An Evaluation of an Integrated Health Management Program for Workers in a Hospital Setting

by

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Attestation of Authorship

I hereby declare that the work contained in this thesis is my own work and that, to the best of my knowledge and belief, it contains no material previously published or submitted for qualification of any other degree or diploma at this university or any other institution of higher learning except where due reference is made.

Signature   …………………………..
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Date   ……………………………

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Abstract

Aims

The aims of this study were to evaluate the 1) processes and 2) outcomes of a workplace health management program that attempted to integrate best practice principles of both workplace health promotion and injury management into the existing health management infrastructure of a major metropolitan hospital to improve the health management practices of hospital workers. An escalation in workplace injuries and a surfeit of injured workers who lacked the functional capacity to return to work had resulted in a shortage of skilled workers in this acute surgical hospital. This provided the impetus for the organisation to review its approach to injury management. A research grant from the state's workers compensation insurance authority facilitated a team of exercise physiologists to work with the hospital executive to develop workplace based strategies to reduce the incidence and impact of workplace injuries.

Scope

The *Workplace Health Management Program* was implemented over eighteen months. Program participants included (n=1400) hospital workers (age 18–74) from 16 units (operating theatres, kitchens, nursing wards, day procedure, angiography clinics, central sterilising, maternity and environmental services). Five guiding principles identified in the literature underpinned the program: 1) physical activity, 2) early intervention, 3) peer support, 4) management mentoring and 5) the support of skilled clinicians. An action research approach was adopted consistent with Lewin's principles for "co-operative action research as a means of enquiry especially suited to democratic participation" (Adelman 1993). It was underpinned by a commitment to an illuminative evaluation framework which incorporated journal keeping, observations and interviews to generate rich descriptive data. Principles of grounded theory were used in an analysis of these data to identify the key concepts which provided the elements of the emergent theories which in turn provided the source of the key hypotheses which guided the action research cycles.

Findings

Initial assumptions about location, timing and identifying potential leaders for the program were challenged during an initial situational analysis. This led to the implementation of a second situational analysis which focused on the input of workers. Through parallel processes of inquiry and problem solving hypotheses were identified and tested in iterative cycles. Outcomes of the program were measured against a set of predetermined criteria including 1) rates of participation in the program and 2) injury

management outcomes. A reduction of 40% in injury claims was associated with a 56% reduction in injury costs and a 68% reduction in injured workers' time to return to work.

Findings about the program processes highlighted the value of 1) the pre-emptive approach to the detection and treatment of injuries, 2) the enhanced awareness of the protective role of physical activity, and 3) the importance of shared responsibility.

Obtaining the successful engagement of the participants in the program was one of the key initial challenges. As the majority of workers suffered pain and fatigue at the end of a work shift, involvement in the program was presented as an opportunity to work with less pain and fatigue. The impact of the program on social relationships (between medical and non-medical workers and workers and managers and workers and group leaders) also appeared a significant motivator for a broad cross section of the workforce. It was concluded that key strategies for implementing the program were 1) directing attention to immediate personal benefit, 2) providing opportunities for social interaction and building team work, 3) developing confidence in personal health management and 4) respecting participant choices.

Key strategies for achieving longer term program sustainability were identified as 1) integration of the program into hospital routines, 2) identifying locations to enable participation, 3) program scheduling to increase participation, 4) identifying potential leaders, 5) building confidence in leaders by using peer support, 6) establishing a link between physical activity and working into older age and 7) engaging the senior management team.

Conclusion

The evaluation identified the following recommendations for future programs: - 1) adopt an approach that allows for flexibility and learning, 2) establish guiding propositions relevant to the organization, 3) identify relevant outcome measures, 4) seek necessary cultural and structural change, 5) establish a Work-Health framework comprising of stakeholder teams to support and empower managers, and 6) adopt an education focus.

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1. Introduction

Introduction

The convergence of an ageing workforce, the impending retirement of the baby boomers and an increasingly dependent ageing population present emerging challenges to the continued effectiveness of healthcare provision. These demographic changes present compelling reasons to extend workforce participation, particularly in the health sector and provide the incentive to develop new strategies to enable healthcare workers to remain in the workforce. It is therefore timely to explore opportunities to maintain and retain workers in our healthcare system.

Hospitals and aged care facilities need workers capable of a wide range of physical tasks that include long shifts of standing, walking, lifting, pushing, pulling, attending to the medical and care needs of patients. For example, assisting an overweight patient who is unable to weight bear independently, in a wet and slippery bathroom poses a significant threat to the health and wellbeing of the nursing staff. Due to these challenges healthcare workers can be exhausted and physically depleted of energy at the end of a work shift making them prime targets for injuries as has been reported in the older and unfit nursing workforce (Andrews, Manthorpe, & Watson, 2005).

"Thirty per cent of 50 to 65 year olds who retire in Australia do so because of illness or acquired disability" (Department of Treasury, 2004, p. 6). Health sector employers, grappling with the dual challenges of an ageing population and shortages of skilled labour, need to develop and implement sustainable strategies to prevent and manage injuries and ill-health. Workers who adopt positive health management behaviours are less prone to the risks associated with ageing including chronic disease and workplace injuries (Department of Health and Ageing, 2010; U.S. Department of Health and Human Services, 2011).

In a recent systematic review to identify the efficacy of lifestyle health promotion interventions Chan and Perry (2012) reported a paucity of studies focused on nurses' health behaviours. They contended that the workplace is a potentially fruitful location for health promotion intervention but argues that nurses have seldom been recognised as a target participant group. Given the international priority ascribed to nursing workforce retention, this is a missed opportunity for occupational health planning. They suggested that the potential benefits to nurses' welfare and well-being may accrue from well-designed intervention studies.

There is a clear argument for Australia's healthcare industry to embrace the principles and practices of workplace health promotion to enable health workers to continue to work, injury free. The workplace can provide opportunities to support workers to adopt and sustain health enhancing behaviours to mitigate the physiological changes associated with ageing.

The Ageing Population

According to the Australian Bureau of Statistics (ABS), the term 'older people' refers to those aged 65 years or over (Australian Bureau of Statistics, 2009). The life expectancy of Australians is increasing and is expected to continue to do so (Access Economics, 2001). Population ageing is characterised by an upwards shift in the age structure and has repercussions for the future provision of income support, health and aged care services as well as having implications for economic growth (Department of Treasury, 2004).

The Australian Treasury's 2007 intergenerational report predicted that a quarter of Australians would be aged 65 or over by 2050, almost doubling the numbers now at retirement age (Department of Treasury, 2007). At the same time, growth in the workforce is expected to slow to almost zero by 2020. (Abhayaratna & Lattimore, 2006; Access Economics, 2001). The combination of these factors points to a slowing of economic growth over the next 40 years (Access Economics, 2001). This will have a profound effect on the economy and, potentially, on Australians' standard of living. For each older person in 2007, there were five working-age people; by 2056 there will be less than three working-age people for every older person (Australian Bureau of Statistics, 2009).

The Australian Government's workplace relations policies are removing the inflexibilities in the labour market for all workers including those of mature age. Longer participation in the workforce beyond traditional retirement age, phased retirement programs and flexible working hours are all feasible propositions in the contemporary workplace.

One way to increase labour force participation and productivity is to ensure better use of mature-age workers in the workforce (Abhayaratna & Lattimore, 2006; Department of Treasury, 2007). Labour force participation rates are influenced by individual choices and respond to incentives and barriers. Amongst members of the Organisation for Economic Co-operation and Development (OECD) countries, Australia's total participation rate ranked twelfth in 2002 and tenth in 2005, suggesting we have significant potential to improve participation both in the short and medium term (Abhayaratna & Lattimore, 2006). Other industrialised nations share similar anxiety about sustaining labour force participation. According to a 2002 United Nations (UN) report (Auer & Fortuny, 2002), extending the work life of workers is cited

as one solution to sustain the workforce in the face of a progressively ageing population. As people aged 20–54 already have high workforce participation, encouraging higher participation by people aged 55-70 is one strategy that may ensure the sustainable supply of labour in the future.

Barriers which limit the continued participation of older workers in the workforce must be removed and policies to support their ongoing participation put in place (Access Economics, 2001). A 10% increase in the 55–70 year old workforce would increase the average per capita incomes of all Australians by four per cent. Furthermore, employed people are, on average, healthier than those out of employment. There would be benefits to healthcare spending if more older Australians were to continue in employment (Access Economics, 2001, p. 45).

In the future, employers will have to increasingly rely on ageing workers. While concerns about the potential health problems of mature workers have previously limited their employment options, employers must reconsider this position in the light of the global shortage of skilled workers, particularly in the health sector (Ritter, 2011)

Launching a $43.3 million "productive ageing" package to help older Australians stay in the workforce in 2009, former Federal Treasurer Wayne Swan announced the retirement age in Australia would be raised incrementally from 65 to 67 by 2023 (Stark, 2010). Beyond the supply and demand argument, there are other reasons why workers will continue to work beyond the current retirement age. Changing social attitudes have led to a trend towards delayed marriage and childbirth, with a concurrent increase in second and subsequent marriages that can extend social and financial family obligations. These changes have financial implications across the lifespan, particularly for an individual's capacity to save for retirement. For these reasons, many people will need to continue to work to a later age.

A report by the OECD identified that "policy measures to encourage delayed retirement imply substantial shifts in the age composition of the workforce that lie considerably outside the range of recent historical experience" (OECD, 1998, p. 124). Future predictions indicate that early retirement will be discouraged by adjusting pension and social security programmes. Other strategies to extend the current retirement age include the promotion of training for mature age workers and the provision of more flexible work environments (OECD, 1998).

Employers are being forced to re-evaluate their relationship with their employees because of the impending shortage of workers. The OECD forecasts the simultaneous ageing of both the general population and the workforce of all OECD countries over the coming decades. "In many OECD and EU countries, the age cohorts entering the labour market are and will continue to shrink under the effects of population ageing" (OECD, 2009, p. 20). Stereotypes about older workers include perceptions that as

workers age they become less physically and psychologically competent. Recent research challenges many of these preconceived notions and points to the advantages of maintaining a mature cohort of older workers. A study of 56,510 Canadian workers found that older workers were less prone to workplace injuries than younger workers (Breslin & Smith, 2005).

Researchers have also demonstrated that older workers can continue in employment if the work environment is adapted to meet their changing needs (European Centre for the Development of Vocational Training, 2010; Ilmarinen, 2006). There is also evidence that older employees, in general, are highly engaged in their work, satisfied with their jobs and committed to their organisations (Access Economics, 2001). Compared to previous generations, older people today tend to have better health and have longer life expectancies than previous generations (Australian Bureau of Statistics, 2008a).

Galinsky (2007) found that more older workers (52%) were satisfied with their work when compared (42%) with their younger counterparts. Many wanted to remain engaged in the paid workforce past the traditional retirement age while 76% were not financially prepared for retirement. Preconceptions about the potential role of ageing workers are being challenged with incontrovertible examples of older workers making significant contributions to their societies. Nelson Mandela retired as President of South Africa at age 80 and has remained actively involved in international affairs around the world (Mandela, 1995). Albert Schweitzer was also involved in humanitarian works after the age of 70, received the Nobel Peace Prize at age 78 and continued to work in the hospital he founded until his death at age 90 (Seaver, 1947). In an article entitled "Prepare to work until you're 100," Stark (2010) cited an example of a woman in the United States who recently celebrated her 100th birthday at work and suggested that in the future employers should allow staff to keep working into their 80s and 90s if they wanted to, in order to cope with the growing cost of an ageing non-working population.

The productivity of employees is related to the skills and experience they have acquired and their ability to apply them to new situations (Tuomi, Huuhtanen, Nykyri, & Ilmarnen, 2001). Misconceptions about the productivity potential of older workers are becoming increasingly outmoded. It is very likely that older workers fare much better in innovation than previously thought (Frosch, 2011). Upwardly shifting age patterns at the aggregate level of firms is a reflection of the contribution of older workers particularly in the areas of knowledge transfer and managerial support between age groups.

In some ways older workers are the most skilled and productive employees (Keller & Burns, 2010). Mature workers are already highly trained and are happy to accept greater flexibility in working hours (Access Economics, 2001). There are also potential cost benefits to organisations in retaining experienced, long-standing employees. For example, mature workers are less likely to leave the organisation, which mitigates the need for recruitment costs and the training of replacement staff. Younger workers, on the other hand, are five times more likely to change jobs compared to their older

counterparts (Access Economics, 2001). A workforce with a balance of youth and maturity can best respond to the rapid changes of globalisation (European Agency for Safety and Health at Work, 2010). There is a growing body of evidence that mature-aged workers bring a range of advantages to a workforce (Hatcher et al., 2006; Lavoire-Tremblay, O'Brien-Pallas, Veins, Hamelin Brabant, & Gelinas, 2006). These include greater dedication to the workplace and fewer absences (Galinsky, 2007).

To become the most competitive and dynamic knowledge-based economy in the world, the European Economic Union's Lisbon strategy (developed in 2000) identified the prolongation of working time over the life-span as a key strategy (European Agency for Safety and Health at Work, 2010). Employers are becoming increasingly aware of the importance of a mature and experienced workforce and of the many advantages of maintaining a balance of younger and older workers (Anderson, 2000; Andrews et al., 2005). Galinsky (2007) indicated that older workers are likely to play a significant role in sustaining the health and productivity of the workforces of the future. The independent economic analysts of Access Economics similarly reported:

> Both international and Australian research has shown the productivity of mature workers is equivalent to, if not better than, younger counterparts. Mature workers combine experience and wisdom, above average quality of work, loyalty to the organisation, good work ethic, low job turnover and reduced absenteeism – attributes that should not go unnoticed by employers. Mature workers are often paid higher wages than younger employees, but this should be compared to the performance and attitude to the job of each employee. Mature aged workers supplement their skills with work experience that cannot necessarily be taught through formal training courses. If human resource departments or personnel managers automatically assume that employees will retire upon reaching an 'appropriate age', organisations will prematurely lose some of their most valuable assets (Access Economics, 2001, p. 5).

Mature age workers with the right mix of skills have the potential to create intellectual capital which may help develop new approaches to work that better meet future needs. Establishing a culture of continuous learning and re-skilling is essential to maximise the potential contribution of mature age workers to economic growth (Access Economics, 2001). Many organisations look to their older workers to sustain their businesses as they have difficulty hiring skilled workers, and want to retain the talent of their more experienced and highest performing employees. Galinsky (2007) predicted that to remain successful over the next several decades, organisations will have to engage and retain older employees with the skills and experience to add value to their bottom line.

To sustain our standard of living in the future, it appears older workers will need to remain in employment beyond the current retirement age. Experienced workers are therefore increasingly valued as

a precious resource and as a result, employers are assuming a greater responsibility for the health and healthcare of their employees (Chu & Dwyer, 2002). Recognising that challenges of worker shortage are inescapable in any workplace, employers are beginning to examine how they can best fulfil their legal and leadership roles to protect and promote the health and wellbeing of their employees.

Shortage of Health Workers

Australia shares in an acknowledged worldwide shortage of healthcare workers (Arah, Ogbu, & Okeke, 2008; World Health Organisation, 2006b). The World Health Organisation (WHO) estimates that 57 countries have an absolute shortage of 4.3 million health workers. The OECD reports that recent events such as the global economic crisis and the A/H1N1 pandemic have added to the pressure on health systems and health personnel. As a result these factors are adding to the urgency to address the global health personnel crisis (OECD, 2010).

In Australia, state and federal governments are responsible for the provision of timely, sustainable, safe and equitable health services. The Australian Government Department of Health and Ageing is responsible for the strategic planning for health services and has identified that the prevalence and burden of chronic disease will continue to increase with the ageing of the population. It argues that this burden will be compounded by a concurrent shortage of health workers (Department of Health and Ageing, 2009).

The provision of healthcare services is largely dependent on the availability of adequately skilled and knowledgeable health workers (Australian Health Workforce Advisory Committee, 2004). An ageing population will need more health workers (Browne & Braun, 2008), but shortages in the health workforce are increasing and have been partly attributed, in part, to the increasing age of health workers themselves. The Australian Nurses Federation for example, estimates that in Australia there is a shortage of 13,000 nurses and midwives with an estimated 40% of the workforce due to retire in the next 10 years (Australian Nurses Federation, 2012). "The proportion of employed nurses who were aged 55 years and over increased markedly from 9% in 1997 to 19% in 2005" (Australian Institute of Health and Welfare, 2008, p. 445). The average age of nurses is now 45 years, and the proportion of nurses aged 55 and over is increasing. The proportion of nurses aged 60 and over increased from 1.5% in 1986 to 6% in 2006 (Kronos, 2008). As nurses are the backbone of the healthcare industry the consequences of this forecast cannot be overestimated.

The pressing health needs across the globe cannot be met without a well-trained, adequate and available health workforce (World Health Organisation, 2006b). There is a direct relationship between the ratio of health workers to population and the survival of women during childbirth and of children in early infancy

(World Health Organisation, 2006a). As the number of health workers declines, the survival of women and children during childbirth declines proportionately.

Healthcare workers are inequitably distributed throughout the world, with the most significant shortages in developing countries. Sub-Saharan Africa faces the greatest challenges. While it has 11% of the world's population and 24 per cent of the global burden of disease, it has only three per cent of the world's health workers (World Health Organisation, 2006b) as illustrated in Table 1.1.

Table 1.1.

The health workforce in the Americas compared to that of sub-Saharan Africa

	The Americas	Sub-Saharan Africa
World's Population	14%	11%
Global burden of disease	10%	25%
World's health workers	42%	3%
Global health expenditure	>50%	<1%

Note: Reprinted without permission from "The global shortage of health workers" (World Health Organisation, 2006b, p. 1). Copyright 2006 by WHO

Industrialised countries add to this inequitable distribution of health workers across the globe as trained medical practitioners and nurses migrate from developing countries. The strategy to import health workers from other countries has been adopted to increase the number of health workers in industrialized countries. Arah, Ogbu and Okeke (2008) studied a cross-section of 141 countries that lost emigrating physicians to four major destinations, the United States, Canada, Australia and the United Kingdom. Between 23% and 28% of physicians in these countries were international medical graduates (i.e., they received medical degrees outside of their host countries). The financial lure of the West has resulted in the migration of physicians and nurses from the mostly developing source countries to the more developed destination countries. Because the international migration of doctors and nurses has become increasingly visible, it is often seen as the main culprit behind the healthcare shortages in developing countries. This has led to a polarized debate between the negative aspects of migration and the individual rights of health personnel to leave any country including their own. Arah et al. (2008) called upon industrialized countries to take responsibility for training and retaining their own health workers and concluded: "In view of the train, retain and sustain perspective of public health workforce policies, physician retention should become even more important to countries growing richer" (p.148).

Leaving aside the inequity of such a 'brain drain' and the consequences for poor countries with a higher disease burden, there remains the question of how employers in host countries will provide for the health and wellbeing needs of migrant workers. For example, the limited physiological capacity of some migrant workers compounds their risk of injury. In developing countries, nurses are not required to perform the manual tasks that are expected in Australian hospitals. These nurses are at greater risk of injury as they lack both the functional capacity and experience to manage the physical demands of nursing in Australia. Employers have a responsibility to these workers to ensure that they have both the qualifications and the functional capacity to work safely in their adopted healthcare settings.

