WORLD SAFETY JOURNAL

ESP - Enhanced Safety Principles

ISSN 1015-5589
Vol. XIX No.1, 2010

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- **Literary Review of Hand Injuries and Rehabilitation**
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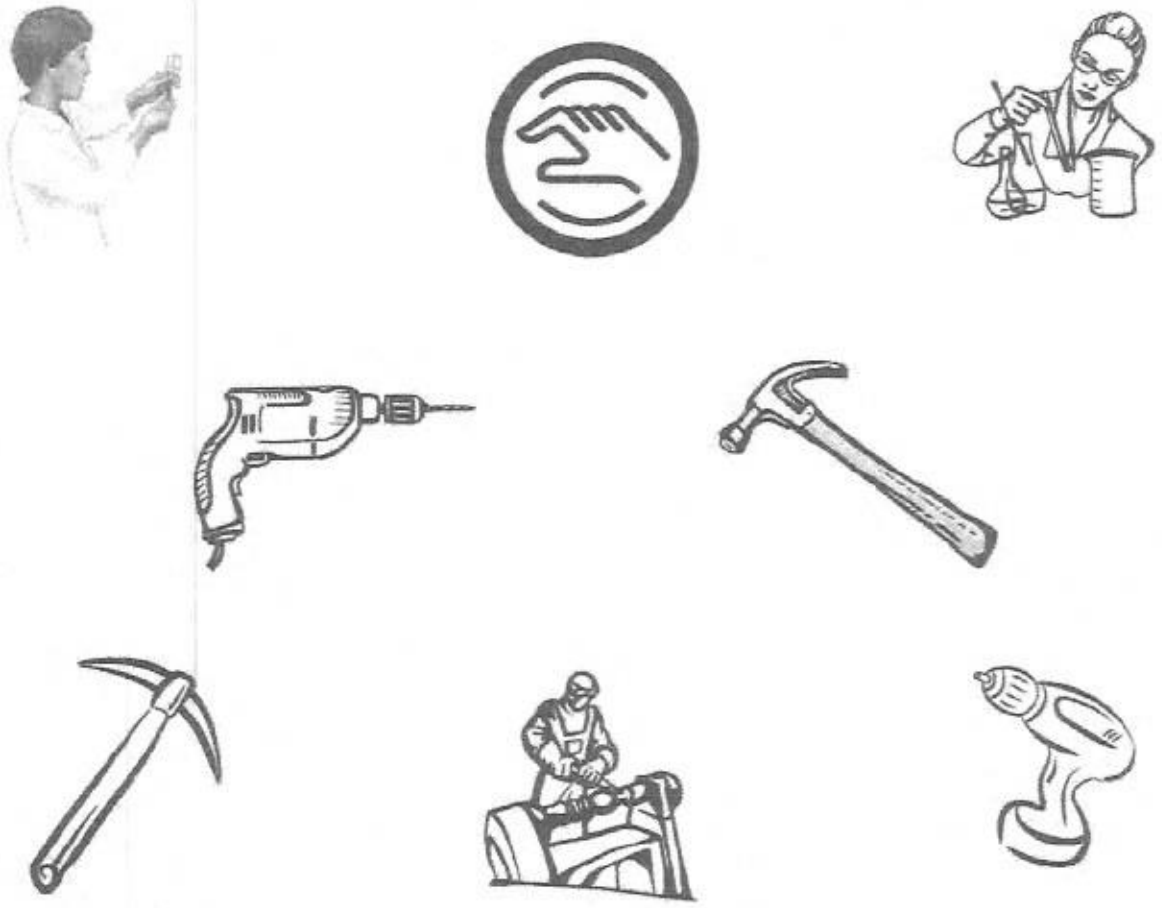
- **A Critical Literature Review of Stress as a Work-Related Illness and Its Effects on the Employee and Employer**
- **Getting to the Point: A Review of the Consequences of Occupational Needle Stick Injuries**



WORLD SAFETY ORGANIZATION (WSO)

Profile

The WSO was founded in 1975 in Manila, The Republic of the Philippines, as a result of a gathering of over 1,000 representatives of safety professionals from all continents at the First World Safety and Accident Prevention Congress. The WSO World Management Center was established in the United States of America in 1987 to be responsible for all WSO activities, the liaison with the United Nations, the co-operation with numerous Safety Councils, professional safety/environmental (and allied areas) organizations, WSO International Chapters/Offices, Member Corporations, companies, groups, societies, etc. The WSO is a not for profit corporation, non-sectarian, non-political movement to **"Make Safety a Way of Life"**.

World Safety Organization Activities

The World Safety Organization:

- Publishes WSO Newsletters, World Safety Journal - ESP, and WSO Conference Proceedings.
- Provides a network program linking various areas of professional expertise needed in today's international community.
- Develops and accredits educational programs essential to national and international safety and establishes centers to support these programs.
- Annual awards include the World Environmental/Occupational Safety Person Award, WSO James William Award, WSO Educational Award, WSO Concerned Citizen Award, WSO Concerned Safety Professional, WSO Concerned Company/Corporation Award, WSO Concerned Organization Award, Chapter/International Office of the Year Award, WSO Award For Achievement In Scientific Research and Development and International Award.
- Provides recognition for safety publications, films, videos and other training and media materials that meet the WSO required educational standards.
- Receives proposals from professional safety groups/societies for review and if applicable, submits them to the United Nations for adoption.
- Establishes and supports divisions and committees to assist members in maintaining and updating their professional qualifications and expertise.
- Chapters and International Offices located throughout the world provide contact with local communities, educational and industrial entities.
- Organizes and provides professional support for international and national groups of experts on all continents who are available to provide expertise and immediate help in times of emergencies.

Membership Benefits

The World Safety Organization:

- Publishes the "WSO Consultants Directory" as a service to its Members and to the Professional Community. Only WSO Certified Members may be listed.
- Collects data on the professional skills, expertise and experience of its Members in the WSO Expertise Bank for a reference when a request is received for professional expertise, skill, experience.
- Provides a network system to its Members whereby professional assistance may be requested by an individual, organization, state or country on a personal basis. Members needing assistance may write to the WSO with a specific request and the WSO, through its Membership and other professional resources, will try to link the requester with a person, organization or resource which may be of assistance.
- Provides all Members with a Membership Certificate for display on their office wall and with a WSO Membership Identification Card.
- Awards a certificate of Honorary Membership to the corporations, companies and other entities paying the WSO Membership and/or WSO certification fees for their employees.
- Members receive WSO Newsletters, and other membership publications of the WSO.
- Members are entitled to reduced fees at seminars, conferences and classes, given by the WSO. This includes local, regional and international programs. When continuing Educational Units are applicable, an appropriate certificate is issued.
- Members who attend conferences, seminars and classes receive a Certificate of Attendance from the WSO. For individuals attending courses sponsored by the WSO, a Certificate of Completion is issues upon completion of each course.
- Members receive special hotel rates when attending safety programs, conferences etc., sponsored by the WSO.

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Membership: The World Safety Organization has members that are full time professionals, executives, directors, etc., working in the safety and accident prevention fields and include university professors, private consultants, expert witnesses, researchers, safety managers, directors of training, etc. They are employees of multinational corporations, local industries, private enterprises, governments and educational institutions. Membership in the World Safety Organization is open to all individuals and entities involved in the safety and accident prevention field. Regardless of race, color, creed, ideology, religion, social status, sex or political beliefs.

Membership Categories

✓**Associate Member:** Individuals connected with safety and accident prevention in their work or interest in the safety field. This includes students, interested citizens, etc.

✓**Affiliate Membership:** Safety, hazard, risk, loss and accident prevention practitioners working as full time practitioners in the safety field. Only Affiliate Members are eligible for the WSO Certification and Registration Programs.

✓**Institutional Member:** Organizations, corporations, agencies and other entities directly or indirectly involved in safety activities and other related fields.

Annual Membership fee in United States Dollars is as follows:

Student Membership	$ 35.00	Associate Membership	$ 55.00
Affiliate Membership*)	$ 80.00	Institutional Membership**)	$185.00
Corporate Membership**)	$1,000.00	**Please circle the membership you are applying for**	

*) For your countries fee rate, please contact the World Management Center at info@worldsafety.org

**)For this membership, please indicate name, title and mailing address of the authorized representative.

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Please print or type:

Name (Last, first, middle): _____

Complete Mailing Address (please indicate if this is a Home or Work address): _____

_____

_____

Work Telephone Number: _____ Fax Number: _____

Home Telephone Number: _____ email:

For Affiliate Members only

Only FULL TIME PRACTITIONERS in the safety/environmental/accident prevention and allied fields are eligible for the WSO Affiliate Membership. Briefly describe your present employment position, or enclose your CV. _____

_____

Please specify your area of professional expertise. This information will be entered into the WSO "Bank of Professional Skills" which serves as a pool of information when a request for a consultant/information/expertise in a specific area of the profession is requested.

( ) Occupational Safety & Health	( ) Fire Safety/Science	( ) Environmental Health & Safety
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( ) Product Safety	( ) Risk Management	( ) Petroleum Safety
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Please forward Application and check/money order or charge card information to:

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ARTICLE SUBMISSION

Articles for inclusion in this journal will be accepted at anytime. However there can be no guarantee that the article will appear in the following journal issue.

All articles shall be written in concise English and typed with a minimum font size of 12 point. Articles should have an abstract of not more than 200 words. Articles shall be submitted as Time New Roman print and on a 3.5" diskette with the article typed in rtf (rich text format) and presented in the form the writer wants published. On a separate page the author should supply the author's name, contact details, professional qualifications and current employment position. This should be submitted with the article.

Writers should include all references and acknowledgments. **Authors are responsible for ensuring that their works do not infringe on any copyright. Failure to do so can result in the writer being accountable for breach of copyright.** The accuracy of the references is the author's responsibility.

References.

Articles should be referenced according to the Publication Manual of the American Psychological Association 2002. For example. Books are referenced as follows.

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Articles are referenced as follows.

Author (Year). Title of article. *Name of Journal. Volume* (Issue), Page numbers of article.

Internet information.

Name of author. (Year of publication).*Name of article*. [on-line]. Available WWW;http:// and the rest of the internet path address. [Access date].

Submissions should be sent to:

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Articles, where ever possible, must be up-to-date and relevant to the Safety Industry.
All articles are Blind Peer Reviewed by at least two referees before being accepted for publication.

Proceedings of WSO Global Safety Roundtable XI 2009

Edited by Professor Peter A. Leggat, MD, PhD, DrPH FAFPHM, FACTM, FFTM *ACTM*, FFTM (Exped Med) *ACTM*, FFTM *RCPSG*, FACRRM, FSIA, FAICD, FACE, FRGS, WSO-CSE/CSM/CSS(OSII)/CSSD, Head, School of Public Health, Tropical Medicine and Rehabilitation Sciences, and Associate Dean for Faculty Affairs, Faculty of Medicine, Health and Molecular Sciences, James Cook University, Townsville, Queensland, Australia.

Abstract

Since the Inaugural Roundtable in 1995, the World Safety Organization (WSO) Global Safety Roundtable has become a regular event and an international safety "Think Tank", drawing on international representation from the WSO's annual educational meetings. The WSO Global Safety Roundtable XI 2009 was convened online for the first time from 13-17 July 2009 to assist the WSO in its motto to Make Safety a Way of Life Worldwide as well as to assist in the formulation of specific proposals and resolutions for the United Nations (UN) and its agencies. It was convened immediately following the WSO 22nd International Environmental and Occupational Safety and Health Professional Development Conference, St. Louis, Missouri USA. It sought to build on the discussion from previous Global Safety Roundtables. Eighteen representatives from seven countries were invited to participate and four further representatives were invited to join the Roundtable. The major agenda items for the "Think Tank" discussion included: celebrating 35 years of the WSO in 2010; improving WSO's global outreach, the World Safety Declaration; promoting WSO around global safety campaigns and the possible need for a dedicated World Safety Day/Week. Other business include: a proposal for regional conferences, e.g. in the Middle East, Asia Pacific etc. and to review WSO certifications. As far as possible, it was recommended that the WSO work through existing structures; however further global outreach may require the expansion of WSO International Offices.

Introduction

The World Safety Organization (WSO) Global Safety Roundtable XI was conducted for the first time online from 13-17 July 2009 to assist the WSO in its motto to Make Safety a Way of Life Worldwide as well as to assist in the formulation of specific proposals and resolutions for the United Nations (UN) and its agencies. It was adjourned from and conducted following the WSO 22nd International Environmental and Occupational Safety and Health Professional Development Conference, Sheraton Westport Hotel, St. Louis, Missouri, USA. It builds on the resolutions presented at the previous WSO Global Safety Roundtables for which proceedings have been published for Roundtables I-IV and VIII-IX (Leggat, 1995; 1996, 1997; 1998; 2002; 2003; 2008; WSO, 1998). Eighteen representatives from seven countries were invited to participate. Four additional participants were invited to join. Eleven representatives actively participated (per emails) at Global Safety Roundtable XI 2009, including: Peter Leggat (Chair/Editor), Elias M. Choueiri (Lebanon), Arthur (Shane) Cooper (Philippines), Kesiena Esiri (Nigeria), Wayne Harris (United Arab Emirates), Jan Jansz (Australia), Abanum Alloysius Ossai (Nigeria), Colin Pattinson (Australia), Tony Ploughe (USA), Derek R. Smith (Australia), Teh-Sheng Su (Taiwan) and Michael Thomas (USA). The WSO Chief Executive Officer, Lon McDaniel, and WSO World Management Center staff member, Debbie Burgess, were included in as observers. There were also a number of additional observers, who did not participate. These were blind carbon copied (Bcc'ed).

Background

On the 26th of September 1995, Dr Rashmi Mayur, Director of the International Institute for Sustainable Future, based in Bombay, addressed the delegates of the WSO 6th World Safety and Accident Prevention Congress, Memphis, Tennessee, USA, at the Inaugural WSO Global Safety Roundtable. The proceedings of this Roundtable have been published elsewhere (Leggat, 1995). The challenge was laid down by Dr Mayur for safety professionals and the WSO to address the major issues in safety throughout the World. In addition to developing specific proposals and resolutions for the United Nations, it was proposed that a "Think Tank" forum (now successive Global Safety Roundtables) be formed to brainstorm and develop 21st Century plans for the major United Nations agencies addressing all safety problems, whether in the factory, the home or the environment. Dr Mayur promoted a book entitled, *The Earth First Reader: Ten Years of Radical Environmentalism* (Davis, 1991), and presented a copy of this to the WSO. Dr Mayur has written a preface to an Indian Edition/reprint.

