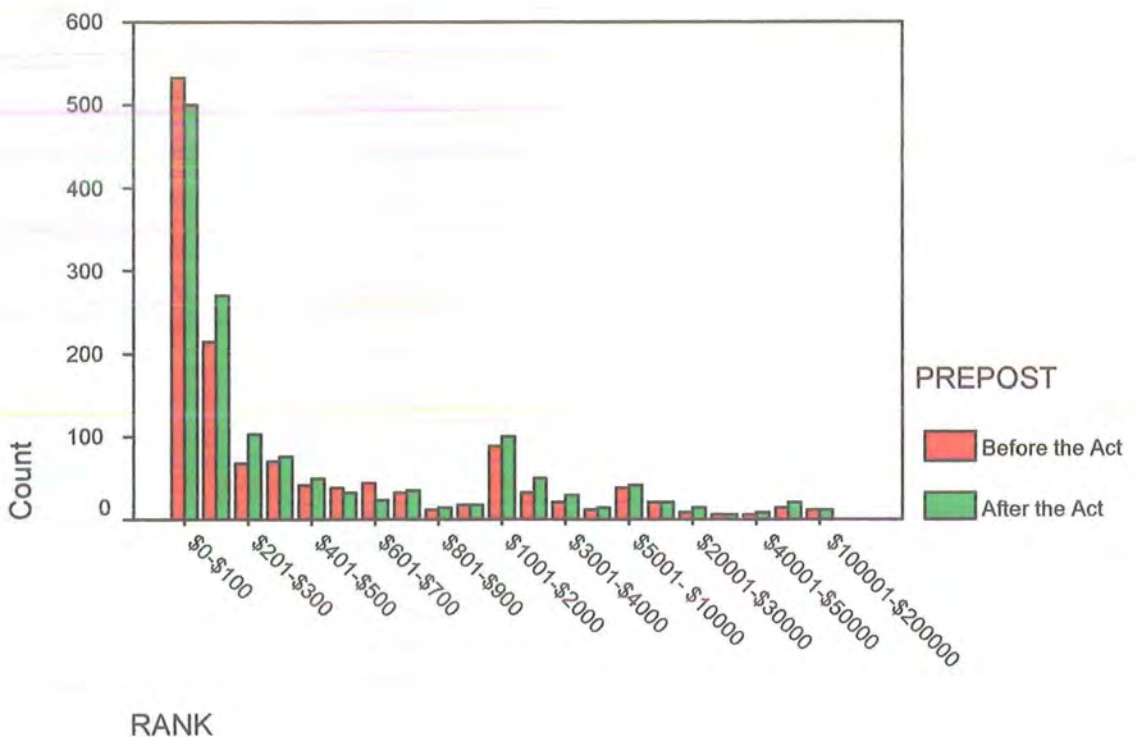


Chart 54
Expenditure in Dollar Amounts Indicating the Workers' Compensation Costs Before and After the 1988 Promulgation of the WA Occupational Safety and Health Act

6.12.2 Workers' Compensation Costs Before and After the Act

Figure 8 represents the total number of Workers' Compensation claims costs, (as categorised in the 1998 Dollar rankings shown in Table 9 on page 141) experienced by the University. This is shown as before and after the 1988 promulgation of the Western Australian Occupational Safety and Health Act.

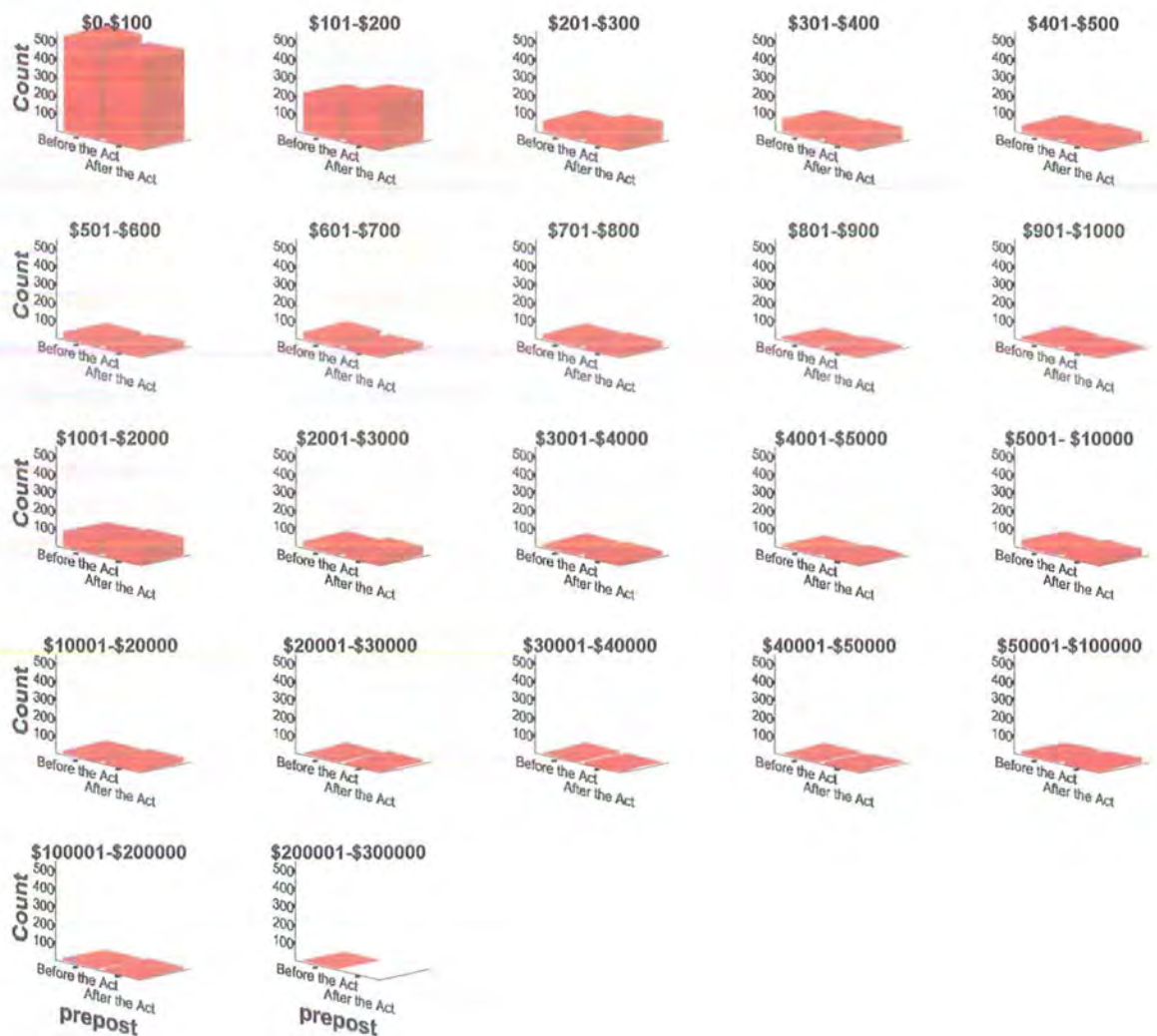


Figure 8
Workers' Compensation Claims Costs, in 1998 Dollars, Experienced Before and After the Act

6.12.3 Hazards Before and After the Act

Chart 55 represents the hazards (agent) causing workers' compensation claims before and after the 1988 promulgation of the Western Australian Occupational Safety and Health Act.

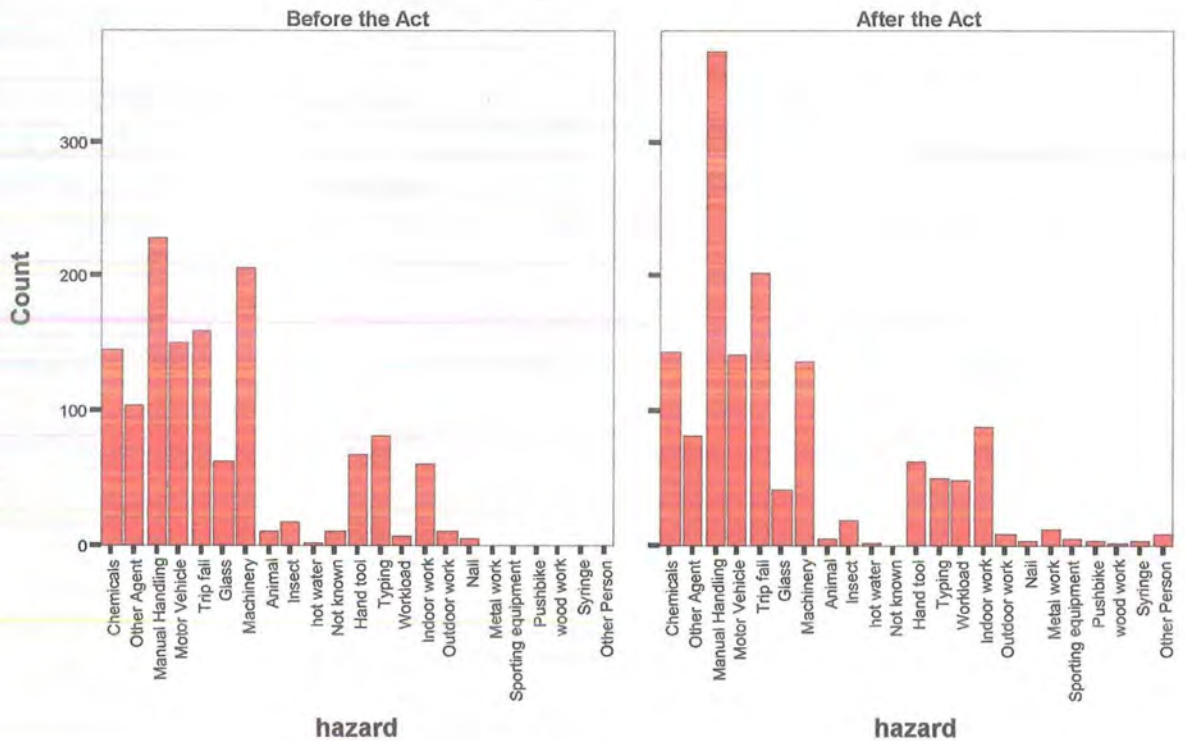


Chart 55
Number of Hazards from Workers' Compensation Claims
Before and After the Act

It can be seen from Chart 55 and Figure 9 (next page) there were more categories of hazards reported after the Act than before the Act was promulgated in 1988.

Figure 9 represents the hazards (Agent) that caused injuries resulting in workers' compensation claims experienced before and after the 1988 promulgation of the Occupational Safety and Health Act.

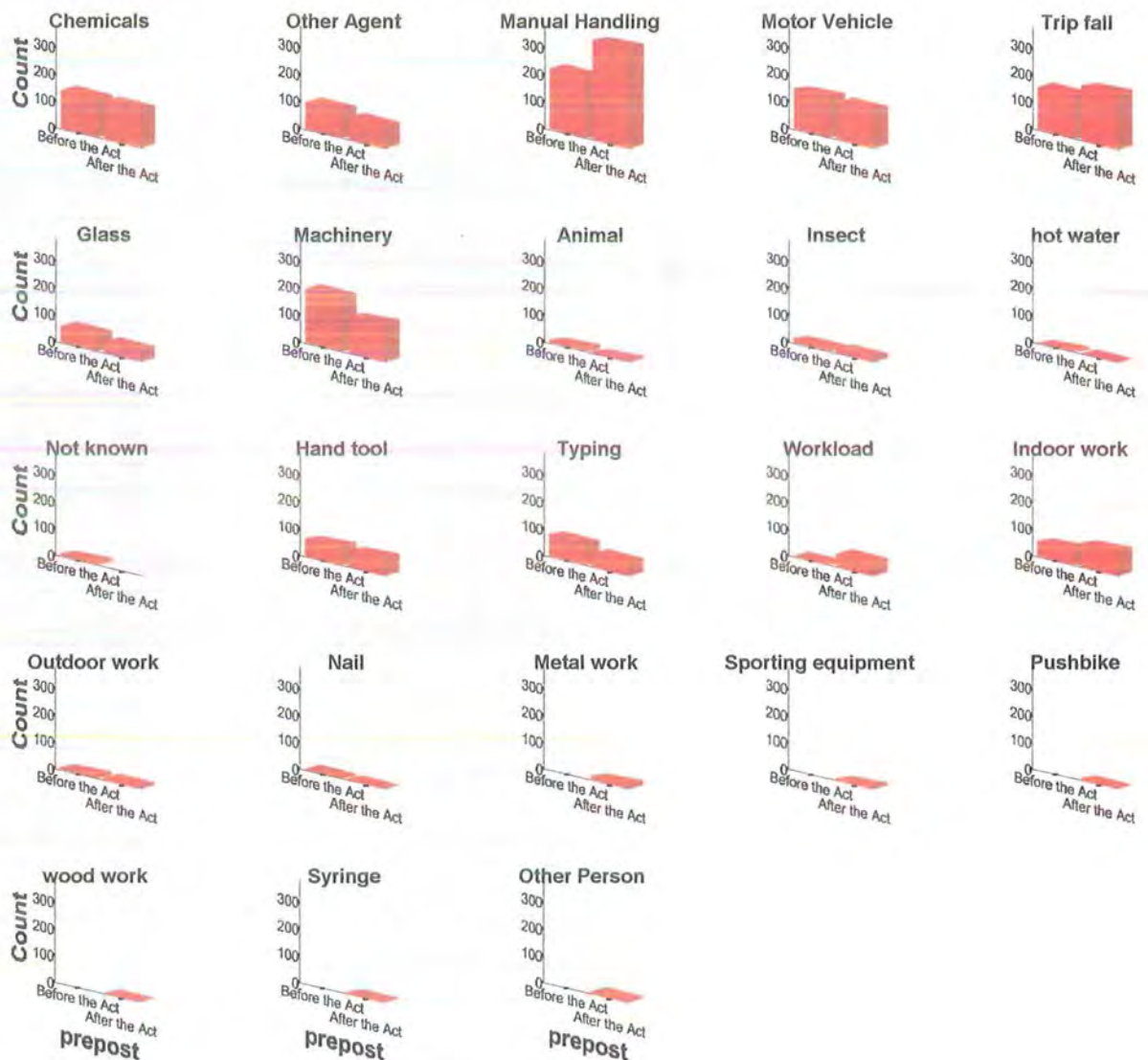


Figure 9
Hazards (Agency) that Caused Injuries Resulting in Workers' Compensation Claims Experienced Pre and Post the 1988 Promulgation of the Western Australian Occupational Safety and Health Act

6.12.4 Injuries Before and After the Act

Chart 56 represents the total number of injuries resulting in workers' compensation claims experienced before the 1988 promulgation of the Western Australian Occupational Safety and Health Act and after the 1988 promulgation of the Western Australian Occupational Safety and Health Act.

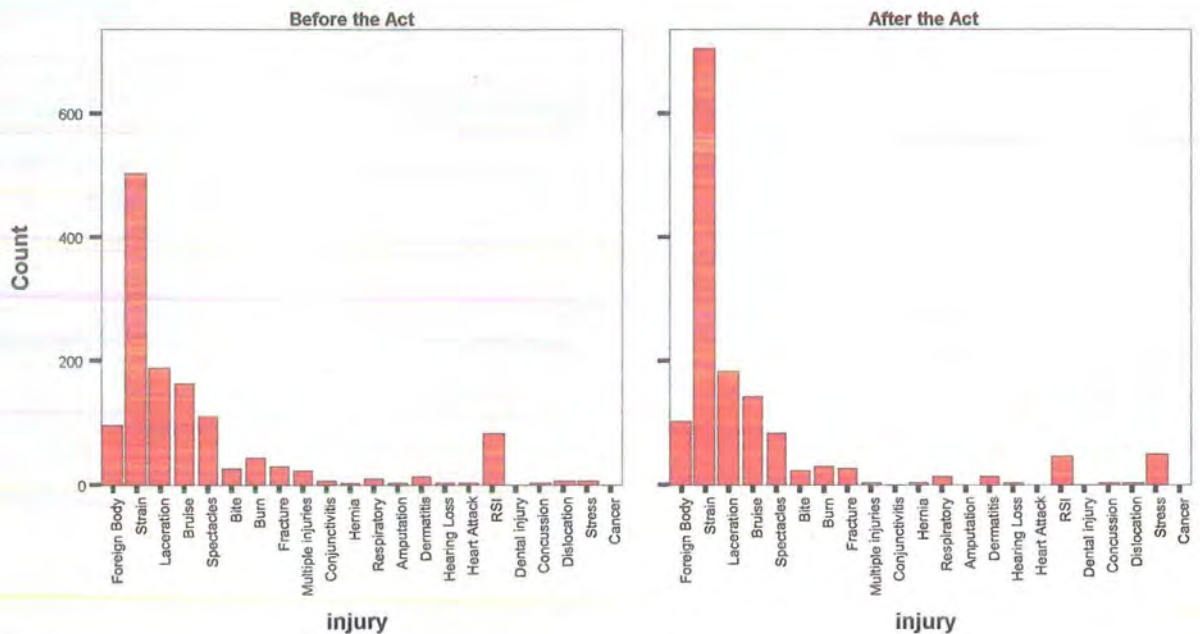


Chart 56
Representation of the Number of Injuries from Workers' Compensation
Claims Experienced Before and After the 1988 Promulgation of the WA
Occupational Safety and Health Act

It can be seen from Chart 56 there were less categories of injury reported after the Act was promulgated in 1988. There were more strain injuries and stress related claims however the number of RSI claims decreased after the Act was promulgated in 1988.

Figure 10 represents the types of injuries resulting in workers' compensation claims at the University before and after the 1988 promulgation of the Western Australian Occupational Safety and Health Act.

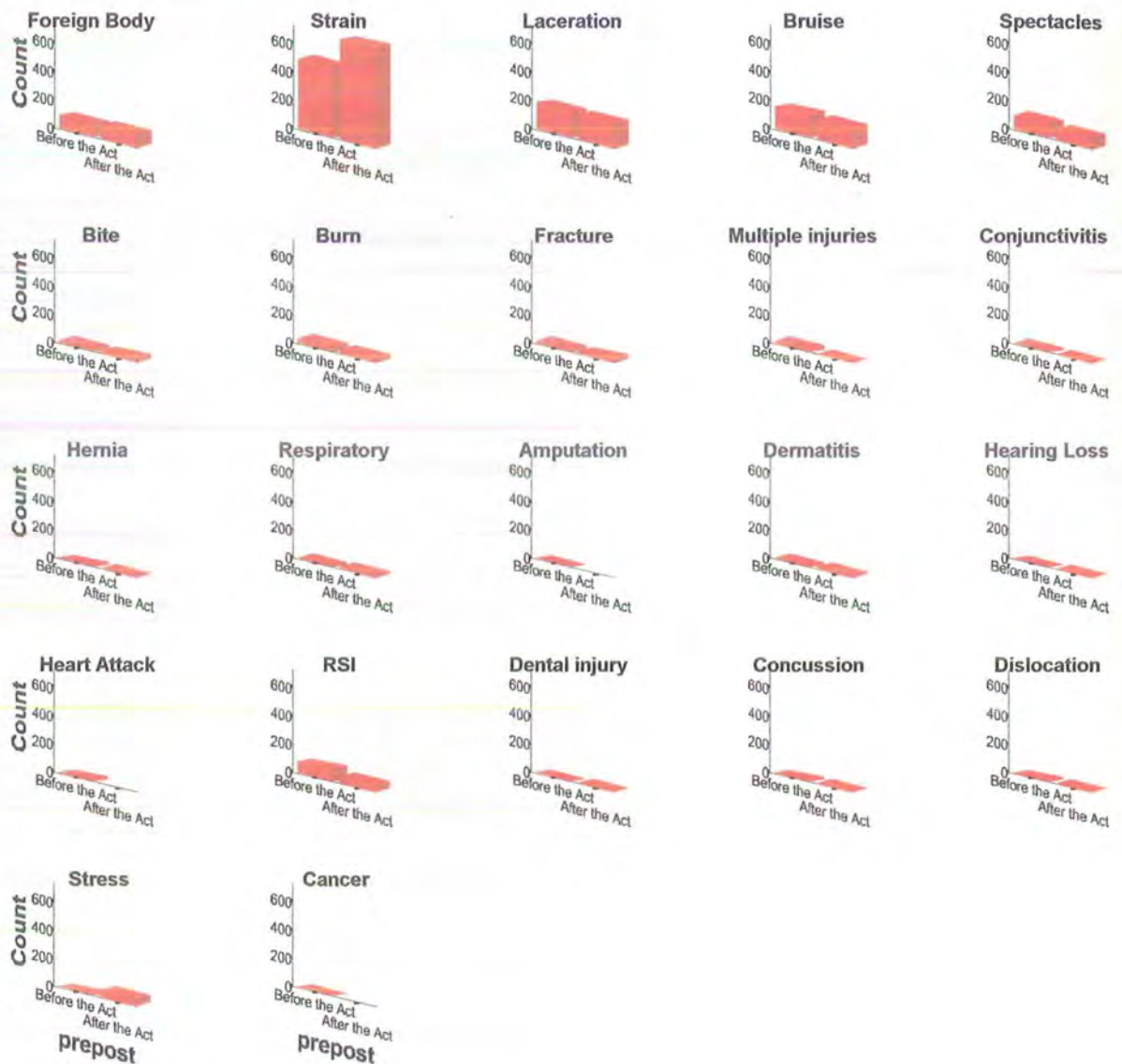


Figure 10
Types of Injuries from Workers' Compensation Claims Experienced Before and After the 1988 Promulgation of the WA Occupational Safety and Health Act

6.12.5 Part of Body Injured Before and After The Act

Chart 57 represents the part of body injured resulting in workers' compensation claims experienced before the 1988 promulgation of the Western Australian Occupational Safety and Health Act and post the 1988 promulgation of the Western Australian Occupational Safety and Health Act.