Employers are being forced to re-evaluate their relationship with their employees because of this impending shortage of workers. The OECD forecasts the simultaneous ageing of both the general population and the workforce of all OECD countries over the coming decades. "In many OECD and EU countries, the age cohorts entering the labour market will continue to shrink under the effects of population ageing" (OECD, 2009, p. 20). Experienced workers are increasingly valued as a precious resource and as a result, employers are assuming a greater responsibility for the health and healthcare of their employees (Chu & Dwyer, 2002).

Threats to the Sustainability of the Healthcare Workforce

The Australian Institute of Health and Welfare (AIHW) points out that nurses are the largest group of healthcare providers and make up 44% of the health workforce while almost 60% of the current nursing workforce is about to retire (2003). As more experienced nurses retire, the shortage of skilled health practitioners will become more pronounced. This pending retirement of a substantial cohort of nursing professionals will lead to a serious deterioration in the quality and sustainability of our healthcare services (Australian Health Workforce Institute, 2008).

Physical capacity deteriorates with age (Tuomi et al., 2001). Reductions in muscle strength increase with age making physical activity and manual work performance more difficult. This leads to a reduction in physical activity which in turn leads to further decline in muscle strength (Delbaere, Bourgois, Witvrouw, Willems, & Cambier, 2003). Ageing health workers are more susceptible to injuries and ill-health (Runy, 2008). If the physical capacity of healthcare workers cannot meet the physical demands required to care for patients, excessive fatigue can result in poor productivity and an increased risk of workplace injuries (Mackey, Maher, Wong, & Collins, 2007). The risk of injury to healthcare workers is exponential as they grapple with an increasingly obese patient population (Australian Bureau of Statistics, 2008b). This escalating obesity of patients puts the healthcare worker at increased risk of musculoskeletal injuries in particular.

Strategies to Sustain the Healthcare Workforce

To sustain the healthcare workforce, the European Agency for Safety and Health at Work (2010) advocates interventions that address both the physical and the psychosocial work environment. These interventions include changing the work content and organisation, improving the general health, wellbeing, and work ability of workers, and increasing the abilities and professional competence of workers.

A decrease in workers' functional capacity is a significant risk factor for injuries and ill-health. It is important for employers to understand how to maintain the functional capacity of ageing healthcare workers. A large body of evidence supports the contention that physical activity produces a number of major health benefits (Haskell & Lee, 2007; Kesaniemi, Danforth, & Jensen; Wattles & Harris, 2003; World Health Organisation, 2002). People who are physically active have numerous physical and mental health benefits compared with people who are inactive (Nelson et al., 2007; Proper et al., 2003).

Research has demonstrated the positive effects of physical activity on preventing and managing a wide range of chronic diseases (Thorpe et al., 2013). It has been positively associated with a reduction in all-cause mortality, cerebrovascular disease (Wendel-Vos et al., 2004) cardiovascular disease risk factors including hypertension; improving plasma lipid profile and altering coagulation and haemostatic factors (Kesaniemi et al., 2001). Physical activity has also been shown to reduce the incidence of obesity and Type 2 diabetes mellitus, and to improve the metabolic control of individuals with established Type 2 diabetes (Haskell & Lee, 2007).

Physical activity is also linked with a reduction in the incidence of colon cancer and osteoporosis. Other benefits of physical activity include improved physical function and independent living in the elderly and reductions in depressive illness. Weiler, Stamakis & Blair (2010) go further to suggest that increases in physical activity can both treat and prevent these conditions. In his last annual report, England's chief medical officer acknowledged that the benefits of regular physical activity on health, longevity, and wellbeing "easily surpass the effectiveness of any drugs or other medical treatment" (Weiler et al., 2010, p. 1170).

The public welfare burden of physical inactivity is immense. In England for example, the annual estimated cost of physical inactivity in 2002 was 9.5 billion Euros. Physical inactivity is the only risk factor for chronic disease that has an adult population prevalence of 95% (Weiler et al., 2010). Clearly physical activity has an important role to play in maximising health outcomes and reducing the risk of ill-health and injury. It is less clear what specifically constitutes 'physical activity' which is synonymously linked to 'exercise' and often confused with 'fitness.' Even less clear is the extent to which physical activity can

ameliorate the degenerative effects of ageing, particularly in the context of extending the work-life of ageing healthcare workers.

The American College of Sports Medicine (ACSM), 2005 defines 'health' as a human condition with physical, social, and psychological dimensions. 'Physical activity' is defined as any bodily movement produced by contraction of skeletal muscle that substantially increases energy expenditure (American College of Sports Medicine, 2005), while 'exercise' is a component of physical activity. Physical activity can be a leisure time or occupational activity. Physical 'fitness' is defined as a set of attributes (e.g. cardio respiratory endurance, skeletal muscle endurance, skeletal muscle strength) that relate to the individual's ability to perform physical activity. The dose of physical activity needed to bring about physical fitness is described by the characteristics of frequency, duration and intensity. Frequency is described as the "number of activity sessions per time period (e.g., day or week)." Duration refers to the number of minutes of activity in each session. Intensity describes, in relative or absolute terms, the "measured or estimated effort (energy cost) associated with the physical activity."

The product of frequency, duration, and intensity yields the total energy expenditure associated with the physical activity and is a measure of the volume of exercise. The gross energy cost of an activity is the total energy expenditure, which includes resting metabolic rate and the cost of the activity itself. The net cost is that associated with the activity alone. Scientific evidence of the value of physical activity continues to accumulate, and recent research focuses on the nature of the relationship between physical activity and health, rather than trying to determine if such a relationship exists (Kesaniemi et al., 2001).

To promote and maintain health the Australian Department of Health and Ageing (2102) recommends physical activity for a minimum of 30 minutes, on most, preferably all, days of vigorous-intensity aerobic physical activity for a minimum of 20 minutes on three to four days each week (vigorous-intensity activity is exemplified by jogging, and causes rapid breathing and a substantial increase in heart rate). The Department also recommends that all adults:

1. **Think of movement as an opportunity, not an inconvenience** (Where any form of movement of the body is seen as an opportunity for improving health, not as a time-wasting inconvenience).
2. **Be active every day in as many ways as you can** (Make a habit of walking or cycling instead of using the car, or do things yourself instead of using labour-saving machines)
3. **Put together at least 30 minutes of moderate-intensity physical activity on most, preferably all, days.** (You can accumulate your 30 minutes (or more) throughout the day by combining a few shorter sessions of activity of around 10 to 15 minutes each).
4. **If you can, also enjoy some regular, vigorous activity for extra health and fitness.**

Older adults with "sufficient fitness, experience, and motivation" are similarly encouraged to maintain a physically active lifestyle by performing moderate-intensity aerobic (endurance) physical activity for a minimum of 30 minutes on most, preferably all, days or vigorous-intensity aerobic activity for a minimum of 20 minutes on three to four days each week. Older adults are also encouraged to reduce the risk of injury from falls by performing exercises that maintain or improve their balance (Nelson et al., 2007).

Moderate-intensity aerobic activity involves a moderate level of effort relative to an individual's aerobic fitness. On a 10-point scale, where sitting is 0 and all-out effort is 10, moderate-intensity activity is a 5 or 6 and produces noticeable increases in heart rate and breathing. On the same scale, vigorous-intensity activity is a 7 or 8 and produces large increases in heart rate and breathing. For example, given the variety of fitness levels in older adults, for some older adults a moderate-intensity walk is a slow walk, and for others it is a brisk walk. Combinations of moderate and vigorous intensity activity can be performed to meet this recommendation (Haskell & Lee, 2007).

It would therefore seem that an ageing population struggling with obesity and chronic ill-health and needing to continue to work would embrace the news that a thirty minute walk each day will significantly improve their mortality and reduce morbidity. The same thirty minute walk may also improve their quality of life, reduce their dependence on the health system, enable them to keep working and keep them looking good. The incontrovertible reality however, is that the vast majority of people are not taking up this opportunity.

Assessed against the national physical activity guidelines, it is estimated that 50% of Australians are not physically active enough. Females reported higher levels of inactivity than males in all states and territories, the most inactive adults were aged 30–59 years and the most active are aged 18–29 years, for both males and females (Australian Institute of Health and Welfare, 2008).

Physically active workers are more productive and less prone to injury and ill-health (Jacobson & Aldana, 2001; Mooney, Kron, Rummerfield, & Holmes, 2005; Peate, Bates, Lunda, Francis, & Bellamy, 2007; Proper et al., 2003; Wattles & Harris, 2003). Several studies link reductions in workplace injuries and being physically active (Hurwitz, Morgenstern, & Chiao, 2005; Mooney et al., 2005; Peate et al., 2007). These studies demonstrate a positive correlation between physical activity and reduced low-back pain, a common injury sustained by healthcare workers. Hurwitz, Morgenstern and Chiao (2005) reported that people with low-back pain experience less pain if they participate in regular exercise. In their study of 681 patients with low back pain, participants in the top quartile of recreational physical activity (26 Metabolic Equivalent of Task [METs] per week) were less than half as likely as participants reporting no physical activity to have experienced meaningful low back disability. There was a positive correlation between

physical activity and psychological distress. Relative to physically inactive participants, the odds of being psychologically distressed were 40% lower among participants in the top quartile of physical activity.

Physically fit individuals have fewer back injuries than unfit workers (Mooney et al., 2005). In their study on strengthening exercises for mining workers, a 54% to 104% increase in strength was associated with exercise and correlated with a significant reduction in the incidence of compensation claims. The average worker's compensation liability dropped from $14,430.00 per month to $380.00 per month for the study year. Other studies have also highlighted the cost benefits of worker fitness, particularly in relation to reduced workplace injuries. Fit workers recorded less lost time injuries (Peate et al., 2007). In their study of 433 fire-fighters, lost time injuries were reduced by 62%, comparing the number of injuries pre- and post-exercise intervention. As lost time injuries impact upon the costs associated with workplace injuries, these results demonstrate a significant cost benefit to the organisation.

A negative correlation has also been found between physical activity and absenteeism (Jacobson & Aldana, 2001; Wattles & Harris, 2003). In a study comparing absenteeism in 79,070 US adult workers, Jacobson and Aldana (2001) found a significant difference $(p<0.05)$ in absenteeism between exercise and non-exercise groups after controlling for confounding variables. One session per week of exercise was associated with lower absenteeism when compared with no exercise, and two sessions per week of exercise was more favourable than one session per week. There was a significant negative relationship between exercise frequency and illness-related absenteeism.

Worker fitness has also been positively correlated with productivity. Wattles and Harris (2003) examined the relationship between fitness levels and employee's 1) productivity, 2) job satisfaction and 3) absenteeism. One hundred and forty three employees participated in individual fitness assessments. Results compared fitness levels to these three parameters over a one-year period. Stepwise regression analyses using backward elimination were used to determine which health-related fitness components predicted productivity, job satisfaction and absenteeism. Job satisfaction was found to be influenced by the employee's level of cardiovascular endurance. Productivity was found to be influenced by employees' level of muscular strength and absenteeism was shown to correlate with flexibility.

Statement of the Program

Given the body of evidence that physically active workers are less prone to injury and ill-health the question as to why Australian employers have been slow adopters of workplace health promotion invites further investigation. Historically, Australian employers (unlike those in the United States) have not been liable for the health insurance costs of workers which may account, in part, for this lack of motivation. The ageing of the health workforce together with shortages in skilled health care workers may prompt employers to revisit their commitment to the health and wellbeing of these highly valuable resources. An

Australian model that can demonstrate positive health outcomes for workers, that can be integrated into the day to day running of a health care organisation, that encourages the involvement of all workers, (not just the receptive) and that is cost effective may encourage employers to invest in the development of integrated health management programs in the future.

Thus the purpose of this thesis is to evaluate both the processes and outcomes of an integrated work health management program.

2. Literature Review

To successfully develop interventions that improve the health of individuals it is important to understand the causes of disease and injury and the health risks that underlie them. Each risk has its own associated causes and "many have their roots in a complex chain of events over time, consisting of socioeconomic factors, environmental and community conditions, and individual behaviour. The causal chain offers many entry points for intervention" (World Health Organization, 2009, p. 3). A review of the literature most relevant to chronic disease, health-related behaviour change and workplace health management follows.

Chronic Disease

Three trends underpin the prevalence of chronic diseases in the twenty-first century; increased obesity, physical inactivity and the increasing average age of many populations. The WHO supports this contention and has called for strategies to reduce the incidence and impact of these risk factors (World Health Organisation, 2005). Governments, the WHO points out, have a responsibility to support their citizens in their pursuit of a healthy, long life. It is not enough to tell people not to smoke, to eat fruit and vegetables, and to take regular exercise. There is a need to create communities, schools, workplaces and markets that make these healthy choices possible (Weiler et al., 2010).

By definition a chronic disease is a serious medical condition or illness that is long lasting or recurrent. In 2005 the WHO defined chronic diseases as having one or more of the following characteristics: they are permanent, leave residual disability, are caused by non-reversible pathological alteration, require special training of the patient for rehabilitation, or may be expected to require a long period of supervision, observation, or care. In Australia, the most common chronic diseases are cardiovascular disease, type 2 diabetes, chronic obstructive pulmonary disease, cancer, osteoarthritis, osteoporosis, and chronic kidney disease (Department of Health and Ageing, 2007). Chronic diseases, also referred to as non-communicable diseases, contribute to morbidity, disability and mortality in Australia (Australian Institute of Health and Welfare, 2006). Cardiovascular disease is responsible for more deaths in Australia than any other disease, affecting more than 3.7 million Australians, (or one in every six). An Australian dies of a chronic disease every ten minutes and they account for 50,000 deaths in Australia every year (Department of Health and Ageing, 2007). The coexistence of two or more disease processes is known as "co-morbidity" and this is becoming more prevalent as conditions such as type 2 diabetes are associated with heart disease, stroke, visual impairment and kidney disease.

The WHO (2009) report on Global Health Risks describes the continuum of diseases that affect a population from primarily infectious, such as diarrhoea and pneumonia, to primarily non-communicable or chronic (such as cardiovascular disease and cancers). Improvements in medical care and public health

interventions (vaccinations, provision of clean water and sanitation) are cited as the catalyst for this progression towards the non-communicable end of the continuum. This pattern can be observed across many countries. Wealthy countries are placed further along this continuum with a greater prevalence of chronic diseases than in poorer countries.

Risk factors for chronic disease.

It is estimated that 96% of working age Australians have one or more risk factors for chronic disease while 75% have multiple risk factors. Preventable risk factors of chronic disease include physical inactivity, poor diet, overweight and obesity (O'Donovan et al., 2010; Weiler et al., 2010). Lack of physical activity and poor nutrition have both been strongly correlated with weight gain and obesity (Fogelholm, 2010; Kesse-Guyot et al., 2009). Ten million Australians were overweight or obese in 2005 and this number is projected to increase to 16.9 million by 2025 (Department of Human Services, 2008).

There are eight risk factors that account for 61% of all cardiovascular deaths. These include alcohol use, tobacco use, high blood pressure, high body mass index (BMI), high cholesterol, high blood glucose, low fruit and vegetable intake, and physical inactivity. Together, these same risk factors account for over three quarters of ischaemic heart disease which is the leading cause of death worldwide. While these major risk factors are usually associated with high-income countries, over 84% of the total global burden of disease they cause occurs in low and middle income countries. "Reducing exposure to these eight risk factors would increase global life expectancy by almost 5 years" (World Health Organization, 2009, p. v). Figure 2.1 illustrates the causal relationship between ischaemic heart disease and the related risk factors.
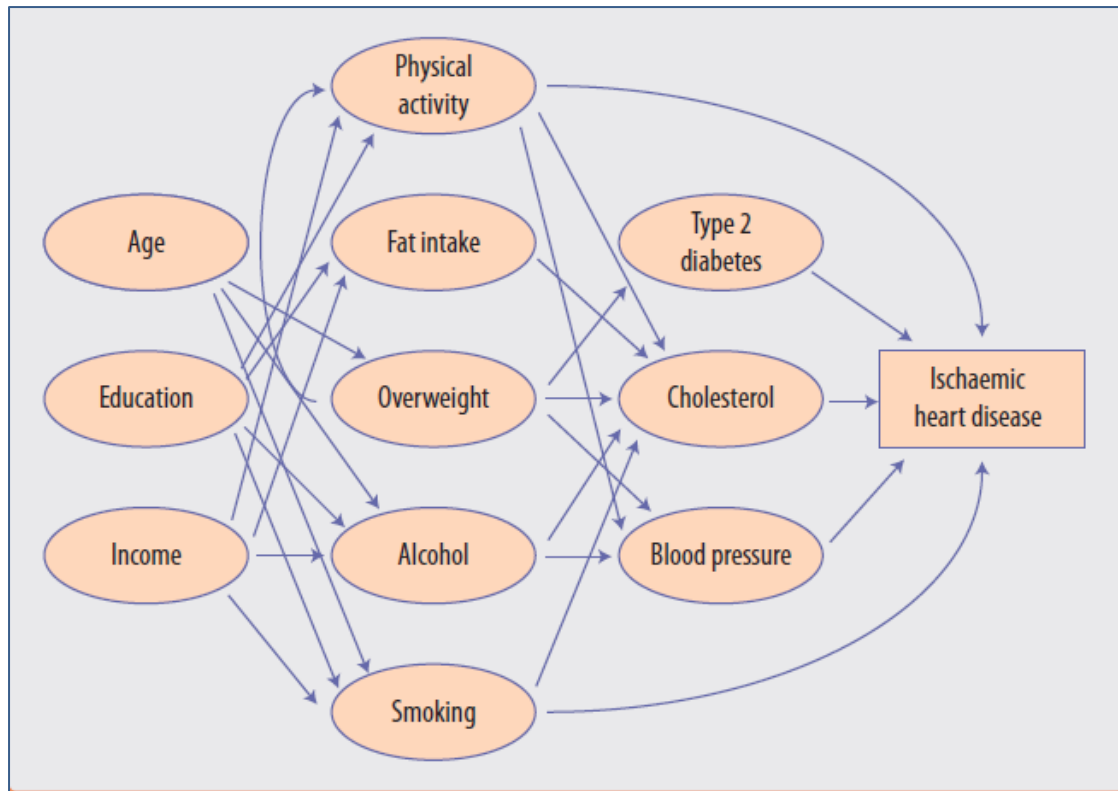
Figure 2.1. The causal chain. Major causes of ischaemic heart disease. (World Health Organization, 2009, p. 2). Reproduced without permission.

In particular, the two risk factors that appear to be at the forefront of the increasing incidence of chronic disease are overweight and lack of activity (Davison, Jurkowski, & Lawson, 2012). Together they form a potent mix for risk factors that drive the incidence of all chronic disease.

Obesity.