The WSO Global Safety Roundtable became an annual event drawing on international representation from the WSO's annual educational meetings to provide the basis for this "Think Tank". In 1996, the participants of WSO Global Safety Roundtable II presented several proposed resolutions targeting five (5) key areas. These areas were:

- Road safety,
- International project funding,
- Child safety,
- Global emergency response, and
- Continuance of the global "Think Tank", as part of the work of this WSO Global Safety Roundtable (Leggat, 1996).

Subsequent WSO Global Safety Roundtables presented proposed resolutions focusing on areas such as environmental compliance and development of international safety standards (Leggat, 1998; Mussett, 1998). It further proceeded to look at avenues to help the WSO interface with the UN and its agencies in order to develop an international awareness of these issues (Mussett, 1999). More recently, Global Safety Roundtables have focused on emergency preparedness (Leggat, 2004) and improving WSO's international outreach (Leggat, 2008). Participants were reminded that the WSO has had Special Consultative Status Category II (NGOs) to the United Nations Economic and Social Council (UN ECOSOC) since 1987 (UN ECOSOC, 2008).

Context of the WSO Global Safety Roundtable XI 2009

WSO Global Safety Roundtable XI was scheduled during the last day of the WSO 22nd International Environmental and Occupational Safety and Health Professional Development Conference (PDC), 6-8 July 2009, Sheraton Westport, St Louis, Missouri, USA; however it was adjourned to be held electronically to maximize participation. This also ensured that representatives from different countries could participate in the Roundtable without missing the educational programs conducted during the Conference. The Global Safety Roundtable XI 2009 was held electronically for the first time by

email from 13-17 July 2009. By convening in the week immediately following the WSO PDC, the Global Safety Roundtable maintained its status as an integral part of the WSO Professional Development Conferences. During the Roundtable 2009, 18 representatives were invited to join the roundtable, an additional four representatives were invited to participate during the Roundtable and 11 participants actively participated by email. The latter group, which has assisted in forming the discussion, have been officially documented. Unlike a number of previous Global Safety Roundtables, which had representation mainly from the USA, this online Roundtable had representation from seven countries, namely Australia, Lebanon, Nigeria, Philippines, Taiwan, UAE, and USA. A variety of disciplines were represented including safety management, safety quality, environmental safety and management, occupational safety, healthcare safety, medical science, transportation safety, and safety engineering. It was clear that the global outreach of the WSO would be a focus for the Global Safety Roundtable XI, given the online international representation.

Discussion

Current WSO Board Member (1989-99; 2003-present) and Past WSO President/Director-General (1997-1999), Professor Peter Leggat, forwarded a preliminary email and agenda on 11 July 2009 (see Table 1), which also reviewed of the purpose of the Global Safety Roundtable and a review of the Proceedings of previous Roundtables. A copy of the last published Global Safety Roundtable (Leggat, 2008) was also circulated. The Roundtable formally opened on 13 July 2009 gathering responses to the initial email and formally concluded on 17 July 2009. A closing email thanking participants was sent on 21 July 2009.

Table 1. Agenda for WSO Global Safety Roundtable XI 2009

World Safety Organization - Global Safety Roundtable XI

13 - 17 July 2009

Agenda

1. Introduction
   - 1.1. Background to Global Safety Roundtable
   - 1.2. Proceedings of Global Safety Roundtable X 2008
   - 1.3. Actions from the Global Safety Roundtable X 2008
   - 1.4. Context of the WSO Global Safety Roundtable XI 2009
2. Discussion of new items of business
   - 2.1. Celebrating 35 years of the WSO in 2010 (1975-2010)
   - 2.2. Improving WSO's global outreach (Center, Website, International Offices, Collaborating Centers, Chapters, etc)
   - 2.3. World Safety Declaration
   - 2.4. Co-ordinated WSO press releases around global safety companies and the possible need for a dedicated World Safety Day or Week
   - 2.5 Regional conferences
   - 2.6. Other business: Please confirm with me for the next day's discussion as some items are simply administrative or executive action.
3. Closing remarks
4. Assisting the Global Safety Roundtable in 2009-2010
   - 4.1. How do we keep the Global Safety Roundtable active during the year?

Professor Peter A. Leggat
Chair, WSO Global Safety Roundtable XI

The focus of the 2009 Roundtable discussion was initially on how the World Safety Organization could better outreach in the international context. The discussion was wide ranging (see Table 2).

Table. List of Discussion Items and Actions Needed from WSO Global Safety Roundtable XI 2009, 13-17 July, 2009

Discussion Item	Actions Needed
The need for the WSO Global Roundtable to operate continuously throughout the year, most likely on a virtual platform. Recommendation that this be investigated by WSO CEO, but it will need a volunteer convenor. It should also be given a prominent position at international conferences with appropriate recognition of participants.	World Management Center to be requested to examine the feasibility of an opt-in List-Serve (Chat site or Blog) on the website. It would also need a convenor.
Recommend that WSO Conferences be held outside of the USA, perhaps organized in association with local chapters or international offices. Collaboration with other organizations may be useful.	A call for proposals for regional WSO meetings to be called by the WSO Board of Directors
WSO considers joining the international Occupational Health Network (hosted by the University of Occupational and Environmental Health, Japan) encourages networking with a significant Asian group at low cost URL. http://envepi.med.uoeh-u.ac.jp/ioh/index.htm	A call for proposals for regional WSO meetings to be called by the WSO Board of Directors

Further WSO International Offices be established in Africa. Call for proposals to be made.	Item in the WSO News Letter calling for proposals
A review of WSO Certifications to be undertaken to ensure they meet today's requirements.	Action: Recommend this view to the WSO Board of Directors
What is WSO's response to the proclamation of the WSO Safety Declaration?	This is currently the responsibility of the WSO Deputy Director General.
35th Anniversary of the WSO (1975-2010) platform for promotion of the WSO and conferences.	35th Anniversary of WSO be used as a promotional tool during 2010 wherever possible.
Broadening the outreach of the WSO through the expansion of International Offices in Europe (UK) and Africa-offer to assist in developing an office in Cambridge, UK. and recommendation to establish further offices in Africa.	Offer copied into CEO
Promotion of WSO Collaborating Centers with academic, research and related institutions.	This will be further promoted in the newsletter and by direct contact with interested parties by the Chair
Promotion of WSO on various "campaign" days-although discussed at Global Safety Roundtable X (Leggat. 2008).	In abeyance: There seems to be little support to continue any efforts here from 2008.
Regional Conferences: there were recommendations for a WSO regional conference to be held in both the Philippines, possibly in 2010 (suggested by Shane Cooper), and in London, possibly in 2010 (suggested by Wayne Harris).	Offers copied in WSO CEO. Recommendation to go to WSO Board of Director to suggest a Call for proposals for Regional Conferences.
Should WSO apply to join the International Network of Safety and Health Practitioner Organizations (INSHP)? URL: http://www.inshpo.org/ Several national safety organizations have joined this group; a few are purely health groups. Cost to join is around GBP150.	General recommendations to CEO is that the WSO Board of Directors consider joining this group. Roundtable participants have some contacts.
Networking-suggestion that we use networking websites to improve our global outreach, but note that this needs a supervising champion.	In abeyance
Improving the WSO Website, especially with additional content to attract people into the site via web search engines. WSO does not appear on the first 10 pages of google.com search or "safety". It does appear as #1 of page 1 on a google.com search of "safety organization" and page 8 #1 for a search on "international safety". (As of 17 July 2009)	Attempts have been made to increase hits on the WSO Website. Chair to add content concerning the WSO on the Internet with links to the WSO Website. e.g. WSO site on Wikipedia

There was also discussion on what the Global Safety Roundtable could effectively deliver on, given that the WSO had limited resources. It was generally agreed that the Global Safety Roundtable was a useful forum for discussing global issues. It was decided that the Global Safety Roundtable XI would focus on small scale achievable items, which none-the-less would require continued networking between roundtable participants, the WSO Chief Executive Officer, the WSO World Management Center, WSO Chapters and WSO International Offices for input and action.

Assisting the WSO Global Safety Roundtable

The WSO Global Safety Roundtable has become a regular feature of WSO regional and international conferences. It is hoped that all interested WSO members can continue to support the work of the WSO Global Safety Roundtable throughout the year, including the development of proposals for consideration at subsequent Roundtable discussions. WSO Members and other interested professionals should consider participating at the WSO Global Safety Roundtable 2010 in Las Vegas, Missouri, USA, during the WSO PDC and any adjournment thereof to an electronic discussion. WSO Members and other interested professionals who may be able to assist with the development and implementation of these proposals or resolutions or who wish to assist with the work of the WSO Global Safety Roundtable or its work with the UN should contact the WSO World Management Center:

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Visit: http://www.worldsafety.org
Email: info@worldsafety.org

Acknowledgments

The attendance and contributions of all the registered participants and observers at the WSO Global Safety Roundtable 2009 were greatly appreciated. The assistance of the WSO World Management Center and the Editorial Committee of the *World Safety Journal*, who publish these proceedings, is also gratefully acknowledged.

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Are Wellness Programs Important? A Western Australian Perspective

By Dr. Janis Jansz, PhD. FSIA. Senior Lecturer Occupational Health & Safety / Environmental Health. Curtin Health Innovation Research Center. Curtin University of Technology, School of Public Health + Adjunct Senior Lecturer Edith Cowan University, School of Communications & Arts.

Abstract

This paper looks at the ten dimensions of wellness and the impact that being well, or not well, can have on the life of people. It includes two case studies that show current wellness programs that occurs in schools in Australia and a case study that shows the effect of having workplace wellness programs in the Western Australian mining industry. A critical review of other workplace and community wellness programs is included to answer the question posed in the title of this paper.

1. Introduction

The question could be asked "Are wellness programs important?" A reason for wellness education being important could be because people are living much longer today. For example, in Germany in 1900 Prince Otto von Bismark decided that the Fatherland would support all its state workers who reached the age of 65 years old. As life expectancy at the time was less than 50 years it did not strain his treasury too much! (Radford 1987).

Boyne in 2006 wrote that in Australia in 1885 the average life expectancy for Australian males was 48.7 years and for females it was 51.5 years. By 1996 the average life expectancy for Australian males was 75.2 years and for Australian females it was 81.1 years. It is predicted that in the first decades of the 21st century the average life expectancy for Australians will be 100 years (Boyne 2006). The reduced mortality in Australia from 1885 until 1960 was considered to be due to improvements in health education, sanitation and medical care (Boyne 2006). Current increases in life expectancy are considered to be due to health promotion activities that include people not smoking cigarettes, people exercising more, improved diet, improved infection control measures, a higher standard of living and advances in pharmacology and in medical technology. All of these factors have contributed to a higher level of wellness in the Australian population.

It is likely that today's young people will be expected to work to age 70. Australian work retirement age is now 67 years while in Britain the age at which people can retire from work to collect a pension is 68 years old (Gittins, 2009). Health and quality of life are very important. It needs to be considered if 20-25 years in a nursing home is an attractive prospect? It also needs to be determined what happens to people who can not afford nursing home care and to people who do not have a family to care for them when they are not well enough to care for themself. To have a good quality of life wellness is important. What is wellness?

2. Definition of wellness

The concept of wellness comes from the ancient Greek philosophy of arête (Queensland University of Technology 2007). A Google search identified 67,000 research based publications on wellness programs and 512,000 publications on the definition of wellness. There is no universally accepted definition of wellness (Definition of wellness 2009). Below are six of the definitions of wellness that were found when searching the internet for a definition.

1. "Wellness is a line of food and treats for pets, and a flagship brand of Old Mother Hubbard company. Wellness is sold through independent pet stores and health food retailers in North America." (Wikipedia 2009, 1).

2. "The concept of practicing all things that keep one well. It involves maintaining good nutrition, exercise, stress control, and good personal and familial social relationships." (Health at Oz 2009, 1).

3. "Tea not only quenches thirst, but also acts as a tonic. It stimulates the mind and creates a feeling of wellbeing." (Tea Fountain 2009, 1).

4. "The relationships between health, regular physical activity, and physical fitness as it applies to Chiropractic philosophy." (Miskelly Chiropractic Center 2009, 1).

5 "We define wellness as a satisfactory state of affairs, brought about by the acquisition and development of material and psychological resources, participation and self determination, competence and self-efficacy. Power and control are defined as opportunities afforded by social, community, and family environments to develop these three dimensions of health and wellness" (Prilleltensky, Nelson, & Peirson 2001, 1)

6. "Wellness is a multidimensional state of being describing the existence of positive health in an individual as exemplified by quality of life and a sense of well-being." (Definition of wellness 2009). For this paper definition 6 is appropriate.

While there was no commonly accepted definition of wellness there were some commonly described dimensions of wellness. According to Definition of wellness (2009, 1) the ten most commonly described dimensions are as follows.

- Social Wellness.
- Occupational Wellness.
- Spiritual Wellness.
- Physical Wellness.
- Intellectual Wellness.
- Emotional Wellness.
- Environmental Wellness.
- Financial Wellness.
- Mental Wellness.
- Medical Wellness.

Using the information provided in the publication Definition of wellness (2009) each of these dimensions is further described below.

2.1 Social wellness.

Social wellness includes living in harmony with family, friends and the community. It covers communicating effectively, enjoying being with and having physical contact with people, caring for other people and allowing other people to care for the person. Social wellness is living in harmony with the environment and with other people.

Benefits of having social wellness include that people who have a good social network and support system are able to manage emotional distress through their support network, they have lower cholesterol levels, have higher levels of immunoglobulin (an antibody) and less illness. Socially well people usually have high self esteem and live longer than socially isolated people.

2.2 Occupational wellness

Occupational wellness involves enjoying meaningful work (paid work and unpaid voluntary activities) and enriching life through work so that work is using the person's gifts, talents, abilities and skills. Occupational wellness includes the person doing the work having work that matches their values, physical abilities, mental

capabilities; work that they have enough control over and having work that allows the person professional and personal growth. Occupational wellness allows the person to have a balance between their work and leisure time.

Benefits of occupational wellness are that the person enjoys the work that they do, the person works more effectively to make a positive contribution to their employer's business profits (or to make a profit for their own business if self employed), to their community and, depending on the type of work performed, they can make a positive contribution to the world.

2.3 Spiritual wellness

With spiritual wellness the person feels at ease with their spiritual life and sees growing spiritually as a life long process. Benefits of having spiritual wellness include that the person usually is optimistic and understands the purpose of their life. Optimistic people usually have a higher quality of life.

2.4 Physical wellness

Physical wellness is related to a person having enough physical activity to maintain good cardiac and body health, preventing injuries and ill health due to considering safety in activities undertaken, having immunisations, having regular health checks by a medical practitioner and dental checks by a dentist as appropriate. Physical wellness includes having enough sleep each night (or day), eating healthy nutritional food, maintaining a reasonable weight (not over or under weight) and not partaking in substance abuse. Substance abuse can include smoking cigarettes, consuming too much alcohol and/or taking illegal drugs.

Benefits of having good physical health mean that person has less ill health and has a better quality of life.