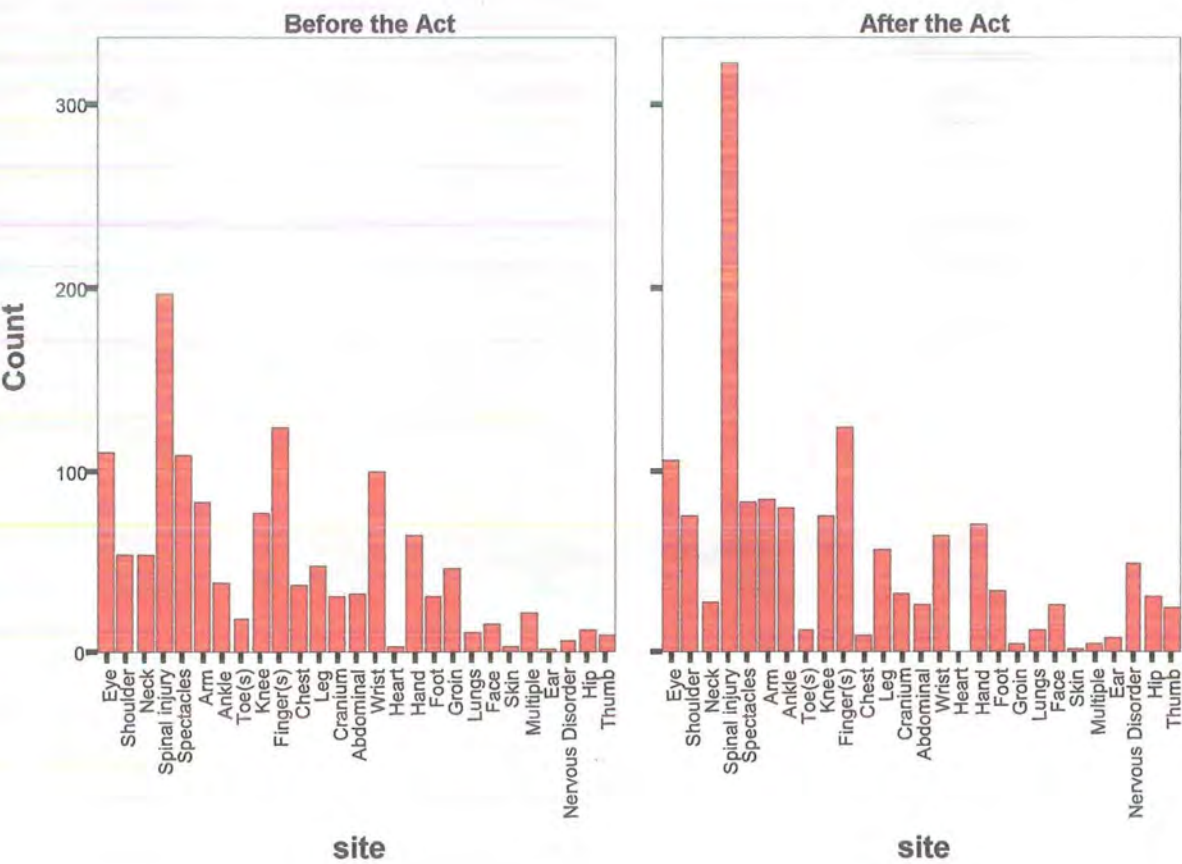


Chart 57
Site of Injuries from Workers' Compensation Claims Experienced
Before and After the Act

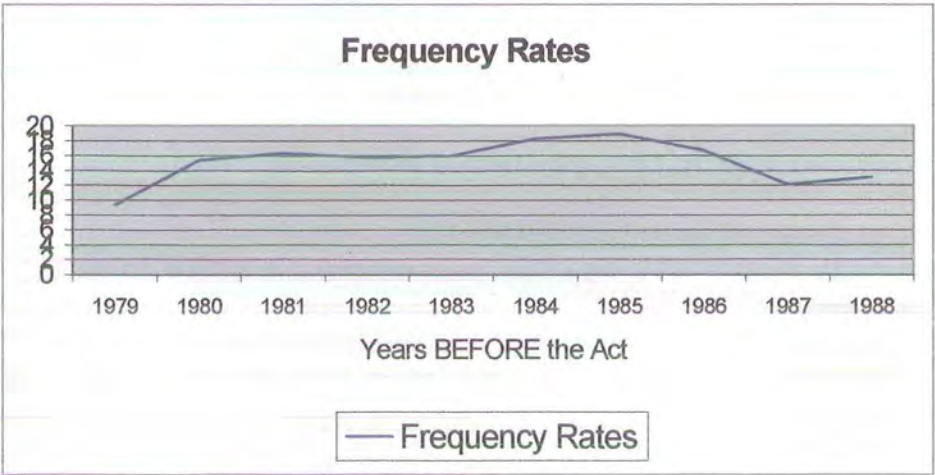
Figure 11 represents the part of body injured resulting in workers' compensation claims experienced before and after the 1988 promulgation of the Western Australian Occupational Safety and Health Act.



Figure 11
Site of Injuries from Workers' Compensation Claims Experienced
Pre and Post the 1988 Promulgation of the Act

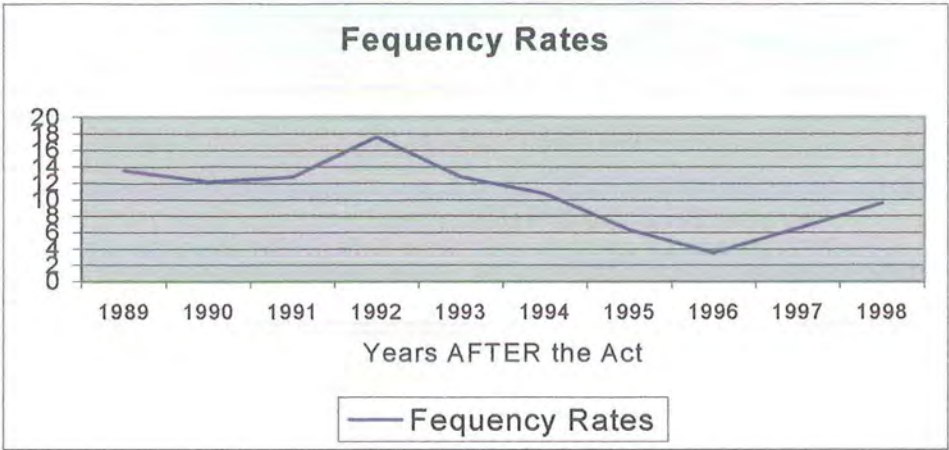
6.12.6 Comparative Rates Before and After the Act

To assist in the analysis before and after the promulgation of the Act and Regulations in 1988, the comparative rates have been separated and presented as before and after in graphical form below:

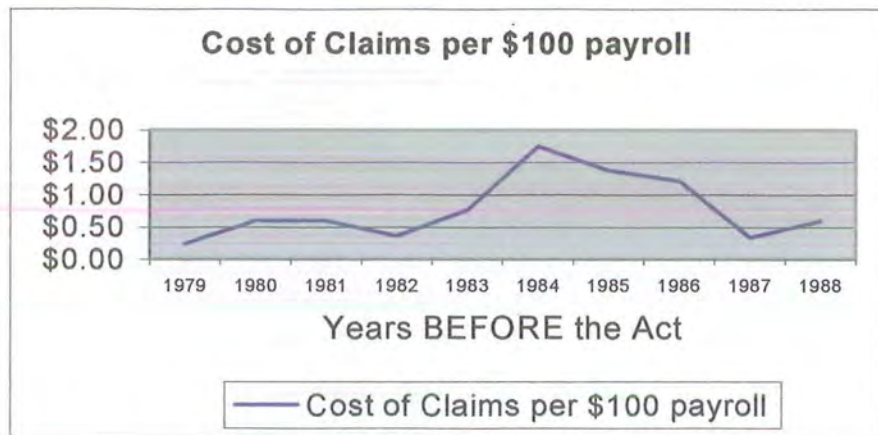


Graph 8
Frequency Rates shown BEFORE 1988

Graphs 8 and 9 represent the Frequency Rates shown before and after the promulgation of the Act and Regulations in 1988.

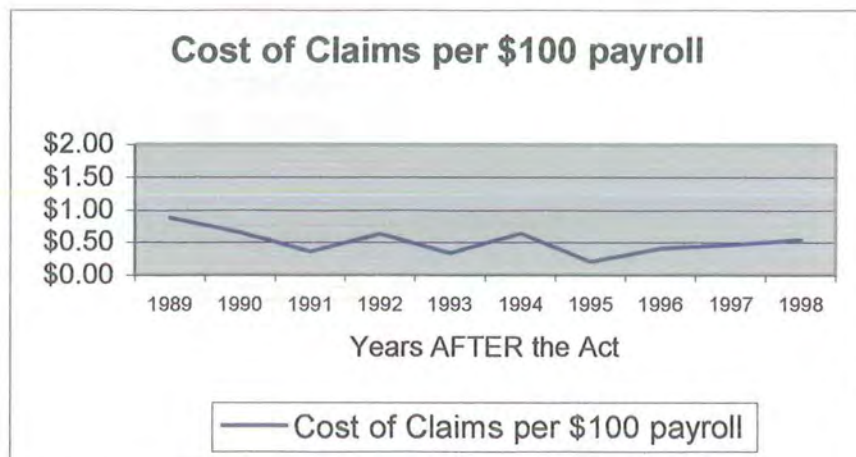


Graph 9
Frequency Rates shown AFTER 1988

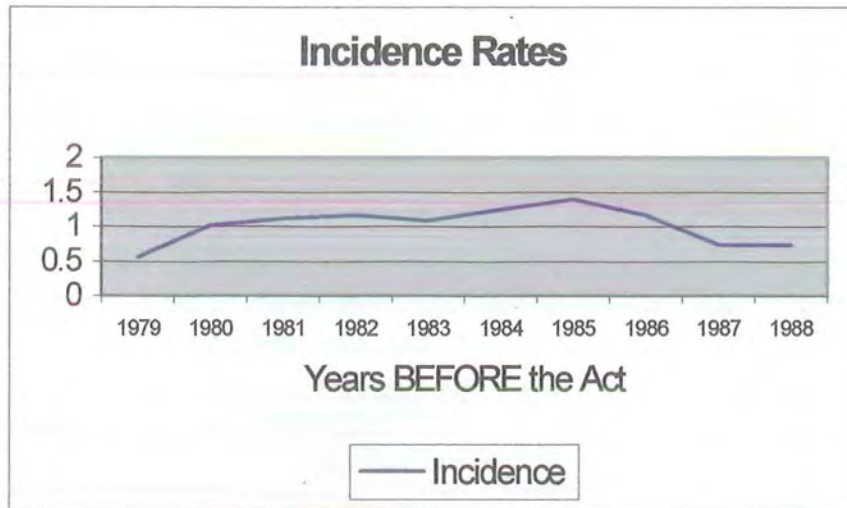


Graph 10
Cost of Workers' Compensation claims per \$100 Payroll BEFORE 1988

Graphs 10 and 11 represent the Cost of Workers' Compensation claims per \$100 Payroll shown before and after the promulgation of the Act and Regulations in 1988.

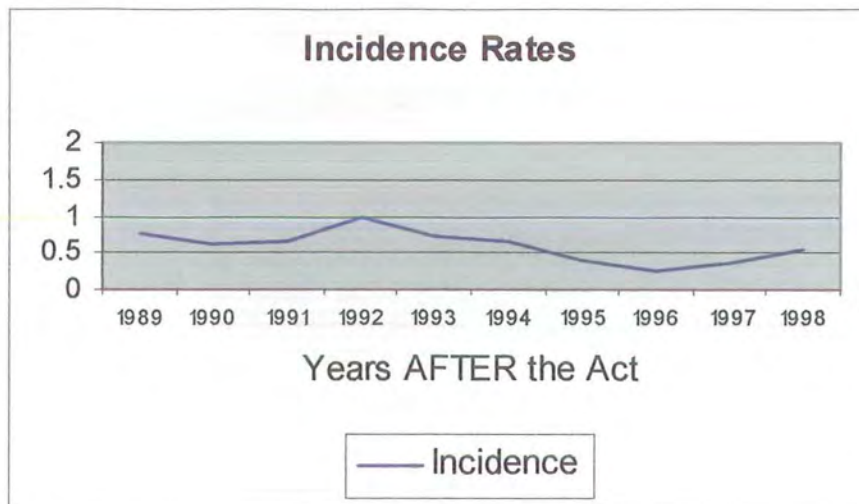


Graph 11
Cost of Workers' Compensation claims per \$100 Payroll AFTER 1988

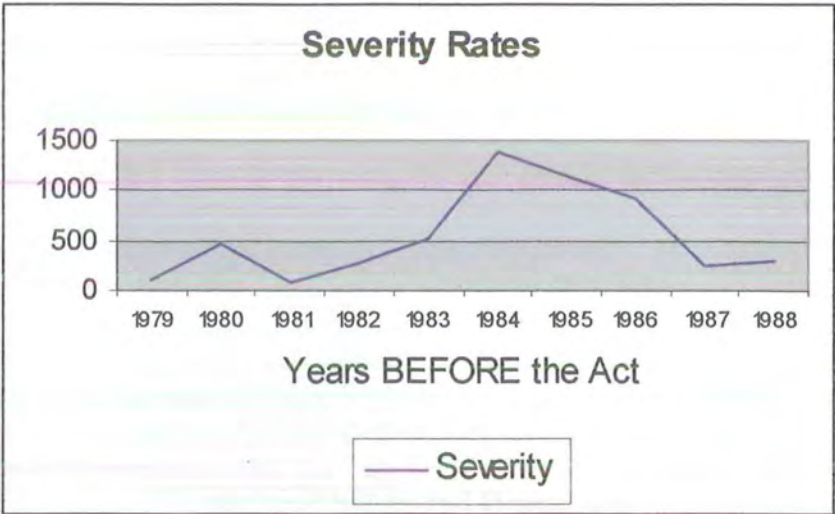


Graph 12
Incidence Rates BEFORE 1988

Graphs 12 and 13 represent the Incidence Rates before and after the promulgation of the Act and Regulations in 1988.

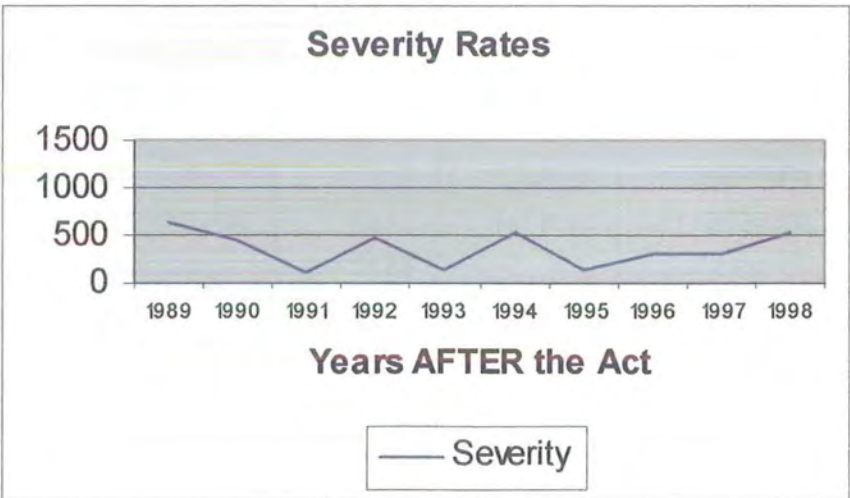


Graph 13
Incidence Rates AFTER 1988



Graph 14
Severity Rates BEFORE 1988

Graph 14 and 15 represent the Severity Rates before and after the promulgation of the Act and Regulations in 1988.



Graph 15
Severity Rates AFTER 1988

6.12.7 Workers' Compensation Statistical Results Before and After the Act

Table 12 represents the statistical results of total Workers' Compensation expenditure (CPITOTAL), the compensation spent (CPICOMP), and the rehabilitation, legal and administration costs (CPIOTHER) for the periods before and after the Western Australian occupational safety and health legislation.

Table 12
The Statistical Results of Total Workers' Compensation Costings, the Compensation Paid, and the Rehabilitation, Legal and Administration Costs for the periods Before and After the Introduction of the Western Australian Occupational Safety and Health Act

Ranks

| | PREPOST | N | Mean Rank | Sum of Ranks |
|----------|----------------|------|-----------|--------------|
| CPITOTAL | Before the Act | 1332 | 1352.20 | 1801128.50 |
| | After the Act | 1441 | 1419.17 | 2045022.50 |
| | Total | 2773 | | |
| CPICOMP | Before the Act | 1332 | 1439.72 | 1917711.13 |
| | After the Act | 1441 | 1338.27 | 1928440.00 |
| | Total | 2773 | | |
| CPIOTHER | Before the Act | 1332 | 1298.51 | 1729613.00 |
| | After the Act | 1441 | 1468.80 | 2116538.00 |
| | Total | 2773 | | |

Test Statistics ^a

| | CPITOTAL | CPICOMP | CPIOTHER |
|------------------------|----------|----------|------------|
| Mann-Whitney U | 913350.5 | 889479.0 | 841835.000 |
| Wilcoxon W | 1801129 | 1928440 | 1729613.0 |
| Z | -2.201 | -4.031 | -5.596 |
| Asymp. Sig. (2-tailed) | .028 | .000 | .000 |

a. Grouping Variable: PREPOST

There was a reliable difference ($p = 0.05$) in the mean ranking of total workers' compensation expenditure (CPITOTAL), the compensation spent (CPICOMP), and the rehabilitation, legal and administration costs (CPIOTHER) when comparing the periods before and after the 1988 promulgation of the Western Australian occupational safety and health legislation.

It can be seen from Table 12 there were less compensation paid (CPICOMP) before the introduction of the Act than paid after the Act was introduced. There were more total costs (CPITOTAL) as well as the rehabilitation, legal and administration costs (CPIOTHER) paid after the introduction of the Act than before it was promulgated in 1988.

Table 13 (next page) represents the statistical results the number of lost time claims and the number of common law claims for the periods before and after the Western Australian occupational safety and health legislation.

Table 13
The Statistical Results of the Number of Lost Time claims (LOSTIME) and
the Number of Common Law claims (COMLAW) for the periods Before and
After the Western Australian Occupational Safety and Health Act

| Ranks | | | | |
|---------|----------------|------|-----------|--------------|
| | PREPOST | N | Mean Rank | Sum of Ranks |
| LOSTIME | Before the Act | 1332 | 1441.35 | 1919878.00 |
| | After the Act | 1441 | 1336.76 | 1926272.88 |
| | Total | 2773 | | |
| COMLAW | Before the Act | 1332 | 1378.62 | 1836325.63 |
| | After the Act | 1441 | 1394.74 | 2009825.38 |
| | Total | 2773 | | |

Test Statistics ^a

| | LOSTIME | COMLAW |
|------------------------|----------|----------|
| Mann-Whitney U | 887312.0 | 948547.5 |
| Wilcoxon W | 1926273 | 1836326 |
| Z | -4.122 | -3.372 |
| Asymp. Sig. (2-tailed) | .000 | .001 |

a. Grouping Variable: PREPOST

There was a reliable difference ($p = 0.05$) in the lost time (LOSTIME) claims and the claims having a common law component (COMLAW) when comparing the periods before and after the 1988. There were less lost time costs of the claims after the Act and more costs for common law claims after the Act was promulgated in 1988.

6.13 Introduction of Occupational Safety and Health Representatives

Table 14 (next page) represents the statistical results of total Workers' Compensation expenditure, the compensation paid, and the rehabilitation, legal and administration costs for the periods before and after the introduction of the Occupational Safety and Health Representatives in 1989.

Table 14

The statistical Results of the Number of Lost Claims, Common Law Claims, and Total Compensation Expenditure for the periods Before and After the Introduction of the Occupational Safety and Health Representatives in 1989

| Ranks | | | | |
|----------|--------------------------|------|-----------|--------------|
| | REPS | N | Mean Rank | Sum of Ranks |
| LOSTIME | No Occ S&H Reps | 1387 | 1439.40 | 1996442.13 |
| | Occ S&H Reps established | 1386 | 1334.57 | 1849709.00 |
| | Total | 2773 | | |
| COMLAW | No Occ S&H Reps | 1387 | 1373.50 | 1913364.50 |
| | Occ S&H Reps established | 1386 | 1394.51 | 1932786.50 |
| | Total | 2773 | | |
| CPITOTAL | No Occ S&H Reps | 1387 | 1354.18 | 1878242.00 |
| | Occ S&H Reps established | 1386 | 1419.85 | 1967909.00 |
| | Total | 2773 | | |
| CPICOMP | No Occ S&H Reps | 1387 | 1437.34 | 1993587.50 |
| | Occ S&H Reps established | 1386 | 1336.63 | 1852563.38 |
| | Total | 2773 | | |
| CPIOTHER | No Occ S&H Reps | 1387 | 1304.19 | 1808918.00 |
| | Occ S&H Reps established | 1386 | 1469.87 | 2037233.00 |
| | Total | 2773 | | |

Test Statistics^a

| | LOSTIME | COMLAW | CPITOTAL | CPICOMP | CPIOTHER |
|------------------------|----------|----------|----------|----------|------------|
| Mann-Whitney U | 888516.0 | 950786.5 | 915664.0 | 891372.5 | 846340.000 |
| Wilcoxon W | 1849709 | 1913365 | 1878242 | 1852564 | 1608918.0 |
| Z | -4.135 | -3.142 | -2.160 | -4.005 | -5.449 |
| Asymp. Sig. (2-tailed) | .000 | .002 | .031 | .000 | .000 |

a. Grouping Variable: REPS

There was a reliable difference in the claims data before and after the introduction of the Representative in 1989. There were more lost time claims, less common law claims, the total cost per claim was lower per claim and the rehabilitation, legal and administration costs per claim was lower before the representatives were introduced.