Obesity develops over time as small excesses of energy intake over expenditure accrue. Both overeating and physical inactivity contribute to obesity. However the obesity epidemic is thought to be mediated more by inactivity than by overeating, the decline in daily energy expenditure being associated with sedentary behaviours and a decrease in physical activity (Hardman & Stensel, 2003). The WHO estimates that in 2005 more than 1 billion people worldwide were overweight (Body Mass Index ≥ 25) and more than 300 million were obese (BMI ≥ 30). Rates of overweight and obesity are projected to increase in almost all countries, with 1.5 billion people overweight in 2015. (World Health Organization, 2009, p. 17). The National Health and Hospitals Reform Commission (2009) predicted that if current trends continue, nearly three-quarters of the Australian population will be overweight or obese by 2020.

There is strong and convincing evidence to support the linear relationship between chronic diseases, risk factors and increasing body mass (Hardman & Stensel, 2003; Haskell & Lee, 2007). "Globally, 44% of diabetes burden, 23% of ischaemic heart disease burden and 7–41% of certain cancer burdens are

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attributable to overweight and obesity" (World Health Organization, 2009, pp. 17-18). Also linked to obesity, are the significant health risks associated with poor nutrition, including heart disease, type 2 diabetes and some cancers (Department of Health and Ageing, 2007). Poor nutrition also contributes to a variety of other health risk factors such as high blood pressure and high blood cholesterol (Kesse-Guyot et al., 2009). The extent of recent increases in the prevalence of obesity in developed countries adds substantial support to the contention that environmental changes, rather than evolutionary changes, are the root cause of obesity (Weiler et al., 2010).

A 2001 Australian study by Egger and colleagues used actors from an historic theme park in Sydney who lived the life of early soldiers, convicts and settlers for a week. During this time their movement levels were monitored using an accelerometer. The actors expended between 1.6 and 2.3 times more energy per day than the typical modern man, equivalent to walking between 8 and 16 km more (Egger, Bogels, & Westerterp, 2001). This, the authors claim, has implications for physical activity recommendations for optimal health and weight management. They argue that recent government recommendations for daily energy expenditure of 30 minutes of accumulated mild- to moderate-intensity activity may be significantly inadequate. The increased dependence on time-saving and time-using technologies means that in the presence of an abundant (and energy-dense) food supply, obesity, at least at the population level, is almost an inevitable consequence of modernisation. The size (n=14) of this study together with the lack of controls and lack of familiarity of the subjects with the tasks conducted, significantly limit the credibility of these findings. The results however add support to other attempts to calculate human activity levels over time and suggest that recent public health guidelines for increasing physical activity need to be investigated further.

Overweight and obesity as risk factors for many chronic diseases have serious health consequences for both the individual and the broader community (Tsai, Williamson, & Glick, 2011). Obesity has been associated with severe chronic diseases and early death (Pischon et al., 2008). A study of 359,387 participants aged 25-75 years from ten European countries examined the association of BMI, waist circumference, and waist-to-hip ratio with the risk of death. The researchers used a Cox regression analysis with age as the time variable, and stratified models according to study centre and age at recruitment with further adjustment for educational level, smoking status, alcohol consumption, physical activity, and height. During a mean follow-up of 9.7 years, 14,723 participants died. The study concluded that BMI (as an indicator of obesity) was significantly associated with the risk of death in models that included waist circumference or waist-to-hip ratio ($P<0.001$) risk. The observational methodology, lack of accountability for pre-existing co-morbidities in subjects and the limited duration (<10 years) of this study should be noted as limitations.

The British Medical Research Council's National Survey of Health and Development (NSHD) was a prospective cohort study of 2,547 women and 2,815 men from a socially stratified sample of all births that took place in England, Scotland and Wales during a week in 1946 (Strand, Kuh, Shah, Guralnik, & Hardy, 2012). Heights and weights were measured by trained personnel at ages 2, 4, 6, 7, 11, 15 and 36 years and were self-reported at ages 20 and 26 years. This study was unique in being able to relate BMI across life. It found that both high and low BMI from early adulthood related to adult premature mortality. Specifically the study found that a U-shaped relationship between adult BMI and premature mortality was evident from age 20 years in men and age 15 years in women. BMI at most younger ages did not show such a relationship. These findings suggested that public health interventions aimed at promoting the maintenance of a normal BMI during adolescence and early adulthood may prevent premature adult mortality.

The Harvard Alumni Health Study followed 16,936 men who began regular medical examinations during their undergraduate years at Harvard University between 1916 and 1950. The median follow-up period was 56.4 years and the maximum was 82.5 years. This study found that obesity early in life does not portend a coronary disease death in people who reach a healthier weight by their mid-40s (Gray L, Lee I, Sess H, & Batty, 2011).

Inactivity.

> *Those who think they have not time for bodily exercise will sooner or later have to find time for illness.*
>
> Edward Stanley, Earl of Derby, in an address at Liverpool College, 20
>
> December 1873 (Andrade & Ignaszewski, 2007, p. 540).

Sparling et al. (2001) remind us that throughout human history, physical demands (i.e., domestic tasks, tool making, hunting, farming) enabled humans to maintain a high level of physical fitness. In the 21st century, many of the physical demands on the human body are no longer part of daily life due to technological advances. An increased dependence on transport has led to a reduction in the amount of walking completed for example. This is compounded by changes in the infrastructure of communities which limits opportunities to walk or cycle to shopping areas. This is further compounded by an increased access to televised and computerised entertainment which increases sedentary behaviour. The high prevalence of physical inactivity can therefore be linked to a society's "obesogenic lifestyle" (Fogelholm, 2010; Weiler et al., 2010).

In the 1950s there was scepticism when researchers first hypothesized that men in middle age who were engaged in physically active work were less prone to coronary artery disease than men who were not engaged in active work. The scepticism changed when Morris and colleagues studied London transport

workers and British civil servants to explore the incidence of coronary artery disease in men according to activity level. They studied 31,000 bus, tram, and trolleybus conductors, who climbed 500 to 750 steps per working day on average, and the drivers, who sat for over 90% of their shift. They found that conductors had less coronary artery disease than the drivers (Morris, Heady, & Raffle, 1953).

Paffenbarger and Hale (1975) built on the results of Morris's studies by analysing data collected from longshoremen and college alumni. In 1951 a group of San Francisco longshoremen underwent multiple screening examinations as part of their employment. In 1970 Paffenbarger, Laughlin and Gima reported on their 16-year follow-up of the 3,263 longshore men who were 35 to 64 years old at study onset. In the follow-up time of 44,585 man-years, there were 888 deaths, including 291 fatal coronary events and 67 fatal strokes. The most active group of cargo handlers, who expended over 1000 kilocalories (kcal) more than other longshoremen, had coronary artery disease (CAD) death rates significantly lower than their sedentary colleagues (59 versus 80 incidents per 10,000 man-years of work). Differences related to work activity persisted when smoking patterns, weight for height, and blood pressure were taken into account.

In 2000 Paffenbarger characterized the benefits of physical activity in the 22-year follow-up of the above cohort. In a sample of 3,975 longshoremen who were followed for 57,632 man-years there were 410 fatal Myocardial Infarcts (MI). After adjusting for age, race, systolic blood pressure, smoking, body mass index, glucose intolerance, and ECG status, the men with a high-energy work activity (7 kcal/min) had half the rate of fatal MI when compared with men in the lowest energy work activity group (1 kcal/min). Paffenbarger concluded that vigorous activity should be encouraged. "In today's world, where time is a precious commodity, one 0·5 h period of vigorous exercise expends as much energy as does moderate activity carried out for two or three times as long (Paffenbarger, 2000, p. 421).

Over the past five decades, epidemiological and experimental studies have established a causal relationship between low levels of occupational and/ or leisure-time physical activity and an increased risk of cardiovascular disease (Archer & Blair, 2011; Oguma, Sesso, Paffenbarger, & Lee, 2002; Pouliou, Ki, Law, Li, & Power, 2012 ; Stamatakis, Hamer, & Mishra, 2011; Towfighi, Markovic, & Ovbiagele, 2012). Low levels are associated with a range of negative consequences for health, including cardiovascular disease, type 2 diabetes, reduced functional capacity, and poorer mental health (World Health Organization, 2009). Weiler et al, (2010) believe that physical inactivity is one of the greatest health threats facing developed nations today. They go so far as to suggest that lack of physical activity is the *cause* of cardiovascular disease, coronary heart disease, type 2 diabetes, mental health illness, reduced quality of life, dyslipidaemias, hypertension, arrhythmias, increased inflammatory markers, myocardial infarction, dementia, stroke, cancer, fatigue, osteoporosis, fractures, falls, and ultimately death.

In a review of randomised controlled trials that compared different interventions to encourage sedentary adults not living in an institution to become physically active in England between 2004 and 2009, only 37% of men and 25% of women met the Chief Medical Officer's recommendations for physical activity (Foster, Hillsdon, & Thorogood, 2009). In the United States less than half (49.1%) of adults met the American College of Sports Medicine physical activity recommendation. Men were more likely to meet the recommendation (50.7%) than women (47.9%). For men and women combined, younger people were more likely to be active than older people, with the prevalence of those meeting the recommendation declining from 59.6% among those 18–24 yr. of age to 39.0% among those 65 years and older (Haskell & Lee, 2007).

Similar levels of inactivity have been reported in Australia where it was estimated that 50% of adults were not undertaking sufficient physical activity (Australian Institute of Health and Welfare, 2008). Females reportedly have higher levels of inactivity than males in all states and territories. The most inactive adults were aged 30–59 years and the most active were aged 18–29 years, for both males and females. The proportion reporting no leisure time physical activity over the previous week increased with age, from about 1 in 10 aged 18–29 years to 2 in 10 aged 45 years and over. These increasing trends towards sedentary lifestyles are compounded with age. As people age they become less physically active, increasing their risk of developing chronic diseases which in turn escalates the prevalence and impact of these diseases upon the community.

In summary, the evidence that indicates that positive lifestyle behaviours can prevent or delay the onset of chronic disease is strong (Blair, Chen, & Holder, 2001; Donaldson, 2009; Haskell & Lee, 2007; Kesse-Guyot et al., 2009; Nocon et al., 2008; Paffenbarger, 2000; Weiler et al., 2010). These studies and many others reinforce the argument of England's Chief Medical Officer that physical activity in particular has the potential to prevent the development of chronic disease. "The benefits of regular physical activity to health, longevity, wellbeing and protection from serious illness have long been established. They easily surpass the effectiveness of any drugs or other medical treatment" (Donaldson, 2009, p. 21).

The impact of chronic disease.

Healthcare expenditure.

In Australia, chronic diseases are estimated to be responsible for nearly 80% of the total burden of disease and injury (Department of Health and Ageing, 2009) and more than two thirds of all health expenditure. Both nationally and internationally this burden is expected to grow significantly in line with the ageing of the population and the increasing prevalence of shared chronic disease risk factors such as overweight and obesity, poor nutrition and physical inactivity (Australian Institute of Health and Welfare, 2006). Healthcare expenditure for cancer, cardiovascular disease and diabetes is projected to nearly triple

from \$14.4 billion in 2002/03 to \$41.3 billion in 2032/33 (Australian Institute of Health and Welfare, 2009).

Productivity.

Increasing rates of chronic disease may reduce future labour force participation rates and productivity, thereby affecting economic growth. Absenteeism due to sickness costs Australian businesses seven billion dollars annually which equates to \$1,000 per employed worker per year. It has been claimed that over the lifetime of the 2008 Australian adult population, a reduction of five million days in workforce absenteeism could be achieved as a result of realistic reductions in current risk factor prevalence (Cadilhac et al., 2011). Reducing risk factors by even small amounts would have a major impact on improving health and productivity in Australia. The nation's productivity can be strengthened by ensuring that people are sufficiently healthy to remain active and productive participants in the workforce (Department of Health and Ageing, 2007).

All-cause mortality.

By addressing lifestyle risk factors for chronic disease, the impact of chronic diseases can be reduced, population health enhanced and health system sustainability improved. Lollgen and colleagues (2009) examined 38 prospective cohort studies on physical activity published since 1998. The evidence indicated that physical activity not only reduces all-cause mortality but also decreases mortality stepwise with increased levels of exercise intensity. These results confirm the previous findings of Nocon (2008) who reviewed 33 cohort studies with 883,372 participants (follow-up ranged from 4 years to over 20 years) to also examine the primary preventive impact of physical activity on all-cause and cardiovascular mortality. Risk reductions were based on the comparison between the least active and the most active population subgroups, with the least active population subgroup as the reference group. Random-effect models were used for meta-analysis. They concluded that physical activity was associated with a marked decrease in cardiovascular and all-cause mortality in both men and women, even after adjusting for other relevant risk factors.

The Harvard Alumni Health Study (Paffenbarger, 2000) used questionnaires to estimate the amount of energy expended in walking, stair climbing, sports and recreational activities. Baseline data were collected either in 1962 or 1966. Follow-up was conducted 12-16 years later by which time 1,413 alumni had died. The findings revealed an inverse dose-relationship between physical activity and the risk for all-cause mortality. Death rates were 25-33% lower among alumni expending 8,400 kJ week^{-1}. There was evidence in the study of a slight increase in the relative risk of death in the most active group, suggesting that very high levels of activity may increase mortality risk slightly, compared to moderate levels. While this issue remains a source of conjecture, the study did find that the relative risk was still lower in the most active group compared with the groups expending less than 8400kJ^{-1} per week. As the study was observational it

did not provide proof of cause and effect per se. The findings however were consistent with other subsequent studies that have examined more structured and objectively measurable levels of physical fitness and mortality risk rather than the more subjective construct of "physical activity" used in Paffenberger's original study.

The Aerobics Centre Longitudinal Study conducted from 1980-2000 (Blair et al., 2001) used maximal treadmill exercise testing on 10,224 men and 3,120 women and time to exhaustion to indicate fitness. The average period of follow-up was eight years during which time there were 240 deaths in men and 43 deaths in women. Those with the lowest levels of fitness were found to have the highest risk of death. These trends remained after statistical adjustment for age, smoking, cholesterol, systolic blood pressure, fasting blood glucose level, parental history of coronary heart disease. Higher levels of physical fitness appear to delay all-cause mortality primarily due to lowered rates of cardiovascular disease and cancer.

Cardiovascular disease.

Focusing on patient-relevant outcomes such as mortality and cardiovascular events, Semlitsch and colleagues (2013) conducted a review to assess the long-term effects of interventions aiming at increasing physical activity in comparison with no such interventions on adult patients with essential hypertension.

Their data source included high-quality systematic reviews including Medline and the Cochrane Database of Systematic Reviews published between 1997 and 2012. Study selection RCTs with at least 24 weeks' follow-up that evaluated the effect of increased physical activity on the blood pressure of adults with essential hypertension were included in our review. Primary outcomes were all-cause mortality, cardiovascular morbidity and mortality, end-stage renal disease, quality of life and adverse events.

The authors used random effects meta-analyses to determine mean difference with 95 % confidence intervals for each endpoint. The review concluded that iincreased physical activity is broadly recommended for the treatment of essential hypertension.

A previous study by Blair et al. (2001) came to a similar conclusion after examining 67 peer-reviewed journal articles on physical activity and the dose-response relation between physical activity and health and between cardio respiratory fitness and health. Their review included three or more categories of activity or fitness and a health outcome and used an evidence-based approach to evaluate the quality of the published data. All studies reviewed were prospective observational investigations and concluded that there was a consistent gradient across activity groups indicating greater longevity and reduced risk of CHD, CVD, stroke, and colon cancer in more active individuals. Studies were compelling in the consistency and steepness of the gradient across fitness groups. There was a curvilinear gradient, with a steep slope at low levels of fitness and an asymptote in the upper part of the fitness distribution. It was not possible to conclude whether activity or fitness was more important for health. The consistency of the findings did however confirm an association between physical activity and all-cause mortality.

Limitations of the conclusions include the small number of studies that involved women in particular. The risk factor hypertension has also been found to be modified by physical activity (Department of Health and Ageing, 2007). Elevated blood pressure (BP) is one of the major modifiable risk factors for cardiovascular disease (Sharman & Stowasser, 2009). The first line treatment to reduce BP is the initiation of lifestyle changes, of which regular aerobic exercise is a principal component (Sharman & Stowasser, 2009).

Hillsdon, et al. (2005) attempted to quantify the effect of exercise on chronic disease risk factors. Physically active people were found to be at half the risk of developing coronary heart disease compared with those with a sedentary lifestyle. This analysis also concluded that physical inactivity was associated with lower social class, income and educational attainment indicating that the promotion of physical activity was particularly important in these groups.

Cancer.

Colorectal cancer is the third most common cancer in men and the second in women worldwide (Je, Jeon, Giovannucci, & Meyerhardt, 2013). Je and co-researchers (2013) conducted a meta-analysis of prospective studies examining the association between prediagnosis and/or postdiagnosis physical activity on colorectal cancer outcomes. Seven prospective cohort studies were included, all with physical activity assessments reported before the outcome. The analysis included 5,299 patients for prediagnosis physical activity and 6,348 patients for postdiagnosis physical activity followed up over a period ranging from 3.8 to 11.9 years. The analyses found that physical activity was associated with reduced colorectal cancer-specific mortality and all-cause mortality.

Holick, et al. (2008) reported a reduction in overall morbidity and mortality from breast cancer among women who engage in physical activity after breast cancer diagnosis. They prospectively examined the relation between post-diagnosis recreational physical activity and risk of breast cancer death in women who had a previous invasive breast cancer diagnosed between 1988 and 2001 (at ages 20-79 years). After adjusting for age at diagnosis, stage of disease, state of residence, interval between diagnosis and physical activity assessment, body mass index, menopausal status, hormone therapy use, energy intake, education, family history of breast cancer, and treatment modality compared with women expending <2.8 MET-h/wk[-1] in physical activity, women who engaged in greater levels of activity had a similar significantly lower risk of dying from breast cancer regardless of a woman's age, stage of disease, and body mass index. Irwin and co-researchers (2008) also found that moderate-intensity physical activity after a diagnosis of breast cancer may improve prognosis(Irwin et al., 2008).

Diabetes.

Type 2 diabetes is a leading cause of death and is estimated to affect 700,000 Australians (Australian Institute of Health and Welfare, 2008.). Complications include heart disease, blindness, kidney failure and gangrene leading to amputation. The benefits of physical activity for the prevention of diabetes is well documented, particularly among people with a high risk (Vogel et al., 2009). Both resistance and aerobic exercise have been shown to reduce the incidence of type 2 diabetes (Vogel et al., 2009; World Health Organization, 2009). The effects of acute exercise on blood glucose and insulin sensitivity at the intensity of 55–75% VO_{2max} were studied in seven controlled trials with a small number of subjects with type 2 diabetes mellitus by Kesaniemi et al (2001). This data indicated a lowering of 20–40 mg·dL-1(1–2 mmol·L-1) of blood glucose for 2–3 days. In the Harvard Alumni Study, a 6% linear decrease in the age-adjusted risk for the development of diabetes was found for each 500 kcal expended by physical activity in weekly leisure time. While there was insufficient evidence to define a dose-response effect on glucose homeostasis, the magnitude of the improvement in blood glucose control attributable to exercise intervention (a decrease in%HbA1c of 0.5-1.0%) was clinically important. Benefits for the management of diabetes may also be obtained through the mechanisms of physical activity, preventing weight gain by increasing daily energy expenditure and by suppressing excessive appetite (Fogelholm, 2010).