2.5 Intellectual wellness

Intellectual wellness relates to how a person uses educational opportunities to expand their knowledge and to improve their skills.

Benefits of having intellectual wellness are that it improves the person's ability to problem solve, to be creative in their work and leisure activities, to be able to analyze, synthesize and see more than one side of an issue, to develop good written and oral communication skills and to have a passion for life long learning. Intellectual wellness enables the person to keep up to date with what is occurring around them and for areas of interest this knowledge can be world wide.

2.6 Emotional wellness

Emotional wellness includes a person having awareness and acceptance of their feelings, managing these feelings and related behavior, accepting their limitations, developing autonomy and being able to build a satisfying relationship with other people. An emotionally well person has a strong positive self image, high self esteem and a positive attitude to life.

Benefits of having emotional wellness are that the person is able to understand their own feelings and accept these feelings in themself and in others. They are able to express their feelings and manage them. An emotionally well person is able to live and work independently and to seek and appreciate the support of other people when this is required. An emotionally well person is able to deal with challenges and conflict in a constructive way and to take responsibility for their actions.

2.7 Environmental wellness

An environmentally well person has a life style that respects nature and the species that live in the environment. Environmentally well people are aware of the limits of the earth's natural resources and do not pollute the air, water or earth if they can avoid doing this. They recycle objects such as glass, cans and paper, conserve water usage and energy usage where possible to preserve natural resources.

Benefits of being an environmentally well person include that the person maintains a way of life that minimizes harm to the environment, maximizes their enjoyment of the natural environment, helps to ensure the purity of air, water and living conditions which are essential to having good health.

2.8 Financial wellness

"Financial wellness is an intricate balance of the mental, spiritual and physical aspects of money. Financial wellness is having an understanding of your financial situation and taking care of it in such a way that you are prepared for financial change. Maintaining that balance consists of being comfortable with where your money comes from and where it is going" (Dimensions of Wellness: Financial wellness 2009, 1).

Benefits of being financially well are that the financially well person is able to manage the money that they have to use to purchase present necessities and for the future in a way that enables them to afford the essentials required for daily living. Daily living requirement include having enough nutritious food to eat, having shelter, having human companionship and being able to take financial care of the family.

2.9 Mental wellness.

Mental wellness can be affected positively by having a supportive social network, by having good physical health, by doing enjoyable work, being intellectually well and having spiritual wellness. The benefits of mental wellness include being able to think clearly, have a high self esteem and being optimistic about life.

Mental wellness can be affected negatively by social factors such as traumatic events or by having a low economic status, by biological factors such as illness, genetics, by medications or by changes to the person's central nervous system. These social and biological factors can cause anxiety and depression. Depression can sometimes not be identified because it co exists with physical illness or because the person does not talk to other people about their personal feelings and problems and obtain appropriate help with solving these problems. Not having mental wellness can affect the quality and enjoyment of a person's life. Depressed people often eat less healthily, exercise less, drink excessive alcohol and smoke more cigarettes. Most people who commit suicide suffer from depression.

2.10 Medical wellness

The Medical Wellness Association has defined medical wellness as "the practice of health and medical care relating to wellness outcomes" (Dimensions of Wellness: Medical Wellness 2009, 1). Definition of Wellness (2009, 1) provides a more detailed description of medical wellness by describing medical wellness as "an approach to delivering health care that considers multiple influences on a person's health and consequently multiple modalities for treating and preventing disease as well as promoting optimal well-being."

Medical wellness is related to the work that health care practitioners do. Definition of Wellness (2009, 1) states that medical wellness:

- "Provides a balanced, appropriate application of wellness practices within the clinical setting that are based on evidence-based practices.
- Promotes a cross-disciplinary approach to patient care, based on informed consent and decision support between the practitioner and patient.
- Establishes a foundation for dialogue and collaboration between conventional and complementary practices with the primary goal of promoting optimal health and well-being.
- Promotes the development and

application of professional standards for wellness practices across clinical practices."

The benefits of medical wellness are that it provides many different options for health care practitioners to treat and prevent diseases, it informs people about treatment options and how to manage health related issues using evidence based practices and it promotes a cross disciplinary approach to health care where health and allied health professionals work collaboratively with medical practitioners to provide a high standard of health care for their patients.

This part of the paper has covered ten of the dimensions of wellness. The question can now be asked if wellness is the best term to use to promote people having a good quality of life.

3. Is wellness an appropriate term for having a good quality of life?

A problem with the term "wellness" is that there is no common definition of wellness. Definition of wellness (2009) documents that not having a clear definition of wellness makes it difficult to develop a sound body of scientific knowledge for wellness. This can result in misinformation about Wellness and having people who use the term Wellness inappropriately for financial gain.

In 1946 between the 19th and the 22nd of June the World Health Organisation (WHO) held an international health conference in New York in the United States of America. At this conference, in the preamble to the WHO Constitution that was developed, the definition of Health was recorded as "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (World Health Organisation, 2009, 1). Having a definition of health that has been recognised world wide for many years has enabled a sound body of scientific knowledge related to health to be developed.

As the definition of Health has remained constant since 1948 most workplaces define their program as a Health Promotion Program, rather than as a Wellness Program. Many workplace health promotion programs only include physical wellness. The WHO definition of health does cover social wellness, physical wellness and mental wellness. Occupational, spiritual, intellectual, emotional, environmental and medical wellness are not well described in the WHO definition of health but are all important in determining the quality of a person's life. Maybe "health and wellbeing" conveys a clearer message because what we should be looking at is personal health, life quality and life expectancy.

Following are two case studies that report what is currently being done to promote health and wellbeing for school children by a private Australian organization and by the government Department of Education and Training of Western Australia and two case studies that report what is currently done to promote health and wellbeing for people who work in the mining industry by a non government organization and by the government regulatory authority Resources Safety.

4. Wellness education in schools

The first case study describes the work that the KIDS Foundation is currently performing to improve wellness. The KIDS Foundation has looked at developing wellbeing through teaching people about hazard identification, risk assessment and risk control. "The KIDS Foundation current philosophy about safety education is supported by the findings of the United Nations European Commission which passed the Rome Declaration on Mainstreaming Occupational Health and Safety into Education and Training. The main *objective of the Rome Declaration was to implement a strategy that would prepare and sustain people throughout their life from childhood, teens, adult working life and retirement – in other words a 'whole of life' safety education process* that is reinforced within formal educational settings" (Prosser, Gillett, Chakaodza, Young & Colaciello 2008, 1)

In Australia the KIDS Foundation, which is a strategic partner of the Safety Institute of Australia, began by developing the pre-school safety education program *called See More Safety* for children who attend kindergarten or a play group. This program helps to instill hazard identification, risk assessment and risk control skills in pre-school children.

For primary school children KIDS Foundation has *Safety Clubs*. The Safety Clubs are aimed at increasing safety awareness and safe behaviors in students and staff, developing risk intelligence in children and in creating a safety culture in the school community. Safety Club members are the school students, their parents and teachers who all work together to promote safety awareness. Currently over 7,000 primary schools in Australia receive and use resources provided by the KIDS Foundation (KIDS Foundation 2008).

The KIDS Foundation conducted a longitudinal investigation on the effectiveness of the School Safety Clubs in Victorian Primary Schools between 2004-2007. Both quantitative and qualitative methods were used to collect data via student and teacher questionnaires, random teacher interviews and by analyzing injury data that was collected using teacher questionnaires. The response rate for this research study was "29% in 2004, 33% in 2005, 28% in 2006 and 36% in 2007" (Prosser, Gillett, Chakaodza, Young & Colaciello 2008, 3).

The results of this research were that 97% of teachers stated that the Safety Club was effective or very effective in reducing preventable injuries at their school. 78% of School Student Safety Representatives wrote that their school had made changes to make the school a safer place to be at. 23% of the schools reported that there were changes in students' behavior including having less student fights, having less bullying and having less accidents occur at the school. Other behavioral changes were that in schools with a safety club students reminded other students how to play safely, students were keen to take part in activities related to safety and students had a greater awareness of hazards, risks, how to conduct a risk assessment, risk control strategies and safety requirements.

Schools with Safety Clubs made many physical changes to improve safety on the school premises, to include assessing and implementing safety in work processes and at these schools staff rewarded safe play and the safe behavior of students. Having Safety Club student representatives direct the program was an important catalyst for change as the students had ownership of the program and safety was student, rather than teacher or parent, driven.

The student's parents were involved in the Safety Club program and were encouraged to reinforce safe behavior and safe activities at home. A limitation of parent involvement was that some of the parents had a non English speaking background so communication with parents who did not speak English was challenging.

The KIDS Foundation is now developing a secondary school students safety education program which may be similar to that in British Columbia secondary schools. In the Surrey School District in British Columbia in Canada all 24 secondary schools in this district have a student workplace safety policy and safety awareness training programs so that students are immersed in workplace safety until they graduate. Occupational health and safety is built into all schools' curriculum from years 8 to 12

as a result of a directive from the provincial education ministry that required all districts to deliver workplace safety education (Schwartz 2009).

For all Western Australian government schools from kindergarten to year 12 the Curriculum Framework includes health and physical education. The desired outcomes of health and physical education are that students are provided with education to develop knowledge on the following subjects to promote their health and wellbeing.

- Lifestyle management.
- How to build and accept relationships and appropriate behaviour towards other people. How to cope with break down in relationships, loss and grief.
- Enhancing personal identity which includes building self esteem, recognising strengths and limitations and developing strengths.
- Communication, cooperation and caring for others.
- Decision making.
- Goal setting.
- Leadership.
- Resilience which includes learning how to manage change, learning self control, how to express feelings appropriately, how to recognise and respond to bullying behaviour, abuse and to peer pressure. Identifying and responding appropriately to power and powerlessness in relationships.
- Time management.
- Assertiveness and self control.
- Self-understanding.
- Social skills and the benefits of social support.
- Stress management.
- Balancing social, emotional, physical and mental health.
- Enhancing personal health and the health of others.
- Healthy body awareness and personal care required for a healthy body.
- Personal hygiene and disease prevention. Knowledge of life style diseases and life style choices.
- Nutrition and healthy food choices.
- Physical fitness requirements to maintain a healthy body. Knowledge of the effects of physical fitness on the heart, respiratory system and body organs.
- Daily passive and active physical activities. This includes learning how to play a variety of sports.
- Personal fitness and recreation for life.
- Risk assessment, risk management, safety management and emergency management.
- Adventure games and skills for out door pursuits.
- Safe storage and use of medicines.
- Health effects of smoking, caffeine, alcohol, cannabis and other illegal drugs.
- Safety at home, school, in the workplace and in the community.
- Basic first aid.
- Environmental health which includes making the environment safer and healthier, developing minimal environmental impact skills, ethics, conservation skills, understanding the life cycles of plants and animals and using environmentally sustainable practices. (Department of Education and Training Western Australia 2009).

This curriculum framework aims to develop the following values.

1. A pursuit of knowledge and commitment to achievement of potential.
2. Self acceptance and respect of self.
3. Respect and concern for others and their rights.
4. Social and civic responsibility.
5. Environmental responsibility (Department of Education and Training Western Australia 2009, 2).

This curriculum framework is for children from kindergarten to year 12 at school. It covers the social, physical, intellectual, emotional, environmental and mental wellness concepts.

5. Workplace wellness programs.

In 1994 Contractor Companies who worked in the mining industry formed an association called the Mining and Resource Contractors Safety Training Association (MARCSTA) to provide generic occupational safety and health education for all contractors and other employees who worked in the mining industry in Western Australia and in Tasmania.

In this one day course with dual emphasis on safety and wellbeing, employees are taught about risk management, occupational safety and health management and environmental issues. Aspects of health management in this course include using safe manual handling practices, use of personal protective equipment, prevention of hearing loss, heat stress and hypothermia, workplace drug and alcohol policies, health, fitness and well being, workplace non-smoking policies, the need to have enough good quality sleep and problems that can occur if fatigued at work, eating the right types of food, the need to have adequate exercise, the need to have regular medical checks particularly if the person has diabetes, occupational asthma or depression. This health education also includes information on protection from mosquito born viruses, how to prevent and check for skin cancer, environmental factors to consider in relation to health and important information to know in relation to living in remote areas and mining camps. (MARCSTA, 2008).

The provision of this education to employees who work in the mining industry was shown as being effective in improving occupational safety and health knowledge of the participants in an independent research study conducted by Douglas (2007). Other factors that have contributed to the improvement of health and reduction of deaths at work for people employed in the Western Australian mining industry have included the professional organization, the Chamber of Minerals and Energy, providing training programs, research activities, seminars, conferences, the development of codes of practice and guidelines and the introduction of the Robens philosophy into the Western Australian mining industry (Gilroy 2008). The Robens philosophy was introduced into all Australian occupational safety and health legislation between 1972 and 1991. In Western Australia the Mines Safety and Inspection Act 1994 uses the Robens philosophy. This legislation and the above educational opportunities have helped to reduce the number of fatalities and to improve health and wellbeing in mining workplaces. Work related fatalities in the Western Australian mining industry have decreased from 16 per year in 1989 to 2 in 2008 (WorkCover Western Australia 2008).

In Western Australia in 2007-8 there were 27 fatalities, 2 of which were in the mining industry and 25 of which were in other Western Australian industries (Government of Western Australia Department of Consumer and Employment Protection 2008). Another important health initiative has been the Western Australian Mine Workers Health Surveillance System. This health surveillance examines the work history for mining industry employees in

relation to the person's past employment and medical history. It includes a respiratory questionnaire and lung function test to determine the person's respiratory health and an audiometric test to determine the intensity of sound that the person can hear. The medical examination is important because it identifies certain diseases on entry to employment in the mining industry, provides epidemiology data, it monitors respiratory function, general health and hearing. As the medical assessment is performed at 5 yearly intervals if health problems are identified then appropriate medical care or health promotion activities can be commenced. This 5 yearly monitoring could easily also include an assessment of the employee's body mass index to check for obesity, potential for stroke and potential for or actual diabetes.

The two mining industry case studies described use successful strategies for improving health for people who work in the mining industry.

6. When should people learn about health and well being?

In the second wellness education in schools case study the Department of Education and Training Western Australia curriculum frame work covers providing education on social, physical, intellectual, emotional, environmental and mental wellness concepts. According to research by Hiatt (2009) the number of accidents, assaults on students and on teachers and incidents of vandalism by students that are reported to the Western Australian Department of Education and Training have increased.

Table 1. Critical incidents in schools.
Source: WA Department of Education and Training. Cited in Hiatt, 2009, 3.

Type of incident	2006	2007	2008
Accidents	229	288	297
Assaults	1081	1103	1185
Vandalism	45	87	104

Education that commences in kindergarten and continues on to year 12 can provide information on wellness, but for some people more than education is required. May be wellness education should start with wellness concepts being taught in the family home as young children are very much influenced by their family values and examples, particularly in their pre school years.