6.14 Introduction of Safety Training

Table 15 represents the statistical results of lost time claims, common law claims, total Workers' Compensation expenditure, the compensation paid, and the rehabilitation, legal and administration costs for the periods before and after the introduction of the Safety Training in 1991.

Table 15

The Statistical Results of Lost Time Claims, Common Law Claims, Total Workers' Compensation Expenditure, the Compensation Paid, and the Rehabilitation, Legal and Administration Costs for the Periods Before and After the Introduction of the Safety Training in 1991.

| Ranks | | | | |
|----------|-----------------------------------|------|-----------|--------------|
| | TRAINING | N | Mean Rank | Sum of Ranks |
| LOSTIME | No Training | 1675 | 1424.52 | 2385069.00 |
| | Training established and provided | 1098 | 1327.13 | 1454537.00 |
| | Total | 2771 | | |
| COMLAW | No Training | 1675 | 1380.29 | 2311986.00 |
| | Training established and provided | 1096 | 1394.73 | 1528620.00 |
| | Total | 2771 | | |
| CPITOTAL | No Training | 1675 | 1349.15 | 2259819.50 |
| | Training established and provided | 1096 | 1442.32 | 1580786.50 |
| | Total | 2771 | | |
| CPICOMP | No Training | 1675 | 1424.55 | 2386118.50 |
| | Training established and provided | 1098 | 1327.09 | 1454487.50 |
| | Total | 2771 | | |
| CPIOTHER | No Training | 1675 | 1308.36 | 2191501.00 |
| | Training established and provided | 1096 | 1504.66 | 1649105.00 |
| | Total | 2771 | | |

Test Statistics ^a

| | LOSTIME | COMLAW | CPITOTAL | CPICOMP | CPIOTHER |
|------------------------|----------|----------|----------|----------|------------|
| Mann-Whitney U | 853381.0 | 808336.0 | 858169.5 | 853331.5 | 787851.000 |
| Wilcoxon W | 1454537 | 2311988 | 2259820 | 1454488 | 2191501.0 |
| Z | -3.757 | -2.955 | -2.998 | -3.791 | -6.316 |
| Asymp. Sig. (2-tailed) | .000 | .003 | .003 | .000 | .000 |

a. Grouping Variable: TRAINING

There was a reliable difference ($p = 0.05$) in the claims data before and after the introduction of the safety training in 1991. There were more lost time claim, less common law claims, the total cost per claim was lower per claim, the compensation paid for each claim was higher and the rehabilitation, legal and administration costs per claim was lower before the safety training was introduced.

6.15 Introduction of the Risk Management Unit and Full time Rehabilitation Co-ordinator.

Table 16

The Statistical Results of Lost Time Claims, Common Law Claims, Total Workers' Compensation Expenditure, the Compensation Paid, and the Rehabilitation, Legal and Administration Costs for the Periods Before and After the Introduction of the RMU and Rehabilitation Co-ordinator in 1993

| Ranks | | | | |
|----------|-----------------------|------|-----------|--------------|
| | REHAB | N | Mean Rank | Sum of Ranks |
| LOSTIME | No Rehabilitation | 1997 | 1418.73 | 2833207.50 |
| | Co-ordinator | | | |
| | Rehabilitation | 776 | 1305.34 | 1012943.50 |
| | Co-ordinator employed | | | |
| | Total | 2773 | | |
| COMLAW | No Rehabilitation | 1997 | 1381.05 | 2757965.50 |
| | Co-ordinator | | | |
| | Rehabilitation | 776 | 1402.30 | 1088185.50 |
| | Co-ordinator employed | | | |
| | Total | 2773 | | |
| CPITOTAL | No Rehabilitation | 1997 | 1347.16 | 2690282.00 |
| | Co-ordinator | | | |
| | Rehabilitation | 776 | 1489.52 | 1155869.00 |
| | Co-ordinator employed | | | |
| | Total | 2773 | | |
| CPICOMP | No Rehabilitation | 1897 | 1413.54 | 2822840.50 |
| | Co-ordinator | | | |
| | Rehabilitation | 776 | 1318.70 | 1023310.50 |
| | Co-ordinator employed | | | |
| | Total | 2773 | | |
| CPIOTHER | No Rehabilitation | 1997 | 1316.28 | 2628561.50 |
| | Co-ordinator | | | |
| | Rehabilitation | 776 | 1569.06 | 1217589.50 |
| | Co-ordinator employed | | | |
| | Total | 2773 | | |

Test Statistics^a

| | LOSTIME | COMLAW | CPITOTAL | CPICOMP | CPIOTHER |
|------------------------|----------|----------|----------|----------|------------|
| Mann-Whitney U | 711487.5 | 782962.5 | 895279.0 | 721834.5 | 633558.500 |
| Wilcoxon W | 1012944 | 2757968 | 2690282 | 1023311 | 2828561.5 |
| Z | -4.018 | -3.994 | -4.204 | -3.386 | -7.465 |
| Asymp. Sig. (2-tailed) | .000 | .000 | .000 | .001 | .000 |

a. Grouping Variable: REHAB

Table 16 represents the statistical results of lost time claims, common law claims, total Workers' Compensation expenditure, the compensation paid, and the rehabilitation, legal and administration costs for the periods before and after the introduction of the Rehabilitation Co-ordinator in 1993.

There was a reliable difference ($p=0.05$) in the claims data before and after the introduction of the full time Rehabilitation Co ordinator in 1993. There were more lost time claim, less common law claims, the total cost per claim was lower per claim, the compensation paid for each claim was lower and the rehabilitation, legal and administration costs per claim was lower before the rehabilitation Co ordinator was introduced.

6.16 Comparison of the Chief Executive Officers (VC's)

Table No 17 (next page) represents the statistical results of lost time claims, common law claims, total Workers' Compensation expenditure, the compensation paid, and the rehabilitation, legal and administration costs for the periods managed by the Chief Executive Officers (VC's). These periods are CEO1 is 1979 to 1980, CEO2 is 1980 to 1987, CEO3 is 1987 to 1988, CEO4 is 1988 to 1997 and CEO5 is 1997 to 1998.

Table 17

The Statistical Results of Lost Time Claims, Common Law Claims, Total Workers' Compensation Expenditure, the Compensation Paid, and the Rehabilitation, Legal and Administration Costs for the Periods Managed by the CEO's

| Ranks | | | |
|----------|-------|------|-----------|
| | VC | N | Mean Rank |
| COMLAW | 1 | 62 | 1397.86 |
| | 2 | 1074 | 1378.08 |
| | 3 | 184 | 1375.50 |
| | 4 | 1286 | 1388.44 |
| | 5 | 167 | 1441.92 |
| | Total | 2773 | |
| CPITOTAL | 1 | 62 | 1363.19 |
| | 2 | 1074 | 1363.61 |
| | 3 | 184 | 1271.52 |
| | 4 | 1286 | 1381.77 |
| | 5 | 167 | 1713.76 |
| | Total | 2773 | |
| CPICOMP | 1 | 62 | 1522.22 |
| | 2 | 1074 | 1453.25 |
| | 3 | 184 | 1348.20 |
| | 4 | 1286 | 1316.25 |
| | 5 | 167 | 1498.28 |
| | Total | 2773 | |

| Ranks | | | |
|----------|-------|------|-----------|
| | VC | N | Mean Rank |
| LOSTIME | 1 | 62 | 1544.15 |
| | 2 | 1074 | 1450.49 |
| | 3 | 184 | 1369.75 |
| | 4 | 1286 | 1316.89 |
| | 5 | 167 | 1479.23 |
| | Total | 2773 | |
| CPIOTHER | 1 | 62 | 1184.61 |
| | 2 | 1074 | 1302.89 |
| | 3 | 184 | 1289.82 |
| | 4 | 1286 | 1428.81 |
| | 5 | 167 | 1788.16 |
| | Total | 2773 | |

Test Statistics^{a, b}

| | LOSTIME | COMLAW | CPITOTAL | CPICOMP | CPIOTHER |
|-------------|---------|--------|----------|---------|----------|
| Chi-Square | 30.645 | 39.411 | 32.876 | 33.369 | 63.970 |
| df | 4 | 4 | 4 | 4 | 4 |
| Asymp. Sig. | .000 | .000 | .000 | .000 | .000 |

a. Kruskal Wallis Test

b. Grouping Variable: VC

There was a reliable difference in the data for the comparison of the five Chief Executive Offices (VC's). The CEO having the most costs for common law was CEO5 (stress claims). The CEO with the highest total costs for workers' compensation claims was CEO5. The CEO having the most paid for

compensation per claims was CEO1. This meant the most time off per claim was associated with VC1.

Figure 12 represents the hazards (agency) causing workers' compensation claims experienced for the periods managed by the Chief Executive Officers (VC's). These periods are CEO1 is 1979 to 1980, CEO2 is 1980 to 1987, CEO3 is 1987 to 1988, CEO4 is 1988 to 1997 and CEO5 is 1997 to 1998.

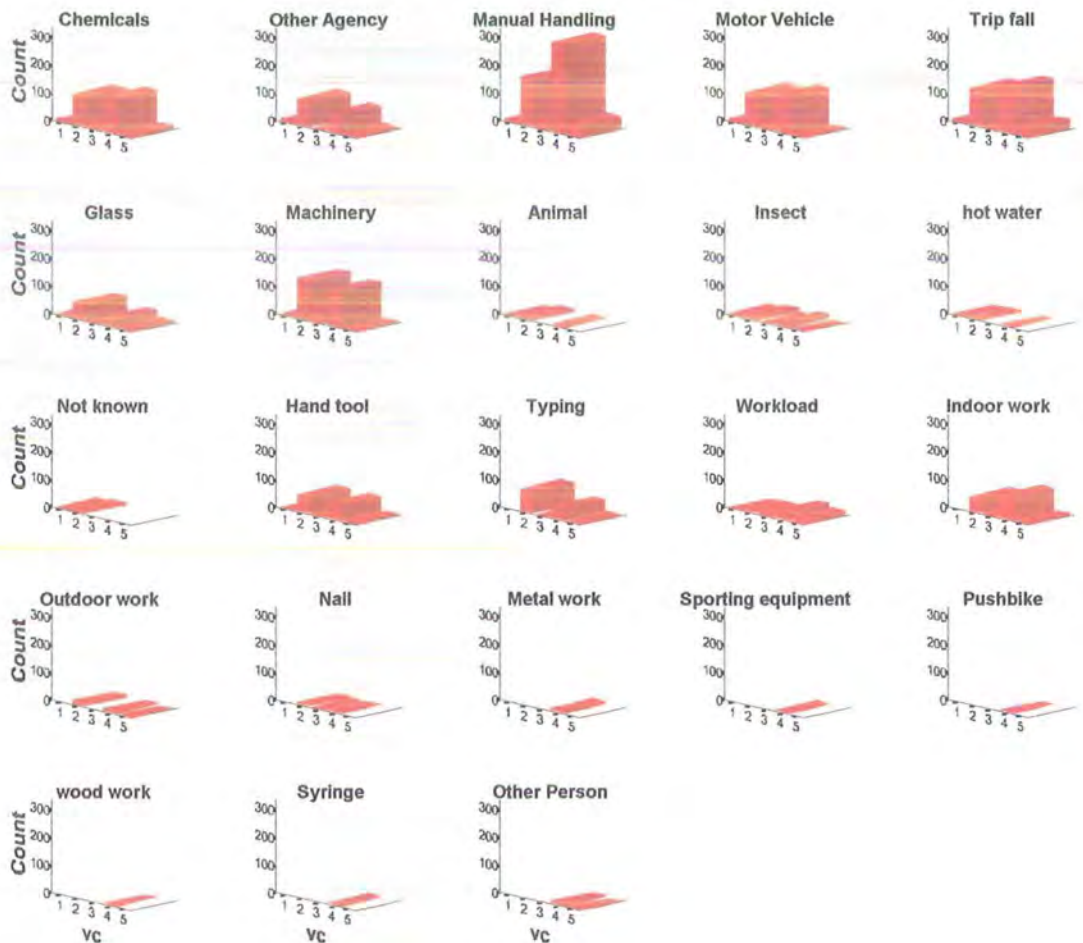


Figure No 12
The hazards (agency) causing workers' compensation claims experienced for the periods managed by the Chief Executive Officers (VC's)

Figure No 13 represents the injury type experienced for the periods managed by the Chief Executive Officers (VC's). These periods are CEO1 is 1979 to 1980, CEO2 is 1980 to 1987, CEO3 is 1987 to 1988, CEO4 is 1988 to 1997 and CEO5 is 1997 to 1998.

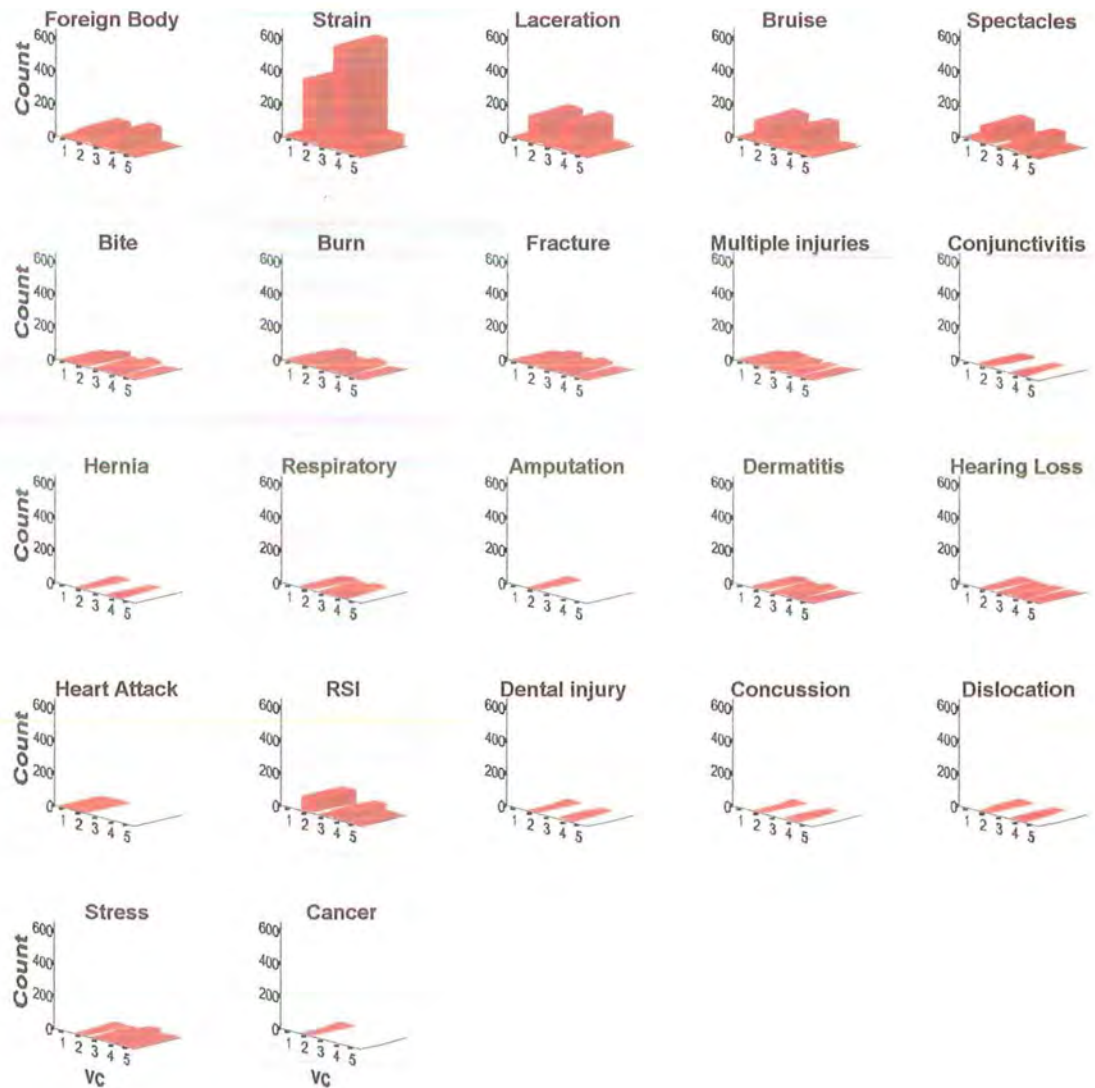


Figure No 13
The Injury Type Experienced for the Periods Managed by the Chief Executive Officers (VC's)

Figure No 14 represents the site of the injury experienced for the periods managed by the Chief Executive Officers (VC's). These periods are CEO1 is 1979 to 1980, CEO2 is 1980 to 1987, CEO3 is 1987 to 1988, CEO4 is 1988 to 1997 and CEO5 is 1997 to 1998.

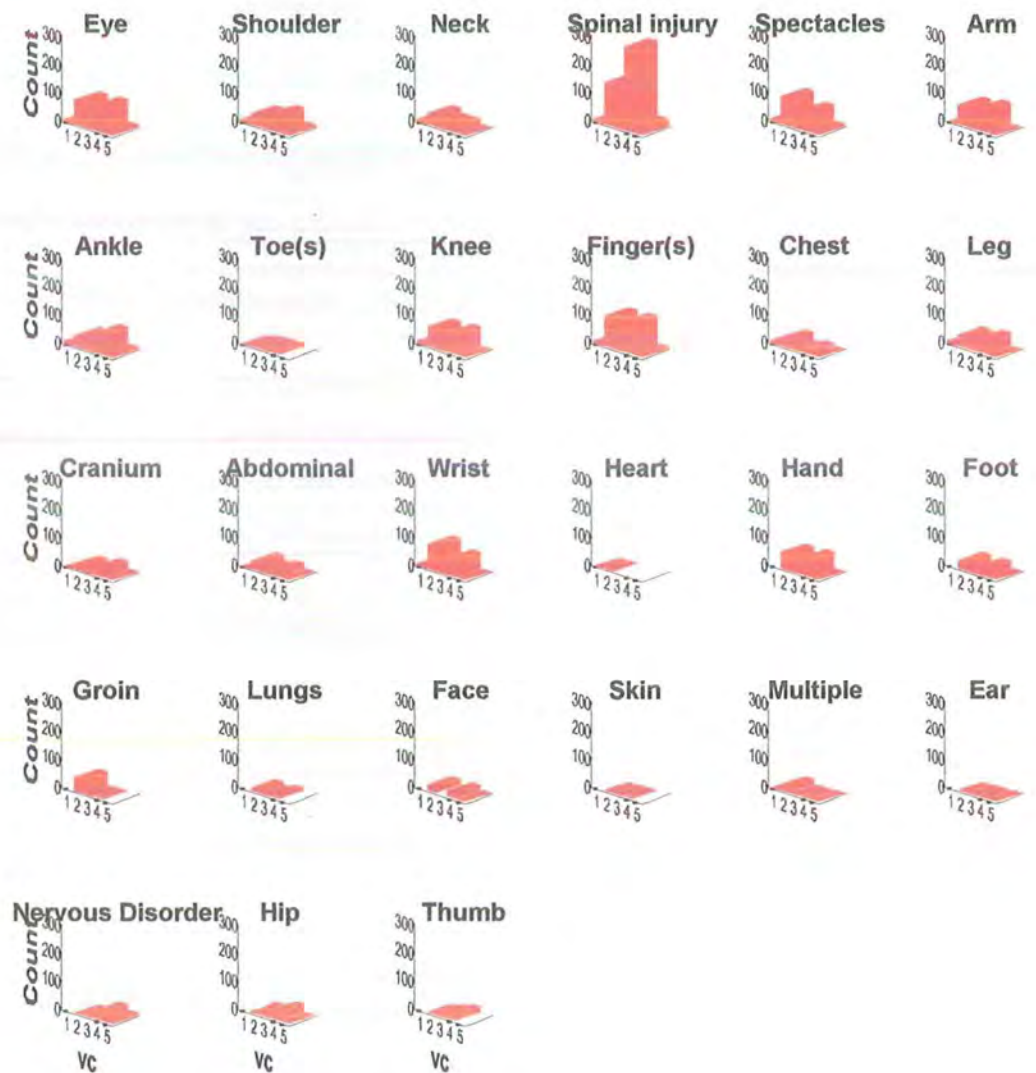


Figure 14
Site of the Injury Experienced for the Periods Managed by the Chief Executive Officers (VC's).

6.17 Expenditure on Preventative Safety Management and Workers' Compensation

The total expenditure, converted into 1998 Dollars, is shown in Table No 18. This is the total budget/finance expenditure by the University for the ten years 1989 to 1998 (post the promulgation of the Western Australian Act). This expenditure amount does not include the cost to the University for salaries/wages of personnel attending committee meetings. Nor does it include associated costs in dollar per person hour time for the work completed by the health and safety representatives. Appendix 1 provides detail of how these dollar figures for total expenditure were derived.

Table 18
TOTAL EXPENDITURE 1989 to 1998

| Year | Preventative Safety Expenditure | Workers, Compensation Premium plus Administration | Total Expenditure |
|-------|---------------------------------|---|-------------------|
| 1989 | \$205,435 | \$495,960 | \$701,395 |
| 1990 | \$218,023 | \$468,237 | \$686,259 |
| 1991 | \$258,963 | \$438,829 | \$697,792 |
| 1992 | \$313,592 | \$484,949 | \$798,541 |
| *1993 | \$450,887 | \$558,523 | \$1,009,410 |
| 1994 | \$525,103 | \$569,641 | \$1,094,744 |
| 1995 | \$919,325 | \$559,245 | \$1,478,570 |
| 1996 | \$801,778 | \$588,519 | \$1,390,297 |
| 1997 | \$964,563 | \$541,611 | \$1,506,174 |
| 1998 | \$981,214 | \$575,198 | \$1,556,412 |

* Retraining of Rehabilitees began in 1993 and continued through out the rest of the study period.