The consistent findings of researchers highlight the importance of being physically active to mitigate risk factors for all major chronic diseases. In addition to preventing and delaying the onset of CVD, diabetes, cancer and osteoporosis (Donaldson, 2009), regular physical activity has also been associated with improved mental health (Hillsdon et al., 2005) and higher levels of HDL (high density lipoproteins - the 'good' cholesterol) (Department of Health and Ageing, 2007). In 2009 the Chief British Medical Officer asserted that the potential benefits of physical activity on health are huge. He stated that if a medication existed that had a similar effect, it would be regarded as a wonder drug or a miracle cure (Donaldson, 2009).

Disease prevention.

Actually preventing chronic disease in the first place can reduce the pressure on healthcare systems and deliver better health outcomes for individuals and the community. The 2009 Australian Government draft strategic plan for health management reform had an increased focus on prevention. The plan recognised that a patient-centred focus and well educated workforce underpinned all preventative health reform initiatives. "An effective reform strategy requires action on multiple fronts including careful planning of implementation and consideration of change management requirements" (Department of Health and Ageing, 2009).

The Australian Chronic Disease Prevention Alliance (ACDPA), a coalition of five non-government health organisations supported this thrust with a strategic plan for the primary prevention of chronic disease,

with particular emphasis on the shared risk factors of poor nutrition, physical inactivity, overweight and obesity and their social determinants. In their report to the National Preventive taskforce, the ACDPA stated: "In order to address the increasing but largely preventable burden of chronic disease, a reorientation of the health system and other systems towards health illness prevention and health promotion must occur and must become embedded in our concept of healthcare (Australian Chronic Disease Prevention Alliance, 2008, p. 3). Weiler, et al. (2010) concurred but warned that such initiatives require greater attention to the "pervasive structural, economic, and social factors that influence our ability to change behaviours favourably" (p. 1171). Similar reforms have been the recent focus of governments in many countries including the UK, Canada, Scandinavia and the USA.

Health management and chronic disease.

Historically, health management has focused on an acute, episodic model of care that no longer meets the needs of many patients, especially those with chronic conditions (World Health Organisation, 2002). With the ageing of the world's population, the prevention and management of chronic conditions requires new and more strategic approaches. In Australia and other industrialised countries there has been a recent shift in healthcare from a reactive system with a focus on acute care to one that proactively supports the prevention and management of chronic disease (Zwar et al., 2006). The Australian Government's 2009 Health Reform Program incorporated a shift from the patient as a passive recipient of care to a model where the patient takes some responsibility for their own care (Department of Health and Ageing, 2009).

The Enhanced Primary Care (EPC) initiative introduced in 1999-2000 is an earlier example of this shift towards a more pro-active approach to the health management of older Australians, people with chronic conditions and those with multi-disciplinary care needs. The EPC items provided a Medicare rebate for general practitioners (GP) services including health assessments for older people and care planning and case-conferencing services for patients with chronic conditions and complex needs. Further Chronic Disease Management (CDM) items were introduced in 2005 to better enable GPs to manage the healthcare of patients with chronic medical conditions, including patients who need multi-disciplinary care. Over time additional initiatives have been implemented to target specific populations at high risk including indigenous people, aged care residents, refugees, people with intellectual disabilities and 45 year olds at risk of developing chronic disease.

Other national initiatives to support healthy lifestyles have included the building of a 21st Century Primary Health Care System and the National Bowel Cancer Screening Program. The Primary Healthcare Strategy includes programs to engage nurses and allied health professionals to increase patient's physical activity through a combination of improved health literacy and practical solutions such as group walking programs (Department of Health and Ageing, 2009). The National Bowel Cancer Screening has encouraged Australians to become more aware of and pro-active in their own health management to

prevent and detect bowel cancer. Through a national advertising campaign and recruitment of health workers at every level the screening program is designed to develop the skills of individuals to manage their own health.

There is a growing argument for health promotion activities to become an inherent part of the clinical competency for health professionals and in particular physical therapists. A multi-institutional international study examined the health promotion curricular content of 258 entry-level physical therapy programs in six countries including Australia, the United Kingdom and the United States (Bodner, Rhodes, Miller, & Dean, 2013). While all programs (100 %) included exercise prescription for health benefits, the investigators found that health promotion curricula that focused on lifestyle behaviour change was a relatively recent inclusion for most programs. The authors argued that given that the global burden of lifestyle-related conditions are largely preventable, health promotion warrants being a clinical competency for health professionals. The study concluded that unless health professionals become proficient in assessing health behaviour change and prescribing targeted and tailored interventions to effect positive health behaviour change in their patients, the capacity of such professionals to impact the prevalence of lifestyle risk factors and conditions is undermined.

Self-management.

'Self-management' is what we all do every day to make the most of our lives by coping with our difficulties and making the most of what we have (Kanchense, 2006).

Chronic disease self-management.

From a health perspective, self-management is a capacity-building philosophy that seeks the active involvement of the patient in the planning, implementation and evaluation of healthcare services. It has become a popular term for behavioural interventions as well as for healthy behaviours, particularly in relation to the management of chronic disease. Self-management is consistently described as the active involvement of the patient in the management of their chronic medical condition (Bodenheimer, Lorig, Holman, & Grumbach, 2002; Harvey et al., 2008; Lorig, 2002). In simple terms the concept of health-self- management is underpinned by the principle of helping people to help themselves.

The development of chronic disease self-management programs is attributed to Lorig and colleagues at Stanford University in the 1970s. Her work on arthritis self-management programs introduced the idea of lay-leaders as tutors rather than healthcare professionals. Lorig's programs allowed participants to make informed choices, to adopt new perspectives and generic skills that could be applied to new problems as they arose, to practice new health behaviours, and to maintain or regain emotional stability. The result of these activities was improved health status or the slowing of deterioration (Lorig, 1993).

Britain became the first country to undertake and fund a national initiative aimed at establishing a paradigm change in a national healthcare system, based on Lorig's research (U.K. Department of Health, 2001). The UK model moved self-management beyond simply educating patients about their condition and then measuring success on the basis of patient compliance, to more actively engaging patients who developed confidence and motivation to use their own skills and knowledge to take effective control over their own lives (U.K. Department of Health, 2001). 'Expert' patients took responsibility for the day-to-day decisions about their health, and worked with healthcare providers as collaborators and partners. Their joint goal was to achieve the best possible health outcomes using all the available resources. 'Expert' patients, especially those with chronic disorders, have been said to be not only 'consumers' of healthcare but also 'producers' of health. To be producers of health, patients need access to education (Lorig, 2002). The shift required for this process to be successful was in the willingness and ability of healthcare professionals to adjust to becoming healthcare partners.

The United States Department of Health and Human Services (2012) "Healthy People 2020" report identified preventing weight gain and obesity as priority areas, linking obesity to increased risks of diseases such as hypertension, diabetes mellitus, kidney disease, cancer decreased life expectancy and increased costs. A systematic review by Gudzuen and colleagues (2013) examined studies that compared the effectiveness of self-management, dietary, physical activity, and/or environmental strategies for the prevention of weight gain among adults in work and college settings. The seven workplace and two college based studies all included one or more of these interventions on adults. The workplace and college campus were seen as an ideal settings for weight gain prevention programs given the amount of time adults spend at these locations. The review concluded that there was evidence that work/college-based combination interventions prevented weight gain of ≥0.5 kg over 12 months as compared to control groups. While the study acknowledged a number of limitations including the small sample size, the authors did find evidence that combining multiple strategies such as self-management, diet, exercise, and/or environmental change in workplace and college settings was found to prevent weight gain in adults.

Inherent within the notion of successful self-management is the concept of self-efficacy (Newbould, Taylor, & Bury, 2006). Described as 'having the confidence to carry out a behaviour necessary to reach a desired goal' (Bodenheimer et al., 2002), it has been argued that self-efficacy is enhanced when patients succeed in 'solving patient-identified problems.' Implicit within the notion of 'patient centeredness,' self-efficacy embraces the idea of the health professional passing responsibility to the patient for their own health self-management through a process of education, resourcing and empowerment.

Self-management in healthcare.

Self-management in healthcare draws from the basic tenets of existential philosophy and the belief that the individual is solely responsible for giving his own life meaning. The WHO has described this as a "clinical method of participatory democracy" (World Health Organization, 2008). This concept fundamentally challenges the status quo for health professionals who see themselves as "givers" of health rather than facilitators. Inherent is the fundamental acceptance of the need for practitioners to relinquish some control to patients. Lorig's research into patients with chronic musculoskeletal diseases for example, demonstrates that self-management is much more than just learning about one's illness. To be truly successful, an effective model of self-management requires changes from both the health professional and their patients. When these changes are made in a systematic manner, the results are better quality of life for the individual and lower healthcare costs (Lorig & Holman, 2003).

Professionals must make it clear that they want patients to become 'expert' patients. Without proactive endorsement by the physician, patients cannot embrace their new role. One way for health professionals to boost patients' confidence is to collaborate with them on short-term goal-setting to master new skills. This collaboration enables patients to make changes that are realistic and feasible. A second way is to give patients opportunities to meet others like themselves, through patient groups, and peer-leaders. The third way is to assist patients to understand their symptoms. If patients believe that medicines should make them better, they may stop taking those that do not appear to be working. Symptoms should usually be explained as having many potential causes, which offers the possibility of different actions. For example, a person with fatigue might try healthier eating and exercise. Fourthly, professions should practise social persuasion. People are more likely to change their behaviours and have confidence in doing so if they perceive those around them, including their healthcare providers, to be supportive.

Patients generally do things in their best interests if they receive the proper understanding and support. Patients are also the best judges of what is possible. When they do not comply with 'orders' it is often because the expectations of health professionals are not realistic for the patient's circumstances. The other part of goal-setting is giving patients an opportunity to give and receive feedback on their accomplishments. Patients who are confident in their ability to manage are the ones who have the best health outcomes. Health professionals are instrumental in helping patients gain this confidence.

Self-management in recovery from injury.

The Victorian WorkSafe authority has adopted the principle of active injury management (Waddell & Burton, 2006) and is considered a world leader in its pro-active approach to managing workplace injuries and return to work. One of the goals of active injury management is to encourage injured workers to return to work whilst recovering from an injury. To achieve this goal, injured workers must be encouraged by their treaters to learn how to manage their injuries whilst returning to work.

One of the best measures of treatment effect is the ability of the client/worker to independently manage their condition. By following a biopsychosocial approach and the principle of empowerment, most clients/workers should become independent of health professionals. Independence does not mean being symptom free, but rather an ability to live a functional and productive life while self-managing symptoms if they arise. Failure to empower a client/worker to become independent may result in dependency on passive treatment, reinforcing illness behaviour and possibly leading to the development of persistent pain. (WorkSafe Victoria, 2009, p. 9).

Summary.

The growing burden of chronic disease has placed, and will continue to place increasing pressure on the health system. Research has indicated that common chronic disease risk factors are more mutable than previously considered (Dixon & Banwell, 2009). The challenge is to develop population-based strategies that change social norms by encouraging a more proactive approach to healthy behaviour and a reduction in health risk (World Health Organization, 2009). One strategy has been the empowerment of individuals to manage their own health determinants through a process of education, modelling and positive reinforcement. An understanding of behaviour change models has provided the insights into how this transition can be achieved.

Behaviour Change Models

Theoretical models guide both current and future understanding of health behaviour, as well as providing future direction for research and intervention development (Redding, Rossi, Rossi, Vellicer, & Prochaska, 2000). Bandura (2005) believed the value of a psychological theory is not only its explanatory and predictive power, but its operative power to guide psychosocial change. To be able to understand why an intervention does (or does not) work it is important to identify the change generating techniques that comprise the intervention. Increased understanding of the mechanisms responsible for predicting patterns of health risk behaviours, can then lead to the evolution of targeted strategies for prevention and behaviour change (Michie & Abraham, 2004).

In the 1950s the dominant psychological theories on human behaviour in the field of learning were behaviourism, and in the field of personal change; psychodynamism. At that time behaviourists saw psychology as the study of measurable or observable behaviour. Skinner (1953) identified the influence of reward or punishment on behaviour. Behaviour, Skinner posited, was more likely to occur in the future if the individual received frequent positive reinforcement soon after the behaviour. Contrary to the behaviourists, Bandura believed that learning had a social basis occurring through observation and that observation was mediated through perceptual and cognitive processes (Bandura, 1977). He claimed that

reinforcement operated through cognitive processes influencing behaviour by instilling outcome expectations. While the behaviourists perceived that behaviour was shaped by external stimuli, Bandura was convinced of people's self-directedness and their capacity to regulate their own behaviours. This philosophy underpins his Social Cognitive Theoretical Model and is a key construct in most popular contemporary behaviour change models.

Transtheoretical model (TM).

Building on the work of Bandura, Prochaska and DiClemente (2001) believed that behaviour change at the individual level was the core of organisational change. Their Transtheoretical Model (TM) provided insights into how to build interactive interventions that impact upon an entire population. The TM was originally developed to study and predict addictive behaviours, drawing on existing psychological and psychoanalytic theories (Prochaska & DiClemente, 1982). Having been conceived later than other behavioural change models, it has incorporated and built upon the strengths of its predecessors (Redding et al., 2000). The TM has more recently been applied to program planning, implementation and evaluation. It consists of four components: decisional balance, processes of change, self-efficacy, and the stages of change structure (Bulley, Donaghy, Payne, & Mutrie, 2007).

The *stages of change* structure is the most frequently applied component of the TM and describes 'what' a person's behaviour is and 'when' it is in the process of change (Bulley et al., 2007). The majority of researchers have focused on the *stages of change* component to the extent that the TM model is more commonly referred to as the *'stages of change'* model (Armitage, 2009). It is frequently used to assess current levels of exercise or physical activity participation, and as a measure of change in behaviour following intervention (Bulley et al., 2007). The model posits that health behaviour change is a progression through five stages of change: 1) Pre-contemplation (not intending to take action within the next six months), 2) Contemplation (intending to take action within the next six months), 3) Preparation, (intending to take action in the next 30 days) 4) Action (made overt changes less than six months ago); and 5) Maintenance (made overt changes more than six months ago).

The model advocates that an appropriate and successful intervention can only be implemented when it is determined which stage an individual is in and is a construct widely used to assess readiness to change. In essence, an individual's stage is underpinned by their current knowledge, attitudes and beliefs regarding the health problem. Individual behaviour change as a result of health promotion initiatives occurs by the provision of information through education and social marketing in order to change knowledge, attitudes and beliefs (the precursors of behaviour change) and therefore moves an individual progressively through the stages.

Laforge and colleagues (1999) applied the model to determine five behavioural risk factors. Their study found the pattern of stage distribution was stable across a range of behaviours and populations. In all five studies the distribution was consistently 40% of pre-action individuals in 'Pre-contemplation.' 40% in 'Contemplation,' and only 20% in 'Preparation' (Laforge et al., 1999). The authors also found considerable corroborative data from other health behaviour studies using the same or similar TM tools. The founders of the TM model theorize that "if only 20% of employees in an organisation are prepared to take action, it should come as no surprise that a majority of action initiatives fail" (Prochaska & Levesque, 2001, p. 249).

Whysall and colleagues (2007) demonstrated how utilising the TM model improved the efficacy of organisational interventions by refining approaches to match more closely the readiness to change of the different stakeholders within an organisation. The study aimed to adapt the stage of change framework for use within organisational settings to assess managerial and individual worker readiness to change with regards to reducing the risk of work-related musculoskeletal disorders within a range of high-risk industries. One hundred and sixty eight workers completed a customised questionnaire and descriptive statistics were used to explore the distribution. Both managers and workers were distributed across the stages of change although the profiles of the two groups were distinctly different. The largest proportion of managers identified themselves as being in the maintenance stage (i.e. working to prevent relapse and consolidate gains made). The majority of workers, in contrast, were identified as being either in the 'Pre-contemplative' (i.e. not considering changing their behaviour) or 'Preparatory' stages (having specific ideas about the changes that need to be made but having not yet initiated change).

Organisational stage of change was found to differ significantly according to organisation size, with larger organisations tending to be further advanced along the stage of change continuum than medium organisations with regards to tackling musculoskeletal disorders, and medium-sized organisations in turn tending to be further forward than small organisations. This revealed that managers within larger organisations tended to be more convinced than those within both medium and small organisations of the cost–benefits of taking action to reduce musculoskeletal disorders. The study concluded that both behaviour change theory and practical recommendations highlight the need to ensure that change recipients possess the knowledge, attitudes and beliefs that promote the adoption and maintenance of changes required to reduce the risk of musculoskeletal disorders.

The Whysall study also demonstrated that the stage of change differed significantly according to the sector to which the organisation belonged. For example, the fire service and healthcare industries tended to be further advanced than other industries, including manufacturing, construction, engineering and printing. It is possible that this reflects a private versus public-sector difference. Worker stage of change was found to differ according to the sector within which they worked, but it was not significantly related

to managerial stage. In other words, worker stage was not dependent upon whether the employer had implemented action, however, the fact that there were differences found according to sector suggests it may be influenced by other common factors such as organisational culture.

Constructs of the TM have also been used as predictors of physical activity intention–behaviour profiles (Plotnikoff et al., 2007; Rhodes, Plotnikoff, & Courneya, 2008). A randomised, controlled Physical Activity Workplace Study (PAWS) (Plotnikoff et al., 2007) saw employees from three large organisations (n=887) complete a baseline, 6 month and 12 month survey relating to their demographic and medical background, physical activity, and social–cognitive constructs. Participants were grouped by five profiles: non-intenders, unsuccessful adopters, successful adopters, unsuccessful maintainers, and successful maintainers. Perceived importance and concern for physical activity distinguished non-intenders from the other four profiles; self-management and self-regulation of the behaviour (behavioural processes, self-efficacy) distinguished successful adopters from unsuccessful adopters, while control over constraints (perceived control, self-efficacy) were the key discriminators of successful maintainers. The authors concluded that physical activity stage-matched materials delivered in the workplace were efficacious for women but not men. The study also demonstrated that difficulty with translating intentions into physical activity was not only a phenomenon for adopters, but also a concern for those who had been active. Adopters had a 34–35% success rate, while maintainers had a 71–77% success rate. This complements prior work showing that physical activity behaviour continuance is an ongoing process that is susceptible to relapses.

Three hundred and seventy residents of two Scottish housing estates volunteered for a study by Lowther, Mutrie and Scott (2007). The project sought to identify key processes of exercise behaviour change associated with movement between the stages of exercise behaviour change using a longitudinal design. The researchers hypothesised that the experiential processes (consciousness raising, dramatic relief, environmental re-evaluation, self re-evaluation and social liberation) would be more important when progressing through the early stages of exercise behaviour change (pre-contemplation, contemplation, preparation) and the behavioural processes (counter conditioning, helping relationships, reinforcement management, self-liberation and stimulus control) would be more important in the latter stages (action and maintenance). Important processes of exercise behaviour change associated with movement through the stages of exercise change were identified. The study found that the process of self-liberation was particularly important at each stage of progression. Progression into maintenance was associated with increased use of the experiential process of social liberation and of the behavioural processes of helping relationships and self-liberation. A decreased use of the behavioural processes was found to be a significant predictor of relapse from maintenance.