For wellness to be taught at the family level including before a child starts school, the family needs to have the material and psychological resources to be able teach health and wellbeing. Prilleltensky, Nelson, & Peirson (2001) state that material resources for the parents include having economic security and adequate housing. Help for the homeless (2009) reports that in Western Australia more than 13,000 people are homeless. To help over come this problem the Commonwealth Government and Western Australian Government are funding a $135 million package to lower homelessness and people having to sleep on the streets in Western Australia by 7% within 4 years. This shows that to even meet the first requirement for wellness for some people government assistance is required. Social circumstances can be an influencing factor on health and wellbeing.

Material resources required for children to have wellness include having "proper nutrition, a toxic free environment, adequate space, comfortable temperature and stimulating toys" (Prilleltensky, Nelson, & Peirson 2001, 145). To help with nutrition Foodbank distributes 2.2 million kilograms of food a year to needy Western Australian families. In addition to this Foodbank has a school breakfast program which provides food for children in 310 Western Australian metropolitan, regional and remote area schools. Foodbank also provides more than 1.5 million breakfasts a year to disadvantaged children. Doug Paling, who has been the chief executive of Food bank for the last 15 years, "said the breakfast program promoted healthy eating habits that would stay with children for life. Children from any background could tuck in to free toast, cereal, baked beans and spaghetti, fruit and yoghurt. 'Up to 16 per cent of children are going to school without having breakfast and in some cases they have not had dinner the night before' he said. 'There was a poignant comment from a school principal saying some of the poor little lost souls don't stand a chance in the school system or, indeed, in life. So amongst everything the children know that someone cares for them'" (Painter 2009, 14). This example shows that community help is sometimes needed for health and wellbeing.

Prilleltensky, Nelson, & Peirson (2001, 145-6) state that "psychological resources for the child include secure attachment, empathy and problem solving abilities. For parents, psychological resources include effective communication and affective marital/partnership bonds." Children need to have enough positive experiences to be able to withstand adversity. Children's positive experiences usually need to begin in the home environment with the people who care for them. From this point of view health and well being education and experiences need to start from when a child is first born, or even before this with parent education. When people begin paid work their social, physical intellectual, emotional and other practices may already be set behaviors. There are people who blame their current health problems and poor quality of life on what happened to them when they were a child. A systematic literature review by Avenell et al (2004) that examined the long term effects and economic consequences of a variety of treatments for obesity found that when the family was involved in the treatment program, rather than just the individual, there was much more of an improvement in intentional weight loss. This showed the importance of family involvement in health and well being programs.

Educating people about health and wellbeing should be a life-long approach. Wellbeing and responsibility for health must become a personal responsibility and this must start at an early age. It must become an integral part of our educative process with children made aware of the importance of diet, exercise and quality sleep (which are all part of physical wellness) to quality of life and longevity linkage. The alternatives include premature death from obesity, diabetes, auto-immune deficiencies and, if surviving, a lengthy unpleasant old age.

One of the most successful health and well being programs was started by Sir Richard Doll. Sir Richard Doll wrote a paper about a lot of small research studies that when combined demonstrated the ill health effects of cigarette smoking. He published this information. Children were then taught in schools about how the poisons in cigarette smoke affects the human body and the resulting ill health effects of smoking. These children educated their parents about the ill health effects of smoking cigarettes. Australia's first law banning smoking was issued in 1912 (Medical News Today,

2007). Following this law workplaces where management was worried about having to pay workers' compensation claims for employees who became ill as a result of being exposed to cigarette smoke at work banned employees and other people smoking on their work premises. There have been subsequent Local Government, State Government and Commonwealth Government laws written and enforced that banned smoking in enclosed spaces and later even banned cigarette smoking in open spaces like beaches, sidewalks and anywhere near children's playgrounds.

The program has been so successful that there is a warning of the ill health effects of smoking cigarette on every cigarette packet sold in Australia. Today 85% of the Australian population do not smoke cigarettes and smoking is considered socially unacceptable by many Australians (Medical News Today, 2007). When the laws banning smoking in open places in Australia were introduced it was anticipated by Assistant Health Minister, Verity Firth, that these laws would save the government $2.5 billion Australian in health care costs over the next 20 years (Medical News Today, 2007. Education on other aspects of health and well being needs to have a similar impact with community and government support being given to health and wellbeing programs.

Many of the successful strategies from this program can be applied to life long health and wellbeing promotion. The first step would be to identify any health or wellbeing problems. Nursing staff can play a role in doing this. Infant health nurses can assess babies and young children for health and wellbeing. They can provide parents with information and support to develop their child's health and wellbeing at prenatal classes and at follow on educational classes. At school the school nurse can assess children's health and wellbeing, provide the children, their teachers and parents with education and support to maintain children's health and wellbeing. In the workplace this role would be undertaken by the occupational health nurse. For adults who are not working at a workplace with an occupational health nurse this assessment can be performed by a nurse at a Medical Center. In all cases health and wellbeing assessments should be at least every 6 months with follow up education and support as appropriate. The cost of these assessment and follow up actions should be off set by a Medicare rebate for these services as preventing problems before they occur would lower future health care costs.

Heirich and Sieck (2000) conducted a research study with 2000 employees who were recruited for their study through cardiovascular health screening. The results of their research showed that proactive outreach and follow up with counselling was more effective than just having health education classes for promotion of employee health and well being. This demonstrated that more than just assessment and education is required to promote health and wellbeing. A research study by Erfurt, Foote and Heinrich (1991) had similar results.

In 2003 Capital Metropolitan Transport Authority in Austin, Texas introduced wellness programs that included having personalized health assessment and prevention screenings, dietary counseling and healthier food options, a smoking cessation program, wellness coaches, a 24 hour fitness Center, health workshops, health newsletters and cash incentives for achievements for its 1,282 employees. A research study by Davis et al (2009) evaluated the effectiveness of this program and found that due to an improvement in employee health employees' absenteeism had decreased by 25% since this program had commenced. The return on investment was $2.43 for every dollar spent on employee health and wellbeing promotion.

Gebhardt and Crump (1990) conducted a literature review of 71 publications concerning published employee wellness programs. This literature review identified that fitness programs on their own did not lead to a reduction in coronary heart disease, however they did when combined with healthy lifestyle practices. These researchers describe wellness programs in the 1980s as being composed of three levels. Level one programs had screening sessions, health fairs, health posters, flyers, newsletters and health education classes. Health screening programs usually consisted of a lifestyle questionnaire and a series of health assessments that included measuring each person's blood pressure, blood lipids, body mass index, estimated aerobic capacity and general health.

Level two programs had all of the above as well as having fitness centers that trained employees in physical fitness, correct performance of physically demanding work tasks such as manual handling, used behavior modification techniques, promoted healthy eating habits and taught employees about how to consider physical ergonomic factors to improve their workplace and work processes. Level two programs included having consultations on weight loss, stopping cigarette smoking and teaching stress management strategies.

Level three programs included all that was in level one and two programs but also conduct a workplace needs assessment for their program, had written program objectives, had a goal of creating an environment that motivated and assisted employees in sustaining their healthy life style and behaviors and that encouraged employees to continue healthy behaviors away from the workplace as well as when at work.

Gebhardt and Crump (1990) found that to be effective level 1, 2, 3 programs all needed to be accompanied by counseling. These researchers also evaluated job-related fitness programs that are required for jobs that have high physical demands, such as fire fighters. They reported that the City of Los Angeles required all 1,652 of their fire fighters to participate in 45 minutes of strengthening, flexibility and aerobic conditioning exercises three times a week. A 15 year cross-sectional longitudinal research study of this program demonstrated that this exercise program delayed the decline in work capacity and flexibility with increasing age, especially for workers aged 40 years and older. The program also decreased workers compensation costs by 25% per $100 of pay roll and the number of disabling illnesses and injuries by 16% for these fire fighters.

When evaluating the impact of wellness and fitness programs Gebhardt and Crump (1990) found that there were only about 20 rigorous research studies that demonstrated cost savings to their company. Many of the research studies did show though that wellness and fitness programs did reduce employee work related injuries, workers' compensation costs, employee medical costs, employee sick leave, absenteeism and employee turn over and that these programs did improve workers' morale and work performance. Fitness and physical wellness programs reduced triglycerides, body weight, skinfold measurements and employees' blood pressure and increased employee aerobic capacity.

The private health insurer, HCF, has invested over $100 million Australian in providing a Members' web based health platform that gives Members personalized support for healthier life style choices (Dearne 2009). HCF's 1.3 million Members can voluntarily participate in this health and wellbeing program. The soft ware for the computer program allows staff to identify health risk factors, suggest appropriate health and wellbeing strategies, suggest ill health prevention strategies, help to

influence behavior change and to provide evidence based medicine. As well as having web based health and wellbeing support, if Members ask for it, they can also have the support from staff by phone. HCF Chief Executive, Terry Smith, said "Our investment will be offset by savings achieved from having a healthier membership" (Dearne 2009, 34). Other health insurers could follow this organization's example in promoting wellness for their Members to reduce their health care costs.

The National Health and Hospitals Reform Commission has found that "Australia is facing an upsurge in people with chronic lifestyle diseases, such as diabetes and heart disease, which tend to be time-consuming and costly to manage" (Creswell 2009, 13). "With obesity levels expanding over recent years, today 62% of Australian men and 45% of woman are overweight or obese. With these figures comes the medical cost associated with this serious health risk along with $1.5 billion annually in direct obesity health costs." (What are workplace wellness programs, 2008). Indirect costs from a work related perspective include work absenteeism and loss of production. To improve wellness in the Australian population the Federal Government "Proposes creating a national health promotion and prevention agency that would make its mission to keep people healthier for longer" (Creswell 2009, 13). The health promotion would apply to people of all ages and promote life long health and wellbeing in the Australian population.

7. Generations of health promotion programs.

Schirmer (1925) wrote about workplace health education programs that were conducted by employers in the 1920s to improve their employees' health, fitness for work and productivity. Fuchs and Richards (1985) wrote that employee health screening, health education programs that promoted a decrease in infectious diseases and positive general health, employee assistance programs that provided assistance to employees with personal problems such as excessive alcohol consumption and programs that promoted positive employee management were common in the 1950s.

Workplace health promotion became a desired business activity in industry in the 1970s when health promotion was promoted by the public health movement and by World Health Organization (Playdon 1997). Telfer (1999) reports on four generations of health promotion programs. When health promotion programs began in the United States of America in the 1970s as a reaction to corporate health costs that were rising by 20-30% per year, health promotion programs usually focused on only one risk factor, such as fitness or weight loss. These programs were usually short term, were low cost to implement and employee participation was usually high and enthusiastic. Many workplace health promotion programs only try to change employees' behavior. In a workplace this is called fitting the person to the job (Pheasant, 1994). People forget that the work environment, work tasks and management practices have a significant effect on the health of employees. For this reason managers have an important role to play in successful health and employee wellbeing promotion at work as this encourages the use of good workplace management practices. This is called fitting the job to the person (Pheasant, 1994).

The next generation of health promotion programs began with the Safety Adviser conducting an organization wide needs assessment. Medical screening, personal observation and examination of accident and injury statistics were used to identify high risk employees and workplace activities for health promotion education and behavior change programs. The third generation programs still focused on making a change to employees' behavior, but widened health promotion to also make changes to the workplace, work processes, environmental and organizational factors to improve employees' health. Fourth generation health promotion programs looked at making changes, not only in the workplace, but also to away from work behavior, employees' families' activities, school programs, community health promotion (like being involved in WorkSafe Western Australia's Safety Town program) and even look at meeting national health improvement goals and targets through workplace health promotion programs (Jansz 2004).

The question can be asked, "How could we change the current limited concept of "wellness programs" which, for the most part, are temporary and of limited value, into an active, generalised, rewarding and quality of life activity?" There is a need for workplace health promotion programs to have a fifth generation of health promotion programs that include physical wellness, occupational wellness, social wellness, intellectual wellness, emotional wellness, environmental wellness, financial wellness and mental wellness.

Medical wellness is a specific type of wellness that is included as a subject in medical, nursing and allied health professionals' tertiary education courses. For example, Scaffa, Reitz and Pizzi (2009) state that occupational therapists in their clinical practice are educated about health promotion and prevention theory and practice from a wellness rather than an illness perspective and that this education includes implementing wellness interventions across the life span using a client centred approach. Throughout their life people have a responsibility to themselves, to their family, to their children, to their partner and to society to be as well as practicable.

As there is such a wide variety of spiritual beliefs the appropriate place to teach spiritual wellness would be in the home. Something that is often forgotten with current health promotion programs is meeting people's spiritual needs. For example, Dr A'Aidah Abd Majid (1997) considered that one of the reasons that Australian workers become stressed at work, and have lower productivity, is because workplaces do not meet their employees' spiritual needs and do not always have a prayer room for staff to take time to pray. Health and well being programs need to also take cultural concerns into account.

8. Life long health and wellbeing.

There are many older people who have good health and enjoy their life. For example, Phyllis Turner left school when she was 12 years old to help care for her brothers and sisters. She then married and raised her own 7 children and 2 stepchildren. When she was 70 years old Phyllis gained top marks in an essay exam at the Adelaide University in South Australia. When she was 90 years old Phyllis completed an Honors Degree in Anthropology at the Australian National University in Canberra ACT. In 2007, at the age of 95 years, Phyllis was awarded her Masters degree by Research in Medical Science from the Adelaide University. "Her academic supervisors, Professors Maciej Henneberg and Colin Groves, praised her lively and fresh intellect. They are now encouraging her to continue studying – to gain a PhD. The South Australian Government named Phyllis South Australia's Adult Learner of the Year for 2007" (Jongen 2008, 5). Phyllis has intellectual wellness.

Buster Martin began working at the market stalls in South London when he was 10 years old and has worked to earn his living

ever since. To celebrate his 100th birthday Buster was going to have a beer at his local pub on his way home from work. "But Pimlico Plumbers, the South London company that employs him as a mechanic and valet to look after its fleet of vans, organized a VIP trip to Chelsea's soccer ground, Stamford Bridge, to pick up a team shirt with "Buster 100" on the back" (Happy 100 2006, 30). "His boss, Charlie Mullins, said: "I was surprised at first that someone aged 97 had applied for a job, but he is definitely an asset" (Happy 100 2006, 30). Buster has a good boss, enjoys his work and does not want to retire from his job. Buster has occupational wellness.

Jim McDonald turned 101 in September 2008. Jim built a cattle empire for his family and still works in his business. Jim's family run 1,700,000 head of cattle on 11 stations. Last year Jim's family had a profit of $209 million Australian. This financial year the profit was $272 million (Families, 2009). Jim McDonald has financial wellness. Barrett Nichols, who was born in 1901 in Bath in Maine in America, is still earning a living winning local golf tournaments at age 105 years (Happy 100 2006, 30). Barrett Nichols has social wellness and enjoys his life. No matter what age they are, if people are well they can have a good quality of life.