Chart 58 represents the ten years 1989 to 1998 expenditure on safety prevention and workers' compensation plus administration costs for the University.

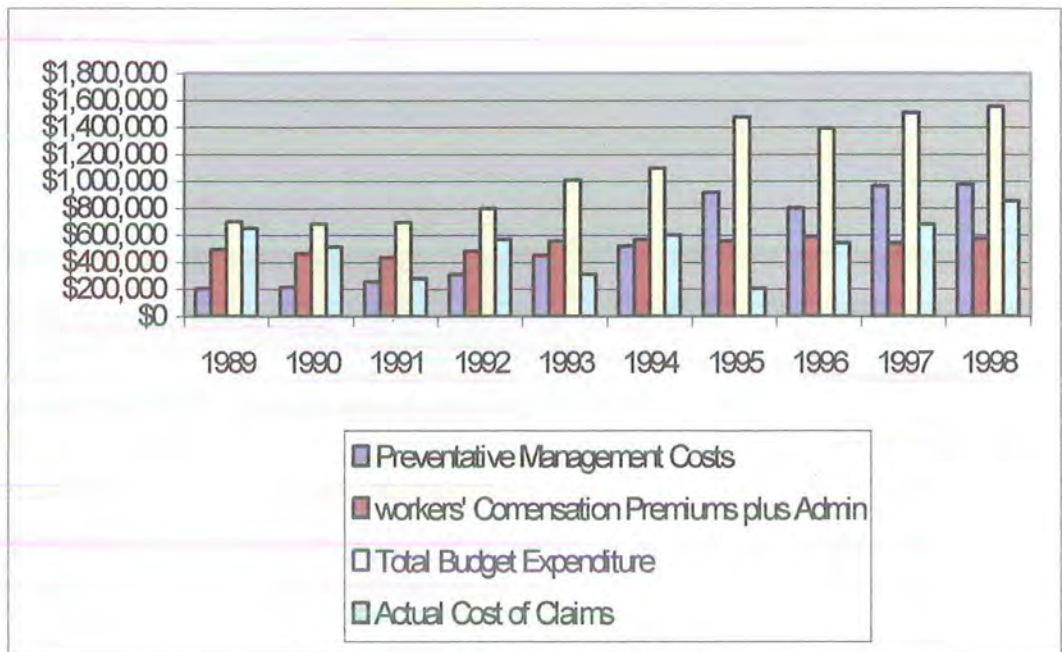


Chart 58
1989 to 1998 Expenditure on Safety Prevention, Workers' Compensation Premium Plus Administration Cost, Total Budget Expenditure and the Actual Costs of Claims

Chart 58 provides a representation of the total costs to the University of the executive management decisions that directly resulted from the requirements of the Western Australian occupational safety and health legislation. It can be seen from Chart 58 that since 1990 preventative safety management costs were greater than the costs of workers' compensation claims. Interestingly over this ten-year period the actual costs of workers' compensation claims (\$5,220,856) were only slightly less than the insurance premium and

administration costs (\$5,280,712) paid by the University. This is an indication the claims management and the insurance brokerage function of the University were working efficiently.

6.18 Summary of the Data

The presentation of in this chapter of data in table and graphical form provides the results of this research study. The detail of the data indicates there was a difference in the number of categories of hazards and injury types when analysing before and after the Act was promulgated in 1988.

The data of this research study was examined and presented in this chapter to correspond with the time line of intervention components starting in 1984 with the introduction of the Safety Officer and Safety Section to the University. This was followed by the promulgation of the occupational safety and health legislation in 1988. The next component was the introduction of the Safety and Health Representatives in 1989. The Safety Training followed in 1991 with the introduction of the full time Rehabilitation Co ordinator in 1993.

In addition to all these intervention components were the executive decisions, through out the study period of twenty years, made by the Chief Executive Officers (VC's) and the resources dedicated to preventative safety management as a direct requirement to the occupational safety and health

legislation in Western Australia. These were analysed to provide the detail for the discussion of this research study, which are provided in the next chapter.

7. DISCUSSION

7.1 Introduction

This chapter provides the discussion on the findings from the analysis of the data and results described in chapter six. This research study contributes in further understanding the impact of the Robens' committee based legislation within Western Australia. Genn (1993), and Aalder and Withagen (1997) found that self-regulation of safety and health had limitations. They found that without having this topic 'forced' upon them people do not take the requirements of safety and health seriously.

This research study considered these comments along with Hersch and Netter (1990) who found safety regulations do not always achieve reductions in work injury and fatality rates. For this study, data about academic and general staff accidents from a Western Australian University were researched. The time period was 20 years, 1979 through 1998 inclusive. The work environment offers a full spectrum of workplace activities from domicile duties (student housing services) to heavy machinery work (mechanical maintenance) through to construction activity (building and operations), hazardous chemical exposure from research activities, along with contrasting types of office work activities. An analysis of the claims history was conducted to ensure that the data was available and reliable. This

research study was based on historical case study analysis using data provided by the University's insurer. Veltri (1991) conducted a study in USA of one hundred organisations, on safety strategy formulation and organisational structure, during 1988 to 1990. Veltri (1991) found there was a consensus (from those that responded to the survey) that there was a requirement to modify the methods for establishing performance criteria in measuring and evaluating safety function performance. This modification should include a way to evaluate the accountability of managers and supervisory personnel for safety performance.

This research will follow on from these finding by analysing the executive directives, resulting from new legislative requirements, which provided resources that produced policies and procedures on occupational safety and health issues.

From the author's previous unpublished research, it is noted that in Australia, the measurement of safety performance was initiated in the late 1960's early 1970's. It had been enhanced from the work completed in the United States in the 1950's. In Western Australia legislation was promulgated in 1988 to introduce a more comprehensive cover of occupational safety and health to the workforce. This required considerable change in the management of occupational safety and health and it is relevant to ask what impact this legislation had on workers' compensation

claims experiences. The significance of this research is to assist in answering this question and help in understanding the impact of the Western Australian occupational safety and health legislation.

This study applied a quantitative analysis of workers' compensation data to measure the impact of the Western Australian occupational safety and health legislation, that was introduced ten years into the study period of this research period of twenty years. 2773 workers' compensation claims were scrutinized.

7.2 Workers' Compensation Legislation in Western Australia

In 1979 the workers' compensation cover was conditional to claim for injury or disease that arose out of and in the course of employment. There were changes to the Western Australian legislation in 1993 as outlined below;

The main parts of the Act were proclaimed on the 20 December 1993 with a further proclamation on 24 December 1993 to include several additional parts of the Bill.

The most salient changes for this research study were:

- Weekly Compensation rates – were changed to be based on the individuals average weekly earnings for the first 4 week reverting to the current Award Rates thereafter. Before this change it was total compensation of earnings.

- Journey claims to and from place of work are no longer covered. This is shown in Chart 7 (page 111). It can be seen from Chart 7 the claims reduced dramatically in 1994. These motor vehicle claims have been left in the analysis, as they are all legitimate compensation claims for the study period.
- Common Law claims are only covered if the worker is more than 30% impaired or their future loss of wages exceeded \$100,000. This did have an effect on common law decisions however for this study period only one claim was decided by the Magistrates Court. All other common law claims were paid out at arbitration. This meant very few (if any) claim with a common law component were not appropriately compensated.
- The definition of disability was amended. The worker to show that the workplace contributed to the disability to a significant degree rather than a recognisable degree. This had an effect on the way the treating doctor diagnosed the causal factor for the injury or illness and may have reduced the number of legitimate claims under the previous definition. The author believes this would be a very small number due to the 'culture' of the management, at the University, to accept claims for the total study period.
- The maximum benefits available under the Act increased.

Further details of these and other changes are set out below.

7.2.1 Weekly Compensation Payments

Disabilities occurring from the 20 December 1993 were entitled to payments of weekly compensation based upon the individual's average weekly earnings for the first 4 weeks, reverting to the existing system of award rate (plus regular defined over-award payments) thereafter.

Average weekly earnings was a new definition and requires explanation. It meant the amount of pre-injury income the worker received, averaged over the 13 weeks prior to the date of the disability. Within this 13 week period disregard any period that the worker did not work (holidays, sick leave etc.)

The average weekly earnings amount must not exceed \$632.50 per week unless the person's award or agreement (basic salary rate) is a higher sum. (This figure was indexed annually and is based on the figure that the Australian Bureau of Statistics publishes as the full time adult average weekly total earnings in Western Australia as a February of each year).

Unfortunately, the legislators did not give sufficient consideration to the practicalities of the application of this change. It created some confusion to academic staff in particular so for the study period it

was normal practice to pay weekly earnings at any amount even over the indexed amount. This policy assisted this research study as it provided a continuum of payment entitlements over the full study period.

7.2.2 Rehabilitation of Workers

There was more emphasis on a return to work for injured staff.

7.3 Research Study Population - Staff Profile

The number of staff working for the University increased from 2949 staff in 1979 to 6938 staff in 1998. The ages of the University staffing population were from school leavers to retirement age (in the latter years this being beyond the age of 65 years). The demographics indicate an aging workforce population with the tendency of staff to remain in the employ of the University for extended periods of their working lives.

In 1990 the University changed its employment practice by employing more part time fractional hour contract staff rather than offering to employ on a full time 'permanent' basis. This, in effect, caused the number of full time equivalent positions to remain relatively constant and have an increasing number of personnel employed. This change in employment practice resulted in a greater number of people (head counts) being employed each year. Table 2 (page 103), Chart 1 and 2 (page 104) provide the numbers and representation of this trend in growth of staff at the University. It is

apparent from Chart 2 that the number of Full Time Equivalent (FTE's) positions remained relatively constant with a gradual and an even increase in the number of staff each year. This indicates that whilst the number of FTE's remained constant the actual head count of staff employed by the University increased.

7.4 Hours Worked

The hours worked each year as shown in Table 3 (page 105) and Chart 3 (page 106) increased over the twenty years. With the number of hours worked and the full time equivalent positions being relatively constant in number a new category of hazard emerged in the latter part of the study period. It can be seen from Table 4 (page 107), Figure 2 (page 108) and Chart 14 (page 114) the number of claims relating to the category 'workload' increased after 1995. This may be contributed to the hours worked and the additional stressors this creates as well as the change in the work practices associated with a large diverse organisation.

7.5 Hazards

An American study conducted by Emery, Delclos, Cooper, and Hardy (1998) indicated that safety programs supporting academic institutions face many challenges because of the wide variety of potential hazards present and the possibility of exposure to an array of hazardous substances in a research

programs. Emery et al (1998) identified there was a consistent lack of awareness of legislative responsibilities combined with activities such as hazard identification, hazard assessment and control. In addition, on average a supervisor was held responsible for controlling a wide and diverse range of potential hazards.

This commentary of Emery et al (1998) was confirmed in this research study with twenty-three categories of hazards reported in the study period.

The hazards (agent) causing injuries or diseases resulting in workers' compensation claims for this research study are shown in Table 4 (page 107) and Figure 2 (page 108). Charts 4 to 26 on pages 109 to 120 indicate there were uneven distributions of reported hazards that caused workers' compensation claims through out the twenty-year study period.

7.6 Injuries

There were twenty two categories of types of injuries and the number of injuries and representation of these numbers per year are shown in Table 5 (page 121) and Figure 3 (page 122).

The type of injury experienced for workers' compensation can be rated chronic or acute injuries. For this study 32% of the injuries were chronic

type injuries and 68% acute type injuries. Charts 27 to 47 (pages 123 to 133) (spectacles damage not charted in this section as the chart can be seen on page 112 Chart 9) represent the injury claims over the study period. It can be seen from Table 5 (page 121) and the charts 27 to 47 - four types of injuries - strain, lacerations, bruising, and foreign body (mainly in the eye) injuries related to three quarters of the total workers' compensation claims.

7.7 Part of Body Injured

Twenty seven categories of part of body (site) injured were reported - including damaged spectacle. The numbers of the part of the body injured and representation of the numbers per year are shown in Table 6 (page 134). Figure 4 (page 135) and Chart 50 (page 138). It can be seen from Table 6 (page 134) and Chart 50 (page 138) that there were four major types of injured part to the body. These four categories were spinal injuries, injured fingers, eye injuries, and wrist injuries. This corresponds with the four major types of injury as stated in section 7.5 above.

The most reported type of workers' compensation claim for the University was manual handling causing strain to the spinal area (back). This type of claim was focused upon by the training program introduced in 1991 and it is evident the number of this type of claim was reducing in the latter part of the study. Evidence of this can be seen in Figure 2 (page 108), Chart 4 (page 109), Figure 3 (page 122), Chart 27 (page 123), and Figure 4 (page 135).

7.8 Intervention indicator 11 (1984), represents the appointment of an Safety Officer to the University and the Introduction to the Western Australian Occupational Safety, Health and Welfare Act 1984

7.8.1 Statistical Results Comparing the Total Expenditure on workers' Compensation Claims, Compensation Paid on Claims, and Rehabilitation Legal costs and Administration costs Before and After the Introduction of the Safety Officer and Safety Section in 1984

In 1984 the Occupational Health, Safety and Welfare Act was introduced in Western Australia to establish the Occupational Health, Safety and Welfare Commission. This Commission was given the task to address existing legislation and provide new legislation with Regulations to the WA government for promulgation. This was completed in 1988. In anticipation of the new legislation, the University established a Safety Section, within the Human Resources Department, and employed a full time Safety Officer. Table 11 (page 151) provides the statistical analysis of the workers' compensation data and Chart 53 (page 152) provides a representation of the number of injuries before and after the introduction of the Safety Officer and Safety Section to the University in 1984. Hersch and Netter (1990) and the Health Administration (OSHA)(USA) Regulations reported that most studies on the impact of Occupational Safety Regulations have resulted in little

impact on workplace industrial accidents. Hersch and Netter (1990) also commented it may be that some safety regulations may be ineffective if they are not enforced or they carry inadequate penalties. It may prove that the employers are unable to access or understand information relating to the hazards and possible controls for their workplace. Workers also need to be rewarded as to their level of involvement and responsibility in the process increases.

In considering these comments the introduction of the Safety Section and Safety Officer was analyzed to see what impact the allocation of dedicated resources had on workers' compensation claims for the University. This research study analyzed the total number and costs of lost time claims, and common law claims. The total cost of workers' compensation claims and the cost of the compensation paid, along with the costs and number of claims incurring rehabilitation, legal costs and administrative costs were also analysed.

Whilst the number and costs are different there was no statistically reliable difference ($p = 0.05$) in the number and costs of claims with a common law pay out component. There was also not a statistically reliable difference ($p = 0.05$) in the total cost of workers' compensation paid before and after the introduction of the Safety Officer and Safety Section to the University. Of significance, there was a statistically reliable difference ($p = 0.05$) in the

lost time claims costs, as well as, the compensation paid and the costs associated to claims incurring rehabilitation, legal defense costs and administrative costs.

There was a positive impact on the costs (they were less) of the claims that resulted in time lost, after the introduction of the Safety Officer and Safety Section to the University. There was also a positive impact on the costs of compensation paid once there was a Safety Officer and a Safety Section established at the University.

Of interest the cost associated with claims incurring rehabilitation, legal costs to defend the claims and administrative costs were higher after the introduction of the Safety Officer and Safety Section to the University. This was due to the change in practice of requesting the insurer to validate claims to ensure all claims were legitimate. This practice was not conducted before the employment of the Safety Officer, as there was no formal process in place to complete this task until this position was filled in 1984. This research study found there was a fewer number of 'severe' claims once the Safety Officer and Safety Section were introduced, however a time frame of study greater than twenty years may provide further insight into this issue.

7.9 Intervention indicator {2} (1988), corresponds with promulgation of the Western Australian Occupational Safety, Health and Welfare Act 1984 (as amended) and the establishment of the University occupational safety and health committees along with the introduction of the University occupational safety and health policy

7.9.1 Comparative Rates for the Years Before and After The Western Australian Occupational Safety and Health Act in 1988

Commentators like Hevey (1998, p. 3) Jankiewicz (1997), Krause, (1997), Blewett and Shaw (1997, p. 19) argue accident statistics and comparative rates can be used as a barometer to assess safety systems. They allow for the identification of trends, comparison of like for like workplaces and comparison of performance across industry.

These measures are the main measure for evaluation of performance, however Rosier (1997) and Blewett (1997) argue, to base an organisations safety performance on injury statistics alone is flawed, as this data only reflects accidents and not the components of the safety and health program. This is acknowledged by the author and is the reason Rates as well as total expenditure, and executive decisions along with policies, committees and the Health and Safety Representatives influences have been analysed in this research study.

The author, through personal experiences of safety performance, acknowledges the indicators should measure more than accident statistics. That is, the question of impact is addressed by analysing the Western Australian occupational health and safety legislative requirements and its effect on workers' compensation claim experiences. However, the published evaluation of the effectiveness of occupational safety and health programs, as required under Western Australian legislation, indicates the main focus is on the annual workers' compensation statistical data published by the Australian State Authorities. These Authorities include WorkCover W A. There is also a statistical overview of work related injury and disease published by WorkSafe W A through, White (1995/96 1996/97 and 1997/98)

As a component of assisting in analysing the impact of the 1984 Occupational Safety and Health Act in Western Australia, the costs of claims per \$100 of payroll – Graph 1 (page 146), the Frequency Rates – Graph 2 (page 146), Incidence Rates – Graph 3 (page 147) and Severity Rates Graph 4 (page 147) were produced. The Frequency, and Incidence Rates as presented by White (1999) for the State of Western Australia and Australia are shown in Graphs 5, 6, and 7 (page 149). It can be seen from of these Graphs the trend for the University, since 1984 (with a 'spike' in 1992) and the State and the Nation since 1990 was downward.

7.9.1.1 Costs of Claims per \$100 of payroll for the Years Before and After the Introduction of the Act and Regulations

The expenditure on claims compared to \$100 payroll that is indexed to 1998 Dollars allows comparison of costs through out the years of the study for the workers' compensation expenditure. These costs per \$100 payroll provide the weighted expenditure and allow comparisons of the costs through out the years of this research study. Using this comparison will also remove any spurious association caused by the general increase in staffing numbers over the study period. It can be seen from the Graph 1 (page 146) there was a peak in the costs in 1984. The costs then decreased from 1985 onwards. This peak in 1984 can be attributed to the RSI claims experienced at that time and can be seen shown in Table 5 (page 121), Figure 3 (page 122) and Chart 31 (page 125). When comparing this rate before and after the Act - Charts 10 and 11 (page 162) show there is a trend of flattening out of the claims costs in the costs per \$100 payroll after the Act, as there is less severe fluctuations in this rate since 1988.

7.9.1.2 Frequency Rates Before and After the Act

The Frequency Rates for the 20 years of the study period are shown in Graph 2 (page 146). The Frequency Rate provides the number of lost time injuries or diseases occurring every one million hours worked. There was a relatively constantly increasing Frequency Rate from 1979 to 1985 with the

greatest frequency rate in 1985. From 1992 to 1998 (end of the study period) the trend is downward.

There was a general trend downwards after 1985 in the Frequency Rates and Graph 8 (page 161) 'After the Act' show the trend to continue downwards after the rise in 1992. The rise corresponds to an increase in manual handling claims as shown in Chart 4 (page 109).

7.9.1.3 Incidence Rates Before and After the Act

The Incidence Rates provide a comparison of new workers' compensation claims per year for the twenty years of the study period. Graph 3 (page 147) provides a representation of the Incidence Rates for this study period, whilst Graph 12 and 13 (page 163) represent the Incidence Rates before and after the promulgation of the Act and Regulations in 1988. The Incidence Rates in Graph 3 show there was a gradual upward trend until 1985 followed by a downward trend after 1985. However, in 1992 there was a 'spike' caused by manual handling claims, as shown in Table 4 (page 107) and Chart 4 (page 109). The years after 1992 continue with the downward trend.

7.9.1.4 Severity Rates Before and After the Act

The Severity Rates provide a comparison on working days lost per year over the twenty years of the study period. Graph 4 (page 147) and Graphs 14 and

15 (page 164) provides a presentation of the Severity rates. For this study the Severity rates were not evenly spread from one year to the next. In 1984 to 1986 the severity rates were relatively excessive in comparison with the other years and in 1987 the severity rate was considerably less than the previous five years.

The trend in the Severity Rate indicates there is an overall decline after 1984.

7.9.2 Total Expenditure Before and After The Act

The Western Australian Occupational Safety and Health Act required organisations to commit considerable resources to be directed to the prevention of exposure to hazards. Prior to the Act being promulgated in September 1988, this study found, there was no reliable data available at the University, on the amounts spent on safety preventative management. In the years prior to 1989 the management undertook 'an as needed' approach to safety prevention expenditure and whilst this approach by management continued for the rest of the study period, the requirements of the legislation dictated certain expenditure and hence these expenditures increased.

Interestingly, the period 1989 onwards allowed a 'stream of funding' to be captured and audited that specifically addressed the requirements of the Act.

Table 18 (page 176) and Chart 58 (page 177) provides the total expenditure for preventative safety management, as well as, the workers' compensation costs. Preventative safety management expenditure related directly to the executive decisions and policy direction for safety initiatives specifically to meet the requirements of the Western Australian Occupational Safety and Health Act and Regulations.

The preventative safety management expenditure increased 289% over the ten years 1989 to 1998. The amount spent increased every year in safety prevention initiatives, with one exception in 1996. The total cost on workers' compensation premiums increased 106% over the years 1989 to 1998.

Chart 54 (page 153) and Figure 8 (page 154) represent the total dollar expenditure and categorisation of the dollar amount spent on workers' compensation before and after the Act was promulgated in 1988. Table 9 (page 141) provides the ranking categories of the dollar amounts and it is interesting to note that all but one category of the dollar rankings have both before and after expenditure relating to payments of workers' compensation. The one category that does not have both before and after expenditure was the highest category of \$200,001 to \$300,000. This claim occurred in 1981 and this 'before' claim was the only cancer workers' compensation claim, as shown in Chart 47 (page 133).