Prochaska and DiClemente (2001) believed that change in individual organisational member's behaviour was the core of organisational change. They maintained that the most important advance of the TM approach was the ability to have an "impact on an entire population (e.g. all employees) through individualised, interactive interventions that have produced unprecedented impacts on the population" (p. 249). They identified ten fundamental processes that can produce change and described covert and overt activities that leaders can encourage or elicit in staff to help them change work behaviours, affects, cognitions or interpersonal relationships. Table 2.1 depicts the relationship of stages and processes at the organisational level.

Table 2.1.

Transtheoretical interpretation of stages and processes of organisational change.

	Stages				
	Precontemplation	*Contemplation*	*Preparation*	*Action*	*Maintenance*
Processes	Consciousness Raising Dramatic Relief Environmental Reevaluation	Self-Reevaluation	Self-Liberation	Contingency Management Helping Relationship Counter-Conditioning Stimulus Control	

Note. Reprinted from "A transtheoretical approach to changing organisations." (Prochaska & Levesque, 2001, p. 252), *Journal of Administration and Policy in Mental Health.* Copied without permission.

By encompassing constructs that apply to both the individual and the organisation, the TM broadens the application of social behavioural models to the workplace. The TM provides flags to identify where to begin the process of health behaviour change at both the individual and organisational level.

Social cognitive theory (SCT).

Biddle and Mutrie (2006) suggested that social cognitive theory (SCT) may be the most comprehensive model of human behaviour yet proposed. The model has been widely applied to prevention, health promotion, and modification of unhealthy lifestyles for many different risk behaviours. In essence its emphasis is on what people think and its effect on their behaviour (Bandura, 1977, 1993). Table 2.2 describes the key constructs employed by SCT.

Table 2.2.

Key constructs of social cognitive theory

Constructs	Description
Environmental	Factors outside the person
Situation	One's perception of the environment
Behavioural	Capability of one's knowledge and skills to perform a behaviour
Expectations	One's anticipation of the outcomes of a behaviour
Expectancies	How good or bad one evaluates the outcomes to be
Self-control	Regulation of one's own behaviour
Observational learning	Acquiring a new behaviour by watching someone else perform it and observing the outcomes–a.k.a. modelling
Reinforcements	
Self-efficacy	Responses to a person's behaviour that affect how likely it is that the behaviour will reoccur
Emotional coping responses	One's confidence in one's own ability to perform a behaviour
Reciprocal determinism	Strategies used by someone to deal with emotionally challenging thoughts, events, or experiences
	Dynamic interaction of the person, the behaviour, and his/her environment

Note. Bandura's constructs as summarised by Redding et al (Redding et al., 2000, p. 184), *The International Electronic Journal of Health Education.* Reproduced without permission.

Reciprocal determinism forms the basic organizing principle of SCT. This key construct states that there is a continuous, dynamic interaction between the individual, the environment, and behaviour (Figure 2.2). Thus, a change in one of these factors impacts on the other two. SCT involves numerous key concepts which have been associated with each of the main constructs for the purpose of describing the SCT (Redding et al., 2000, p. 185).
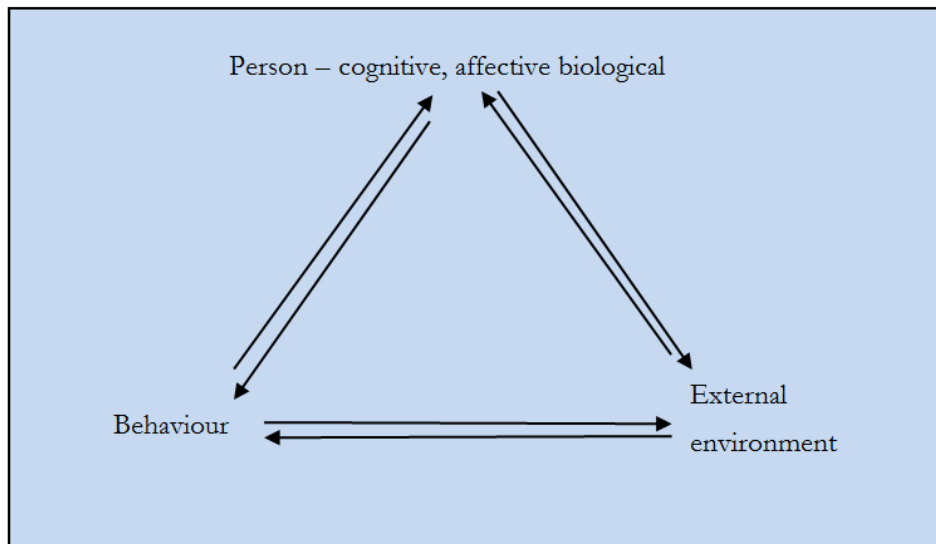
Figure 2.2. Nature of relationships in triadic reciprocal causation. After Bandura (Bandura, 2000, p. 6) in *Self-efficacy the Exercise of Self-Control.* Modified without permission.

In Bandura's theory of triadic reciprocal causation behaviour is controlled or determined by the individual, through cognitive processes, and by the environment, through external social stimulus events. Bandura conceptualized influences on behaviour that involved the concept of the person in terms of basic human capacities that are cognitive in nature. Key concepts associated with the person include: personal characteristics, emotional arousal/coping, behavioural capacity, self-efficacy, expectation, expectancies, self-regulation, observational/experiential learning, and reinforcement.

According to social learning theory, most human behaviour is learned observationally through modelling (observing others). By observing other's behaviour an idea of how new behaviours are performed is formed. This learning is coded to provide a guide for future action, minimising the likelihood of errors. During this process of observation, observers acquire mainly symbolic representations of the modelled activity, providing cues for appropriate performance. In Bandura's schematic conceptualisation of this process of observational learning, (Figure 2.3) four key component processes can be identified.

Modelled Events	Attentional Processes	Retention Processes	Motor Reproduction	Motivational Processes	Matching
	Modelling Stimuli Distinctiveness Affective Valence Complexity Prevalence Functional Value Observer Characteristics Sensory capacities Arousal Level Perceptual Set Past Reinforcement	Symbolic Coding Cognitive Organisation Symbolic Rehearsal	Processes Physical Capabilities Availability of Component responses Self Observation of Reproductions Accuracy Feedback	External Reinforcement Vicarious Reinforcement Self-Reinforcement	

Figure 2.3. Component processes governing observational learning. After Bandura (1977, p. 23). *Social Learning Theory*, copyright 1977 Prentice-Hall, Inc. adapted without permission.

The four key component process of observational learning.

Attentional processes.

People can only learn if they are attending to and perceiving accurately the significant features of the modelled behaviour.

Retention processes.

As a result of repeated exposure, modelled stimuli eventually produce enduring, retrievable images of modelled performances.

Motor reproduction processes.

New behaviours are refined through a process of "trial and error" through a process of self-corrective adjustments on the basis of informative feedback from performance.

Motivational processes.

People do not enact everything they learn.

According to the social learning paradigm, observational learning does not necessarily require extrinsic reinforcement. Reinforcement-oriented theories assume that matching responses must be reinforced in order to be learned. Bandura (1977) believes that reinforcement does play a role in observational learning but more as an antecedent rather than a consequent influence. As such it can be more effectively

influenced by informing observers in advance about the benefits of adopting modelled behaviour rather than by waiting for them to inadvertently imitate a model and then rewarding them for it.

According to Bandura's framework, expectations of personal efficacy (one's confidence in one's own ability to perform a behaviour) are influenced by four main sources of information; mastery experiences, social modelling, social persuasion and physical and emotional states. Mastery experiences are considered the most effective means to develop a strong sense of efficacy. Success builds belief in one's efficacy, while failure undermines it. Social modelling refers to the likelihood that if people see others like themselves succeeding through sustained effort, they will also come to believe that they can be successful. Social persuasion strengthens people's beliefs in their efficacy by encouraging them to believe that they have what it takes to succeed. Physical and emotional states also help people to judge their capabilities. Emotions such as fear and anxiety, and physical states such as fatigue, provide cues as to the likely success of failure of an outcome. People also see these states as signs of deficiency, which can diminish efficacy expectations (Bandura, 1977). Motivation is governed by the expectation that behaviour will produce certain outcomes and the value of those outcomes. People act on their beliefs about what they can do as well as their beliefs about the likely outcomes of performance.

An example of effects of observational learning can be seen in the Unique Minds School Program (UMSP) which was developed to help teachers face the challenge of meeting the social-emotional needs of urban elementary-aged children in public schools. It provides one example of the applicability and effectiveness of SCT-based strategies in positively affecting both academic and social development. The study by Linares and colleagues (2005) examined intervention effects of the UMSP teacher-led program designed to promote cognitive-social-emotional skills, including student self-efficacy, problem solving, social-emotional competence, and a positive classroom climate, with the dual goal of preventing youth behavioural problems and promoting academic learning. During two consecutive school years, 119 students and their teachers were assessed in the fall and spring of grade four and again in the spring of grade five. As compared to students in the comparison school, students in the intervention showed gains in student self-efficacy, problem solving, social-emotional competencies, and math grades. In addition, their teachers described them as more attentive, socially and emotionally competent, compliant, and non-disruptive.

Self-efficacy

Self-efficacy has been widely employed to explain and predict health behaviour change. SCT posits that self-efficacy is central to understanding whether or not people will make changes to their health behaviour. Recognized as an important mediating variable between knowledge, attitudes, skills, and behaviour (Bandura, 2005), the concept of self-efficacy is recognized as one of Bandura's most important contributions to psychology and the field of health behaviour change in general. The importance of self-

efficacy for behaviour change has been widely recognized across multiple behaviours relevant to health risk reduction (Redding et al., 2000). It has been incorporated into major theories of behaviour change, testament to its pivotal role in the behaviour change process.

Several factors influence an individual's self-efficacy, including persuasion by others, observing others' behaviour (modelling), previous experience with performing the behaviour, and direct physiological feedback. Self-efficacy exerts such a strong influence on behaviour change that confidence has been found to be more significant than past performance in predicting future behaviour (Bandura, 2005). Bandura believes an individual with low self-efficacy is likely to have lower expectations of successfully performing the behaviour and be more affected by situational temptations that are counterproductive to promoting and maintaining behaviour change (Bandura, 1977). Those with low self-efficacy avoid difficult tasks; have low aspiration and a weak commitment to their goals. In the face of adversity, they dwell on the obstacles and their personal deficiencies and give up. They easily fall victim to stress and depression (Bandura, 1977). Conversely, an individual who has high self-efficacy not only expects to succeed but is actually more likely to do so. Bandura provides the example of the individual most likely to successfully perform an exercise activity such as jogging or swimming, being someone with the confidence to jog or swim. People with high self-efficacy see difficult tasks as challenges rather than threats. They set high goals and stay committed to them. In the face of obstacles they try harder. They are motivated, optimistic and not particularly vulnerable to stress or depression.

The notion of efficacy being linked to people's choice of behaviour, the level of effort expended and the length of time they persist to overcome difficulties is central to the SCT. People's level of motivation, affective states and actions are based more on what they believe than on what is objectively true. Hence, a person's confidence in his or her capabilities is a better predictor of behaviour than the individual's actual capabilities.

Bandura's staged model of behaviour change (2005) advocates tailoring interventions to meet the self-efficacy beliefs, capabilities and motivation of the individual to achieve behaviour change. The first level comprises people with high self-efficacy and positive outcome expectations for behaviour change. These individuals require minimal guidance to be successful. The second level group has doubts about their efficacy and the likely benefits of their efforts. They give up easily when they meet with difficulties, and will need more support than the first group. At the third level, individuals believe their health behaviour is beyond their control. They see little point in even trying if they believe they do not have what it takes to succeed. If they make an attempt, they give up easily in the absence of quick results or in the face of setbacks. They do not believe that their efforts will lead to successful behaviour change and are sceptical about any benefits. This group needs significant support and structure to engage in the change process (Bandura, 2000).

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An individual's self-efficacy beliefs, capabilities and motivation are key determinants of sustainable health behaviour change.

Maintaining physical activity has been shown to bring positive outcomes for patients diagnosed with heart failure (Hare et al., 1999; Ryan et al., 1997); however, motivating patients suffering from the fatigue associated with chronic heart failure has proven challenging. Tierney and colleagues (2011) explored the barriers and enablers to physical activity among people with heart failure. Data from 20 studies identified four main themes: Changing soma, negative emotional response, adjusting to altered status, and interpersonal influences. How individuals responded to their diagnosis and their altered physical status related to their activity levels, as did the degree of encouragement to exercise coming from family, friends, and professionals. The studies consistently found that it was not enough for practitioners to simply tell patients to exercise. Adopting positive health behaviours was a complex process, influenced by factors internal and external to an individual. These authors concluded;

> SCT may be a useful framework for developing interventions to support patients with heart failure in undertaking and maintaining regular exercise patterns. Specific components of SCT that practitioners may wish to consider include self-efficacy and outcome expectancies.
>
> <div align="right">(Tierney et al., 2011, p. 401).</div>

Other social cognitive models for behaviour change.

Several social cognitive models have evolved to explain and facilitate health behaviour change in recent decades. In their review of articles that used theoretical frameworks in health education, medicine, and behavioural science published in the 1990's, Glantz and colleagues found that the most used models were SCT, the Health Belief Model, the Theory of Reasoned Action/Planned Behaviour, and TM (Glanz & Oldenburg, 2001).

Health belief model.

> *If I have the belief that I can do it, I shall surely acquire the capacity to do it even if I may not have it at the beginning.*
>
> <div align="right">Mahatma Gandhi</div>

Conceived by a group of social psychologists in the 1950s and 60s to explain why people would or would not use health services (Janz & Becker, 1984), the Health Belief Model (HBM) hypothesised that the likelihood that someone will take action to prevent illness depends upon the individual's perception that:

- They are personally vulnerable to the condition;
- The consequences of the condition would be serious;
- The precautionary behaviour effectively prevents the condition; and
- The benefits of reducing the threat of the condition exceed the costs of taking action.

<div align="right">(Janz & Becker, 1984).</div>

These four factors, which are influenced by mediating variables, indirectly influence the probability of performing protective health behaviours by influencing the perceived threat of the illness and expectations about the outcome. The HBM has been used for intervening with health screening, illness, and precautionary behaviours. In general it has been found that people tend to underestimate their own susceptibility to disease (Janz & Becker, 1984; Redding et al., 2000). Table 2.3 sets out the six key constructs of the HBM as described by Redding (2000).

Table 2.3.

Key Constructs of the Health Belief Model

Constructs	Descriptions
Perceived Susceptibility	One's evaluation of chances of getting a condition
Perceived Severity	One's evaluation of how serious a condition, its treatment, and its consequences would be
Perceived Benefits	One's evaluation of how well an advised action will reduce risk or moderate the impact of the condition
Perceived Barriers	One's evaluation of how difficult an advised action will be or how much it will cost, both psychologically and otherwise
Cues to Action	Events or strategies that increase one's motivation
Self-efficacy	Confidence in one's ability to take action

Note: The six key constructs of the health belief model as identified by (Redding et al., 2000, p. 182). The *International Electronic Journal of Health Education*. Modified without permission.

Redding and colleagues (2000) explained that belief alone was not enough to motivate an individual to act. Taking action involved cognitively weighing the personal costs associated with the behaviour against the benefits expected as a result of engaging in the behaviour. The benefits need to outweigh the costs.

Cues to action involve stimuli that motivate an individual to engage in the health behaviour. The stimulus that triggers action may be internal or external. For example, pain may act as an internal cue to initiate action. External cues such as a spouse's illness or the death of a parent may also trigger health behaviour changes in an individual who is not inclined to do so without the trigger. When perceptions of susceptibility and severity are high, a very minor stimulus may initiate action (Redding et al., 2000).

Unrealistic optimism occurs when people perceive their own personal outcomes as being more positive than those of other people in similar circumstances. At an individual level, this optimism may be realistic or unrealistic. However, if a group of people collectively sees their relative risk as more favourable than that of comparable others, the phenomenon is described as unrealistic optimism (Clarke, Lovegrove, Williams, & Machperson, 2000).

More recent formulations of the HBM have included self-efficacy as a key factor. Conceptualized as perceived operative capability (Bandura, 2007), self-efficacy is influenced by mediating variables which indirectly influence the probability of performing protective health behaviours by influencing the perceived threat of the illness and expectations about outcome. A more recent addition to the HBM has been the concept of motivation which Redding describes as, readiness to change behaviour (Redding et al., 2000).

Clarke and colleagues (2000) pointed out that researchers tended to adopt primarily one of two perspectives, drawing either on theories of health behaviour, such as the HBM, or on concepts of risk perception, such as unrealistic optimism. To overcome this compartmentalization, they conducted two studies of cancer screening behaviour to examine the extent to which unrealistic optimism occurred in relation to each of the elements of the HBM.1). Firstly severity and curability of cancer and 2) the benefits of, and barriers to, having a screening test. In these studies, data were collected using telephone interviews, dialling numbers randomly selected from the telephone directory. In the first study 164 women aged 50 to 70 years responded to questions about breast cancer and screening mammography, while in the second study 200 men aged 45 to 60 years responded to questions about prostate cancer and screening using the prostate specific antigen test.

Women asked about breast cancer showed considerable unrealistic optimism in relation to their risk of getting breast cancer, their chances of surviving five years after diagnosis with breast cancer, and the curability of their breast cancer. These women also believed that there are fewer barriers preventing them from having regular mammographic screenings for the early detection of breast cancer and that mammograms were more likely to detect their breast cancers than those of the average woman. Thus it was concluded that unrealistic optimism was broader than the perceived risk for this sample of women.

Men asked about prostate cancer showed an unrealistic optimism to perceived risk, age at onset, years surviving prostate cancer, barriers to prostate specific antigen testing, and benefits of testing.

Hall (2012) examined the applicability of the HBM to understand why poor contraceptive behaviour and related reproductive health sequelae. The purpose of the review was to examine the HBM as a comprehensive, well-tested social-cognitive framework suitable for explaining and predicting contraceptive behaviour. The author concluded that the HBM offers a robust theory to direct family planning science and practice. Because it "provides a framework for predicting and explaining the complex systems of modern contraceptive behaviour determinants and for promoting strategies to improve family planning outcomes now" (Hall, 2012, p. 80).

Biddle and Mutrie (2006) suggested that the HBM has been shown to be a reasonably effective integrating social psychological framework for understanding health decision making, but use of the HBM in physical activity settings has not been supported. Variability exists in reporting techniques where the HMB has been used and renders the interpretation of results and comparisons across studies problematic (Janz & Becker, 1984). Yet from another perspective, the development of so many unique approaches to operationalising each variable is testimony to the robustness of the model, suggesting that the dimensions remain predictive despite different measures (Janz & Becker, 1984). Bandura's criticism of the HBM is that some of the factors are simply outcome expectations by another name. For example, perceived severity and susceptibility to disease were expected negative physical outcomes, and perceived benefits were positive outcome expectations.