9. Conclusions

The question was asked in the title of this paper was "are wellness programs important?" The research conducted to write this paper has found the answer to be yes as wellbeing improves the quality of a person's life and decreases the health costs of society. Workplaces wellness assessment and programs should be introduced before the employee commences work, as is done in the MARCSTA program and in the Mine Workers Health Surveillance program. This pre employment screening and education needs to be followed up with workplace based health and wellbeing programs that include counseling.

Wellness should be a life long learning process to help to allow the highest quality of life possible for each person, and to decrease the burden on individuals and the government of providing health care that would not be needed if the person was well. State and Federal Governments should prioritise the introduction of a school based, Medicare driven, wellness program with a view to improved long term wellness outcomes for future generations with life expectancies approaching or exceeding 100 years. Having good health and wellbeing through out all stages of life makes life enjoyable and allows life to be lived to the fullest, whether the person is 2 years old or 105 years old.

Acknowledgements.

Pat Gilroy, the CEO of MARCSTA, is acknowledged for the helpful ideas and feed back that he provided for this paper. Ommid Nikraz is acknowledged for the research that he conducted on the benefits of workplace wellness programs.

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Literary Review of Hand Injuries and Rehabilitation / Reintegration in the Work Force in Western Australia

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Abstract

Following a work related injury the care of the injured and successful reintegration into the work force is a primary objective of many organizations, both private and public. There are numerous published works that cover the types, frequencies, methodologies for hand injury recovery, rehabilitation, and the effects that an injury may have on the individual, their family, and the community. The purpose of this paper was to review this material in order to create a cohesive and ordered approach to these issues and perspectives. This paper as assessed the direct and indirect costs associated with a hand injury to: the affected person, their family and the organization. It has reviewed barriers that influence injured employee's return to work, and issues that may hinder employer and insurer meeting their legal obligations under Western Australian legislation that deals with workers compensation.

Introduction

Manual handling injuries accounted for 41% of all serious Workers Compensation claims between 2007 and 2008 in Australia, and 13% were hand injuries (Safe Work Australia 2010). The manufacturing, wholesale and retail trades and construction industries account for most of the hand injuries (Safe Work Australia 2008). In Australia, Workers Compensation costed $57.5 billion and constituted approximately 5.9% of Australia's GDP for 2005 – 2006 financial year (Safe Work Australia 2009). Of this, only 1/3 was directly related to the injury; 3% of this cost was borne by employers, 49% by employees and 47% by the community (Safe Work Australia 2009; Mathers and Penm 1999). This cost is one of the primary reasons for employers and governments working towards understanding and facilitating successful return to work (RTW) programs.

Research methodology

The methodology used to obtain literature for this paper was an electronic search of the Science Direct online database. Search parameters were confined to journals dated after 1995; with numerous topics excluded (i.e. those not directly associated with hand injuries). Keywords: hand injury, rehabilitation and return to work were used to refine the search. Presented articles were evaluated and selected according to content and subject applicability. Western Australian legislation was also reviewed to examine the obligations of the involved parties. Other articles and research material was used to support the information presented in this paper. The first part of this paper addresses the direct and indirect costs of a hand injury upon the affected person, their family and the employer.

Direct and indirect costs to the injured person, their family and the employer

The Person

Hand injuries and their recovery times are influenced by the person's age, previous history of injury or illness (either to injured body part or body's immune system), current physical and mental health, family and social stability, activity and fitness levels, current medication consumption (for epilepsy, depression, anxiety, etc) (Taylor et al. 2003), their motivations (i.e. preferred behaviors (instrumental values) or individual goal setting (terminal values)) (Robbins et al. 2004) and overall employee satisfaction (Harris et al. 2007). Another consideration is how extensive the injury may be (i.e. complex repairs - ligaments, tendons, bones) as extensive injuries will require complex healing (i.e. fibrous (scar tissue) repair or bone knitting); which means longer recovery times and delays to returning to normal pre-injury activities (McConnell 2007).

Briand et al. (2008, 207) states recovery rates are based upon "three central elements: individual psychological factors, work environment factors and factors related to the involvement of various stakeholders". Poor interaction, communication or involvement between stakeholders may lead to the development of six categories of injury recovery issues. These recovery issues are identified in table 1. Note: Psychological losses are broken down into three stages to represent escalation of psychological distress within the individual; these may present themselves at different times dependent upon the individual. Another concern is dietary changes which may influence both functional and emotional losses (Schunemann et al. 2010).

Table 1 - Six stages of long term injury effects upon an individual

Physical Losses	Functional Losses	Emotional Losses	Psychological Losses		
			Stage 1	State 2	State 3
	Employment	Self -Image	Self-Doubt Guilt	Fear	Anxiety
	Income	Security	Uncertainty	Loneliness	Depression
Pain or Restricted Movement	Mobility	Social Contact	Isolation	Misery	
	Recreational Activities	Enjoyment	Boredom		
	Fitness	Sense of Wellbeing			
	Independence	Self Esteem	Dependence, Frustration	Anger	

Sourced from: Taylor et al. 2003, p212.

Table 1 demonstrates there is a broad range of consequences from the short term (physical losses) through to the psychological losses (long term). These issues should be considered by the Occupational Therapist (or equivalent) as the RTW program progresses.

In order to minimize the effects of an injury, an injury management and RTW program needs to be thorough, consistent and support mechanisms financed (i.e. resources allocated) (Hetherington and Earlman 1994; Toohey et al. 2005). Therefore, and injury management program, should consider:

- Provision of specialist contact(s), counselors,
- Participative approach when planning and coordinating the return to work program
- Regular review of employee progress and workplace performance (including goal setting)
- Ongoing morale and financial support throughout a re-training program: and,
- Establishment of regular contact capability between employee and co-workers (e.g. restricted duties at place of work; productive and meaningful duties are best). (Taylor et al. 2006).

Early intervention and structured RTW program implementation is a key element in maximising the chances of employee recovery and wellbeing, and may also assist in minimising workers compensation costs (Hetherington and Earlman 1994; Taylor et al. 2003). The issues that may arise for an individual may not be limited to them directly. External parties may also be affected; primarily the family of the injured member and secondly those within the affected organization. There are also consequences to a family unit.

The Family

With trends leading to patients being sent home earlier for 'home-based care'; families are assuming greater responsibility for financial, physical, and emotional management and support; especially if the injured person is the main wage earner (Hetherington and Earlam 1994). Although this reduces the direct cost to an organization, the result is an increase in costs being placed upon the family (Lim and Zebrack 2004). These costs may not equate to a dollar value. When considering the time, specialised training (as required), research, time off work, and career support requirements and expenses in all aspects of home life; costs increases dramatically (Dias and Garcia-Elias 2006). Janssen et al. (2008) commented that support mechanisms provided by the family assist in the recovery of patients after severe trauma this included a better quality of life when also re-integrated back into the workforce; however, partners in established relationships were willing to assist in providing care, but they also wanted that person to return to their normal activities after a certain period of time, though no specific time period was indicated.

As a result of these costs, work-life balances may shift in the family unit (spouse, children, parents, siblings) resulting in increased relationship stress, role reversals within the home, financial stress, anxiety, frustration, loss of freedom, social isolation, anger, legal costs (if claim contested), and for long term care possible deeper psychological (e.g. depression) or physiological issues (e.g. fatigue) developing (Toohey et al. 2005). These outcomes become increasingly similar to those outlined in psychological stages 1 through 3 from table 1. The added stress and concern affected upon the family, may also impact upon extended family and indirectly involved organizations (social clubs, education facilities) (Safe Work Australia 2009).

Consideration for the welfare of the family should be considered as part of a holistic injury management and RTW program. The National Respite for Carers Program as funded and run by the Department of Health and Aging, provides a range of services to give families a break from caring for someone full time (especially for extended periods), this may be an option as part of a family support mechanism. As this will need to be funded, it is appropriate to examine the effects of employee injury has upon the employer.

The Employer

The costs to an organization may be comparatively low compared to the individual and their family; however, costs in reputation and public image may be significantly higher. Directly, costs include: loss of experience (i.e. corporate knowledge) and productivity of the employee, skills training and/or sourcing of a replacement, medical expenses, investigatory requirements, loss of production, loss of task focus and morale by other employees due to injury, consultancy costs (as required), travel costs of involved parties, provision of counselling services, supervisory increases (at least in short term), injury impact upon co-workers, and possible expense of resettling the employee closer to treatment facilities (short or long term) (Cameron 1977). There are financial costs if the employer is found to have breached legal requirements. More far reaching consequences may include loss of public image and loss of client and / or stakeholder confidence; thereby resulting in organizational financial collapse.

Possible barriers that may hinder the return to work program

Due to possible misconceptions (e.g. fear of retrenchment) and lack of understanding of workers' compensation and eligibility; many workers compensation claims are not filed (Quinlan 1999). Of those filed in Western Australia (WA), some end up in front of the Disputes Resolution Directorate (independent body within WorkCover WA), or in the courts. Some barriers are outlined below.

Employee Barriers

Employees may be hesitant to complying or actioning workers compensation claims. This may due to:

- Knowledge level and perception of workers compensation processes and employer (i.e. comments from workmates, family, friends, lawyers, unions)
- Knowledge level and understanding of legal obligations
- Understanding of RTW program (goals, expectations, performance requirements)
- Miss-understanding or confusion over diagnosis and severity of injury (especially if conflicting opinions exist)
- Length of time of injury recovery (actual and planned)
- Cultural beliefs (age, sexuality, religion, preferred behaviours, self and peer perception, work ethics and motivations)
- Education and experience levels
- Current or previous histories of medical and psychiatric issues (injuries, illnesses, substance abuse)
- Non-participation in development of RTW program. (Quinlan 1999; Robbins et al. 2004; Schaub and Chung 2006)

Employer

An employer may encounter these issues with RTW programs:

- Financial limitations (e.g. costs vs. number of employees)
- Issue of negligence raised based on investigatory and confirmatory evidence
- Availability of suitable alternate duties
- Delays in diagnosis or injury recovery
- Complications of original injury
- Business culture (work face, management, ethos)
- Availability and accessibility of

specialist care
- Employee is keen to RTW prior to injury resolution
- Knowledge level lacking towards responsibilities and obligations
- Poor policies, procedures and communication systems
- Cost of in-house management vs. lodging a claim
- Workers compensation not accepted by insurer
- Employee dismissed from workplace and contests decision
- Employee perceives workers' compensation as a source of income (Robbins et al. 2004; Schaub and Chung 2006; Butler 1997).

Each of these issues will have a direct effect on the insurer and their ability to properly follow through with an appropriate return to work program and workers compensation process. The barriers that an insurer may face are discussed next.

Insurer

Barriers to a RTW program from the insurers' point of view may include:
- Contest by employee towards diagnosis and treatment options
- Contest by employee towards pay rates on restricted duties
- Deeming of an injury to not being work related
- The contesting by employee to level of disability or impact the injury
- Deeming of negligence or non-compliance by the employee or employer and therefore refusal to honor the claim
- The extended time periods of ongoing claims. Insurer and Employer may consider paying out the injured person rather than continue with extended worker's compensation claim
- Employer does not fully understand its obligations and responsibilities
- Lack of effective Occupational Therapist (or equivalent)
- Lack of commitment from employee towards RTW program
- Common Law (precedence in court) claim by the employee over their treatment (against employer and insurer)
- Statute Law (law set by federal and state government) (WorkCover Western Australia Authority 2008).

Each of these barriers however, may be overcome with open and transparent communication, careful planning (prior to injury; during; and, post care management), establishing and maintaining appropriate systems and procedures, coordinated responses (from involved parties, including: provision of counselling services, access to support groups, provision of contact details and points of contact), clearly defined goals (injury recovery and RTW) (Taylor et al. 2003; WorkCover Western Australia Authority 2005; Pimentel 1996), regular in-house training to employees, and sustained contact throughout the workers compensation and injury management process (including follow-up RTW) (Robbins et al. 2004). If applied to the employee, the family and the organization, any barriers may be lessened; thereby fostering a more open and understanding view of the whole RTW process. This may also minimize costs to the employee, their family, the organization and society (McInnes 2006).

Legal Issues arising out of Workers Compensation claims

The main legal issues that may arise out of a workers' compensation claim can include:
- When the claimant (injured person) contests decisions made regarding:
  - The amount, the reduction or ceasing of payments
  - Long rehabilitation times related to the injury leading to secondary problems (mental health or health issues)
  - Slow or improper completion of documentation
  - Claimant presents contesting medical diagnoses of injury
  - Labeling of a certain level of disability or permanent impairment
  - Late reporting of claims or injury occurrence
  - Advice of acceptance, denial or deferment of decision
- Perception of discrimination or harassment by claimant of the employer or workplace.
- Possibility of claim of undue financial hardship as a result of the injury and payments amount (Butler 1997).

Many issues may result in legal complications. Prevention includes: all parties communicate clearly and openly, and maintain up to date policies and procedures in accordance with legislative changes.

Conclusions

This paper reviewed articles related to workers compensation and rehabilitation. Most articles focused upon the impact to the employee as a direct cost with only a small number discussing the impact to families. Legislative compliance was broadly covered due to the generally international perspectives of the contributors. More research and consideration may be required to better explore and costs to families, and development of tools that may be easily communicated to employees, their families and employers to help them to be able to support an employee with a work related hand injury.

The major points discussed in this review of published literature were the direct and indirect costs that a hand injury may have upon an employee. These included the physical, functional, emotional and psychological costs. These ramifications were demonstrated to have significant impact to the family unit. As an organization the direct costs may be small compared to that incurred by the individual, the family and society; however, indirectly the costs could have dire consequences if public perception turns against the company. Finally, the paper discussed the barriers to the employee returning to work that may be experienced when workers compensation and injury management claims arise. In summary, all the issues raised could be resolved through thorough planning, coordination and communication between all parties.

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The Impact of Hand Injuries on Employees, Employers and Injury Compensation in Singapore

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Abstract

As Singapore attempts to clamp down on poor OHS performing organizations through the demerit point system (MOM, 2010), they have implemented more balanced compensation legislation for workplace injuries in order to protect the employer and employee. The rate of injuries has fallen over the last ten years, however, the number of claims and the amount paid out has increased. The figures published by the Singapore Ministry of Manpower (MOM) shows a sharp increase, in compensation payout's, since the introduction of the new Work Related Compensation Act 2008 e.g. between 2008 and 2009, there was a rise of S$9 million, the largest increase seen by the MOM (2008).