7.9.3 Type of Hazards causing Workers' Compensation claims Before and After the Act

Chart 55 (page 155) and Figure 9 (page 156) provides the representation of the hazards (agent) causing workers' compensation claims showing the total numbers of hazard before and after the promulgation of the Act. Chart 55 and Figure 9 clearly indicate there were more hazards causing injuries after the Act. Figure 9 presents six hazards that caused injuries after the Act that were not reported before the Act was promulgated in 1988. These hazards were Another person (stress claims) shown in Chart 21 (page 118), Sporting Equipment Chart 22 (page 118), Push bike Chart 24 (page 119), Syringe Chart 25 (page 120), Wood work activities Chart 26 (page 120), and Metal work activities Chart 18 (page 116). It is interesting to note that no "not known" hazard reports were received after 1986 as shown in Chart 19 (page 117). This is interpreted as the 'message' was being adhered to in reporting hazards with the hazard investigations first occurring in 1985 as stated in Section 4.7.5 on page 88.

7.9.4 Type of Injuries resulting in Workers' Compensation claims Before and After the Act

Table 5 (page 121) and Figure 3 (page 122) provides the representation of the type of injuries resulting in workers' compensation claims showing the total numbers of injuries, shown by type. Chart 27 to 47 (pages 123 to 133) show the type of injuries per year before and after the promulgation of the

Act. Figure 3 shows there were three types of injury not reported after the Act. These were Amputation as shown in Chart 45 (page 132), Heart attack - Chart 44 (page 132) and Cancer - Chart 47 (page 133). The numbers of injuries that resulted in a workers' compensation claim, before and after the Act, are shown in Chart 56 (page 157) and Figure 10 (page 158). The injury types that caused more workers' compensation claims before the Act were Lacerations, Bruising, (Spectacles reported but no real injury), Bite, Burn, multiple Injuries, RSI, plus the three injury types mentioned above.

For this study group within the twenty years the results show that, after 1988 it is evident from Table 5 (page 121) and Figure 10 (page 158) and the Incidence rate shown in Graph 3 (page 147) and Graphs 9 and 10 (page 163) there were fewer injuries after the Act and Regulations were promulgated.

7.9.5 Part of Injury to the Body resulting in Workers' Compensation claims Before and After the Act

Table 6 (page 134), Chart 50 (page 148), and Figure 11 (page 160) provides the representation of the site of injury to the body resulting in workers' compensation claims showing the total numbers of injuries, shown by site injured, before and after the promulgation of the Act. All but one category site of the body injured were reported before and after the Act was promulgated in 1988. This one category was heart attack and there was no report of heart attack after the Act. The number of workers' compensation

claims corresponding to site of the injury to the body after and before the Act are shown in Chart 57 (page 159).

7.9.6 Statistical Results Comparing the Total Expenditure on Workers' Compensation Claims, Compensation Paid on Claims, Lost time Claims Costs, Common Law costs and Rehabilitation Legal costs and Administration costs Before and After the Promulgation of the Occupational Safety and Health Legislation in 1988

Table 12 (page 165) provides the results of the comparisons of the total expenditure on workers' compensation claims (CPITOTAL), compensation paid on claims (CPICOMP), and rehabilitation, legal costs and administration costs (CPIOTHER) for the period of time before and after the promulgation of the occupational safety and health legislation in 1988.

There was a statistically reliable difference ($p = 0.05$) in the number and costs of these categories before and after the Act. Therefore one can conclude that the total expenditure on workers' compensation claims costs were greater after the Act. This also applies for the costs associated with rehabilitation, legal costs and administration costs as they were greater after the Act was promulgated in 1988. The amount paid for compensation is less after the Act.

Table 13 (page 167) provides the results of the comparisons of the costs for lost time claims (LOSTIME) and the costs paid for common law settlements (COMLAW) for the period of time before and after the promulgation of the occupational safety and health legislation in 1988.

There was a statistically reliable difference ($p = 0.05$) in the number and costs of these categories before and after the Act. This leads to the conclusion that costs were lower after the Act for the lost time claims and the costs associated to common law settlements for claims were greater after the Act.

This means the cost to pay salaries and medical services for lost time claims were less after the Act. The cost of common law payments and rehabilitation, legal costs and administration costs of the insurer were so much greater after the Act, that this resulted in the total costs for workers' compensation being greater for the ten years after the Act. This is confirmed with the total costs as shown in Table 8 (page 140). The positive outcome for this result is the lost time component is less after the Act which means even though injuries did occur after the Act the length of time off work and or costs required for medical treatments were less after the Act. That is, the severity of the injuries are less after the Act as confirmed in Table 10 (page 145), and Graph 4 (page 147) and Graphs 14 and 15 (page 164).

7.10 Intervention indicator (1989), corresponds with the Appointment of University elected Safety and Health Representatives

An important component of the safety initiatives for the University was the introduction of the Health and Safety Representatives and over the years 1989 to 1998, the number of Health and Safety Representatives doubled from 14 to 28.

Blewett (1997) comments organisations are more likely to improve safety performance with the introduction of safety management principles, employee participation and consultation between employees and their representatives. This commentary is confirmed in this research study.

7.10.1 Functions of the Health and Safety Representatives

The Functions of safety and health representatives were outlined in the Act under Section 33. These functions were:

- a to inspect that workplace or any part of it at such times as are agreed with the employer; at least every 30 days
- b Immediately carry out any appropriate investigation in the event of an accident, a dangerous occurrence, or a risk of imminent and serious injury

- c to keep informed as to the safety and health information
- d report to the employer any hazard or potential hazard to which any person is, or might be, exposed at the workplace
- e refer matters to the safety committee as required
- f to consult and cooperate with his employer on all matters relating to the safety or health of persons in the workplace,
- g liaise with the employees

A safety and health representative for a workplace had such powers as were necessary for the carrying out of the safety and health representative's functions and, where requested to do so by an inspector, accompany an inspector while the inspector was carrying out, the inspector's functions under this Act.

A safety and health representative incurred no civil liability arising from their performance of, or their failure to perform, any function of a safety and health representative under the Act.

For this research study, Table 14 (page 168) provides the results of the comparisons of the number and costs for lost time claims (LOSTIME), the number and costs paid for common law settlements (COMLAW), the total expenditure on workers' compensation claims (CPITOTAL), compensation

paid on claims (CPICOMP), and rehabilitation, legal costs and administration costs (CPIOTHER) for the period of time before and after the introduction of the Safety and Health Representatives. There was a statistically reliable difference ($p = 0.05$) in the costs of these categories before and after the introduction of the Safety and Health Representatives.

The costs were lower after the introduction of the Safety and Health Representatives for the lost time claims and the costs associated to common law settlements for the claims were higher after the introduction of the Safety and Health Representatives. The total expenditure on workers' compensation claims was greater after the introduction of the Safety and Health Representatives. This also applied for the costs associated with and rehabilitation, legal costs and administration costs as they were greater after the introduction of the Safety and Health Representatives. The costs of compensation paid component of the claims were lower after the introduction of the Safety and Health Representatives.

Safety and Health Representatives had a major role to play in increasing awareness and assisting with occupational safety and health issue resolution processes. It is quite possible that it may not be a coincidence that this statistical analysis whilst different in time frame and claim numbers, the dissection results are the same as the before and after the Act promulgation in 1988.

7.11 Intervention indicator 14 (1991), represents the introduction of the University occupational safety and health Training Programs.

Table 15 (page 169) provides the results of the comparisons of the number and costs for lost time claims (LOSTIME), the number and costs paid for common law settlements (COMLAW), the total expenditure on workers' compensation claims (CPITOTAL), compensation paid on claims (CPICOMP), and rehabilitation, legal costs and administration costs (CPOTHER) for the period of time before and after the introduction of the safety training programs. There was a statistically reliable difference ($p = 0.05$) in the number and costs of these categories before and after the introduction of the safety training programs.

The costs were lower after the introduction of the safety training programs for the lost time claims and the costs associated to common law settlements for the claims were higher after the introduction of the safety training programs. The total expenditure on workers' compensation claims were greater after the introduction of the safety training programs. This was also found to be true for the costs associated with and rehabilitation, legal costs and administration costs as they were greater after the introduction of the safety training programs. The costs of the compensation paid component of the claims were lower after the introduction of the safety training programs.

As with the introduction of the Safety and Health Representatives this section of comparing the introduction of the safety training programs complements the findings of the before and after of the promulgation of the Western Australian occupational safety and health legislation.

7.12 Intervention indicator (5) (1993), represents the Introduction of the University Risk Management Unit with the Introduction of a full time Rehabilitation Coordinator

Table 16 (page 170) provides the results of the comparisons of the number and costs for lost time claims (LOSTIME), the number and costs paid for common law settlements (COMLAW), the total expenditure on workers' compensation claims (CPITOTAL), compensation paid on claims (CPICOMP), and rehabilitation, legal costs and administration costs (CPIOTHER). This comparison was for the period of time before and after the introduction of the University Risk Management Unit with a full time Rehabilitation Coordinator. There was a statistically reliable difference ($p = 0.05$) in the number and costs of these categories before and after the introduction of the University Risk Management Unit with a full time Rehabilitation Coordinator.

The costs were lower after the introduction of the University Risk Management Unit with a full time Rehabilitation Coordinator for the lost time claims and the costs associated to common law settlements for the

claims were higher after the introduction of the University Risk Management Unit with a full time Rehabilitation Coordinator. The total expenditure on workers' compensation claims was greater after the introduction of the University Risk Management Unit with a full time Rehabilitation Coordinator. This was also found to be true for the costs associated with and rehabilitation, legal costs and administration costs as they were greater after the introduction of the University Risk Management Unit with a full time Rehabilitation Coordinator. The costs of the compensation paid component of the claims were lower after the introduction of the University Risk Management Unit with a full time Rehabilitation Coordinator.

These findings after the introduction of the University Risk Management Unit with a full time Rehabilitation Coordinator were anticipated as the additional costs associated with the work of the Rehabilitation Coordinator were new and not part of the expenditure on costs of claims prior to the appointment of this position.

7.13 Intervention indicator {6} corresponds to the change in Senior Management personnel to ascertain any Relationship with senior management Directives (and commitment) and Workers' Compensation Claims Experience.

| | | | |
|-----------------|------------|----|-------------------|
| (start) CEO 1 = | Jan. 1979 | to | Feb. 1980 |
| CEO 2= | Feb. 1980 | to | Jan.1987 |
| CEO 3 = | Jan, 1987 | to | March 1988 |
| CEO 4 = | March 1988 | to | Jan.1997 |
| CEO 5 = | Jan.1997 | to | Dec.1998 (finish) |

Table No 17 (page 172) provides the results of the comparisons of the number and costs paid for common law settlements (COMLAW), the total expenditure on workers' compensation claims (CPITOTAL), compensation paid on claims (CPICOMP).

There was a statistically reliable difference ($p = 0.05$) in the data for the comparison of the five CEO's. The CEO having the most cost for common law payments was CEO 5. This was a period that realized stress claims and many were as a result of actions of another person in the workplace. The Common law component of these claims were very expensive and can be seen represented in Figure No 12 (page 173), Figure 13 (page 174), and Figure 14 (page 175).

The CEO with the highest total costs for workers' compensation claims was also CEO 5. The same claims as mentioned above caused this result. The CEO having the highest pay out for compensation per claim was CEO 1. This can be attributed to the lack of claims management and rehabilitation services being available in the late 1970's and early 1980's. The outcome was a relatively large number of lost time claims resulting in high costs in compensation payments. The total expenditure costs for preventative safety management after 1989 indicates CEO 4 was very proactive in allowing considerable growth in the expenditure for the years 1989 to 1997. This growth continued under CEO 5.

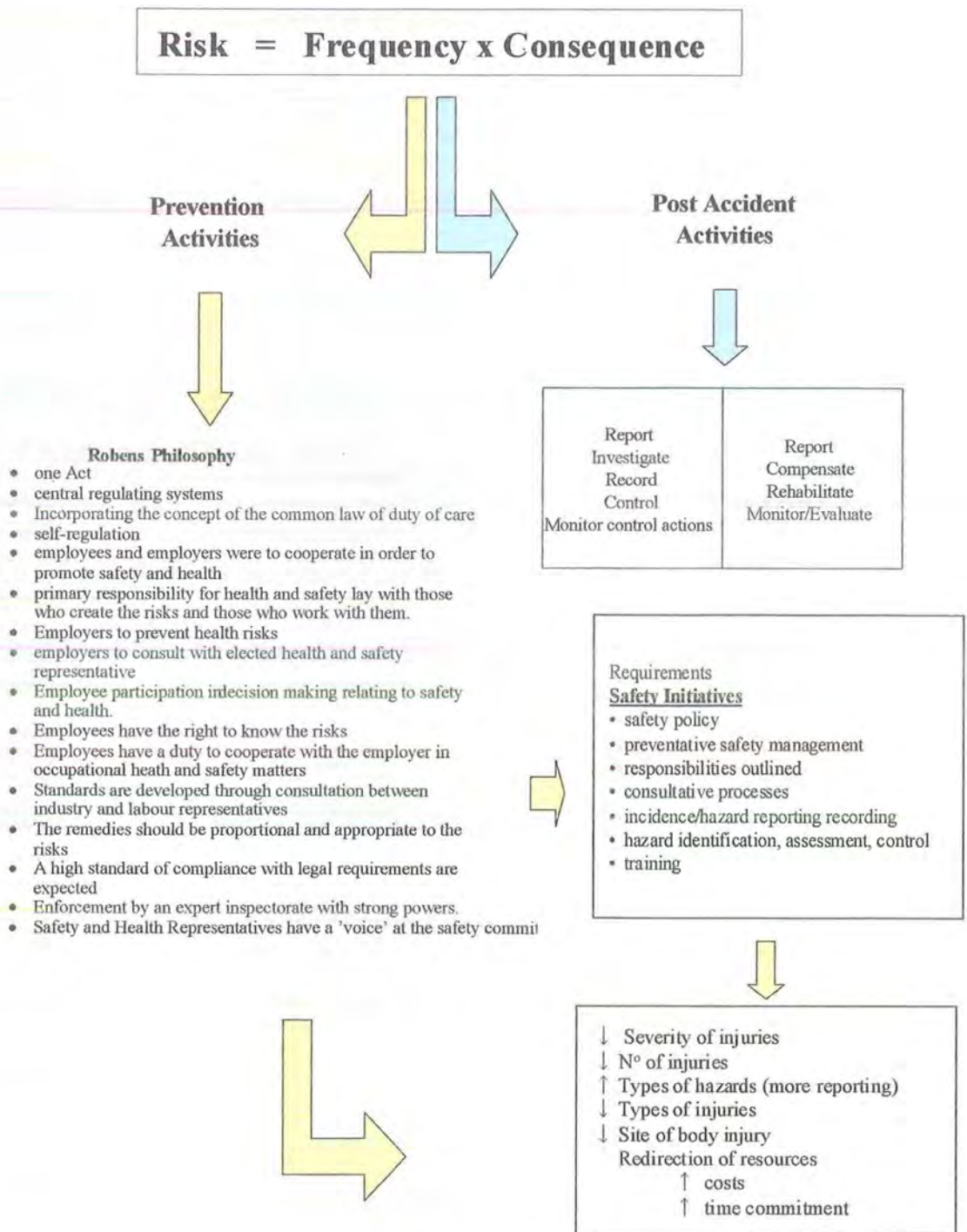


Figure 15
Findings from Theoretical Model

8. GENERAL DISCUSSION

8.1 Introduction

This chapter presents a précis of this study. The purpose of the study is outlined and descriptions of the University management decisions and safety programs, relating to the Occupational Safety and Health Act 1984 are discussed. The identified hazards and the injuries sustained through out the study period are also summarised.

8.2 Historical background to the Study

The purpose of this research study was to help understand the impact the Robens Committee inspired legislation - that was adopted in Western Australia in 1984 - had on workers' compensation claims.

Figure 15 (previous page) provides the pictorial view of the theoretical model with the findings of the research as outlined below:

Creighton and Gunningham (1985 p.27) advise that it was through Robens that the two principle objectives of reform of the [Western Australian] Government in prevention of work related injury and illness provided the change to what it is today.

The two principles are:

- the creation of a more unified and integrated statutory and administrative system to increase the States contribution to workplace safety; and
- the creation of a frame work for a 'more effectively self regulating system' at the workplace.

The second principle has direct relevance to this research study as the self regulation and executive decisions with the introduction of safety management initiatives directly aligned to the legalisation was analysed against workers' compensation claims experience.

Legislation and standards relating to occupational safety and health in the workplace have undergone enormous change from the 1800's until now. These changes will continue into the future. In recent times, the majority of these changes were influenced by the Robens Committee report handed down to the British Parliament in 1974. The legislation formulated based upon this report in the 1980's in Western Australia was analysed against workers' compensation claims from a micro analysis perspective. As Western Australia progressed from prescriptive style legislation to the new co-regulation legislation, the State government was required to take on more responsibility in addressing safety and health in the workplace.

In 1979, in Western Australia, the requirements of occupational safety and health legislation was aimed at meeting set Regulations and standards that

addressed specific topics such as storage of flammable liquids or time intervals for inspecting hazardous equipment such as pressure vessels etc. The total population of the workforce was not covered by the legislation and those that enjoyed cover were restricted to specific work activities or use of equipment. There was a considerable number of Regulations that were also prescriptive in nature and limited in cover and content. The legislation was also seen as cumbersome and very wordy but short in complete protection.

In the early 1980's the Western Australian people elected a change of government and a new direction in managing occupational safety and health was initiated in 1984, by the incoming government. The occupational safety and health legislation promulgated in Western Australia was based upon the work of Lord Robens committee in Great Britain. This law, called the Western Australian Occupational Health, Safety and Welfare Act 1984, required compliance by employers, employees, self-employed persons, designers, manufactures, and suppliers. It was administered and monitored by the government department of the day – Department of Occupational Health Safety and Welfare of Western Australia.

This law provided for the promotion, administration, and enforcement of occupational health, safety and welfare in Western Australia. Responsibilities were outlined and placed upon employers and employees

with the focus on prevention of injury or disease in the workplace and the reduction or elimination, where practicable, of exposure to hazards. In addition to the broad duties established by the Act, a further tier of statute, that supported the Act, was the Regulations, together with another lower tier of non-statute standards, codes of practice and guidance notes. This law was a move away from the prescriptive, definitional legislation to a broad based generic form of legislation. It required management interpretation of the legislation with knowledge of the duty of care component as the premise to interpretation.

This was a radical change, and it required occupational safety and health to be a key topic on the agenda of management responsibilities. With few exceptions, such as the mining industry and the police force, this Act covered all workplaces and meant - amongst other responsibilities - awareness, consultation and cooperation between employer and employees (along with training) were part of the requirements of the Act.

As this Act was introduced in 1984 and promulgated with the Regulations in 1988, some 17 plus years later, it is relevant to "ask what is the impact of this Act?" This research study analyses the impact on workers' compensation claims. The research study analysed the workers' compensation of a Western Australian University. This workplace was chosen because it was a large organisation and because of its semi public

service nature had a strong need for compliance with the Act and the Regulations. The study period covers twenty years from 1979 to 1998. A safety program directly relating to the requirements of the Act was introduced into the University in 1988. This program was dynamic in nature and interventions at different periods were analysed to find how the Act impacted on the number, cost, and nature of workers' compensation claims.

8.3 Management Decisions

In 1984, with the anticipation of the promulgation of the Occupational Health, Safety and Welfare Act the management of the University established and filled a position of Safety Officer. A Safety Section of the administration of the University was also created. The Safety Officers' main functions were to coordinate the management of workers' compensation claims and to ensure that the requirements of the pending legislation were initiated.

By the end of 1988, a safety committee was formed in accordance with the new legislation with half the membership being management and a senior management representation. The other membership represented the staff of the University. The terms of reference of the committee accommodated University wide issues to be addressed including budget requirements, policy

development, and taking part in resolving major safety and health concerns by being a pivotal aspect of the University's resolution of issues procedures.

Sub committees were also introduced in 1988 to address specific topics of occupational safety and health management. These sub committees were the radiation safety committee, the hazardous chemical safety committee, the bio safety committee, the healthy lifestyle committee and the safety and health representatives committee.

The senior management of the University encouraged the development of the roles for safety and health representatives as required by the Act. Initially there were 14 representatives in 1989 and by 1991 this had doubled to twenty-eight representatives and this number remained for the rest of the study period.

8.4 Safety Programs

A safety program was introduced in 1988 by the Safety Office and endorsed by the safety committee and senior management. This safety program was directly aligned with the requirements of the Act. The components of this program included safety policy, consultative processes, hazard identification assessment and control, incidence/hazard reporting and recording, and training.

A major preventative program was the healthy lifestyle program that, under certain conditions, allowed two hours per week off work for staff to participate in health and fitness activities.

The management of the University decided to enhance the safety section in 1993. It was renamed the Risk Management Unit and the number of staffing positions and the budgetary resources were increased specifically for the occupational safety and health program.

8.4.1 Total Expenditure on Preventative Safety Management

To meet the requirements of the Western Australian occupational safety and health legislation, promulgated with the Regulations in 1988, meant change in the way that safety and health in the workplace was managed. This required additional resources both human and financial to accommodate this management transformation. For this research study this meant senior management moving away from using insurance as a financial mitigation of injuries occurring at work to safety management. Chart 58 (page 177) provides the representation of total expenditure of the safety management for the ten years after the Act was introduced. It can also be seen from Chart 58 that from 1989 onwards insurance (workers' compensation) was a significant component and resources for safety management (in the form of the safety programs and staff of the safety

section/risk management unit) were provided to manage this issue.