The argument that preventive health efforts and adherence to prescribed medical regimens are influenced by perceived threats, benefits, barriers and cues to action, suggest that a workplace health management model needs to incorporate health information that stimulates individuals' awareness of their own health risks. In a hospital setting it could be assumed that health workers are highly aware of their own health risks. If this was the case they would be a significantly more receptive audience for interventions that ameliorate such risk. The HBM argues for leveraging change through highlighting the perception of physical threats as a motivator for undertaking health action. This approach underestimates the importance of identifying individual barriers to behaviour change. While media communications and social prompts can serve as cues that trigger the decisional process for health-related action it cannot be assumed that this approach will have a universal application, particularly in a hospital setting.

Theory of reasoned action and theory of planned behavior.

According to the theory of reasoned action (TRA), an individual's intention to carry out a behaviour is a reflection of their attitude toward it and their beliefs about what others think they should do. Developed by Fishbein and Azjen in 1975 to explain all volitional behaviours, the theory provides a framework for

predicting and understanding behaviour, and for identifying factors that can be targeted to bring about behaviour change. Specifically, TRA maintains that, "intention to perform (or not perform) a behaviour is a precondition for engaging in the behaviour. Behavioural intentions, in turn, are a function of a person's attitude towards performing the behaviour, and the subjective norm to perform or not perform the behaviour" (Smith-McLallen & Fishbein, 2008, p. 389). According to the model, an individual's intention to carry out a behaviour is a function of both their own attitude toward it and their beliefs about what others think they should do. Table 2.4. depicts Redding's (2000) summary of the key constructs of both TRA and the theory of planned behaviour (TPB).

Table 2.4.

Key Constructs of the Theories of Reasoned Action and Planned Behaviour

Constructs	Description
Behavioural Intention	Perceived likelihood of performing the behaviour
Attitudes	The product of the behavioural belief multiplied by the evaluation of it
Behavioural Belief	Evaluation of the likelihood that performance of the behaviour is associated with certain outcomes
Evaluation of Behavioural Belief	How good or how bad those outcomes would be
Subjective Norm	The product of the normative belief multiplied by the motivation to comply
Normative Belief	Perception of how much each personal contact approves or disapproves of the behaviour
Motivation to Comply	Motivation to do what each personal contact person wants
Perceived Behavioural Control	The product of the control belief multiplied by the perceived power
Control Belief	Perceived likelihood of each facilitating or constraining condition occurring
Perceived Power	Perceived effect of each condition in making the performance of the behaviour easier or more difficult

Note. Ten key constructs of the TRA/TPB as described by (Redding et al., 2000, p. 183), *The International Electronic Journal of Health Education*. Adapted without permission.

Predicting behaviour is the ultimate goal of the TRA which postulates that behaviour is influenced by the intention to perform the behaviour. Intention is influenced by three major variables: subjective norms,

attitudes, and self-efficacy. Subjective norms involve an individual's perception of what significant others believe about his or her ability to perform the behaviour (Redding et al., 2000). The theory of reasoned action surmises that the intention to perform a particular behaviour is strongly linked to the actual performance of that behaviour. Two basic assumptions that underlie the TRA are: 1) behaviour is under volitional control, and 2) people are rational beings. From the perspective of TRA, we behave in a certain way because we choose to do so and we use a rational decision-making process in choosing and planning our actions (Redding et al., 2000).

TRA has been applied to many diverse health-related behaviours including weight loss, smoking, alcohol abuse, HIV risk behaviours, and mammography screening. According to Biddle and Mutrie (2006), TRA has consistently predicted exercise intentions and behaviour across diverse settings and samples with attitude accounting for 30-40% of the variance in intentions. Social norm was only weakly associated with intentions.

TPB was also developed by Fishbein and Ajzen. It extended the TRA model to include, "perceived control over performing a behaviour as an additional predictor of intentions as well as a moderator of the intention–behaviour relationship" (Smith-McLallen & Fishbein, 2008, p. 389). According to these theories, attitudes toward the behaviour explain the degree to which one is positively or negatively disposed to perform a behaviour. *Is my performance of the behaviour good or bad? Is it harmful or beneficial, pleasant or unpleasant?* Subjective norms refer to an individual's perception of the extent to which significant others think he or she should or should not perform the behaviour. The perceived behavioural control component measures a person's belief that they do or do not have the ability to perform a particular behaviour, that performing the behaviour is, or is not under their control and has been shown to account for 36% of the variance in intentions (Biddle & Mutrie, 2006).

Both models have been successful in linking attitudes and related variables to intentions and participation. The models highlight the importance of identifying and mitigating barriers to participation in health management programs. As in the SCT, these models also reinforce the fact that highly self-efficacious individuals may perceive an activity to be inherently difficult but believe that they can succeed through ingenuity and perseverant effort. Biddle and Mutrie (2006) maintain that TRA and TBP models are limited by their focus on conscious decision-making through cognitive processes and are essentially static and uni-dimensional approaches. This would significantly limit the applicability of these models to the complex and multi-dimensional environment of a workplace setting.

Organisational Change

Elsworth and Astbury (2005) point out that a 'dynamic process of organisational change' is required for a program to change the culture of an organisation. They believe this process consists of two different

components that are similar to Piaget's hypothesised processes underpinning intellectual development. One is assimilation (incorporation of a project into on-going practices, policies and structures) and the second is accommodation (organisation development and change in response to the particular demands and requirements of the project). Further to this, Swerissen & Crisp (2004) analysed the complex relationship between the means of intervention (programmes and agencies), the outcomes or effects that are achieved and the different levels of social organisation. These include individual change, organisational change and institutional change. Although these levels of social organisation are nested within one another they involve different social processes which need to be understood in developing a successful, sustainable health promotion intervention.

The sustainability of behaviour change within an organisation has more to do with the changes to an organisation's rules and practices than the behaviour of individuals. Swerissen & Crisp (2004) contend that the intervention model assumes that changes to organisational rules and practices have a direct impact on the behaviour of individuals. However, they acknowledge that because settings are adaptive and dynamic, it is often difficult to get the 'rules of the game' to change. When the basic equilibrium of a social system is threatened there is often a 'backlash', and it is important that interventions take this likelihood into account. Organisations also vary in the extent to which their pre-existing structures and processes are able to facilitate organisational change to promote health. Considerable organisational development may be required where these do not exist.

The TM provides insights into how to ascertain, at an organisational level, what infrastructures exist. This knowledge helps to identify the strengths and weaknesses of the organisation and its "readiness to change." This insight provides the health promotion researcher with a unique opportunity to develop targeted strategies to prepare and equip the leadership team for change. This in turn increases the likelihood that a health promotion initiative will be successfully embedded into the organisation, and even more importantly, sustained.

Rapoport's (1970) social research on organisational change suggests that intervention programmes that achieve setting-level change need longer time frames and different skills and resources than individual-level change strategies in order to produce sustainable changes in practice. He contends that social learning theory and behaviour modification techniques can be used to accomplish individual behaviour change, perhaps better than other known methods. Even so, he states, "these techniques are incomplete when a social organisation or a community is the unit of study and the focus of change" (Rapoport, 1970, p. 92).

The notion of engagement between employers and workers is grounded in the change management literature of Kotter (1995). Kotter points out that many companies have tried to transform themselves in

order to meet a more competitive market environment, but most of the transformation efforts have been less than effective. From observations of 100 organisations, his study of the companies that have been successful indicates that the transformation process entails eight specific phases. The elimination of any of these phases can harm the entire process and mistakes made during the transformation can reverse the process. "Skipping steps creates only the illusion of speed and never produces a satisfying result" (Kotter, 1995, p. 59). Kotter posits that the eight critical steps required to successfully manage a major organisational change initiative are:

1. **Building a case for change**

   Key stakeholders need to understand why change is necessary, thus the evidence for supporting the change must be collected and articulated to those affected by it. Change is about risk, so the risk of not changing needs to be perceived as greater than the risk of change.

2. **Forming a powerful guiding coalition**

   Moulding a group of individuals into an effective team and providing them with enough power to lead the change effort.

3. **Creating the vision**

   What is initially required is a sense of direction, not myriad plans. There is a need for those involved in the change effort to share the vision, which could come from a charismatic leader or be developed by a coalition.

4. **Communicating the vision**

   Communicating synergistically the nature of the vision to stakeholders.

5. **Empowering others to act on the vision**

   Administrators need to set up structures to support the change and to remove potential barriers

6. **Planning for and creating short-term wins**

   Ensuring tangible signs of improvement early on in the initiative to provide momentum for furtherance of change. In association with this, there should be opportunities to celebrate success.

7. **Consolidating improvements**

   Incorporating the change into the very fabric of the organisation. This almost always involves both person-centred and resource support from the administration.

8. **Institutionalising new approaches**

   Making sure that those within the organisation make the connections between the change and outcomes which follow from the change. This is done with a view to ensuring that the coalition understands and supports the change.

This change strategy applies very aptly to the processes required at an organisational level to implement a sustainable health management initiative such as that proposed in this project.

Workplace Health Promotion

With growing concerns about the prevalence of chronic diseases and their impact on the economy, governments are looking to workplace health promotion initiatives to help prevent the escalation of these diseases in general.

In Australia, WorkSafe Victoria (2012) has implemented a WorkHealth program, which aims to improve the health and wellbeing of Victorian workers and reduce the incidence of chronic disease. The state government provided the funding to enable all Victorian workers to have a free, 15 minute WorkHealth check and be screened for their risk of type 2 diabetes and cardiovascular disease. 500,000 workers having participated in the screening in two years, over 40% were found to have a high or very high risk of developing type 2 diabetes or cardiovascular disease in the next five years. The program also provided some funding, tools and resources to employers to support them to introduce and enhance their health and wellbeing programs (WorkSafe Victoria, 2012). Program outcomes are currently unavailable but a crucial issue will be whether employers will match the investment of the government and progress to implement interventions to change worker's health self-managing behaviours.

While the Victorian program demonstrates the state government's commitment to worker's health, employers also need to embrace the opportunity to invest in worksite health promotion programs. There is evidence that these programs can facilitate sustainable changes in health management behaviours at both the individual and organisational level (Aldana et al., 2006; Jacobson & Aldana, 2001). The immediate challenge is to provide more of the evidence that employers need to convince them of the long term cost effectiveness of investing in these programs. There is also a need for programs themselves to be more user-friendly within the work environment.

Employer barriers to investment.

In Australia there are numerous barriers for employers investing in worksite health promotion programs. These include:

1. **Productivity**

   Concern about disrupting the productivity of their business for "non-core" activities

2. **Participation**

   The perception that these programs target only the receptive

3. **Cost effectiveness**

   The limited international evidence of a significant cost benefit, particularly in relation to sustainable outcomes

4. **Sustainability**

   Unsubstantiated outcome measures regarding long term behaviour change

Productivity.

Absenteeism and presenteeism [when people come to work but underperform because of illness or stress] have a significant negative impact on productivity. Employees with multiple chronic health conditions are especially vulnerable to productivity loss. In their study of 50,000 workers at 10 employers, Loepppke and associates (2009) found that lost productivity costs were 2.3 times higher than medical and pharmacy costs. Research on workplace wellness programs conducted by Berry and colleagues (2010) found that organized, employer-sponsored health promotion programs that support employees to adopt and sustain behaviours that reduce health risks, improve quality of life and enhance personal effectiveness can benefit the organization's bottom line. They contend that the return on investment of comprehensive, well-run employee wellness programs can be as high as 6 to 1.

Participation.

There is a perception that workplace health promotion programs target only the receptive. Aittasalo and Miilunpalo (2006) found that employees participating in worksite health promotion interventions are mostly the already physically active and healthy. In a study of 2,744 medical personnel Aldana and colleagues (2005) found that despite significant incentives to participate, less than 5% of the workforce took up the opportunity to participate in the CHIP workplace health program. In their Workplace Wellness Programs rubric, Berry et al (2010) identified "penetration of the workforce" (percentage of employees who have participated in at least one wellness activity) as a key performance indicator of the success of a workplace health management program. Clearly there is a need to identify strategies that engage high risk workers in a way that encourages them to participate in programs that will help them to move towards long term, sustainable behaviour change.

A software institute in the United States (SAS Institute) has developed a workplace health and wellness program that sees 70% of its workers use the recreation centre twice a week (Berry et al., 2010). The high participation rates were attributed to the efforts of the program co-ordinators to identify and eliminate all the reasons why people wouldn't use the facility. Identifying potential barriers to participation is an example of the strategic planning that is required to successfully engage workers who would not otherwise participate. Understanding the barriers to participation and developing strategies to entice and motivate those most at risk of ill-health and injury are challenges specifically addressed in this thesis.

Cost effectiveness.

Effective, sustainable programs require a substantial investment and employers need to be convinced that their efforts will reap rewards. However, the cost of health promotion programs has been questioned as some studies have found no significant differences in healthcare costs between those who participated in any of the wellness programs and those who did not participate (Aldana, Merrill, Price, Hardy, & Hager, 2004). Without the evidence to demonstrate that health promotion programs have a health benefit, employers will continue to find it difficult to justify the expenditure.

In the United States where employers are responsible for the healthcare costs of employees, some companies have demonstrated a compelling business case for health promotion programs. Berry and colleagues (2010) cited international company Johnson and Johnson as estimating that its health promotion programs have saved $250 million dollars in healthcare costs during the past decade. Medical costs fell by about $3.27 for every dollar spent and absenteeism costs fell by about $2.73 for every dollar spent (Berry et al, 2010). While these figures are encouraging, they focus on the health insurance savings which are only relevant in countries like the United States where employers are responsible for the health insurance costs of their workers. Evidence of outcome measures relevant to Australian employers is needed to encourage strategic investment in workplace health promotion programs in this country. Such measures could include injury prevention, improved productivity, enhanced workplace culture and improved return to work timeframes for injured workers.

Sustainability.

The documented plans of health promotion initiatives 'usually' contain the word sustainability (St. Leger, 2005). Some identify precisely what outcomes are intended to be sustained after the project or program funding ceases, but many do not tease out the important aspects worth sustaining. However, it is important to ascertain how recent research defines sustainability in a workplace health promotion context, the specific frameworks that address this concept and what are the foremost influences on sustainability.

Six distinct definitions of sustainability have been identified by Shediac-Rizkallah & Bone (1998). These definitions encompass the following ideas.

1. The capacity to support coverage at a level that will provide continuing control of a health problem(s).
2. The capacity of a project to continue to deliver its intended benefits for a long period of time.
3. The ability of the program to deliver an appropriate level of benefits for an extended period of time after major assistance from an external donor is terminated.
4. The long-term viability and integration of a new program within an organisation.
5. The process by which new practices become standard business in an organisation (i.e. their routinisation and institutionalisation).
6. The development of capacity (knowledge, skills and resources) of organisations to conduct effective programs.

Shediac-Rizkallah and Bone (1998) maintain that these definitions, while focused primarily on the program and implementing organisation encompass three important concepts of sustainability. The first

three definitions emphasise the continuation of benefits (outcomes), the next two emphasise the incorporation of the program into routine and on-going operations of the organisation, while the final definition emphasises the process that is believed to lead to program maintenance and effectiveness. They can be seen as a sequence of events presented below that eventually leads to program effectiveness (Figure 2.4).
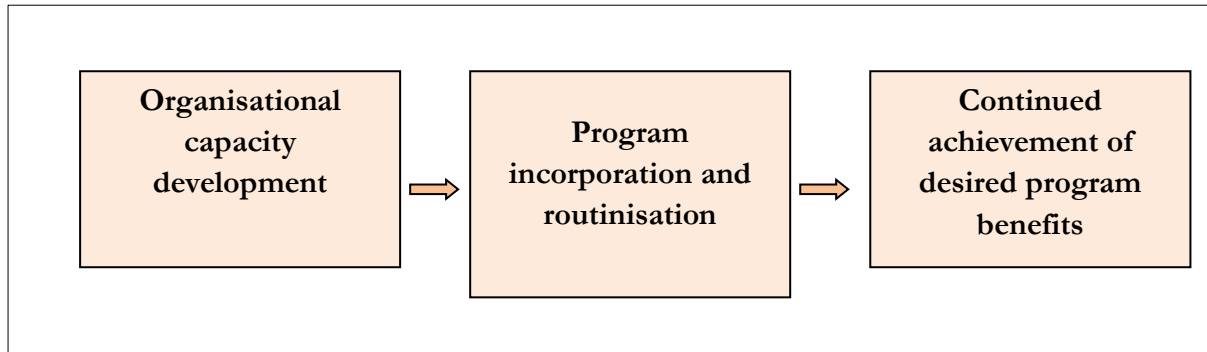
Figure 2.4. Concept of program sustainability within an organisation

Shediac-Rizkallah and Bone (1998) and Scheirer (2005) have also identified three categories of 'potential influences' on sustainability. They are:

1. **Project design and implementation factors**

    These include the nature of the program design and process, whether the program is modifiable, whether documentation has demonstrated effectiveness, how long that program has existed and the nature of the original source of funding.

2. **Factors within the organisation**

    These include program champions that are strategically placed to foster continuation and whether the program is congruent with the underlying values, operational procedures and capacity of the organisation

3. **Factors in the broader community**

    These include the stability of external socio-economic and political factors, such as market forces impinging on an organisation, legislation that may affect the program, support from industry professionals external to the organisation and availability of other resources as inputs to the program.

Scheirer (2005) ascertained the extent of sustainability achieved in a range of programs and identified the factors contributing to greater sustainability. In 14 of the 17 studies examining the continuation of program activities, at least 60% of sites reported sustaining at least one program component. Scheirer

identified five important factors influencing the extent of sustainability: (a) a program can be modifiable over time, (b) a program 'champion' is present, (c) a program 'fits' into an organisation's missions and procedures, (d) benefits to staff members and/or clients are readily perceived and (e) stakeholders in other organisations provide support. Heward et al (2007) argued that the sustainability of work place health reform is inextricably linked to the efforts of practitioners in building strategies for organisational change into both their practice and capacity-building frameworks. If health behaviour changes are not sustainable, employers are unlikely to invest time, money and effort to implement such programs. Interventions need to incorporate what we now understand about the development of self-efficacy and the need to systematically provide interventions that assist individual workers to move through the various processes of engagement to be able to adopt and sustain healthy life choices. This requires a significant investment over a longer period of time than is usually allocated for "health promotion initiatives."

The role of routinisation.

Pluye, Potvin & Denis (2004) identified 'routinisation' as the primary process permitting sustainability of programs within organisations. In addition to this, the analysis identified 'standardisation' as the secondary process leading to sustainability. Pluye et al. believed that standardisation in conjunction with routinisation lead to program-related routines that were more sustainable than organisation routines alone. This concept of routinisation was first developed by Yin (1981) who analysed how innovations become standard practice (Table 2.5). Yin suggested that routinisation depended on processes or events that he characterised as specific 'passages' or 'cycles.' The thread that tied these cycles was engagement of workers in the process and the support of high level administrators and management. To establish and sustain positive health behaviours, workers must be engaged in the process of routinisation to sustain their changed behaviours. His model highlighted the importance of peer and management support as being imperative to embed routinised practices into the infrastructure of an organisation.

Table 2.5.