The Singapore Ministry of Manpower indicates on their website (MOM, 2006b) that the number of hand and finger injuries has fallen gradually from around 2112 reported cases in 1996 to 1619 in 2005[1], however the overall amount of compensation paid out, for the hand and finger category, is unclear. In addition to this, the level of disablement, whether temporary or permanent, for hand and fingers per industry is also not clear, however there is an indication that "other factors" other than the construction and shipbuilding sectors carry the highest number of disabling injuries (MOM, 2006c)

Keywords
Injury management. Injury costs. Injury obligations. Injury barriers. Hand injuries. Accident costs. Compensation in Singapore

Introduction

The cost of compensable injuries in Singapore was thought to be in excess of S$75 million, in 2009. (MOM, 2010) and has increased annually from around S$60 million in 2006. However, the cost of an injury may be much higher to the individual, organization and the insurer, as some costs are insurmountable, particular for the former two parties, as the impact will be far greater. In fact, the figures quoted by the Ministry of Manpower (MOM) is based upon figures reported to them from Medical Certificates (MC) and hospitalization (MOM, 2010), and does not cover minor injuries which are severe enough to result in the injured person being away from the workplace.

Despite the Singapore government's efforts to offset the cost, by providing financial assistance for individuals and organizations by making it easier to cope with injury and illness, the full impact of an injury cannot be quantifiable. The injury or illness assessment, conducted by an organization, in most cases will be underestimated as the underlying costs, are seldom fully recognized (Hockey and Miles, 1999; Fayed et al, 2003; Pathak, 2008), assuming that the organization considers potential cost as an accident parameter during the management review of incidents.

This literature review has been undertaken in order to identify the potential impacts of injury to the three main parties i.e. will attempt to highlight the potential impacts and barriers of the individual (Injured Party) and their families, the organization in which the individual is employed and the insurance company. In addition to this, the article will also highlight potential problems and issues that hinder the respective party's obligations as well as the barriers that maybe present in preventing a worker from returning to work, following a hand injury.

Methodology

In this study, several articles were researched from peer journals as well as information from the internet, using the keywords as a basis for the search. Whilst there was a quantitative amount on the internet regarding litigation claims and legal advice there was little in the way of articles regarding the effects of hand injury on the individuals, organizations and the insurer. It was also noted that the cost of injuries was generic, in that the costs were not specifically attributable to hand injuries, but more general in terms of compensation paid out for all injuries.

Whilst there is some publicized research conducted on hand injuries, many scholars base their articles on researching consensus, taking a sample population from medical fraternities e.g. hospitals, medical centers and local doctor's clinics and is largely based on questionnaires provided to the sample size. The data size collated varies from a few to four hundred persons.

Discussion

One would suggest that no employee goes to work in order to injure themselves and while the author recognizes that there are cases where OHS procedures and rules are bent, or broken, to meet time pressure targets, workers still expect to go home without any injuries to themselves, or indeed, impacts to their families (Potter and Potter, nd.). This can be further substantiated by the project study in 2008[3], which showed that foreign workers felt exposed as there was a lack of experience and therefore relied heavily on their respective organizations to guide them to safe practices i.e. if they were left unsupervised they would potentially unknowingly breach OHS procedures as they believe that timely execution of work would bring them praise.

Hand injuries constitute a huge impact to any individual and their families (Schaud and Chung, 2006), and the author believes that an injury to the hand may have an impact equal to an individual losing a limb or their eyesight, because a person's hands are probably the greatest tools a human has the benefit from (Dumont et al, 2008, p69) i.e. the human uses their hands as tools in every task that they undertake in one way or another (Dias and Garcia-Elias, 2006; Kingston et al, 2010).

The Impacts of Injury on the Individual and Family

Obviously the most widely recognized impact, to the individual and their family, relates to income. While in some developed countries, like Singapore[2], limited assistance in offsetting some of the cost is provided, many developing countries don't offer assistance, so therefore the cost impact may be greater to them. In some developed countries, insurance or government supported schemes do not offer support to foreign workers and therefore foreign labor is often left in limbo after the initial treatment. In Singapore this has a greater impact to the foreign workers as a huge number of foreign labor are imported under labor agencies and therefore once an injury has been sustained, they are treated initially and then returned to their home

country, by the employing organization. In some cases the cost of initial treatment is not picked up by the employing company, which in some cases, results in a dispute between the employing organization and the labor agency.

The decrease in an individual's income, impacts most aspects of daily life and a prolonged injury, obviously, has the greatest impact. Some employees may be able to sustain no work for a short duration, in many cases only a few weeks, for the unskilled, which then impacts payment for school costs and comfort levels of living become apparent. In terms of hand injuries, this could be potentially prominent, as workers would seldom return to work on light duties because of the mobility and dexterity restriction and the company's believe that a manual laborer (unskilled) has no skill to do any other work.

Physical handicap interfaces on the psychological and social fronts, as an individual may believe that because they are unable to conduct work, they may feel useless, which will inherently lead to depression (Pinsent, 1973, p136; Peterson, 1979; Kilbury et al 1996). In conjunction to this, many of the cultures in Singapore, still look to the male of the house to be the main breadwinner and therefore, the male, when injured, may feel more inadequate as they are no longer able to provide for their families, whether it is on a long or short term basis.

In terms of a sociological aspect the individual may believe that he or she is a burden to society (Pinsent, 1973, p137; Peterson, 1979; Kilbury et al 1996), as they have a hand disability and therefore require constant assistance. Although short term disability does not result in a huge sociological problem, permanent disability does from a psychological aspect. From experience in China, those with permanent disabilities are often deemed as 'outcasts to society' and there is no help from the government in terms of financial or housing aid. Families of the injured party will often take care of their needs (Kilbury et al 1996), but these are believed to be limited as they have their own families to care for.

The impact on the family takes a toll, particularly if the family members are working, as there is no one in a position to care for the injured party (Kilbury et al 1996) In the case of a hand injury, impacts such as food preparation are extremely difficult as well as bathing and toileting. In both these instances, hygiene can become an issue for the individual, particularly if there is an exposed wound arising from an operation or amputation. It is understandable that wounds of this level will be dressed, in which case there is a risk of infection from prolonged exposure to dampness. It can be argued that, in terms of food preparation, persons with hand injuries may seek food from third parties in Singapore e.g. hawker centers

Employee Obligations

Many of the organizations in Singapore have nominated company doctors to represent them for their organization's medical needs, though admittedly, they generally are used for common, non work related illnesses. Employees, with workplace illnesses and injuries, are however, required to attend medical follow up appointments (MOM, 2008, p9), with registered medical practitioners, which are being paid by the employers (MOM, 2010, p5). Seldom does the employer follow up or provide checks on local employees, though foreign labor is usually taken to the appointment by company transport, as foreign labor does not usually have the resources to pay for attendance (Ong et al, 2006), whereas the local labor usually has insurance and is well versed with the medical facilities in Singapore.

It is worth noting that most of the foreign labor, in Singapore, is here because the financial prospects are better than their home countries and therefore will work as soon as possible following an injury. Ong et al (2006) suggests that foreign labor is a burden on emergency services, though in retrospect provides a financial income to medical facilities through non insured costs, despite their employers having to foot the bill. The author believes, with respect to foreign labor, that for permanent disabling injuries, in Singapore, the injured individuals are usually returned to their home country, with no further follow up treatment, as the legislation only covers services by Singapore recognized medical providers (MOM, 2008), and therefore, employers are not required to provide financial support, as the employee would no longer be employed.

Organizations also expect the employee to ensure that quick recovery is promoted i.e. requires employees to follow medical advice and not undertake any activity that may hinder or prolong recovery e.g. not doing sports activities.

Employees wishing to claim compensation must apply within one year of the injury, directly to the MOM and is required to undergo a medical assessment in order to ascertain the extent of the injury, however, the employee may lose the right to claim, if they fail to attend an assessment more than three months from the assessment date.

Potential Return to Work Barriers for the Employee

There are several issues that may present barriers to the employee when they return to work. In terms of medical, establishing a level where an employee is fit for work is sometimes a challenge. In some cases, medical professionals will discourage an employee from returning to work until they are more than ready. The author does not believe this is due to anything other than the fact that when the employee is working, the healing process appears to take longer, and the added increase of risk from infection.

Work demands on the employee, once returned, may increase leading to a risk of missing vital medical appointments such as physiotherapy and post medical follow ups.

Reduced dexterity or mobility, particularly in the case of a hand injury, may prevent the injured employee returning as the restriction may not allow the individual to undertake their normal role within the organization. Furthermore, if the organization has filled the role, believing that the injured person, cannot make a full recovery or as a temporary measure, this will lead to the individual either having a delayed return, whilst the organization attempts to find a new role or may prevent them returning at all due to the position being filled i.e. the organization giving them notice as per their personal contract. If the injured individual is prevented from returning, there may also be a barrier in finding new employment, particularly if the individual has made recovery, but lost some use of his or her hand or fingers. This is not uncommon in the construction industry as the demands to meet schedule and cost increase pressure on project completion.

In terms of reduced mobility, the injured employee may have to undertake retraining for a new role. This inherently will take time and may prevent the employee returning timely especially if the training is conducted by an outside organization. By the same token, for a skilled person to retrain to a different skill, a company may be reluctant to underpin the cost or support the time to the retraining and may attempt to terminate the individual.

The Impact of Injury on the Organization

To a certain extent an organization has

insurance to offset some of the cost burden of injury management; however the insurance cover is limited to the majority of medical costs and compensation claims. The insurance may also cover the costs such as loss of earnings, funeral costs and repatriation following a fatality, but insurance is unlikely to cover the costs associated with prosecutions following government inspections and findings that may have contributed to an incident i.e. negligence.

Uninsured costs may rise as insurance companies may consider that an incident is suggestive that the organization is a higher risk and this is more so the case if the organization has a trend of severe injuries. This increase could be regardless of whether the individual worker cut corners to meet the schedule on his own accord, as a company management may be regarded as lapse in supervision and having the correct checks and balances in place to safeguard against such an incident or OHS for their employees.

In addition to the increase in insurance premiums, the company reputation may suffer. In the construction industry, many lessons of the more serious accidents are shared throughout the industry, because the major companies, particularly the international companies, pride their OHS on leading indicators and the fact that OHS is about recognising incidents when they occur and sharing any learning to help prevent the same incident reoccurring. Favorable statistics inherently lead to more contracts for work.

The cost of lowered morale amongst the workforce will also be uninsurable, as the cost is insurmountable and cannot be quantified. It could be argued that the cost of lowered morale could be benchmarked against previous production performance however, there are other factors to consider that may sway the overall production levels e.g. break down of machinery, delays in material deliveries etc. In addition to this, lower employee morale may lead to industrial dispute or union intervention, which inevitably will result in loss of production or delay in schedule. In additional, the loss of organizational or production bonuses may be lost as well as project incentives for meeting targets[4].

From an administration point of view, the cost of incident investigation can be both expensive in terms of time and numbers on the team and can ultimately delay the continuation of production. Furthermore, the inadequacy of an investigation may result in an increased likelihood of losing a litigation case and may not identify the real underlying cause's e.g. systematic failures, design issues, training or cultural misunderstandings.

On the other hand there is a cost implication for replacement of the worker, should the injured employee be unable to undertake the same function or time lost through temporary disability. Unfortunately for most organizations replacing organizational specific knowledge and experience, cannot be done so easily or readily and it is more than likely that any replacement employees will have to experience a very steep learning curve which may be hindered somewhat if they are not guided or adequately supported by the organization, as often seen in the Asian culture. In addition to this, a replacement employee skills and productivity rate is largely unknown, until the employee starts work and displays his or her qualities.

The Employers and Insurers Obligations

The employer is required to notify the MOM of the employee's hand injury, if the employee is off for three consecutive days or admitted to hospital for more than 24 hours (MOM, 2006, p5; MOM, 2008, p5). According to Dias and Garcia-Elias (2006), it is likely for more serious hand injuries like amputations and crush injuries that hospitalization will be more than 24 hours as the hand surgery often required takes several hours and the patient would not be released until the surgeon is happy that circulation has returned to the hand and fingers.

The employer, under Singapore legislation[5] is obliged to pay all medical expenses, for medical treatment sustained up to one year from the injury date, to the employee; however, this is capped at S$25,000 (MOM, 2008, p4). Within this stipulation, medical expenses incurred by the employee, must be at a registered hospital or medical practitioner[6] and the employer must pay these expenses directly to the medical provider e.g. doctor (MOM, 2008, p4), including medical report fees and artificial limbs, medicines. See et al (2009) suggests that the Work Injury Compensation Act, falls short of protecting workers from latent injuries such as Asbestosis or Cataracts, as claims are required to be filed within one year and as both of these examples may appear after one year, the employee may not be included. Claims for asbestosis, opens another chapter, as asbestos related injuries are extremely sensitive and often not covered by normal company insurance because of the potential financial impacts.

Furthermore, the employer is also obliged to ensure that the employee receives a full salary for up to14 days covering outpatient medical leave, which progresses to two thirds of their salary for a full year following the incident i.e. the employer is only required to pay two thirds of the employees salary if the employee is off work longer than 14 days[7] (MOM, 2008, p5). The employer is also required to pay full salary whilst the employee is hospitalized for up to 60 days.

All medical leave payments to the employee are required to be paid in line with the employees normal salary pay date (MOM, 2008, p5).

In terms of permanent disability, employers are obliged to pay the employee compensation, based on a calculation undertaken by the MOM, though the payment is capped at S$180,000 multiplied by the percentage of loss of earning capacity[8], with a minimum cap of S$60,000. Although organizations are not required to provide insurance for workers earning less than S$1,600 per month, they are still liable for any claims leaving employers exposed to providing compensation should an injury occur (MOM, 2008, p6, See et al, 2009, p727).

Once a claim has been made, the MOM will assess the claim and notify all parties involved of which, if there are no objections, the amount stipulated shall be paid within 21days.

Potential Barriers for the Employer and Insurer

Potential barriers for the employer and insurer, in the first instance would be to bring an employee back to work before they are fit. As stated before, the foreign labor, who is only concerned about his welfare of his family and therefore to send money home, is more likely to return to work before he is medical fit. On the author's project[9], it is common to see a worker working extended hours, as the rate of overtime significantly increases the monthly income and therefore it is common for workers to attempt to avoid reporting injuries as they believe that the case management, in terms of the medical aspect, leading to a restricted work duties and the subsequent reduction in income. It is also known, that in Singapore, injured workers often abscond when they seek outside legal counsel and pursue claims under common law.

Another example of an impact that may present itself, to the employer, is one that

involves a latent disease or illness. In terms of a hand injury case, temporary or permanent disability is fairly straight forward if the injury is evident during the medical assessment, however, what additional compensation is available twenty years following the injury, when the worker develops arthritis in the joints, as a result of that injury?. Chances are none as it would be difficult to prove that the injury alone caused the condition. It is more than likely that for a foreign worker, there would be no claim, as the predominance of the labor comes from developing countries and therefore may not have the financial backing to pursue a claim (See et al, 2009).