Interestingly, this research study identified that considerable expenditure was consumed on the safety management, through out the ten years 1989 to 1998 inclusive, with a result of keeping a status quo expenditure on the workers' compensation and administration costs of insurance.

8.5 Hazards

It is apparent from the literature that the definition of hazard, in the context of workplaces, has not significantly changed over the years. Commentators have included types of hazards however, the common element has always been the potential to cause harm. This may be surmised from the following definitions:

Lawrance (1976: 3) defines a "hazard [as] an object, chemical substance, physical force, combination of circumstances, etc. which has the potential for causing harm."

Hope et al., (1983: 24) states, "a hazard is considered to be an inherent property of a substance or situation that has the potential to cause harm, eg hydrogen fluoride is a hazard because of its chemical nature, and a falling stone is a hazard because of its kinetic energy."

Ozog et al., (1987: 7) defines a hazard as "a chemical or physical condition that has the potential for injury or equipment damage."

Whereas Booth et al., (1990: 2) argues there are six major types of hazards, these being "Physical, Chemical, Ergonomic, Radiation, Psychological and Biological."

Waterhouse (1980: 14) asserts,

"You can't control a hazard - the corrosive nature of sulphuric acid, the sharpness of a saw blade, the heat of a flame, but you can control the risk that is the probability of harm due to the corrosiveness of sulphuric acid, the sharpness of the saw blade..."

This research studied twenty-three categories of hazard relevant to the University workplace. These are represented in Table 4 (page 109) and Figure 2 (page 108) and Charts 4 to 26 (pages 109 to 120). The most common categories of hazard leading to workers' compensation claims over the 20-year period of the study were: manual handling hazards, trip and fall hazards, and machinery hazards. These three categories produced 46.9% of the workers' compensation claims.

When comparing the hazard categories that caused workers' compensation claims before and after the promulgation of the Act and Regulations in 1988, there were six more categories of hazard reported after the Act. This was due to the dynamic nature of the work activities that created change in technology and the associated health issues produced and the increased awareness of the responsibilities of management and staff to report hazards. Ironically, two of the hazard categories reported after the Act (push bike and sporting equipment) related directly to the healthy lifestyle program that was fully encouraged by senior management, as an attempt to reduce workers' compensation claims.

8.6 Injuries

There were 22 categories of injuries reported in this research study. Table 5 (page 121) and Figure 3 (page 122) and Charts 27 to 47 (pages 123 to 133) provides the number and representation of the categories of injuries reported. The most common categories of injury resulting in workers' compensation claims, over the 20-year study period, were strain, laceration, and bruising. These three categories represented 68.2% of the injuries resulting in workers' compensation claims.

When comparing the various injury categories that resulted in workers' compensation claims before and after 1988, there were three less categories of injury reported after the Act. Two of these categories, cancer and heart attack, are chronic type diseases with exposure and latent periods of diagnosis that may have meant the hazards were not necessarily at this workplace. However, these claims were accepted as work related workers' compensation claims and therefore they were included in the study analysis.

8.7 Part of the Body Injured

There were 27 categories of the part of the body injured. As spectacle damage was part of the workers' compensation claims process these claims (although not strictly a body part) were included in the analysis. The numbers of the part of the body injured and representation of the numbers

per year by category are shown in Table 6 (page 134) and Figure 4 (page 135). The most common parts of the body injured were spinal injury, finger(s), and eye(s). These three categories represented 35.5% of the body part injured resulting in workers' compensation claims.

When comparing the part of the body injured categories, that resulted in workers' compensation claims, before and after the promulgation of the Act in 1988, there was one less categories of type of injury reported after the Act. This category was the heart as there were no heart attacks that were accepted as workers' compensation claims after the Act.

8.8 Summary

The safety legislation in Western Australia caused considerable resources to be re-allocated to manage the requirements of the law. The blueprint of the mechanism for greater involvement in safety related decision-making was provided through the occupational safety and health representatives and committees as required by this legislation. As outlined in this study new management directives and resources were integral in addressing occupational safety and health at the workplace and thereby providing the required duty of care to those attending the workplace.

9. CONCLUSION and RECOMMENDATIONS

9.1 Introduction

This chapter provides the findings of the analysis of this data. The recommendations arising from this analysis along with the suggested future research associated to this work is also outlined.

9.2 Findings

This research study analysed the workers' compensation data from a Western Australian University to determine the impact of the occupational safety and health legislation promulgated in 1988 on workers' compensation claims. It was found from this research the Western Australian Occupational Safety and Health Act 1984 (as Amended) did have a positive impact on reducing the comparative rates of workers' compensation claims. It was found from the comparative rates when comparing before and after 1988, cost of claims per \$100 of payroll, frequency, incidence, and severity rates were less after 1988.

When comparing before and after 1988, it was found there was a statistically reliable difference ($p = 0.05$) in the five categories of total costs of claims; the compensation paid out; the lost time claims; the claims with common

law settlement; and the rehabilitation, legal and administration costs. It was found the total costs for claims increased after the Act and there were more common law payment costs associated for claims after the Act. The costs for rehabilitation legal costs and administration cost were higher for claims after the Act and this corresponds directly with the total costs of the claims category.

There were less costs for workers' compensation claims with 'time off' claim which can be interpreted as after 1988, whilst there were higher costs in workers' compensation, the 'time off' claims were not as expensive. This was directly due to having fewer days off work from injuries or diseases that resulted in lost-time workers' compensation claims. This is more of a positive reflection on rehabilitation services than occupational safety and health legislation but it is implied the severity of claims were less, due to the hazardous situations being removed or better managed.

9.3 Recommendations

9.3.1 This research study identified important factors that identified the measurement of safety performance within the self-regulation model as conveyed by the Robens Committee.

Whilst there are hazards in the work place there will always be the potential for these hazards to cause injury. This study provided data on 2,773 workers' compensation claims. It is important that there are comparisons of similar institutions around Australia and/or the world that are influenced by legislation based upon Robens' philosophy. This comparison should be conducted to ascertain acceptable risk indicators and number of injuries per indicator, and assist in benchmarking acceptable resourcing levels to manage safety - in consultation with other educational institutions this will allow for the development of specific institutional performance indicators to assess the effectiveness of their safety programs.

9.3.2 The Act has moved away from prescriptive to a more broad based law requiring interpretation from management and lessons from precedence established from decisions by the Safety and Health Magistrates. Within this setting are changes in the work patterns, work practices, time at work and differences in employment hours. More and more positions are being filled on a part time basis - including sharing of positions - and short term contracts of three months to a year. This legislation provides for these changes with the premise that management are to prevent exposure to employees to the workplace hazards. As the change in employment practice continues, this will require greater emphasis on managers to ensure all staff under their supervision are informed and aware of their

respective occupational safety and health responsibilities. It is therefore incumbent on managers to consider how these responsibilities are conveyed and adhered to, so that the staff are aware of managements interpretations to this broad based legislation. This requires formal documentation in policy and procedure format at the management level not just at the organisational level.

9.3.3 The Western Australian occupational safety and health legislation requires Safety and Health Representatives to be kept informed and attend accredited training. For this study this was achieved through external training. This provided a co-ordinated and consistent message to be provided to the Safety and Health Representatives. Lacking under the legislation is the requirement for executives, managers, and supervisors to be formally trained with a consistent message about occupational safety and health. For the greater awareness by employers and employees to cooperate and consult on safety and health matters it is essential both parties (employers and employees) have similar knowledge of the requirements to meet this legislation. Therefore accredited training similar to that offered to Safety and Health Representatives is required for any person in a supervisory role.

9.3.4 The requirements to address the Robens Committee style legislation produced considerable redirection of resources financial and human and

time. It is considered essential that these resources, - and therefore safety and health - be given the same status of the financial sector. The audit and justification of controls as shown by financial sector should equally apply to the safety and health sector. Mandatory reporting of safety and health along with accepted measurement criteria such as workers' compensation data and executive management directives and decisions, along with time committed, should be introduced to all annual reports in the same way as the financial sector is required by statute.

9.4 Future Research

9.4.1 This research study analysed the impact of the occupational safety and health legislation on workers' compensation claim experience within a Western Australian University. It would be meaningful to expand this research and include other Western Australian education centres - TAFE, other tertiary institutions and/or secondary colleges. As very little literature is available on the evaluation of the effectiveness of safety and health in Australian Universities, there needs to be independent research conducted to assess the influence of safety strategies and legislation on the education sector safety and health programs.

The research should involve all levels of employees within the organization, and measure the level of management commitment to safety and health.

Management responsibilities, accountabilities and the processes for consultation on safety and health matters should all be considered as an essential part of the research.

9.4.2 The time period for this study was 20 years. This study lends itself to be extended with an increased time period to assist in the evaluation of the impact under analysis. There were considerable resources expended on preventative safety management at the University in this study and an interesting research would be to compare this institution against others that committed different amounts of resources to help ascertain an optimum level of resources to address this topic. It is important that research is conducted to relate the measurable direct costs of accidents/ injuries, and workers' compensation premium costs to the University's total operating costs.

9.4.3 An important premise of the Western Australian occupational safety and health legislation was the concept of consultation and cooperation between the management and staff. This was facilitated through the safety and health representatives and these representatives were supplied accredited training opportunities. Research in the correlation of the number of representatives and workers' compensation claims over an extended period of fifteen plus years will assist in evaluating this important premise of consultation and cooperation.

9.4.4 It was with interest this research study found that the basis to Australian legislation on safety and health has its genesis from the legislation in Great Britain, up until this study period concluded in 1998, there was little uniformity in the various state laws relating to safety and health and workers' compensation. Now that the new millennium is upon us and multinational corporations are becoming major employers within Australia - it is imperative uniformity within Australia on safety and health laws, in particular, as well as workers' compensation legislation, is addressed by the States and Territories of Australia. Further research is required on the best model to bring uniformity to Australian workplaces. This should assist in providing consistent standards and controls not only across industries but also across governments.

9.5 Final Comments

The study is unique in that it studies the topic of occupational health and safety using workers' compensation claims from the 'micro' perspective addressing the impact of the Western Australian legislation.

The hypothesis, in this research study, was the Western Australian Occupational Safety and Health Act 1984 (as amended) has a positive impact on reducing the workers' compensation claims.

It was shown from this study there were positive impacts on the workers' compensation claims in a Western Australian University. Whilst costs associated with claims rose after the Act, the comparative (weighted) impact on the numbers and the impact on lost time claims were positive. The numbers decreased and the lost time claims costs were less. It was inferred from this, the additional management directives that were directly attributable to the introduction of the occupational safety and health legislation promulgated in Western Australia in 1988 impacted in a positive way on workers' compensation claim numbers.

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Appendix One

**Budgets and Expenditure for the Calender periods
January to December 1989 to 1998.**

ACTUAL BUDGET EXPENDITURE 1989

| | \$ |
|--|------------------|
| Safety Officer | 36,127 |
| Safety Assistant | 23,591 |
| Radiation Safety Officer | 32,580 |
| Insurance Officer | 17,753 |
| Administrative Assistant | 13,445 |
| Fire Prevention (Fire Service and Equipment) | 28,000 |
| Preventative Management Total | \$160,496 |
| Workers' Compensation | \$387,469 |
| Overall CPI to 1998 Dollars TOTAL | \$701,395 |

ACTUAL BUDGET EXPENDITURE 1990

| | \$ |
|--|------------------|
| Safety Officer | 37,982 |
| Safety Assistant | 24,136 |
| Radiation Safety Officer | 32,580 |
| Insurance Officer | 17,753 |
| Administrative Assistant | 15,495 |
| Animal Experimentation | 5,750 |
| First Aid Attendant After Hours | 11,060 |
| Rehabilitation Co-ordinator | 21,709 |
| Fire Prevention (Fire Service and Equipment) | 17,800 |
| Equipment less than \$1,000 | 500 |
| Preventative Management Total | \$184,765 |
| Workers' Compensation | \$396811 |
| Overall CPI to 1998 Dollars TOTAL | \$686,259 |

ACTUAL BUDGET EXPENDITURE 1991

| | \$ |
|--|------------------|
| Safety Officer | 39,149 |
| Safety Assistant | 24,136 |
| Radiation Safety Officer | 32,580 |
| Insurance Officer | 17,753 |
| Administrative Assistant | 15,495 |
| Human Ethics | 12,750 |
| Animal Experimentation | 5,750 |
| First Aid Attendant After Hours | 11,060 |
| Rehabilitation Co-ordinator (0.5) | 21,679 |
| Consultant (Training OHS) | 8,790 |
| Consumables - General | 2,000 |
| Fire Prevention (Fire Service and Equipment) | 28,900 |
| Safety Footwear | 8,358 |
| Safety Glasses | 1807 |
| Equipment less than \$1,000 | 508 |
| Furniture | 502 |
| Preventative Management Total | \$231,217 |
| Workers' Compensation | \$391,812 |
| Overall CPI to 1998 Dollars TOTAL | \$697,792 |

ACTUAL BUDGET EXPENDITURE 1992

| | \$ |
|--|------------------|
| Safety Officer | 41,783 |
| Safety Assistant | 24,136 |
| Radiation Safety Officer | 32,580 |
| Insurance Officer | 17,753 |
| Administrative Assistant | 15,495 |
| Retraining | 32,908 |
| Human Ethics | 12,750 |
| Animal Experimentation | 5,750 |
| First Aid Attendant After Hours | 15,798 |
| Healthy Lifestyle Co-ordinator | 23,009 |
| Healthy Lifestyle Program | 2,097 |
| Rehabilitation Co-ordinator | 25,730 |
| Consumables - General | 2,000 |
| Fire Prevention (Fire Service and Equipment) | 14,090 |
| Hepatitis B Examination | 3,000 |
| Safety Footwear | 8,097 |
| Safety Glasses | 4580 |
| Equipment less than \$1,000 | 590 |
| Furniture | 370 |
| Preventative Management Total | \$282,516 |
| Workers' Compensation | \$436,891 |
| Overall CPI to 1998 Dollars TOTAL | \$798,541 |

ACTUAL BUDGET EXPENDITURE 1993

| | \$ |
|--|--------------------|
| Safety Officer | 41,783 |
| Safety Assistant | 24,136 |
| Radiation Safety Officer | 32,580 |
| Insurance Officer | 17,753 |
| Administrative Assistant | 15,495 |
| Retraining | 101,005 |
| Human Ethics | 12,750 |
| Animal Experimentation | 5,750 |
| First Aid Attendant After Hours | 15,207 |
| Healthy Lifestyle Co-ordinator | 33,187 |
| Healthy Lifestyle Program | 25,111 |
| Rehabilitation Co-ordinator | 13,017 |
| Consumables - Emergency Procedures | 7,639 |
| Consumables - General | 2,906 |
| Consumables - Rehabilitation | 563 |
| Minor New Works (Signs, etc) | 1,806 |
| Fire Prevention (Fire Service and Equipment) | 28,090 |
| Hepatitis B Examination | 3,300 |
| Safety Footwear | 12,258 |
| Safety Glasses | 11,607 |
| Equipment less than \$1,000 | 854 |
| Furniture | 53 |
| Preventative Management Total | \$406,205 |
| Workers' Compensation | \$503,174 |
| Overall CPI to 1998 Dollars TOTAL | \$1,009,410 |

ACTUAL BUDGET 1994

| | \$ |
|--|------------------|
| Safety Officer | 41,783 |
| Safety Assistant | 24,136 |
| Radiation Safety Officer | 32,580 |
| Insurance Officer | 17,753 |
| Administrative Assistant | 15,495 |
| Rehabilitation | 114,270 |
| Radiation Safety Officer | 32,500 |
| Human Ethics | 12,750 |
| Animal Experimentation | 5,750 |
| First Aid Attendant After Hours | 15,000 |
| Healthy Lifestyle Co-ordinator | 33,000 |
| Healthy Lifestyle Program | 25,000 |
| Rehabilitation Co-ordinator | 25,610 |
| Draftsperson - Emergency Procedures | 20,817 |
| Consumables - General | 2,000 |
| Consumables - Rehabilitation | 7,531 |
| Minor New Works (Signs, etc) | 1,000 |
| Travel | 746 |
| Fire Prevention (Fire Service and Equipment) | 28,000 |
| Hepatitis B Examination | 3,000 |
| Safety Footwear | 12,000 |
| Safety Glasses | 11,000 |
| Totals | \$481,746 |
| Workers' Compensation | \$522,607 |

TOTAL BUDGET EXPENDITURE 1995

| | \$ |
|---------------------------------------|------------------|
| Safety Officer | 41,783 |
| Safety Assistant | 24,136 |
| Radiation Safety Officer | 32,580 |
| Insurance Officer | 17,753 |
| Administrative Assistant | 15,495 |
| Retraining | 170,781 |
| Rehabilitation | 238,017 |
| Rehabilitation (SO) | 36,206 |
| Human Ethics | 14,508 |
| Animal Experimentation | 7,309 |
| First Aid Attendant | 17,002 |
| Healthy Lifestyle | 38,005 |
| Healthy Lifestyle Program | 13,002 |
| Rehabilitation Co-ordinator | 52,171 |
| Training Consultants | 18,000 |
| Emergency Procedures Consumables | 12,000 |
| Rehabilitation Consumables | 8,000 |
| Travel | 3,000 |
| Fire Protection | 30,012 |
| Halon Removal | 60,000 |
| Hepatitis B Injections | 5,000 |
| Safety Footwear | 9,107 |
| Safety Glasses & Optical Lenses (VDU) | 11,681 |
| Total | \$875,548 |
| Workers' Compensation | \$532,615 |

BUDGET EXPENDITURE 1996

| | \$ |
|---------------------------------------|------------------|
| Safety Officer | 41,783 |
| Safety Assistant | 24,136 |
| Radiation Safety Officer | 32,580 |
| Insurance Officer | 17,753 |
| Administrative Assistant | 15,495 |
| Retraining | 120,560 |
| Rehabilitation | 322,784 |
| Radiation Safety Officer | 32,580 |
| Human Ethics | 14,790 |
| Animal Experimentation | 5,780 |
| First Aid Attendant | 17,200 |
| Healthy Lifestyle | 38,072 |
| Healthy Lifestyle Program | 16,000 |
| Rehabilitation Co-ordinator | 55,095 |
| Training Consultants | 18,000 |
| Emergency Procedures Consumables | 12,718 |
| Rehabilitation Consumables | 4,112 |
| Travel | 3,091 |
| Hepatitis B Injections | 5,000 |
| Safety Footwear | 15,000 |
| Safety Glasses & Optical Lenses (VDU) | 13,891 |
| TOTAL | \$793,840 |
| Workers' Compensation | \$582,693 |

BUDGET EXPENDITURE 1997

| | \$ |
|---------------------------------------|------------------|
| Safety Officer | 41,783 |
| Safety Assistant | 24,136 |
| Radiation Safety Officer | 32,580 |
| Insurance Officer | 17,753 |
| Administrative Assistant | 15,495 |
| Retraining | 186,850 |
| Rehabilitation | 280,995 |
| Radiation Safety Officer | 56,900 |
| Radiation Safety Budget | 5,000 |
| Human Ethics | 18,029 |
| Animal Experimentation | 9,014 |
| Insurance Officer | 41,181 |
| First Aid Attendant | 20,591 |
| Healthy Lifestyle | 45,638 |
| Healthy Lifestyle Program | 19,000 |
| Rehabilitation Co-ordinator | 72,618 |
| Training Consultants | 21,000 |
| Emergency Procedures Consumables | 12,000 |
| Rehabilitation Consumables | 6,000 |
| Travel | 5,000 |
| Hepatitis B Injections | 5,000 |
| Safety Footwear | 15,000 |
| Safety Glasses & Optical Lenses (VDU) | 13,000 |
| TOTAL | \$964,563 |
| Workers' Compensation | \$541,611 |

BUDGET EXPENDITURE 1998**COST CENTRE Z-510900-0150**

| | \$ |
|---------------------------------------|-----------------------------|
| Safety Officer | 41,783 |
| Safety Assistant | 24,136 |
| Radiation Safety Officer | 32,580 |
| Insurance Officer | 17,753 |
| Administrative Assistant | 15,495 |
| Retraining | 172,218 |
| Rehabilitation | 337,000 <i>(from 1%)</i> |
| Radiation Safety Officer | 56,900 |
| Rehabilitation Consumables | 6,000 |
| Human Ethics | 18,100 |
| Animal Experimentation | 9,100 |
| Insurance Officer | 44,310 |
| First Aid Attendant | 20,600 |
| Healthy Lifestyle | 45,650 |
| Healthy Lifestyle Program | 19,000 |
| Rehabilitation Co-ordinator | 72,650 |
| Training Consultants | 5,000 |
| Emergency Procedures Consumables | 12,000 |
| Travel | 5,000 |
| Hepatitis B Injections | 5,000 |
| Safety Footwear | 15,000 |
| Safety Glasses & Optical Lenses (VDU) | 6,000 |
| TOTAL | \$981,214 |
| Workers' Compensation | \$575,198 |

Appendix Two

Risk Management Directory of Service

**RISK MANAGEMENT UNIT
(HUMAN RESOURCES)**

**RISK MANAGEMENT
DIRECTORY OF SERVICES**

1998

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1 RISK MANAGEMENT

Risk management involves a preventative approach to reduce loss exposures within The University. It requires the establishment of ongoing management and engineering activities that ensure risks are effectively identified, clearly understood and minimised. For The University, Human Resources has established a Risk Management Unit that directly administers the risk management for the University including areas such as occupational safety and health, the rehabilitation of staff and all insurance for the University.

2 THE UNIVERSITY OF TECHNOLOGY OCCUPATIONAL SAFETY AND HEALTH POLICY STATEMENT

The University recognises its obligations to promote Occupational Safety and Health and take all reasonable precautions to protect the safety and health of its employees and students while they are on University premises or undertaking prescribed activities away from the University and visitors lawfully entering or upon University premises.