Yin's routinisation framework

1. Budget	1a. Program supported by change from soft to hard money
	1b. Survives annual budget cycles
2. Personnel	2a. Program activities become part of job descriptions/requirements
	2b. Program survives turnover of personnel/leadership
	2c. Key program staff members are promoted within agency
	2d. Program activities spread to all potential users within agency
3. Supply and maintenance	3a. Supply and maintenance provided by agency
	3b. Activities survive equipment turnover
4. Training	4a. Skills taught in many training cycles
	4b. Skills become part of professional standards
5. Organizational governance	5a. Use of program recognized in manuals, procedures, regulations
	5b. Program recognized as permanent within agency

Note: Yin's routinisation framework (as cited in Schrierer 2005 p. 326). Copied without permission.

The Need for Cost Effective and Sustainable Programs

Workplace health promotion interventions need to be developed within a theoretical framework and with a robust and valid research design. The outcome measures need to be evidence-based and include measurement of participation, cost effectiveness and sustainability. One example is provided by the Coronary Health Improvement Project (CHIP). Aldana et al. (2005) examined the behavioural and clinical impact of a worksite chronic disease prevention program on a group of medical personnel from the Swedish American Health System (SAHS), in Illinois, USA. The organisation initiated an employee wellness program to mitigate rising healthcare costs for its 2,744 medical personnel and staff. One component of the wellness program was the adoption of the CHIP program, a 40-hour, live lecture educational course that highlighted the importance of making better lifestyle choices for preventing chronic diseases. A randomized clinical trial was initiated to determine whether SAHS employees who participated in the program could improve their cognitive understanding of good health, healthy behaviours, and chronic disease risk factors through six weeks and six months.

To encourage participation, SAHS shared the cost of program participation, paying $295 of the initial $395 program cost, with employees responsible for paying the $100 difference. Upon successful completion of the program, SAHS refunded the $100 employee portion. Employees received further incentive to participate by being paid an additional $100 and, if they were diabetic, they were paid another $100. Because spouses of employees were also covered by the SAHS health plan, they too were encouraged to participate. Despite these incentives only 145 of the 2,744 employees (5%) chose to participate.

Participants met for four weeks - four times each week for two hours each session. Meetings were held off-site at a local college. The curriculum included such topics as: modern medicine and health myths, atherosclerosis, coronary risk factors, obesity, dietary fibre, dietary fat, diabetes, hypertension, cholesterol, exercise, osteoporosis, cancer, lifestyle and health, the optimal diet, behavioural change, and self-worth.

In conjunction with the CHIP lectures, participants received a textbook and workbooks that contained assignments with learning objectives for every topic presented. Demographic data were collected at baseline. Participants attended 87% of the classes. Variables included cognitive and behavioural measurements and physiological outcomes related to chronic disease. Of the 145 participants, 8 were lost to follow-up. Mean ages did not significantly differ between intervention (46.1+/- 10.8 years) and control (45.9 +/- 9.3 years) participants. Many of the improvements in health behaviour showed large six-week improvements that diminished somewhat after six months, but still remained significantly better than baseline. For example, there was a 25% increase in walking steps (as measured by pedometer) at six weeks from baseline. By six months, this increase had dropped to a 16% overall increase from baseline.

The study concluded that employees who participated in this intensive lifestyle change program improved their health knowledge, adopted and maintained healthy eating and physical activity behaviours, and experienced favourable improvements in many chronic disease risk factors. The participants in this study however were mostly Caucasian and sufficiently self-motivated to volunteer to participate in the intervention. The study was also not of sufficient duration to be able to lay claim to long term behaviour change outcomes nor was there any attempt to measure the cost benefits of the intervention.

The SAHS study highlights the difficulty faced by employers in recruiting workers despite the significant incentives offered to employees. The significant time commitment (40 hours) involved may have been a confounding factor, but the intensity of the program also demonstrated the time and commitment required to change health behaviours. Even though the SAHS employees were able to demonstrate significant changes after six months, long-term behaviour compliance could not be determined and the reduction in outcome measures at the end of the study strongly implied a lack of sustainable change.

A subsequent study by the same authors (Aldana et al., 2006) adopted a longer term framework to examine the two-year impact of a worksite-based diabetes prevention program. Thirty-seven pre-diabetic and previously undiagnosed diabetic employees participated in a 12 month worksite diabetes prevention program. Weight, waist circumference, 2 hour oral glucose tolerance testing, fasting insulin, haemoglobin A1c, HDLs, VLDLs, triglycerides, and aerobic fitness improved significantly during the 2 years. Measures from the 2-hour oral glucose tolerance testing improved dramatically after 6 months (46.36-mg/dl decline) and 1 year (42.68 mg/dl). However, after 2 years, this value was only 26.59 mg/dl. Across the

entire period, baseline to 24 months, oral glucose tolerance testing revealed a significant decline in glucose levels. Of the 22 employees remaining in the study through 24 months, more than half had normal results on glucose tolerance testing. The authors concluded that worksite diabetes prevention programs may reduce blood glucose below pre-diabetic and diabetic levels. Improvements in diabetes risk factors persisted for at least two years in most of these participants.

The need to provide employers with evidence of the sustainable cost effectiveness of health promotion programs has led to a range of research designs. The multiple variables that impact on cost measures make this a complex process. In 2004 Aldana et al. quantified the financial impact of a two year worksite health promotion program. The purpose of this study was to determine if the Washoe County School District Wellness Program impacted on employee healthcare costs and rates of absenteeism over a two year period. Outcome variables included healthcare costs and absenteeism. Data were collected on 6,246 employees over a six year period from 1997–2002. Baseline health claims costs and absenteeism were recorded from 1997–2000. Age, gender, job classification, and years worked at the school district were treated as covariates. Logistic regression was used to compare two year costs and absenteeism rates between non-participants and employees who participated for one and two years. No differences in healthcare costs were found between those who participated in any of the wellness programs and those who did not participate. However, there was a negative association between participation and absenteeism; program participants averaged three fewer missed workdays than those who did not participate in any wellness programs. Non-participants had higher rates of illness-related absenteeism than did employees who participated in any program(s) during any one year and considerably higher rates of absenteeism compared to those who participated in any programs over a two year period. The authors concluded that after controlling for several confounding variables, wellness program participation was associated with large reductions in employee absenteeism but not in healthcare costs.

In the UK, almost 30 million days were lost because of work-related illness in 2006/7. Stress, depression or anxiety accounted for 13.8 million days lost or 46% of all reported illnesses making this the single largest cause of all absences attributable to work-related illness (Cooper & Dewe, 2008). The most widespread workplace hazard was stress. This measure of absenteeism is the "cost-benefit" cited in many studies attempting to quantify outcomes in health behaviour change (Bernaards, Proper, & Hildebrandt, 2007; Berry et al., 2010; Jacobson & Aldana, 2001; Proper, van den Heuvel, De Vroome, Hildebrandt, & Van der Beek, 2006). It is a variable that employers can identify with, given the clear correlation between productivity and costs of workers who do not attend work. It is however a measure vulnerable to a broad range of confounding recruitment variables as was reflected in the worldwide flu epidemics in 2009.

Although employers may be cognizant of the need to invest in the health of their employers, they will still continue to seek assurances that such investment will be cost effective, will meet the needs of all

employees, and be sustainable. Many successful programs begin with a modest budget, a committed and caring employer and a few enthusiastic staff who take the time and effort to generate interest and genuine participation. Chu and Dwyer point to one such project in a computing company in Singapore with approximately 100 staff. Through a needs assessment via e-mail, informal conversations and group discussions, common staff concerns were identified (i.e., eye-strain, low morale, feeling isolated in work cubicles). Drawing from staff suggestions, a working party planned and implemented workplace health improvement strategies. Through a participatory process, a full year of health and social activities was developed in the second year to coincide with the company business plan, and from year three, workplace health promotion became an integral part of the company plan with long-term and short-term goals.

Such stories build the case for a participatory problem solving approach to identify and address health management issues specific to an individual workplace. This inherently requires both employees and employers to participate in a needs-based program development to identify health priorities and to develop strategies that address the needs and budget of the organisation.

Leadership.

There is evidence to suggest that effective leadership is the strongest determinant in the sustainability of health promotion programs within a company (Kirkman & Rosen, 2000). Empowering workers to engage in the process of change is pivotal to the likely success of the intervention and the first place to look is within the management team, mindful however that the most "successful" managers do not always make the most successful change agents. Researchers advocate identifying leaders within the organisation that have the necessary skills, motivation and credibility to facilitate this process.

Kirkman and Rosen (2000) suggested that historically, managers have viewed their roles as planning, motivating, evaluating, and rewarding the work of their subordinates. Given that managers are ultimately accountable for the performance of their workers, it is inevitable that many managers are proactive in setting goals, delineating work processes, and closely monitoring individual and group performance. However, empowering work teams requires a 180-degree shift in philosophy and behaviour. "Leaders of empowered teams must play the role of coaches and facilitators, helping teams define tasks, structure activities and monitor their own progress. Relinquishing power and control does not come easily for many leaders" (Kirkman & Rosen, 2000, p. 55). There is clearly a need to establish well-defined parameters when identifying those managers, who are likely to be able to understand, accept and adopt a self-management philosophy. These are the managers who through, "authentic leadership" can empower others to act upon the vision. On authentic leadership and positive organisational behaviour, Quick and Quick (2004) contend:

..... it is essential for a leader or manager to correctly assess which set of assumptions apply to which individual(s). A new challenge for leaders is to help each other and their employees to grow, develop, and build on their core strengths, competencies, and virtues

(p. 231).

Workplace Injury Management

"Employers have a statutory and moral responsibility to safeguard the health, safety and welfare of workers, and to take practicable steps to prevent avoidable injuries" (Waddell & Burton, 2001, p. 127). To meet their obligations under the Human Rights legislation (Victorian Equal Opportunity and Human Rights Commission, 2012, p. 1), employers are required to develop and maintain safe work practices that both prevent and manage workplace injuries. To do so successfully requires the integration of these principles and practices into the corporate policy and regular management practices of each organisation. No such regulatory requirement exists in Australia for employers to invest in the health of their workers, despite the clear correlation between health promotion and injury prevention. An impetus for such investment may be provided by meaningful outcome measures from successful and sustainable health promotion programs in Australian workplaces.

In the search for a broader and more reliable set of measures that reflect positive health promotion outcomes, one option might be to examine the recording and reporting systems used to monitor and cost workplace injuries. This is a process generally undertaken by external insurers which provides a degree of independence in the reporting. It also defrays the actual cost of any data collection and analysis to the employer.

Return to work.

The term "return to work" implies that an injured worker has stopped work for some period and then undertaken to return to work. The time taken between these two points is referred to as "lost time" and the measure of lost time is the reference point for discerning the effectiveness of the management of an injury. Recent research has identified a strong negative correlation between time away from work and the likelihood of a successful return to work (Staal et al., 2003; Waddell & Burton, 2001; Waddell, Burton, & Kendall, 2008). "Injured workers who are offered modified work return to work about twice as often as those who are not. Similarly, modified work programs cut the number of lost work days in half"(Krause, Dasinger, & Neuhauser, 1998, p. 113). Vocational rehabilitation is "whatever helps someone with a health problem to stay at, return to and remain in work. It is an idea and an approach as much as an intervention or a service." However there is a "strong scientific evidence base for many aspects of vocational rehabilitation." (Waddell et al., 2008).

Physical rehabilitation.

According to Baril, Berthelette, and Massicotte (2003) physical rehabilitation programs for disabled workers date back to the 1940s, when the United Mine Workers in the United States campaigned for medical interventions for Appalachian miners who had sustained workplace injuries. The rehabilitation program offered by the Institute of Physical Medicine and Rehabilitation of New York during this period was deemed to have "improved participants' physical and occupational function" (p.278).

Franche et al. (2005) conducted a systematic review of the effectiveness of workplace based rehabilitation interventions provided to workers with a work disability. The examination of the peer-reviewed studies between 1990 and 2003 in French and English found strong evidence that work disability duration was significantly reduced by work accommodation offers and contact between healthcare provider and the workplace. There was moderate evidence that return to work outcomes were improved by early contact between the worker and the workplace. There was also moderate evidence that these measures reduced the costs associated with work disability duration. This systematic review provided evidence that workplace-based rehabilitation interventions can reduce work disability duration and associated costs. The evidence regarding their impact on quality-of-life outcomes however was much weaker.

Psychosocial factors.

"Psychopathology following injury is a frequent and persistent occurrence" (O'Donnell, Creamer, Elliott, Atkin, & Kossmann, 2004, p. 507). Steenstra et al., (2005) recommended early routine assessment of injured workers to identify those workers requiring psychosocial intervention. Krause, Dasinger, Deegan, Rudolph and Brand (2001) conducted a retrospective cohort study of 433 low back pain workers' compensation claims with 1-4 years of follow-up. The association of psychosocial job factors with duration of work disability was estimated with Cox regression, adjusting for injury history, and severity, physical workload, and demographic and employment factors. It was concluded that the duration of work disability was associated with psychosocial job factors independent of injury severity and physical workload.

In a prospective controlled trial of 46 patients undergoing lumbar discectomy, Schade, Semmer, Main, Hora and Boos (1999) analysed three classes of variables (medical data, including MRI identified morphological abnormalities, general psychological factors and psychosocial aspects of work) with regard to their predictive value for the outcome of lumbar disc surgery at two year follow-up. The most important finding of this study was that return to work was not influenced by any clinical findings or MRI-identified morphological alterations, but solely by psychological factors (i.e. depression) and psychological aspects of work (i.e. occupational mental stress).

Sullivan, Adams, Rhodenizer & Stanish (2006) investigated whether the addition of a psychosocial intervention improved return to work rates beyond those associated with participation in a functional restoration physical therapy intervention. Subjects who had sustained whiplash injuries participated in the Progressive Goal Attainment Program (PGAP), a 10-week psychosocial intervention program that aimed to increase activity involvement and minimize psychological barriers to rehabilitation progress. Sixty participants who enrolled in a functional restoration physical therapy intervention were compared to 70 participants who received PGAP in addition to the physical therapy. Participation in the PGAP plus physical therapy resulted in a significantly higher return to work rate (75%) than physical therapy alone (50%). In a 12-month prospective study, a total of 164 employees on sick leave for two - six weeks due to musculoskeletal complaints were also found to be more likely to return to modified work when they had better mental health (Van Duijn, Lotters, & Burdorf, 2005).

The staged model of behaviour change developed as part of Bandura's Social Cognitive Theory has particular relevance to the successful re-integration of injured workers into the workplace. Injured workers invariably need significant support from managers and colleagues to overcome the psychological barriers often associated with the return to work process, particularly when attempting to return to work during the recovery phase of an injury. Understanding the importance of tailoring interventions to meet the self-efficacy beliefs, capabilities and motivation of an injured worker can assist doctors, managers and clinicians to achieve a successful and sustainable return to work outcome.

Determinants of Return to Work

A comprehensive literature review by the Australian Institute of Primary Care for the South Australian WorkSafe Corporation identified a very wide range of determinants of injury management and return to work (Foreman, Murphy, & Swerissen, 2006). Various studies have demonstrated that work disability and return to work are multi-determined outcomes that cannot be accurately predicted just from knowledge of the medical or physical dimensions of the injury or condition (Foreman et al., 2006). On the contrary, a very wide range of determinants of return to work have been identified. These include:

- characteristics of the injured worker,
- components of particular medical and occupational rehabilitation interventions, physical and psychosocial job characteristics,
- workplace factors (shift work, availability of alternate duties)
- the insurance or worker's compensation scheme and
- broader societal factors such as labour market conditions and
- the prevailing legal framework

All have been shown to have some role to play in influencing return to work outcomes independent of the underlying medical condition. Reflecting the multi-factorial nature of the return to work process, relevant research crosses many disciplines including epidemiology, medicine, public administration and psychology (Foreman et al., 2006).

A major limitation of the current research literature in the area is that, both at the level of the individual study as well as when considering the literature as a whole, there is inadequate recognition of the range of factors involved in influencing the actual return to work achievements of any individual or group (Foreman et al., 2006). In particular...

> The continued conduct of research designed around examination of an almost endless combination of demographic, injury and individual psychosocial variables without proper assessment of workplace factors cannot be expected to lead to advances in knowledge useful in the development of more effective return to work practice
>
> (Foreman et al., 2006, p. 42).

When turning to the relevant workplace factors, five specific determinants have been identified in the literature as being particularly relevant in the hospital work environment. These are:

1. Early intervention
2. Peer support
3. Management mentoring
4. Skilled clinicians
5. Physical activity

Each factor will now be discussed in turn.

Early intervention.

In 2008 Waddell & Burton published guidelines to manage workplace injuries and were definitive in their argument that early intervention to facilitate injured workers remaining at work or returning to work as rapidly as possible, is of paramount importance (Waddell & Burton, 2001; Waddell et al., 2008). Their review demonstrated strong evidence that advice to continue ordinary activities of daily living, as normally as possible despite pain, can give equivalent or faster symptomatic recovery (from acute symptoms). This approach was found to facilitate shorter periods of work loss, fewer recurrences and less work loss over the following year than 'traditional' medical treatment (advice to rest and '*let your pain be your guide*' for return to normal activity).

There is now a growing consensus (Staal et al., 2003; Waddell et al., 2008) that there is an optimal window of opportunity for effective clinical/occupational management (Figure 2.5). Within that critical window, earlier interventions are likely to be simpler and more effective, and the opportunity for effective intervention should not be missed.

About 1 month   **6 months+**

| **Most return to work** | **Optimal "window" of opportunity for effective clinical / occupational management** | **Incapacity entrenched: Greater obstacles to return to work / rehabilitation more difficult** |
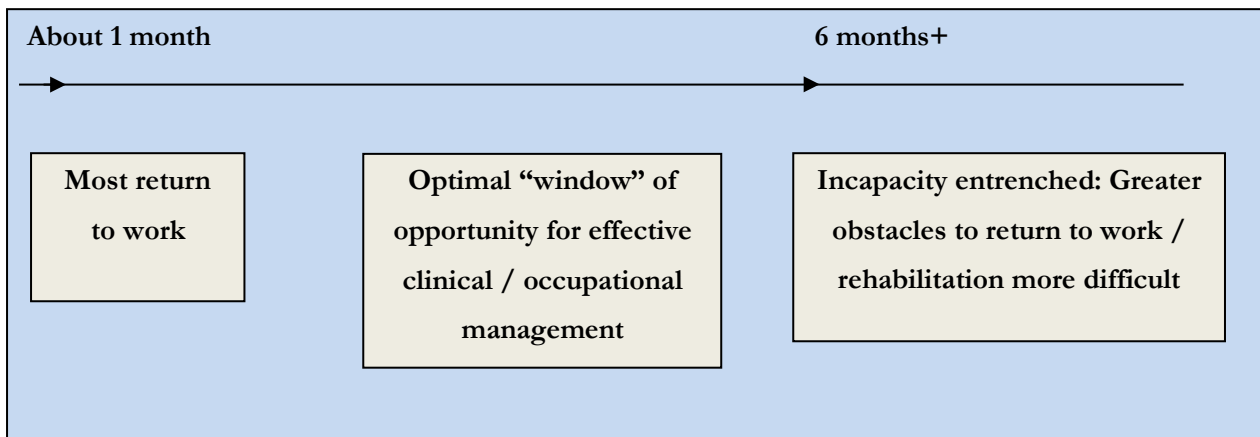
Figure 2.5. Optimal window for effective management of workplace injuries (Waddell & Burton, 2004, p. 52). *Journal of Clinical Psychology*. Modified without permission.