Under legislation, the insurer does not have an input into the level of disability of an individual that pursues a claim under the MOM. The commissioner of the MOM, in conjunction with a medical assessor, calculates the claim and issues the notice. The insurer and the employer do have a right to challenge the 'Notice of Assessment' within 14 days, however, that cost of additional medical reports, and other expenses is to be borne by the objecting party (MOM, 2008, p10).

Another potential barrier exists where third or fourth tier contractors or labor agencies exist, as employers may not wish to undertake labor sources from these organizations if it is found that the individual is breaching OHS procedures. On the other hand, labor agencies may not wish to provide labor to organizations that have a heightened level of injuries.

Conclusions and Recommendations

Without doubt the impacts from an injury at all levels and within all parties, is related to financial elements. From a worker's perspective, an injury results in little or no financial income, other than the requirements stipulated by the Singapore Ministry of Manpower. If a worker has no income, this places additional stress and burden on the family, particularly in relation to living costs. For the injured party's family, they may have to take time from work to care for an injured family member which, places a financial burden on them, and whilst normal working hours are covered, in terms of pay, the overtime that is undertaken by many Singaporeans, would be lost[10].

Gomez (2008) suggests that the Singapore compensation legislation is fair to both the employers and employee in terms of compensation payments for workplace accidents, however, the legislation, whilst covering employees working for Singaporean companies abroad, does not cover all sectors of industry e.g. domestic workers, independent contractors, self employed.

Despite the Singapore government making a more fair compensation system for injured workers, the fact still remains that compensation for injuries still resorts to monitory terms. Although this is not unlike any other country in the world, the additional cost that would have to be undertaken by a young person following a disabling injury, e.g. to a hand or finger, will be significantly higher than a sum that will be received and indeed has the longer impact. In addition to this, whilst the human may learn to adapt after losing a hand or fingers, there are many things that compensation cannot replace e.g. playing with children, holidays with the family, self respect etc.

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Footnotes

1) Figures based on MOM reported cases.

2) The project study was not undertaken for OHS engagement and cultural aspects i.e. not specifically for hand or finger related injuries, however, minimal conclusions can be drawn from the data collected. They project name has been intentionally omitted for legal reasons.

3) Singapore is regarded as a developed country based on the International Monterey Fund (IMF).

4) The author recognizes that incentives have disadvantages in that they man lead organizations to hide incidents, however, they are also a good management tool if thought out and executed in a professional manner e.g. having multiple levels of checks and balances in place to ensure incidents are not hidden and are systematically managed.

5) Under the Work Injury Compensation Act 2008.

6) Registered and licensed with the Singapore government.

7) Public holiday, rest days and non working days are excluded from the count. Public holidays are to be paid as normal under the Employment Act.

8) This may be increased by a further 25% if it is established that the worker has 100% disability.

9) The project details, location have not been advocated for legal reasons.

10) It is the authors experience and opinion that due to the high cost of living and comparatively low wages, in Singapore, working hours are extended by means of overtime. This is somewhat substantiated by the falling number of births each year as more and more individuals work additional hours to cover the cost of living.

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A Critical Literature Review of Stress as a Work-Related Illness and its Effects on the Employee and Employer'

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Abstract

Stress as a work related illness can pose many health and economic problems in the work environment not only for the employee and their family but the employer as well. This critical literature review discusses stress as a work related illness by concentrating on the nature of stress, the work environment causes, the family and how workers' health can be affected by stress. The result of this review shows a mutual approach by employees and an employer in dealing with stress at work is essential to continue to reduce this common and costly problem that is currently facing the Australian economy.

Introduction

Workplace stress has become a common and costly problem for the Australian workforce. Many people conclude that stress has become 'a way of life' (Helpguide.org 2010). Medibank Private (MP) also states Workplace Stress is a growing concern according to their report; "The Cost of Workplace Stress in Australia". MP stated stress related compensation claims made by Australian employees doubled between 1996 and 2004.

This Critical Literature Review identifies how stress as a work related illness can affect an employee, their family, and their employer. Furthermore, this paper looks at the obligations of the employee, possible barriers that could prevent the ill employee from resuming work, and the problems that may thwart the employer and insurer from carrying out their legal obligations under the Workers Compensation and Injury Management Act 1981 of Western Australia.

Nature of stress and workplace stress

Stress can sometimes be confused with challenge, but they are not the same. The NIOSH Working Group (NWG) (2010) states 'challenges energise us physically and psychologically, and it motivates us to learn new skills and master our jobs, and when our challenge is met we feel relaxed and satisfied'. This may be why some people say 'a little bit of stress is good for you'. But when challenges turn into job demands, exhaustion, and feelings of stress, the stage is set for illness, injury, or job failure.

Stress is a normal physical response to events that make you feel threatened or upset your balance in some way (Helpguide.org 2010). It involves the interaction between task demands, the person and environmental conditions (Unit Guide Topic 1 2010, 1). Stress can also be described as the consequence of the failure of a person to respond appropriately to emotional or physical threats whether actual or imagined (Wikipedia, 2010). NT WorkSafe (2000, 7) describes the term 'stress' as an individual's response to pressure.

The events that cause stress are known as 'stressors' and how a person chooses to respond to a stressor will depend on their personality, their perceptions, and their past experience. Helpline.org (2010) describes stressors as the situations and pressures that cause stress.

Medibank Private (2008) also indicates the stress process originates with exposure to stressors and explains the following types of stressors associated with work.

TABLE 1 Work Related Stress

Types of Stressors	Examples
Work Factors	Excessive work hours Unreasonable performance demands
Physical environment	Noise and overcrowding Health and safety risks Ergonomic problems
Organization practices	Lack of autonomy Poor communication Unclear roles and responsibilities
Workplace Change	Insecurity in the job Poor chances for advancement or promotion High turnover
Relationships	Office Politics, competition and conflicts Poor relationships with superiors Bullying or harassment

(Medibank Private, 2008, p.4)

Stress is a complex issue according to the ACCI (2010, 3) and can be defined as 'the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources, or needs of the worker'. Workplace Stress according to MP (2008, 4) is the 'response people may experience when presented with work demands and pressures that are not matched to their knowledge and ability to cope.'

Environment

What effect the environment has on stress depends, at least in part, on the person's perception of it. Something that's stressful to one person may not affect someone else; they may even enjoy it; e.g.: the morning drive to work may make one person anxious and tense because this person worries that traffic conditions will make the person late. Other people, however, may find the trip relaxing because they allow more than enough time and enjoy listening to the radio while they drive. Or dealing with unpleasant or dangerous conditions such as crowding, noise, air pollution, or ergonomic problems may pose stressful environment responses from employees (NWG 2010).

NT WorkSafe (2000, 7) states that a "worker's ability to cope with increasing workplace stress is affected by the amount of stress they are subjected to from stressors external to the workplace." A person can cope with occupational stress according to how much they feel endangered by stressors; the actions they know can lessen the impact of the stressor; and their projection as to how they will cope with the stressor. However, anything that puts high strain on a person or forces the person to fine-tune can be stressful. This includes affirmative events such as getting married, buying a house, going to college, or receiving a promotion.

Employee

Stress sets off an alarm in the brain which responds and sets the body in defensive mode. Short periods or episodes of stress pose little risk, but if stressful situations go unanswered wear and tear to the body's biological systems occurs. As a result fatigue and the inability of the body to repair and defend itself cause the risk of injury or illness to occur. (NWG 2010)

Some of the early warning signs of workplace stress are;

- Headache
- Sleep disturbances
- Difficulty in concentrating
- Short temper
- Upset stomach
- Job dissatisfaction
- Low morale (NWG 2010).

Research shows that ultimately stress could cause cardiovascular disease, musculosketal disorders, psychological disorders, workplace injury, suicide, cancer, ulcers, and impaired immune function (NWG 2010). Some of these are chronic diseases and can be caused by other factors as well as stress. Nonetheless, evidence is proving stress plays a large role in several types of chronic illnesses.

Rechichi (2006, 293) believe employees with work related illnesses like stress face many barriers when returning to or finding new employment including practical work skills, social barriers, alternative options, and community attitudes. Mills states in her research paper (2009, 20) that prevention is better than cure. This is something to think about when considering workers compensation claims.

According to the Workers Health Center (WHC) (2004) to alleviate stress employees can address the following guidelines.

- Eat regularly and well
- Take regular exercise
- Use relaxation techniques
- Get a good night's sleep
- Address their family and social life
- Limit the use of tobacco, alcohol and other drugs.

Family

Feeling too tired and/or having a lack of interest in social and/or family life is frequently reported as a consequence of work related stress according to WHC (2004).

Dealing with a work related illness like stress can prove to be a very difficult event for one's family. Wakefield (2006, 37) believe families can be dissimilar in how they manage and deal with these situations. Families can experience loss, grief, anxiety, and reduced support from the extended family and friends and negative attitudes from the community (Ross 2006, 7).

When a person has trusted family and friends that they know they can count on, life's pressures don't seem so overwhelming. Spending time with the people they love is very important in preventing a person letting life's responsibilities rule over them (Healthguide.org, 2010). However if close relationships are contributing to the reason why the person is stressed then it must become a priority to build better relationships.

Employer

Workplace stress is a management concern and employers need to recognise this as a significant health and safety issue.

Productivity losses through workplace stress reduce overall business, productivity resulting in lower Gross Domestic Product, private consumption, investment, imports, exports, and industry production (MP 2008, 8). A healthy organization is defined as one that has low rates of illness, injury, and disability in its workplace as well as being competitive in the market place. NWG (2010) states in their research that an employer should possess the following characteristics if they are to have a healthy low-stress and high productivity workplace:

- Recognition of employees for good work performance
- Opportunities for career development
- An organizational culture that values the individual worker
- Management actions that are consistent with organizational values

It is in the employer's best interest to implement stress management programs to develop a picture of the physical and mental health of their organization. This can be done using workers compensation data concerning information about accidents, staff turnover, absenteeism, sick leave, morale and industrial unrest. These programs need to target changing the stressful situations within the workplace, helping employee's change their reactions to stressful situations, and allowing employee's time for rest and relaxation in the workplace (Helpguide.org 2010).

The organizational changes that employer's can implement according to Helpguide.org (2010) and NWG (2010) to reduce stress are recorded in Table 2.

TABLE 2. Reducing work related causes of employee stress

Organization Changes	Examples
Improve communication and Management style	Share information with employees to reduce uncertainty about their jobs security. Define job roles and responsibilities and don't over load employees responsibilities. Keep communications polite, friendly and effective
Consult your employees and Work roles	Allow employees to participate in decision making.

	Consult employees about scheduling and work rules. Avoid unrealistic demands on employees. Value and support your employees and show that to them.
Offer rewards and incentives and Career Concerns	Praise good work performance verbally and institutionally. Opportunities for career development. Promote and 'entrepreneurial' work climate giving employees more control.
Cultivate a friendly social climate and Interpersonal Relationships	Provide opportunities for social interaction. Establish a Zero-tolerance policy for harassment. Make management actions consistent with organization values. Develop family-friendly policies.

(Helpguide.org 2010, p.4)

Another approach to dealing with stress at work in a direct way is organizational change according to NWG (2010), by bringing in a consultant to recommend behavior to improve the workplace environment. This will help identify stressful aspects of work - like excessive workload – and design strategies to eliminate stressors. This approach deals with the root causes of the stress problems in the workplace. Employer's can sometimes be ill at ease with this method of dealing with stress issues as it may hinder production and involve changes in work schedules. (NWG 2010).

Prevention of workplace stress is the third approach to dealing with stressors in the workplace. This is discussed in table 2 above where it shows ways of avoiding or reducing stress all together. The steps towards prevention of stress are:

Step 1 Identify the Problem
Step 2 Design and Implement Interventions
Step 3 Evaluate the Interventions.

Stress Management should not end with evaluation, it should be a continuous process that uses evaluation data to refine or redirect the intervention strategies (NWG 2010).

Conclusion

This critical literature review has discussed stress as a work related illness and addressed its effects on the employee and employer by conveying the opinions from appropriate journals and references through addressing the nature of stress, the environment, the family, workers compensation and legislation. The author believes that a collaborative approach by employers and employees to deal with stress as a work-related illness could help increase the health and wellbeing of the Australian workplace and achieve improved economic outcomes.

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Getting to the Point: A Review of the Consequences of Occupational Needle Stick Injuries

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Abstract

Needle stick injuries are a source of major concern for many healthcare workers. The threat is not simply confined to the possible infection with HIV, HCV or HBV, but includes many psychosocial effects which may be felt long after the injury incident. This article analyses published literature associated with the effects of needle stick injuries among healthcare workers and how the repercussions from the incident affects physical, emotional and personal relationships of their lives. The article considers some of the financial and legal obligations of the employer and their responsibilities to their employees in both injury management and minimization.

Keywords

Needle-stick injuries. Healthcare workers. Psychosocial effects. Employers. Law, HIV;HBV;HCV.

Introduction

Three million healthcare workers experience needle stick injuries annually, exposing them to potentially life threatening blood and bodily fluids (Wilburn and Eijkemans 2004). Needle stick injuries have been a major source of occupational injuries among healthcare workers since the use of the first needle in the mid 1840s. With the development of disposable syringes, came a decline in the threat associated with needle stick injuries as healthcare workers needed not to sterilize and reuse needles. However, an injury sustained by a medical technician in 1978 which led to an infection of Hepatitis B, propelled Dr Dennis Maki and Rita McCormick to conduct a study into the hazardousness of needle stick injuries and brought it to public attention (Zaidi, Beshyah, and Griffith 2010). Needle stick injuries then became a high profile issue with the emergence of the HIV/AIDS pandemic in the early 1980s (Prüss-Üstün, Rapiti, and Hutin 2005). Coupled with other blood-borne viruses such as Hepatitis C (HCV) and Hepatitis B (HBV), such injuries pose a particularly deadly threat (Charles et al. 2003). Today, with an estimated 90,000 of the Australian population living with chronic HBV, 212,000 with HCV and 29,000 living with HIV, it has become an increasingly prominent issue for the safety of healthcare workers, and its adequate management should it occur (Worksafe 1990).

Methods

To explore the subject of needle stick injuries and their effect on healthcare workers and employers, an initial literature review search was undertaken using ProQuest, Pubmed, Safety Science and Risk, Springerlink and Science Direct databases. Using these databases with the keywords "needle stick injury" yielded a result of 414, 2821, 55, 970 and 3988 articles respectively. A refined search conducted in Springerlink to include only English journal articles containing the keywords "needle stick injury "and" workers" gave 152 results.

Another search on Science Direct using the keywords "needle-stick injury" AND "personal cost" was performed and gave a result of 425 articles. A sub-search within this group using "occupational" as the keyword then gave 182 results of which 125 were English and published within the last 10 years.