3 THE POLICY OBJECTIVE

To assist The University in establishing and developing an occupational safety and health program not only in compliance with legislation, but also as an integral part of its management philosophy.

4 RISK MANAGEMENT UNIT MISSION, OBJECTIVES AND STRATEGIES

Improving the work environment continues to be a high priority for The University. One of the key strategies aimed at achieving this objective is to raise awareness of the size and scope of the occupational safety and health requirements within the University.

The Risk Management Unit is prepared to embrace this university priority, and the following statements outline the objectives and strategies that will be used to achieve our mission.

4.1 Mission:

To strive to motivate the The University community in establishing and promoting a caring, healthier and safer culture that will endeavour to minimise needless loss of University resources.

4.2 Objectives:

- 4.2.1 Reduce the number of injuries resulting from workplace accidents by 10% each year.
- 4.2.2 Reduce worker's compensation claims by 5% each year.
- 4.2.3 Reduce Workers Compensation premiums commensurate with the claims.
- 4.2.4 Comply with Legislative requirements in all aspects of occupational health, safety and welfare.
- 4.2.5 Seek and analyse the feed back from clients on the quality of service from the Risk Management Unit.

4.3 Strategies

To enable the objectives to be achieved the Risk Management Unit will instigate the following strategies:

Meeting Clients Needs, Service Deliver Quality Emphasis

- 4.3.1 Provide a technical and professional support service to all staff to assist in the management of risk management in the workplace.
- 4.3.2 Coordinate guide and stimulate the Occupational Safety and Health Committee Program at all levels, including:
 - the Occupational Safety and Health Policy Committee
 - the Occupational Safety and Health Policy Sub Committees
- 4.3.3 Conduct audits that will identify all hazards from an occupational health, environment, security and property perspective.
- 4.3.4 Provide and maintain a responsive system of hazard and accident/incident reporting.
- 4.3.5 Investigate accidents that must be reported to WorkSafe WA, determine causal factors and advise managers and supervisors on remedial action.
- 4.3.6 Analyse accident data with the objective of detecting specific trends and establishing preventative measures.
- 4.3.7 On the resolution of an 'issue' provide a quality audit questionnaire to all associated clients.
- 4.3.8 Provide a quality risk management service in response to client feedback.
- 4.3.9 Communicate services policy and procedures to all staff.

5 INTRODUCTION TO RISK MANAGEMENT UNIT

This document outlines the current status of the role of the Risk Management Unit in Human Resources.

5.1 Risk Management Unit Personnel

| | |
|---|-----------------|
| SAFETY & RISK MANAGER | Ext 7100 |
| REHABILITATION CO-ORDINATOR | Ext 2361 |
| OCCUPATIONAL SAFETY & HEALTH OFFICER | Ext 3195 |
| RISK ANALYSIS CO-ORDINATOR (Policy development in security matters) | Ext 3337 |
| INSURANCE OFFICER (Insurance advice) | Ext 2727 |

5.2 Role of the Risk Management Unit

Risk Management Unit is not responsible for the implementation of Occupational Safety and health programs throughout the University, this responsibility lies with the Directors, Managers and Supervisors within each department.

The personnel in the Risk Management Unit will;

- Provide high level support to the planning and execution of occupational safety and health within The University of Technology;

and is responsible for:

- * accident investigation, safety audits, and the provision of technical and advisory services to management and employees to assist in the implementation of Occupational Safety and health Program.
- Provide advice and assistance on all insurance matters relating to the community and associated activities;

and is responsible for :

- * the implementation of a comprehensive insurance portfolio
- * completion of all reported insurance claims.

6 CLIENTS / CONTACTS

The following personnel and organisations will all be provided with services through the Risk Management Unit by the provision of technical support and/or advice on occupational health, safety and welfare issues.

6.1 Internal

- 6.1.1 Employees
- 6.1.2 Safety and health Representatives
- 6.1.3 Students
- 6.1.4 Safety Committees

6.2 External Contacts

- 6.2.1 WorkSafe Western Australia
- 6.2.2 Insurance Companies
- 6.2.3 Unions
- 6.2.4 Other Educational Facilities
- 6.2.5 WorkSafe Australia
- 6.2.6 Australian Bureau of Statistics
- 6.2.7 Industrial Foundation For Accident Prevention
- 6.2.8 Safety Institute of Australia
- 6.2.9 Private Rehabilitation Providers
- 6.2.10 WorkCover WA
- 6.2.11 WA Police Force
- 6.2.12 Health Department of WA
- 6.2.13 Environmental Protection Authority
- 6.2.14 Conservation and Land Management

7 TYPES OF SERVICES PROVIDED

The Risk Management Unit will wherever practicable provide the following service to the The University community.

7.1 Statutory Services:

The Risk Management Unit will provide information and co-ordinate activities to ensure The University will meet its occupational safety and health and Workers' Compensation legislative responsibilities and obligations.

The implementation of the University's Risk Management program is subject to provision of legislation such as;

- Occupational Safety and Health Act 1984
- Occupational Safety and Health Regulations 1996
- Workers Compensation and Rehabilitation Act 1981
- Workers Compensation and Rehabilitation Regulations 1986
- Explosive and dangerous goods act 1961
- Dangerous Goods Regulations 1992
- Flammable Liquids Regulations 1967
- Health Act 1911
- Health (Pesticides) Regulations 1956
- Fire Brigades Act 1942
- Environment Act 1971

Plus various codes of practice, guidance notes and standards.

7.2 Advisory Services:

The Risk Management Unit will provide advice and information to Directors, Managers, Safety and health Representatives, Safety Committees, Employees and students in the area of:

- 7.2.1 Accident Investigation
- 7.2.2 Emergency Management
- 7.2.3 Ergonomics
- 7.2.4 General Insurance
- 7.2.5 General Occupational Safety and Health
- 7.2.6 Hazard Control
- 7.2.7 Hearing Conservation
- 7.2.8 Laboratory Safety
- 7.2.9 Machine Guarding
- 7.2.10 Manual Handling
- 7.2.11 Occupational Hygiene
- 7.2.12 Personnel Protective Equipment
- 7.2.13 Pesticide safety
- 7.2.14 Safety Audits
- 7.2.15 Safety Inspections
- 7.2.16 Safety Training
- 7.2.17 Workers' Compensation

7.3 Emergency Services:

The Risk Management Unit will provide a service and co-ordinate the University's Emergency Service Program, in consultation with the Chief Warden and Wardens in each building located throughout TheUniversity. To accomplish this the co-ordination will be made to:

- 7.3.1 Arrange warden training in consultation with Wardens
- 7.3.2 Carry out audits of fire fighting equipment etc. to ensure compliance with legislation
- 7.3.3 Arrange practice emergency drills.

7.4 Training Services:

The Risk Management Unit will provide advice and technical support on educational programs in risk management.

7.5 Safety Committees:

Provide a service to the Occupational Safety and health Policy Committee and sub-Committees by:

- 7.5.1 Arranging the Committee Meetings
- 7.5.2 Preparing agenda and minute notices for members
- 7.5.3 Draft Policy Statements for Committee consideration
- 7.5.4 Arrange for minutes to be taken at meetings
- 7.5.5 Carry out the wishes of the Safety Committee as required

The University has an Occupational Safety and health Policy Committee (OH&SPC) being a standing committee of University Resources Board (URB).

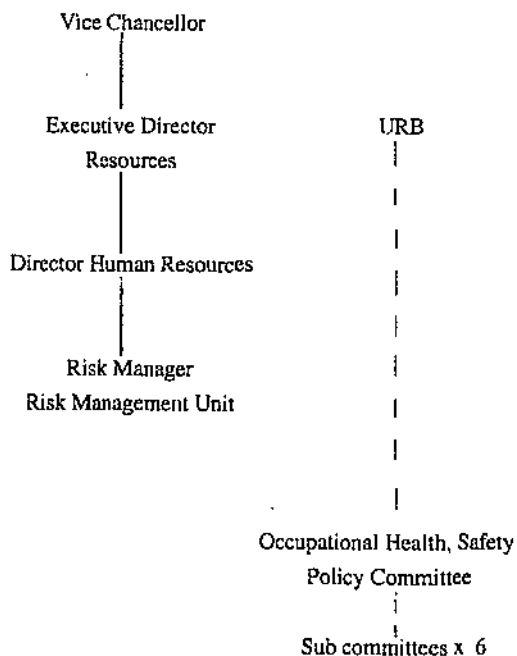
The sub committees of the OH&SPC are the;

Bio Safety Committee;
 Hazardous Chemical Committee;
 Safety and health Representatives Committees;
 Healthy lifestyle Committee; and
 Radiation Safety Committee.

8 REPORTING STRUCTURE

The Risk Management Unit provides support for and is a function of the Human Resources within the Division of Resources.

The reporting structure is shown below.



For further information contact the Risk Manager on 7100.

Appendix Three

University Policy Statement

OS&H POLICY

The University places the highest priority on providing and maintaining a safe and healthy work environment for our staff, students and visitors. Our senior management recognises its prime responsibility towards safety and health for all levels of our organisation

With a commitment to continual review and improvement of safety and health policy and its accompanying procedures and practices, our aim is to meet or exceed legislative compliance and /or relevant Australian Standards. We are committed to the provision of the human and technical resources that are required to assist the achievement of our goal of minimising work-related injury and illness with our preventative approach. The priorities of our safety and health program include accident and rehabilitation.

Our dedicated full-time OS&H team, as well as our policy committee, working parties and University wide OS&H Representatives, provide a cooperative and consultative approach towards safety and health issues across the organisation.

Staff, students and visitors are required to report any hazards in the workplace and accept responsibility for maintaining the high standards set by adhering to university policy and practices.

Appendix Four

1998 Safety Manual

1. Introduction

Organisations that repeatedly achieve industry best practice in Occupational Safety and Health performance have a factor common to all of them – the integration of Occupational Safety and Health in line management systems (OHM, 1998; Australasian Risk Management, 1998). Incorporating best practice into The University's OS&H program is essential to align the program with The University's vision of becoming a world-class University of Technology.

The purpose of this manual is to assist the integration of safety and health into line management systems. In addition, there are certain responsibilities placed on managers, supervisors and employees under the Occupational Safety and Health Act, 1984 to ensure a safe and healthy workplace and these are outlined in the manual. This document should therefore be provided to all supervisors and line managers as a major reference to their occupational safety and health responsibilities and as a tool to achieve OS&H best practice and assist Heads of School/Area/Dept. should litigation issues arise.

This manual provides a guide for managers in meeting their responsibilities in this regard (a quick reference guide is featured in Appendix A, page 18). The manual is also complemented by a practical training session run by the Risk Management Unit to assist the responsible personnel to implement these processes.

The Risk Management Unit remains available at all times to provide assistance and advice on occupational safety and health issues (telephone extension 3195). Services available include, information, and training, workplace assessments, assistance in resolving safety and health issues, information on controlling hazards, occupational rehabilitation for injured staff and information on and claims processing for workers' compensation.

Along with the Occupational Safety and Health Policy Committee, The University has a number of committees administered through the Risk Management Unit, that provide advice on specific safety issues. These committees include:

- Biosafety Committee that provides advice on the development and implementation of safe procedures and conditions involving potentially hazardous microorganisms; cells and products and the use of recombinant DNA technology;
- Hazardous Chemicals Safety Committee that provides advice on the safe handling, use and disposal of hazardous chemicals and chemical wastes;

- Healthy Lifestyle Program Management Committee that provides a health promotion program for University staff to enhance the health status of staff and to prevent disease and disability;
- Radiation Safety Committee that provides a point of referral in all matters related to radiation safety and oversees all work utilising ionising and non-ionising radiation to comply with relevant legislation;
- Safety and Health Representatives Committee that monitors and reports on all local matters pertaining to occupational safety and health; promotes a safe and healthy working environment and safe working practices at local level; and advises the Occupational Safety and Health Policy Committee of unresolved matters.

1.1 Responsibilities for Safety and Health

The Occupational Safety and Health Act, 1984 (the Act) places a general duty of care upon Heads of School/Area/Dept. to ensure as far as is practicable that their staff are not exposed to hazards. The same Act also places responsibilities on employees, where they must ensure they do not expose themselves or others to hazards. The University is committed to providing and maintaining a safe and healthy workplace. The implications of these responsibilities are outlined below.

1.1.1 Responsibilities of Heads of School/Area/Dept.; Managers; and Supervisors

Heads of School/Area/Dept., managers and supervisors have a responsibility for occupational safety and health. As such they have an overall responsibility to ensure that their staff are not exposed to hazards at work. The Act also bestows a number of specific duties outlined below:

- i) Provide and maintain workplaces, equipment and systems of work that do not expose employees to hazards.*

To achieve this, a manager needs to ensure:-

- there is an assessment of items before purchase to ensure staff will not be exposed to hazards;
- there is an assessment of any intended changes to duties or work practices to ensure staff will not be exposed to hazards;
- arrangements are made for equipment, processes or work practices to be modified to ensure staff are not exposed to hazards;
- there is a budget for provision and maintenance of appropriate equipment to enable work to be carried out safely;
- assistance is provided with the development and maintenance of departmental safety policies and guidelines on safe work procedures, eg. what to do in the case of a chemical spill;
- safe methods of work are in place and that staff perform their work in a safe manner;
- hazards are identified in their work area;

- hazards and incidents are investigated to find ways of controlling or preventing them.

ii) Provide information, instruction, training and supervision so employees can perform their work safely.

To achieve this, a manager needs to ensure:-

- information is established and maintained on managing the known hazards in their work area, such as:
 - i) policy and safe work procedures;
 - ii) Australian Standards and Codes of Practice;
 - iii) Material Safety Data Sheets (MSDS) on hazardous substances; and
 - iv) emergency response.
- staff are familiar with appropriate safety policy, procedures, standards, codes and MSDSs that relate to their work;
- training to staff is provided about safe work procedures;
- records of what training has been provided, when and to whom are kept.

iii) Consult and cooperate with employees and their Safety and Health Representatives (SHRs)

To achieve this, managers need to ensure:-

- they know who is the SHR for their work area;
- the SHR is informed if a hazard or incident is reported in their work area;
- they work with the SHR to investigate hazards and incidents and determine control measures;
- decisions are made about how to resolve safety and health issues, after discussing it with the SHR and staff;
- staff and SHRs are consulted about proposed changes to equipment, processes or work practices in their work area.

iv) Provide adequate protective clothing and equipment where hazards cannot be avoided.

To achieve this, a manager needs to ensure:-

- there is knowledge of what protective clothing and equipment is required for the hazards in their work area;
- the appropriate protective clothing and equipment is available, and there are facilities for cleaning, maintenance and storage where necessary;
- there is instruction and training on how to use the protective clothing and equipment correctly.

1.1.2 Responsibilities of Employees

The Act also lists a number of specific responsibilities for employees:

- i) Take reasonable care to protect their own safety and health and the safety and health of others;
- ii) Cooperate with their manager to make their workplace safe;
- iii) Report hazards, incidents and injuries that occur;
- iv) Follow instruction and training, use personal protective equipment provided and not interfere with anything set up to ensure safety and health.

1.2 As Far As Is Practicable

The duty of care under the Act and the responsibilities that it incurs apply 'as far as is practicable'. This means reasonable measures must be taken, bearing in mind:

- the severity of any injury or damage the hazard may cause;
- the likelihood of an injury occurring as a result of the hazard;
- how much is known about the hazard and how to remove or control it;
- the availability, suitability and cost of safeguards.

The cost has to do with the expense and inconvenience necessary to put the safeguards in place measured against the consequences of failing to do so. **It is not a measure of whether the University can afford to put the necessary safeguards in place. Failure to implement corrective measures may result in a breach of the Act.** Schools would be expected to incur greater expense and inconvenience in providing safeguards against risks, which could result in serious injury from time to time, or against risks, which could result in frequent injuries even though they may be less serious.

1.3 Safety and Health at The University

In order to fulfil these responsibilities for occupational safety and health, the following processes and procedures are in place at The University:-

- Campaign '98;
- Consultative processes;
- Hazard inspections;
- Incident/hazard reporting and investigation;
- Control of workplace hazards;
- Provision of training courses.

The practicalities of how these operate within the University are described in the following sections.

2. Campaign '98

Campaign '98 is a pro-active program that aims to improve The University's overall OS&H performance and increase awareness of occupational safety and health at The University by creating a safer, healthier and more caring environment in support of The University's vision of becoming Australia's world-class University of Technology. The objectives of this campaign are to:

- Reduce the rate of reported accidents by 33% over 1998 figures;
- Reduce the number of Workers' Compensation claims by 33% over 1998 figures;
- Increase the number of hazard/near miss reports and acted upon by 33% over 1998 figures.

The objectives are key performance indicators that can be readily measured and compared to 1998 figures. Clearly the program is one of continuous improvement. The OS&H performance obtained for 1999 will set the benchmark for improvement for the year 2000. Quarterly reports outlining the progress of the program including results of the performance indicators for each quarter will be issued to Heads of School/Area/Dept. for dissemination to staff and will be advertised across the University through:

- E-news;
- The Risk Management Unit's safety newsletter, and
- S&H representatives.

Disseminating quarterly OS&H performance reports to staff is not the only task the Head of School/Area/Dept. is required to carry out in relation to Campaign '98. It also requires that action be taken to identify areas for improvement within the School. For example, if a School has an accident and Workers' Compensation claim relating to a manual handling injury with the potential of more occurring, then the Head of School has a responsibility to ensure that preventative action is taken to avoid future recurrences. Preventative action may involve modifying work procedures to remove or reduce the potential for injury from lifting and pulling heavy or awkward items, or organising manual handling training catering for the specific needs of School staff.

Accident statistics involving students will be included in the quarterly reports to Heads of School/Area/Department. A reduction of the number of reported accidents involving students through improved procedures and instruction is a key success factor of Campaign '98'. Educating and training students to carry out their work safely assists the University to achieve its teaching and learning goal of preparing graduates to make a positive contribution to society.

Schools/Areas/Departments that contribute positively to Campaign '98' and provide practical solutions/actions to safety will be recognised through E-news and the Risk Management Unit's safety newsletter.

3. Consultative Processes

Consultation between managers and employees is very important to ensure workplace safety and health. The Act encourages consultation through the election of employee Safety and Health Representatives (SHRs), the establishment of a joint Safety and Health Committee, and an agreed procedure for resolving safety and health issues.

3.1 Safety and Health Representatives (SHRs)

Safety and health representatives are a vital link between employees and management, representing employees on all issues relating to occupational safety and health, and working with management to improve workplace safety and health. The University has 42 SHRs who as a group cover the entire University site. One representative may cover several areas; ensuring every department and area of the University is represented. A current list of SHRs is available through the Risk Management Unit's web pages.

SHRS have a number of functions aimed at increasing the awareness and interests of safety and health in the workplace for which they were elected, and these are described in Appendix C. The University is responsible for making sure SHRs are provided with the time, facilities and assistance they need to perform these functions.

3.2 Safety and Health Committee

The University Occupational Safety and Health Policy Committee membership consists of employee SHRs and management representatives, union representatives and student guild representation from across the University. The terms of reference of the Committee are contained in Appendix D. The current membership of the Committee can be obtained from the Risk Management Unit's web page.

The Committee discusses University-wide issues, such as policy development and planning, monitoring injury trends and determining training needs. The Committee may also take part in resolving major safety and health concerns as determined by the University's resolution of issues procedure (see below).

3.3 Resolution of Issues Procedure

The majority of issues can be resolved at a local level, ie between the staff member and the immediate supervisor or line manager; however, there is a hierarchy of action to enable efficient and effective resolution of issues if not resolved locally. The University has developed an agreed procedure to follow when safety and health disputes arise (see Appendix E). The

procedure outlines the way in which an issue that cannot be resolved by the supervisor or line manager can be referred through to senior management. If necessary it can then be forwarded to the Occupational Safety and Health Policy Committee, and then ultimately to WorkSafe Western Australia, the government department responsible for enforcing the Act. Most issues will not need referral beyond senior management. The Act requires managers and employees to attempt to resolve safety and health issues in-house before contacting WorkSafe Western Australia.

4. Pro-active Hazard Inspections

Inspection of the workplace for hazards is a crucial component of a successful accident prevention program. It is a pro-active method of reducing injury in the workplace. There are a number of methods for identifying hazards. This document will cover two systems for use at Th University. The first system addresses the identification of hazards through Job Safety Analysis which assists in the identification of occupational safety and health issues/hazards associated with a particular **task or job**. The second is a formal inspection system that utilises a checklist (Appendix F). This system assists in the identification of occupational safety and health issues/hazards in the **working environment**.

What is a *hazard* and what is *risk*?

A *hazard* is a potential source of harm to life, health and property. There are seven major groupings of workplace hazards;

- physical (eg. noise, electrical, heat and cold, radiation);
- chemical (eg. solids, liquids, gases);
- ergonomic (eg. manual handling, workstation design, task design);
- mechanical (eg. machinery);
- psychological (eg. shift work, workload);
- biological (eg. viral or bacterial infections);
- general (eg. slips, trips).

A *risk* is the measure of how likely it is that injury or loss will occur in a given hazardous situation. A risk analysis may therefore involve assessment of the nature and severity of the hazard, the likelihood of exposure to the hazard and the number of persons involved.

Below is a basic guide to hazard inspections for both systems mentioned above.

WHAT should be inspected?

All new tasks, alterations to existing tasks and tasks that present a risk to staff should be inspected using the Job Safety Analysis method. This includes carrying out a Job Safety Analysis on new or existing machinery and equipment. These tasks should be placed on a schedule for assessment. All areas of the workplace for which the School/Department/Area is responsible should also be inspected (a Hazard Inspection Checklist is useful for this purpose).

WHO should conduct Job Safety Analyses and hazard inspections?

Management representatives (ie. lab managers/managers/supervisors) as appointed by the Head of School/Department/Area are responsible for conducting Job Safety Analyses in consultation with SHR's.