Pubmed was searched again using "needle stick injury health care workers". This search reduced the total results to 411. This was further refined by only including articles published after the year 2000. Of these, only 37 were full text articles. A similar search on ProQuest also gave similar results. Articles chosen for review were based on relativity to the subject in terms of the psychosocial, physical and economic costs of needle-stick injuries to an employee and their employer. Articles which discussed alternatives to needles and non-occupational needle-stick injuries were not used.

A search conducted on the Safe Work Australia website gave a table of documents including standards, national codes and guidance notes, of which under the subheading of HIV and Hepatitis was the National Code of Practice for the Control of Work-related Exposure to Hepatitis and HIV (Blood-borne) Viruses [NOHSC:2010(2003)].

Further articles, such as reviews, were also used to give a general background of information on the viruses and their prevalence and treatment.

Discussion

Effects of infection

Hepatitis A, B, C, D and E are caused by a group of viruses which affect the liver, the most common of which are the blood borne viruses Hepatitis B and C. Common symptoms of the disease include nausea, loss of appetite, tiredness, fever, jaundice and dark urine (Worksafe 1990). Infection of healthcare workers with hepatitis B or C usually occurs through the penetration of skin with infected sharps and needles, or through precutaneous (non-intact skin) or mucocutaneous (splashes of blood and bodily fluids in mucous membranes) routes (Prüss-Üstün, Rapiti, and Hutin 2005). Most adults who contract HBV are not at risk of developing any serious illnesses. However, for those who do, the severity can vary with about 5-10% of infected patients being unable to clear the virus and therefore developing chronic hepatitis. In such individuals, 10-20% are likely to have liver cirrhosis and 1-5% will develop primary liver cancer (Worksafe 1990). For individuals who become infected, about 75% will develop a chronic infection (Beltrami et al. 2000). However it is unusual for a person to experience any symptoms of the disease until approximately 10 to 15 years post infection. Such symptoms may be either mild or severe and include fatigue, nausea, muscle aches and pains, abdominal pain and loss of appetite (Worksafe 1990).

HIV or human immunodeficiency virus causes the body's natural defence mechanisms against disease to become weak and ineffective. It is the precursor to Acquired Immune Deficiency Syndrome (AIDS). It poses a particularly dangerous threat due to its lag phase (approximately eight to ten years) post infection, in which there are little, or no symptoms of the disease. It often initially presents with symptoms alike to glandular fever. As the disease progresses, individuals may experience weight loss, fever, diarrhoea and enlargement of the lymph gland. This then leads to the development of AIDS and consequently, infections, cancers or neurological disorders. Whilst HIV is not as infective as Hepatitis, its transmission occurs via the same route (Beltrami et al. 2000).

The physical effects of post-exposure

prophylaxis treatment

It has been shown that the risk of contracting a blood-borne virus from a needle stick injury causing the affected individual to seroconvert to HIV positive is approximately 0.3%, less than 1.8% for HCV and between 13 to 18% for HBV (Wald 2009). Even though the odds are low for contracting disease, the secondary consequences (whether infection occurs or not) can be extreme and far reaching for the healthcare worker (HCW) and their family. Thus, whilst the potential effects of contracting a disease such as HIV, HCV or HBV are so severe (as described above), the psychological and physical damages associated with treatment can be much more detrimental.

Post-exposure prophylaxis (PEP) treatment is usually given within the first two hours of expected exposure and is continued for four weeks. In this time, an employee may experience anaemia, nausea, tiredness, diarrhoea, depression and headaches (Beltrami et al. 2000). Throughout this period, the person is also monitored for toxicity through blood tests in the initial and mid phase of therapy (Greenwood 2000). Thus, PEP treatment, whilst necessary, can also adversely affect an already injured worker. Gershon et al (2000) reported that some patients felt the need for more medication to reduce the side effects and were unable to return to work for an extended period. Another article found that approximately one third of patients enrolled in a PEP study ceased treatment prematurely due to the side effects (Sridhar et al. 2004). Lee et al (2005) investigated the subsequent lost time off work due to the treatment and found that of the 400 nurses studied, 77 days of work were missed, 10 due to seeking and receiving medical attention, six due to side effects from the prophylactic treatment, and 61 due to emotional distress. This is a major cost to both the worker and the employer. Furthermore, studies indicated that due to the toxicity of the drug, the strict dosing schedule which must be followed and the constant monitoring, the HCW had recurring reminders of the incident (Greenwood 2000).

It has been found that a majority of HCW's who experienced needle stick injuries will develop post traumatic stress disorder (Wada et al. 2007). In a research study conducted by Gershon et al (2000), 65 healthcare workers who had suffered a needle stick injury were asked to complete a survey which included questions about how the incident affected them psychologically. The study found that 53% of respondents had suffered anxiety, 18% insomnia, 13% depression, 10% loss of appetite, 10% sleepiness and 10% were frequently crying, especially when remembering the incident. Charles et al. (2003) supported this and found that workers were left anxious, which had a detrimental effect on work performance, personal relationships and psychological health, leading to depression and, at times, a sense of abandonment and isolation. Furthermore, it was found that the cost of continued medical counselling equalled that of the medical costs incurred by the incident (Lee et al. 2005).

Even though an employee may learn that the patient source of infection is negative, a sense of doubt still remains. Memories of the event aroused feelings of anger within affected employees, some experiencing this even up to a year after the incident. This could be perpetuated by the refusal of the source patient to be tested for HIV, HCV and HBV. Most employees expressed feelings of self blame (Gershon et al. 2000). Prolonged psychological problems associated with the incident could be attributed to the fact that testing for HIV and HCV is done six weeks and then three, six and 12 months post exposure to check for seroconversion (Ferguson et al. 2004).

It is for this reason that employees at risk of contracting HIV must undertake mandatory counseling as outlined in section 4.4 of the National Code of Practice for the Control of Work-related Exposure to Hepatitis and HIV (Blood-borne) Viruses [NOHSC:2010 (2003)], whereby counseling is a legal requirement for HIV and procedures must cover the provision of appropriate pre- and post-test counselling for all exposed persons. Counselling offered includes information on available testing procedures and treatments. However, among the majority of literature researched, a large proportion of healthcare workers who were injured did not report the incident. It was found in one study, that out of a survey of 279 healthcare workers, only 51% had reported all injuries sustained (Elmiyeh et al. 2004). Doctors in particular were less likely to report injuries until they had made their own risk assessment or had proceeded with self treatment (Elmiyeh et al. 2004).

Impact on Families and Partners

It is thought that some healthcare workers may refuse to continue with treatment in the fear that colleagues, family, friends and partners may learn of the incident and the potential implications of developing a disease which may stigmatise them (Wicker et al. 2008). Families who were informed were left with a sense of helplessness. Many reported feeling worried, anxious, concerned and stunned (Gershon et al. 2000). Sexual intimacy between partners was also affected as many had to either abstain or practice safe sex. Charles et al. (2003) even reported a case of therapeutic abortion. Due to these concerns, plans to conceive and start a family among many affected employees were altered. One healthcare worker within the study reported that the fear of possible infection prevented any intimacy and such caused the breakdown of the relationship. Some were found to have abstained from sex up to four months post exposure (Gershon et al. 2000). Such a disruption within an employee's personal life was found to exacerbate interpersonal stress, depression and sense of social isolation (Charles et al. 2003).

The Employer and the Law

In accordance with Appendix F of the National Code of Practice for the control of work related exposure to Hepatitis and HIV (Blood-Bourne) viruses [NOHSC:2010(2003)] all jurisdictions in Australia require an employer to notify the relevant State or Territory Occupational Health and Safety authority and/or Health Department if they are aware that an employee has contracted certain diseases in the course of their work. Under Part III Division 1 of the Workers Compensation and Injury Management Act 1981 of Western Australia, if an injury of a worker occurs, the employer is liable to pay compensation in accordance with Schedule 1. In agreement with Schedule 1, Clause 17 of this Act, payment is to be made for the reasonable medical, hospital and associated expenses, including medicines up to the prescribed limit. A Workers' Compensation form including a medical certificate and the cost of PEP treatment must be submitted to claim for medical expenses. In addition to these expenses, employers are also financially affected by lost productivity, when an employee is unable to return to work for some time and in some circumstances by having to pay extra wages for a temporary position (Leigh et al. 2007).

Employers in industries which are of particular risk for the transmission of HBV are required to provide Immunisations for their employees to prevent infection. If an employee refuses Immunisations and has been informed by their employer of the potential consequences to their health, under the 2004 Infection Control Guidelines for the Prevention of Transmission of Infectious Diseases in a Health Care Setting (ICG 2004) published by the Australian

Department of Health and Aging, should such healthcare workers subsequently develop work related infections, it is most likely that the health care establishment would not be found in breach of its duty of care. However in accordance with present Western Australian legislation, this may not prevent the employee from receiving workers compensation. Furthermore, it is the contractual obligation of the employee to adhere to the infection control policies, including the reporting of any incidents. Failure to comply with this may be grounds for disciplinary action (ICG 2004).

The actions of an employer following an exposure incident greatly affect the severity of posttraumatic stress disorder in the employee. Most healthcare workers expressed that their experiences following exposure could have been improved had their direct manager responded and been involved in the incident. The pilot study conducted by Gershon et al (2000) suggested improvement strategies based on the responses to the surveys obtained from affected healthcare workers. Suggestions included the use of safer needles which may reduce injuries by 74%, the elimination of the use of sharps by healthcare staff, the need for managers to assess changes in the workplace which would minimize the risk of a repeat occurrence and the submission of an action plan to the safety committee outlining new control guidelines to be enforced. Changing a work routine of an employee and increasing technical involvement, also were found to reduce the risk of injury (Sridhar et al. 2004). Factors such as workload, night shifts and prolonged shifts were found to increase the risk of injury. As such, these factors should be considered by an employer when implementing changes (Wicker et al. 2008). Managers must understand that, post the exposure incident, the employee may be required to take time off during the work day to continue with treatment and monitoring. Managers were also expected to check with the affected individual at regular intervals to asses a return to work schedule, due to the side effects of the PEP treatment (Gershon et al. 2000).

The Knock-on Effect

Sohn et al. (2006) explored the mental health of employees after a needle-stick injury and found that compared to healthcare workers who had not experienced the same incident, those who did, displayed higher levels of stress and depression. In turn, this negatively affects the ability of an employee returning to work as the presence of depression may at times be the cause of absence as it is related to fatigue and loss of concentration (Wada et al. 2007). This is an important issue when considering whether an employee is fit to return to work.

Another factor which may hinder an employee resuming work sooner is when the source patient is known but refuses to be tested. In such a situation, the privacy rights of the patient must be considered in conjunction with the infected persons right to know of possibility of infection (Greenwood 2000). Under section 4.6.4 of the Australian National Code of Practice [NOHSC:2010 (2003)] the source of the exposure has the right to refuse to be tested. If the source agrees to do the test, they do not have to disclose the result. Furthermore the testing medical officer is subject to privacy legislation and any restrictions this may place on the provision of personal health information.

Healthcare workers should also assess the risk that returning to work poses on others, such as injured doctors resuming work with their patients. One such reported case occurred in an Australian hospital in which an injured surgeon returned to work but was advised to cease all operations until a negative HCV report was returned. This was identified by the researchers as having a negative impact on the management of needle stick injuries as healthcare workers will become reluctant to report injuries, if they believe they will be forced to cease clinical practice without any risk assessment or compensation (Charles et al. 2003). An ethical and moral problem arises from this in which the rights of both the employee and their potential patients should be considered.

Conclusions

When injury occurs, the potential consequences can be devastating. An employee can be left with a sense of helplessness and anxiety, even when the event does not result in infection. It is for this reason that an effective management and compensation plan should be put in place by the employer in order to assure that the employee receives maximal support during such a difficult time. The onus is upon the employee to ensure guidelines and safety precautions are adhered to, to minimize the risk of injury and also upon the employer who should ensure a safe work environment is provided for staff. It is imperative that should injury occur, the employee receives adequate care and counselling to prevent depression and posttraumatic stress as this may well be the major source of harm.

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West Australia Safety Conference / Safety Show

Draws top line speakers

The West Australian Safety Conference running in conjunction with the West Australian Safety Show will be held August 24 to 26

This event is presented by the Safety Institute of Australia in WA and sponsored by Worksafe W.A. It will be held at the Perth Convention Exhibition Centre.

The three day conference has attracted a number of top line speakers who will be featured in seven separate streams - Road and Transport Safety, Safety at Law and Safety in Practice on August 24; Contract / Contractor Management and Employment Safety on Day 2, while topics on the third day will cover Future Safety and Insurance and Injury Management.

One of the addresses on the First Day will be from Kane Blakman of Magellan Metals who will explain how the company has resolved its problems in transporting the lead carbonate concentrate it produces at its mine in Wiluna Australia.

The product is being packaged in sealed bags locked inside shipping containers to set a new best-practice method for product stewardship.

The presentation will detail the previous issues experienced by Magellan, and the pathway to improvement, while generally discussing how improving product stewardship is an investment in safety and health.

WA Safety Show organizer, Marie Kinsella of Australia Exhibitions & Conferences said the inaugural Perth Safety Show held in 2008 attracted 4000 visitors, from the mining, building and construction, with manufacturing sectors dominating the visitor list.

Ms. Kinsella, also said that in one afternoon at the WA Safety Show, visitors will find solutions to the vast array of safety challenges they face. Such as radiation, noise, vehicle and lone worker safety, materials handling and even wellness.

As well as staying abreast of the technological advances in safety, the WA Safety Show promises to keep visitors informed of the latest regulatory changes. A new model Work Health and Safety Act to be implemented right around Australia was announced in December 2009 and seminars at the show will outline the implications for Western Australian workplaces.

For more information, on the Safety Show visit www.wasafetyshow.com email safetyvisitor@acc.net.au or phone Australia Exhibitions & Conferences at 03 9654 7773.

WSO Code of Ethics

Members of the WSO, by virtue of their acceptance of membership into the WSO, are bound to the following Code of Ethics regarding their activities associated with the WSO:

1. Members must be responsible for ethical and professional conduct in relationships with clients, employers, associates and public.

2. Members must be responsible for professional competence in performance of all their professional activities.

3. Members must be responsible for the protection of professional interest, reputation and good name of any deserving WSO member of member of other professional organization involved in safety or associated disciplines.

4. Members must be dedicated to professional development of new members in the safety profession and associated disciplines.

5. Members must be responsible for their complete sincerity in professional services in the world.

6. Members must be responsible for continuing improvement and development of professional competencies in safety and associated disciplines.

7. Members must be responsible for their professional efforts to support the WSO motto "Making Safety A Way Of Life...Worldwide".

Published by the:

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Warrensburg, Missouri, 64093 U.S.A.
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