It is the responsibility of the School/Department/Area to maintain a workplace that does not expose employees to hazards. Hence, as a major stakeholder, a management representative is charged with the responsibility for conducting hazard inspections.

The management representative should consult with the SHR's for the area when conducting the analyses and inspections. However the process of analysis and inspection should not be unduly delayed when the SHR is otherwise detained.

WHEN should tasks be analysed and workplaces be inspected?

All new tasks and changes to existing tasks must be assessed using Job Safety Analysis prior to implementation. Job Safety Analysis should also be performed on existing tasks that present risks. These tasks should be placed on a schedule for assessment. Even if one task is assessed per month they will eventually all be completed.

Workplaces should be inspected regularly, on at least a six-month basis, using the checklist system (see Appendix F).

Note: It is recommended Heads of School/Area/Dept. create a simple timetable for inspections/analyses of their workplaces.

HOW should job safety analysis and hazard inspections be performed?

Job Safety Analysis

1. Consult with the local SHR about performing Job Safety Analyses;
2. Choose the job/task to be analysed through analysis of incident rates (preferably) and/or according to perceived risk;
3. Breakdown the job/task into a list of logical, sequential steps and begin each step with an action word (eg. remove, place, attach). These steps should at this stage state what is done, not how!
4. Analyse each step for purpose and hazards. Consider the following during this process;
 - Is the step necessary? If not, remove it.
 - Does the environment in which the job is undertaken present a hazard? (ie. floor slippery, uneven, too cold or hot, lighting, vapours, radiation etc.)
 - Do the materials being used present a hazard? (ie. chemicals, tools, machinery)
 - Does the person involved present a risk? (ie. adequate training, following safe work practices, etc.)
 - Are management strategies adequate? (ie. sufficient time allowed, documented safe work practices available, etc.)
5. List each hazard identified with a reference to the relevant step. Set about controlling the risks/hazards identified. Details on controlling risks/hazards in the workplace are contained in Section Six.

Workplace Inspections

The workplace inspection is an excellent tool for identifying hazards in the workplace. It is easy to perform and not too time consuming.

When performing a workplace inspection it is important to involve the local SHR. The process involves walking through the workplace using a checklist system as a prompt in looking for hazards. A checklist is provided for use in Appendix F. **As this is a general checklist it may need modifying and/or extending to accommodate the specific activities conducted in the particular School/Area/Department.** It is of great assistance to review injury data for the area, observe the work in progress and talk to the people who perform the work. The injury data will be provided to Schools/Area/Dept, through the Campaign '98' quarterly reports or may be obtained from the Risk Management Unit (7100).

Once all work areas of the School/Department/Area have been inspected and the checklist documentation completed it is important to assign responsibility for control of hazards identified with specified time frames. The control strategies to be implemented should be developed in consultation with SHR's and affected employees. Details on how to control hazards are contained in Section Six. All copies of workplace inspections and control measures for hazards should be recorded and filed in the relevant area where the inspection took place for record keeping purposes. This is particularly useful if litigation issues arise.

Section Four

Incident/Hazard Reporting

It is important that all accidents/incidents, near-misses and hazards are reported and recorded so that,

- (i) Investigations (where appropriate) can be performed to prevent a recurrence of the incident or similar; and,
- (ii) Trend analysis of the collected information can be performed. Thereby allowing focus on preventative efforts on areas of most concern; and
- (iii) Formal records can be kept for future reference, eg if litigation issues arise.

WHAT should be reported?

The following should be reported to the Risk Management Unit:

- All injuries (events that cause an illness or injury requiring medical attention);
- All incidents (events that cause a minor injury of a first aid nature);
- All near-misses (events that do not cause injury but have the potential to do so);
- All hazards (anything that has the potential to cause ill health or injury).

WHO should report the accident/incident, near miss or hazard?

The injured person, or person(s) involved in the near-miss or identifying the hazard. Supervisors and/or eye witness(es) as well as SHRs may assist the injured person when appropriate or necessary.

WHEN should the report be completed and submitted?

As soon as is practicable after the incident or hazard is identified.

Early reporting of incidents/hazards will ensure that initial remedial action and investigations can be instigated without delay thereby eliminating the risk of further incidents. Early reporting also ensures valuable information is not lost, or forgotten.

HOW can accidents, incidents, near-misses or hazards be reported?

Through the University's Incident/Hazard Report Form (Appendix G). The forms are available from your SHR or may be downloaded from the Risk Management Unit's web pages.

Section Five

Incident/Hazard Investigation

Once a hazard has been identified or an incident/near-miss been reported, the next phase of the program is to perform an investigation. Incident/hazard investigation is the only way to ascertain the principle causes underlying unwanted events that have or may cause injury or ill health. Identifying the principal causes of incidents or hazards allows the investigation to pinpoint where resources and efforts should be allocated in order to prevent an occurrence or recurrence of an incident.

In addition, the investigation outcomes and the process itself assist in improving safe work practices and increase safety awareness of staff and which plays a major part in Campaign '98'.

WHAT should be investigated?

All hazard reports, incidents/near-misses causing or have the potential to cause injury.

This should be determined largely through common sense. However, in general all hazard reports must be investigated, and any incident or near-miss that has resulted or has the potential to result in ill-health or injury requiring medical attention. The level of investigation will depend on the seriousness of the incident/hazard.

WHO should conduct the investigation?

Heads of School/Area/Dept. or appointed management representatives, (ie. lab managers/managers/supervisors), in consultation with Safety and Health Representatives.

It is the responsibility of School/Area/Dept. management to maintain a workplace that does not expose employees to hazards. Hence, as a major stakeholder, a management representative must be charged with the responsibility for conducting hazard investigations.

The management representative should consult with the SHR's for the area when conducting the investigation. However, the process of incident/hazard investigation should not be unduly delayed when the SHR is otherwise detained.

Senior management will become involved as deemed necessary. The Risk Management Unit can be requested to assist at any point of the investigation.

WHEN should the investigation process be completed?

The investigation process should be completed and submitted as soon as is practicable after the incident or hazard occurs.

This is to ensure that initial remedial action can be taken without delay preventing further or similar incidents. In addition, early reporting ensures valuable information is not lost or forgotten.

HOW is an incident/hazard investigation completed?

Upon receipt of an incident/hazard report that requires further investigation, adhere to the following:

- (i) Assess the immediate danger and render the area safe. Isolate the area if deemed necessary;
- (ii) Obtain incident/hazard investigation forms from your SHR or the Risk Management Unit's web pages;
- (iii) In consultation with the local SHR carefully follow the guidelines detailed on the inside cover of the Incident/Hazard Investigation Form (Appendix H). If the incident/hazard involved manual handling (ie. lifting, carrying, pushing, and pulling), you may wish to use the Manual Handling Risk Management Checklist (on the Web www.safetyline.manual) as an additional tool.

There are a number of points to consider whilst performing investigations:

(i) Interviewing personnel involved and eyewitnesses is probably the most efficient way of determining the events leading to the incident/hazard. When interviewing personnel the interviewer must remain impartial and objective, gain facts rather than opinions, and not at any stage attempt to assign blame. Inspection of the site is obviously an integral step in incident/hazard investigation.

(ii) When determining contributing factors to the incident/hazard, the persons conducting the investigation should consider the:

Task (eg. what and how was the task being performed?)

Environment (eg. was the floor slippery? were vapours present?)

Person (eg. was the person trained appropriately? PPE being used?)

Materials (eg. was the equipment safe? what chemicals were used?)

Management (eg. sufficient supervision? safe work practices?)

NOTE: Don't look for the cause - there are usually multiple factors.

(iii) Identified contributing factors should be listed. The person(s) investigating should determine what are the essential factors. If the incident/hazard would have occurred despite the removal of the identified factor then it is **NOT** an essential contributing factor. These factors do not require control measures in relation to the incident being investigated.

(iv) Control measures should be determined for each essential contributing factor with written recommendations based on those controls submitted to appropriate management personnel (Procedures for 'Controlling Hazards in the Workplace' are contained in Section Six).

Section Six

Controlling Hazards in the Workplace

An Incident/Hazard investigation or the hazard identification process should yield a single or listing of essential contributing factors or hazards (for the purpose of this section, we will refer to both as 'hazards').

The hazards must be assessed and where practicable controlled. Consequently the first decision to make is whether the risk posed by the hazard is acceptable or not? Obviously, if it is acceptable there is no further action required. However, this option should be approached with due caution as the Heads of School/Area/Dept. must ensure that in accepting the risk they are not in breach of their duty of care.

If the risk(s) are deemed not acceptable then a process of control must be implemented. Controls should be determined according to the "hierarchy of control" system described below. The following control elements should be utilised in the order presented and where appropriate used in conjunction.

NOTE: As these are not mutually exclusive, more than one of the following measures can be taken concurrently.

1. Elimination
2. Substitution
3. Engineering
 - Equipment and Workplace Design
 - Automation
 - Containment
 - Barrier
4. Administration
 - Policy and Procedures
 - Maintenance Schedule
 - Reduction in exposure
 - Training and Information
5. Personal Protective Equipment (PPE)

Elimination

As the title suggests this control measure involves eliminating or removing the risk in its entirety. For example:

Risk: High levels of manual handling when loading and unloading laboratory bottles/glassware on to trolleys from shelving.

Control: Store laboratory bottles/glassware directly onto trolleys hence eliminating the need to unload and load from the shelves.

Substitution

This form of control involves substituting a safer process or material for the hazardous process/material identified. For example:

Risk: Cleaning solution causing allergic reactions and nausea.

Control: Substituting a less toxic or non-allergenic cleaning solution for the task.

Engineering Controls

This method of control involves designing and/or adding physical safety features to plant or equipment.

Equipment and Workplace Design

The provision of new and/or additional equipment or redesign of a workplace can be used to control identified hazards. For example:

Risk: A poor clerical workstation design resulting in a risk of soft tissue injury to the back, neck and shoulder.

Control: Re-design the workstation to recommended ergonomic specifications of the personnel using the area. Further provisions of equipment such as slope boards, document holders, and ergonomic chairs.

Automation

Fully or partially automating a process removes the need or reduces the risk of performing a hazardous task. For example:

Risk: Manual handling in lab. glassware washing process.

Control: Introduction of an automatic lab. glassware washing system.

Containment (ventilation, dilution, extraction)

Containing or drawing away a hazard at the source so that personnel are not exposed. For example:

Risk: Chemical fumes given off during an experiment or lab. process.

Control: Installation of a local extraction system to remove the fumes at the source.

Barrier

Placing a barrier between the hazard and personnel is also an effective control. There are many different forms of barriers that include: enclosure of a hazard, distance between personnel and hazards, segregation of materials, signage and rope/screening off, vaccinations as an immunological barrier. Examples of controlling risks are:

Risk: Excessive noise emanating from machinery.

Control: Enclosing the machinery or the personnel hence creating a barrier between the hazard and the personnel.

Risk: Accessible high speed rotating parts on a machine.

Control: Placing appropriate guards (eg. barriers) to prevent access to the rotating parts.

Administrative Controls

This type of control is most effective when used in conjunction with measures mentioned above or as an interim control whilst more effective control measures are developed, budgeted for and implemented. It requires systems under the control of management to be established or amended in order to control the risk presented. Most often it requires assessment and modification of the task(s) performed. It may include measures such as:

- (i) Amendment to or establishment of new Policy and Procedures. For example: developing documented safe work practices for a hazardous task, or implementing restrictive policy to prevent staff from coming in contact with identified hazards;
- (ii) The introduction or review of existing maintenance schedules for plant and equipment, or safe work practices. This measure is used to ensure that existing plant, equipment and procedures do not deteriorate to the point where they become hazardous;
- (iii) Limiting the exposure of personnel to elements that are only hazardous when they exceed a certain threshold. These types of hazards can include; noise, radiation, heat, chemicals, etc., and can be controlled by introducing such elements as simple as job rotation;
- (iv) Providing training and information in safe work practices and other Occupational Safety and Health issues so that personnel can work safely in their duties.

Personal Protective Equipment (PPE)

PPE is not a particularly effective control method and should only be used;

- (i) when all other control measures are impractical, or
- (ii) in conjunction with other more effective control measures .

The above hierarchy provides a basic guide for controlling hazards in the workplace. Consult your SHR and attempt to find solutions by working your way down the hierarchy. Once appropriate control(s) are identified it is necessary to consult Risk Management and/or the staff that will be affected by the change(s). This will reduce the possibility of oversights and help to gain the support of the staff in the implementation phase. If you have any queries or require assistance with the processes described

the staff of the Risk Management Unit are available to assist you on extension 3195.

Evaluation and Monitoring

Finally, it is crucial that all control measures implemented are evaluated and monitored and documented in full. This can be achieved through revision of incident/hazard statistics for the area provided through Campaign '98 quarterly reports. Once the desired outcome has been achieved through implementing the appropriate controls the monitoring of the systems must be on-going to ensure that control measures are maintained and do not become out-dated. The evaluation and monitoring process often provide excellent Quality Improvement projects that are quick and easy to perform. The results of these projects will provide sufficient information to ascertain your effectiveness in controlling hazards in the workplace and provide positive feedback for staff that shows management are committed to providing a safe working environment. It will also assist in any legal liability claim and/or with WorkSafe WA inspectors' reports.

Appendix A

Quick Reference Guide

Consultation

If there is a hazard or occupational safety and health issue in your workplace, you should:

Manager/supervisor Consult SHR and employees;
Investigate the hazard/issue;
Find a solution to control the hazard.

Employee Talk to your SHR and supervisor;
Participate in investigating the hazard/issue;
Participate in finding a solution.

Hazard Inspections

WHAT should be inspected?

All new tasks; alterations to existing tasks; and tasks which present a risk to staff using Job Safety Analysis. All areas of the workplace for which the Department is responsible using the Hazard Inspection Checklist.

WHO should conduct Job Safety Analyses and hazard inspections?
Management representatives (eg. line management/supervisors) in consultation with SHR's.

WHEN should tasks be analysed and workplaces be inspected?

*All new tasks and changes to existing tasks - prior to implementation.
Existing tasks that present a risk - schedule for assessment and review.
Workplace inspections - at least six monthly.*

HOW should job safety analysis and workplace hazard inspections(checklists) be performed?

Job Safety Analysis

1. Consult with the local SHR
2. Choose the job/task to be analysed
3. Breakdown the job/task into a list of logical steps
4. Analyse each step for purpose and hazards.
5. List each hazard identified and set about controlling them.

Workplace Inspections

The workplace inspection checklist is an excellent tool for identifying hazards in the workplace. It is easy to perform and not time consuming.

Incident/Hazard Reporting

WHAT should be reported?

All injuries (events that cause an illness or injury requiring medical attention);

All incidents (events that cause a minor injury of a first aid nature);

All near-misses (events that do not cause injury but have the potential to do so);

All hazards (anything that has the potential to cause ill health or injury).

WHO should report the accident/incident, near misses or hazard?

The injured person, or person(s) involved in the near-miss or identifying the hazard. Supervisors and/or eye witness(es) may assist the injured person when appropriate or necessary.

WHEN should the report be completed and submitted?

As soon as is practicable after the incident or hazard is identified.

HOW can accidents, incidents, near misses or hazards be reported?

Through the University Incident/Hazard Report Form (Appendix 'F').

Incident/Hazard Investigation

WHAT should be investigated?

All hazard reports, incidents/near-misses causing or have the potential to cause injury.

WHO should conduct the investigation?

Management representatives, (ie. line management/supervisors), in consultation with Safety and Health Representatives.

WHEN should the investigation process be completed?

The investigation process should be completed and submitted to the Risk Management Unit as soon as is practicable after the incident or hazard occurs.

HOW is an incident/hazard investigation completed?

Upon receipt of an incident/hazard report that requires further investigation, adhere to the following:

- (i) Assess the immediate danger and render the area safe. Isolate the area if deemed necessary;
- (ii) Obtain incident/hazard investigation forms;
- (iii) In consultation with the local SHR carefully follow the guidelines detailed on the inside cover of the Incident/Hazard Investigation Form pad.

NOTE: Incident/Hazard Investigation forms are available from your SHR or from the Risk Management Unit's web pages.

Controlling Hazards in the Workplace

Decide whether the risk posed by the hazard is acceptable or not? If the risk is not acceptable then consult with your senior management, your SHR and staff to determine appropriate control measures using the 'Hierarchy of Control' system below.

1. Elimination
2. Substitution
3. Engineering
 - Automation
 - Containment
 - Barrier
4. Administration
 - Policy and Procedures
 - Maintenance Schedule
 - Reduction in exposure
 - Training
5. Personal Protective Equipment (PPE)

If you have any queries or require assistance with the processes described the staff of the Risk Management Unit are available to assist you on extension 3195.

Appendix B

OS&H POLICY

The University places the highest priority on providing and maintaining a safe and healthy work environment for our staff, students and visitors. Our senior management recognises its prime responsibility towards safety and health for all levels of our organisation

With a commitment to continual review and improvement of safety and health policy and its accompanying procedures and practices, our aim is to meet or exceed legislative compliance and /or relevant Australian Standards. We are committed to the provision of the human and technical resources that are required to assist the achievement of our goal of minimising work-related injury and illness with our preventative approach. The priorities of our safety and health program include accident and rehabilitation.

Our dedicated full-time OS&H team, as well as our policy committee, working parties and University wide OS&H Representatives, provide a cooperative and consultative approach towards safety and health issues across the organisation.

Staff, students and visitors are required to report any hazards in the workplace and accept responsibility for maintaining the high standards set by adhering to university policy and practices.

THE FUNCTIONS OF SAFETY AND HEALTH REPRESENTATIVES (SHRs)

Safety and health representatives (SHRs) are employees, elected by fellow workers, under the Occupational Safety and Health Act (1984).

The primary function of safety and health representatives is to represent the employees in the workplace on all issues relating to occupational safety and health.

The SHR is a key part of the issue resolution procedures, that enable management and employees to work together to improve workplace safety and health. Being a SHR involves dealing regularly with co-workers, workplace supervisors and senior management.

A safety and health representative has a legal right and duty under the Occupational Safety and Health Act (1984) to:

- *consult, co-operate and communicate with employers and employees on safety and health matters;*
- *inspect the workplace for hazards at times convenient to the employer;*
- *investigate incidents when they happen (ie. injury, near miss or anything similar);*
- *investigate hazards (ie. a potential for injury or harm) when they arise;*
- *report to the employer any situation at the workplace that could be a hazard;*
- *keep informed on relevant safety and health information.*

More specifically, a safety and health representative at The University has responsibilities to:

1. Report all hazards to the supervisor in that area. If the hazard cannot be removed immediately, an incident/ hazard report form should be completed;

2. Review all incident/hazard reports and injuries that occur in the Division/Area the SHR represents;
3. In consultation with supervisors, investigate any reported incident or hazard.
4. Keep informed about the injuries and incidents that occur in the Division/Areas that SHR represents, eg. regular meetings could be arranged with the manager to discuss injury and incident trends in those areas;
5. Provide information and advice on safety and health issues to co-workers;
6. Follow the agreed "resolution of issues" procedure for resolving safety and health issues.
7. Participate directly or indirectly, in the SHR committee and/or University Occupational Safety and Health Policy Committee inform your co-workers about matters discussed by the committee(s);
8. Attend an approved introductory training course, such as the 5 day course provided by the Trades and Labour Council;
9. Accompany an inspector from WorkSafe Western Australia on a hospital inspection if requested by the inspector;
10. At the request of an employee, attend any interview between an employee and management about occupational safety and health,
11. Promote safe working procedures and safety and health to co-workers;
12. Participate in, and contribute to, safety and health training programs and initiatives.

UNIVERSITY OCCUPATIONAL SAFETY AND HEALTH POLICY COMMITTEE

Terms of Reference

1. To advise University Resources Board on all matters relating to occupational safety and health;
2. To develop and review the University safety and health policy and procedures and make recommendations to University Resources Board as appropriate;
3. To promote a safe and healthy working environment and safe working practices;
4. To prepare an annual budget for the operation of the University's Occupational Safety and Health Program for submission to the University Resources Board;
5. Working parties may be established by the Committee on specific occupational safety and health issues. The Committee may co-opt any staff member with expertise for the working of the committee.

Composition

The composition of the committee consists of management representatives and at least 50% safety and health representatives.

Management

Vice-Chancellor (or nominee) - (Chairperson)

Chairpersons (or nominee) of the following OS&H Policy subcommittees:

- Institutional Biosafety Committee;
- Hazardous Chemicals Safety Committee;
- Radiation Safety Committee;
- Healthy Lifestyle Program Management Committee.

Director, Human Resources (or nominee);
Member representing the University Health Service;
Safety and Risk Manager - Executive Secretary;
Director, University Properties (or nominee).

Safety and Health Representatives

Six members of the Zone 1 SHR committee including chairperson;
Six members of the Zone 2 SHR committee including chairperson;

Employee Groups

Member representing Academic Staff Association;
Member representing Electorate Delegates Committee (General Staff representative)

Students

Member representing The University Student Guild.

Notes

1. The Risk Manager shall be a full member of the Committee and be the Executive Secretary;
2. The committee may co-opt any staff member with expertise required for the working of the Committee;
- 3.
4. All members shall be eligible to vote;
4. A quorum shall consist of 50% of the Committee membership with a minimum of 50% safety and health representative members present;
5. All members shall be eligible to vote.

Appendix E

RESOLUTION OF OCCUPATIONAL SAFETY AND HEALTH ISSUES

The procedure next page outlines the way in which occupational safety and health issues should be resolved at The University. This process involves attempting to resolve matters locally through consultation between employees, management and safety and health representatives. Issues that cannot be resolved immediately must be reported formally and referred through the agreed hierarchy until a satisfactory outcome is achieved. Most issues will not need referral beyond senior management.

The OS&H Act requires managers and employees to attempt to resolve safety and health issues in-house before contacting WorkSafe WA.