This concept is one that will bring about significant change to the way occupational health management is practiced. Waddell and Burton (2002) argue that the rehabilitation of workplace injuries needs to be integrated into clinical and occupational management from the outset. They contend that it should be possible to reduce sickness absence and long-term incapacity due to low back pain by at least 30-50%. They acknowledged however, that this will require a fundamental shift in management culture (Waddell & Burton, 2006). The enormous socioeconomic burden of low back injuries emphasises the need for effective management of this problem, especially in an occupational context (Staal et al., 2003). In their review of the occupational health guidelines for the management of low back pain at work in Canada, Australia, USA, New Zealand, The Netherlands, and the United Kingdom, Staal and colleagues (2003) found that the guidelines of all six countries agreed that remaining at work or an early (gradual) return to work, if necessary with modified duties, should be encouraged and supported.

The well documented ill-effects of long-term unemployment provide incentives for employers to encourage injured workers to remain in or to re-enter the workforce. Attempts to implement this approach however, have brought the medical fraternity into direct conflict with employers as both grapple with their divergent interests. Medical practitioners have concerns about employers' intentions and ability to facilitate this process safely. Doctors entrenched in a treatment approach rely on physical therapy, drugs and surgery to "fix" a problem before "allowing" their patients to return to work, providing restrictive return to work certificates to limit the vocational options of injured workers. Medical practitioners seek assurances that employers have the capacity and resources to protect injured workers

during their transition to pre-injury hours and duties. This conservative approach is to the detriment of all workers. None the least ageing workers who are more prone to injury and whose recovery is more protracted. The longer these workers are away from work, the less likely they are to return. These are the same workers who are at increased risk of depression because they are unable to return to work.

Peer support.

The support of peers can assist or deter an injured worker's attempt to resume his or her duties. Elfering and colleagues (2002) conducted a five-year longitudinal study investigating peer support as a predictor of low back pain in 46 initially asymptomatic individuals. Distinguishing between colleagues in general and the colleague one feels closest to, the authors analysed constellations of support from a supervisor (which had positive effects) and closest colleague (which had detrimental effects). The study found that high support from one's closest colleague and low support from one's supervisor was positively correlated with a statistically significant increase in the occurrence, duration, frequency, use of the medical system and work incapacity of low back pain. The authors postulated that friends may tend to be more empathetic and show more sympathy, inadvertently reinforcing dependent behaviours. Closest colleagues may support friends by doing something for them that they would experience as painful or aversive, meaning to spare them the painful effort, but at the same time supporting passive behaviour. Without the support of an empathetic supervisor, the injured worker may become entrenched in a cycle of dependency, their reliance leading to *'social debt'* and feelings of guilt, shame, helplessness and inadequacy. This may in turn lead to problems of reciprocity where supervisors who give support develop expectations as to the *'proper'* behaviour of the injured worker. The study highlights the complex relationships that exist in the workplace and the risks involved in enabling dependent behaviours to become entrenched.

Management mentoring.

Just as strong leadership has been found to be an important determinant in the success of workplace health promotion programs, so too have managers been reported to play a pivotal role in the return to work of injured workers. Janssen and colleagues (2003) investigated work-related determinants of return to work. Their concept was based on the strain hypothesis of the Demand–Control–Support model, which postulated a relationship between job demands, job control and support at work on the one hand and the aetiology of health complaints on the other hand. High demands were hypothesized to obstruct return to work, whereas high control and high support were thought to have a positive effect on return to work. This hypothesis was tested in a population of employees who were sick-listed for 6–8 weeks. High job demands were found to be the least predictive of full return to work. However, the likelihood of employees with high job demands returning to work with adjustments was higher than the likelihood of them not working. High supervisor support was the most predictive of return to work without adjustments, and the least predictive of not working.

A study by Post et al. (2005) investigated the work-related determinants of return to work of employees who were on long-term sickness absence. The employees who were on sick leave (n=926) filled out a baseline questionnaire and were subsequently monitored until the tenth month after listing sick. The study identified three main work-related predictors of return to work: vocational sector, supervisor support and co-worker support. Interestingly, the study identified an unintended effect, finding that low supervisor support was associated with a higher return to work rate. The observed association between low supervisor support and return to work was unexpected but not unprecedented and similar to that reported by Elfering et al (2002) above.

Possible explanations for this unexpected outcome may be found in the psychology literature which postulates that under certain circumstances social support may have negative effects on the health and wellbeing of employees if the social support threatens the freedom of choice and autonomy of the recipient. A second theory is that social support can make the recipient feel inferior or dependent upon the provider. A third theory suggests that low social support from a supervisor might enhance the feeling of job insecurity because it may be perceived as a sign of indifference or of a bad relationship with the supervisor. Therefore, low social support may act as an extra 'pressure to attend.' All three arguments support the contention that limiting the time an injured workers spends away from the workplace reduces the likelihood that the worker will perceive themselves to be threatened by their supervisor. These results call into question the practice of managers and supervisors maintaining constant and close contact with injured workers during their recovery.

The role of skilled clinicians.

Bernacki and Tsai (2003) examined a range of return to work determinants. Their study included patient advocacy and customer service, steerage of individual employees to a small network of physicians, close follow-up and continuous dialogue between parties regarding claims management. The data were analysed over a ten year period and suggested workers' compensation claims can be reduced by using a small network of clinically skilled health professionals to address an individual worker's psychological, as well as physical needs and where communication between all parties is consistently maintained.

Physical conditioning programs that include a cognitive-behavioural approach plus intensive physical training (specific to the job or not) that includes aerobic capacity, muscle strength and endurance, and coordination; are in some way work-related; and are given and supervised by a physiotherapist or a multidisciplinary team, seem to be effective in reducing the number of sick days for some workers with chronic back pain, when compared to usual care (Schonstein, Kenny, Keating, & Koes, 2004).

An observational study (Loisel, Durand, Baril, Gervais, & Falardeau, 2005) used videotapes of interdisciplinary team discussions of ongoing cases involving 22 workers absent from work due to

musculoskeletal disorders. The actions taken and strategies adopted by the team in an effort to overcome the obstacles to collaboration were studied. Various factors influenced collaboration between the rehabilitation team and the stakeholders. In general, stakeholder endorsement of the team's therapeutic principles and confidence in their approach emerged as particularly important factors. Diverse strategies, most often education and awareness-raising, were used by the team to foster collaboration among the parties. These researchers have called for future studies based upon a clearer conceptualization of the broader context and inter-relationships that determine return to work outcomes.

Physical activity.

To return to work an injured worker must have the functional capacity (or physical fitness) to safely complete the required tasks. The goal of rehabilitation is to overcome activity limitations and restore activity levels, the key element being physical activity (Waddell & Burton, 2004). In a systematic review of interventions for back disorders evidence was found that interventions that included physical activity and functional conditioning achieved better return to work than other interventions (Elders, van der Beek, & Burdorf, 2000). Staal et al. (2005) also completed a literature review on physical exercise interventions for low back pain and found that the effects of interventions vary depending both on content-related factors (i.e., type of exercises, skills of the health care provider) and contextual factors (i.e., treatment setting, compensation system). Treatment confidence and patients' expectations for example, workers' fears and beliefs about their conditions and the impact of re-entry to the work place on their health also significantly influenced outcomes of physical exercise interventions (Staal et al., 2005; Sullivan et al., 2006).

Studies have demonstrated that physically active workers were stronger (Mooney et al., 2005), fitter (Proper et al., 2006), more productive and less prone to injury and ill-health (Jacobson & Aldana, 2001; Mooney et al., 2005; Peate et al., 2007; Proper et al., 2003; Wattles & Harris, 2003). Productivity was found to be influenced by employees' level of muscular strength (Wattles & Harris, 2003). Physically active workers have also been shown to be less likely to develop hyperlipidemia, hypertension, colon cancer (Jacobson & Aldana, 2001) and heart disease (Foster et al., 2009; Merrill, Aldana, Ellrodt, Orsi, & Grelle-Laramee, 2009). Workplace intervention studies have been shown to reduce blood glucose to below pre-diabetic and diabetic levels, improving diabetes risk factors for at least two years after the program (Aldana et al., 2006). Participation has also led to improved perception of quality of life and psychological wellbeing (Brand, Schlicht, Grossmann, & Duhnsen, 2006) while Jacobson (2001) found that job satisfaction was influenced by the employees' level of cardiovascular endurance.

Participation in work setting health interventions that include physical activity has been associated with large reductions in employee absenteeism (Jacobson & Aldana, 2001) with associated reductions in employee-related expenses (Aldana et al., 2006). The introduction of strengthening exercises for example was associated with a significant reduction in back injuries and compensation claims (Mooney et al., 2005)

with examples of reductions in workers' compensation liability dropping from $14,430.00 per month to $380.00 per month (Mooney et al., 2005). Peate's (2007) fitness intervention for fire fighters led to a 42% reduction in the incidence of injuries and a 62% reduction in lost time injuries compared to a control group while France (2005) found strong evidence that work disability duration and associated costs were significantly reduced by workplace health management interventions.

From a return to work perspective, the functional capacity of an injured worker determines their ability to return to their pre-injury hours and duties. The Victorian WorkSafe clinical framework (2009) described this process in terms of functional outcome measures and refers to a worker's ability to perform usual daily activities such as work or other social roles. An appropriately structured physical activity program focusing on flexibility, strength and muscular endurance can reduce the degree of deconditioning and subsequent re-injury and enable injured workers to return to work more quickly and effectively.

Table 2.6 summarises the application of these key determinants of successful return to work and identifies how they have been adopted as propositions to inform the development and implementation of the program this is the focus of this study.

In summary, Workplace health promotion programs have had some success in reducing risk factors for chronic disease. Injury management programs have had similar success in reducing the incidence and impact of workplace injuries. The two approaches require the engagement of workers and managers in a joint effort to facilitate sustainable behaviour change. However, the time and effort involved in achieving this goal requires a substantial investment from the employer. This includes both a financial investment but also an openness to reconfigure the organisational management infrastructures to enable the embedding of a positive health management culture. Evidence is emerging that workplace interventions can significantly improve both worker's health and important worksite outcomes (Conn, Hafdahl, Cooper, Brown, & Lusk, 2009).

The presentation of literature has attempted to explore some of the constituent elements and processes of successful worksite interventions with reference to contemporary organisational management principles and practices. The health-promoting workplace has been shown to be an all-encompassing approach that empowers workers and employers to improve all facets of their health. Moreover, there is evidence that chronic disease prevention programs significantly increase worker's health knowledge and ability to change and sustain positive health self-management behaviours (Aldana et al., 2005). Previous studies have demonstrated that a partnership approach between employer and employee is likely to be more effective, suggesting that it is important to consider not just employee health issues but also attitudes and values. There is also previous research that indicates that improved communications and cooperation

between employers, employees and skilled clinicians can result in more sustainable health and work outcomes, benefitting both workers and employers (Cooper & Dewe, 2008).

Dooris (2005) drew attention to the need to ensure links between evidence, policy and practice to clarify and articulate the theories that underpin the settings approach generically and inform the approach as applied within particular settings. Nutbeam (1998) also reminded us of the need to assemble 'evidence' in ways which are relevant to the complexities of contemporary health promotion, and to avoid the possibility that this may lead action down a narrow, reductionist route.

Table 2.6.

Key determinants of successful return to work outcomes and the propositions that guided the Integrated Work Health Management Program development

Determinant	Application	Proposition
Early intervention	**Education:** Increase workers' awareness of the physiological changes associated with ageing to encourage workers to participate in activities to mitigate these changes and to seek treatment to minimise their impact on functional capacity.	Early intervention (even to the extent of identifying potential injuries) will reduce the incidence and severity of injuries which will improve return to work outcomes.
Physical activity	**Group exercise program:** The daily group exercise program to bring workers together to exercise. Walking programs, Yoga, Pilates classes, incidental exercise education	Workers will gain confidence and motivation to become more physically active.
Peer Support	**Leadership training:** Leaders will encourage co-workers to join the physical activities, identify and seek assistance for injuries and support injured workers to return to work	Workers will participate in the physical activities and injured workers will successfully return to work if they are supported by their peers.
Management mentoring	**Mentoring** Managers encourage co-workers to develop leadership skills. They support injured workers by identifying alternate duties and encouraging them to return to work.	Managers will play a pivotal role in preventing and managing workplace injuries
Skilled Clinicians	**Health management** Empower managers to establish appropriate return to work plans.	The early intervention of appropriately skilled clinicians in treating workplace injuries will facilitate a more timely and sustainable return to work.

From the available literature, five key determinants common to the successful Australian integration of health promotion principles and injury management practices appear relevant to a hospital setting. These are the determinants most commonly cited in the literature and include: early intervention, physical activity, peer support, management mentoring and the support of skilled clinicians (Crisp, 2005; Elders et al., 2000; Feuerstein et al., 2003; Krause, Frank, Dasinger, Sullivan, & Sinclair, 2001; Murphy, Young, Brown, & King, 2003; Schonstein et al., 2004 ; Staal et al., 2005; Sullivan, Feuerstein, Gatchel, Linton, & Pransky, 2005; Swerissen & Crisp, 2004; Waddell & Burton, 2001). These five propositions provided the basis for the specific hypotheses of the present study (Table 2.6). As key determinants both of sustainable health behaviour change and successful reintegration of injured workers, these strategies were used to guide the development and evaluation of the Integrated Work Health Management Program.

3. Formulating the Research Proposal

Background

Concern for an escalation in the number of injured workers failing to return to work led the Victorian WorkSafe Authority in 2006 to establish a fund to support research into "settings based solutions." The innovative "Return to Work" fund sought solutions from employers. The impetus for this initiative came from the seminal work of Waddell and Burton (Waddell & Burton, 2001, 2004, 2006; Waddell et al., 2008) in the United Kingdom that argued for the early return to work of injured workers, this challenged the prevailing ethos that encouraged injured workers to wait until they had fully recovered from injury before engaging in the return to work process.

In their 2006 publication entitled "Is work good for your health and well-being?" Waddell and Burton explored the relationship between illness, disability and incapacity for work. They argued that the common perceptions about an injured worker's inability to return to work were based on several traditional but erroneous beliefs about common health problems. The first assumption, they argued, was that work might be harmful, despite evidence to the contrary that, on balance, work is good for physical and mental health while long-term worklessness is detrimental. The second assumption was that rest from work is part of treatment. Again the authors argued the case for the importance of continuing ordinary activities and early return to work. They also challenged the customary mindset that it is not possible or advisable to return to work until symptoms are completely 'cured.' Again they pointed to evidence that return to work as early as possible was an essential part of treatment and that work was itself the best form of rehabilitation (Waddell & Burton, 2006). The authors further contended that the link between disease or impairment and functioning or (in)-capacity was much weaker than commonly assumed. Many people, they asserted, with severe medical conditions and/or permanent impairment were able to work while conversely, many recipients of disability and incapacity benefits, with little evidence of disease and/or impairment remained unemployed. The researchers called for a greater appreciation of the psychological and psychosocial issues impacting attitudes towards return to work, arguing that it was these factors rather than any underlying biological problem that kept injured workers from returning to work.

Introduction

The program which is the subject of this evaluation was implemented during 2007-2009. It was the outcome of two years of preparation, being preceded by a pilot program conducted by the author in the kitchen and operating theatres of the same hospital.

Project Timeframe

Table 3.1 describes the activities undertaken during this pre-implementation phase.

Table 3.1.

Project pre-implementation phase

2005	1. Pilot studies conducted in the kitchen and operating theatres 2. Literature review completed identifying the five guiding propositions 3. Development of the implementation plan for an integrated workplace health management program
2006	1. Application for research funding sought from *WorkSafe* 2. Project governance & structure established 3. Communication networks, Advisory and Inter-hospital committees established 4. Health Census to baseline health management behaviours of the workforce developed, implemented and evaluated 5. Project launch incorporating the Health Expo and the Health Census conducted

The Funding Opportunity

The author had previously worked extensively with occupational health and safety teams in both government and private sector organisations. Her professional background as an accredited exercise physiologist had afforded the opportunity to 'infiltrate' organisations at a micro level (in the provision of rehabilitation programs to injured workers) and at a macro level as a member of strategic planning executives. Her work with large complex organisations such as the National Defence Department, the Australian Taxation Office, Coles Myer and the Reserve Bank had provided insights into the importance of a systemic approach to injury management and workplace health promotion.

At the end of 2006 the author, in partnership with the health and safety team, (hereafter identified as the project team) of an acute surgical hospital in Melbourne, Australia, successfully applied for a $250,000 funding grant from the state's Workers Compensation Authority (WorkSafe) 'Return to Work fund' to develop an integrated workplace health management program for the hospital.

The grant application was titled "*Changing the culture: An innovative return to work approach to improve return to work outcomes in an ageing and diverse workforce.*" The application provided this overview of the project:

There is growing consensus that much of the variability in return to work outcomes is accounted for by what takes place in the workplace. Our purpose is to test our hypothesis, that by creating a positive and supportive workplace culture in our hospital, we will reduce injury claims and achieve more timely, effective and sustainable return to work outcomes.

(p.4)

Effective management of return to work requires addressing both individual and workplace factors. Evidence supports practice based interventions to affect and sustain the return to work of injured workers. Our coordinated approach to engage stakeholders links the worker, managers, co-workers, clinician/s and rehabilitation specialists to the workplace. Our return to work model provides training in, and accountability for, effective and timely return to work practices and outcomes.

(p.6)

An Advisory Committee will comprise senior representatives from all key stakeholder groups including the Victorian WorkSafe Authority, the Health Services Union (HSU), the Service Industry Advisory Group, worker representatives from our Health and Safety Committee, the hospital board, medical doctors from the hospital staff clinic, senior managers and our injury management team. Meetings will be held quarterly to review the progress of the project and to review outcomes.

(p.9)

We will establish a Health Sector Network comprised of a forum of return to work managers from 21 medical facilities and hospitals from across Melbourne. The purpose of the network will be to share experiences and insights and to disseminate information gained through the development of this project. The network will meet quarterly with a newsletter updating participants in the network on the progress of this project.

(p.6)

Our workplace intervention will bring skilled clinicians into the workplace to identify barriers and provide timely and effective management of return to work programs for injured workers. Daily group exercise programs & health education sessions will enable all workers to identify injuries and ill health and better understand how to support each other when injuries occur. Everyone will have a clearer understanding of the support mechanisms within the hospital and how to access our various programs. The group exercise sessions also provide injured workers with a safe and familiar support network when returning to work.

(p. 5)

(Ryan, 2006)

To test the program's replicability and transferability [both requirements of the fund] the proposal incorporated the testing of the model at two separate hospital sites. The first site was used to develop and test hypotheses about how the program could be implemented. Six months later the program was to be implemented at the second hospital site using the implementation strategies developed at site one.

Incorporating the five key propositions identified in the literature review (early intervention, peer support, physical activity, managers as mentors and the support of skilled clinicians), Figure 3.1 reflects how the integrated workplace health management project was initially conceptualised.
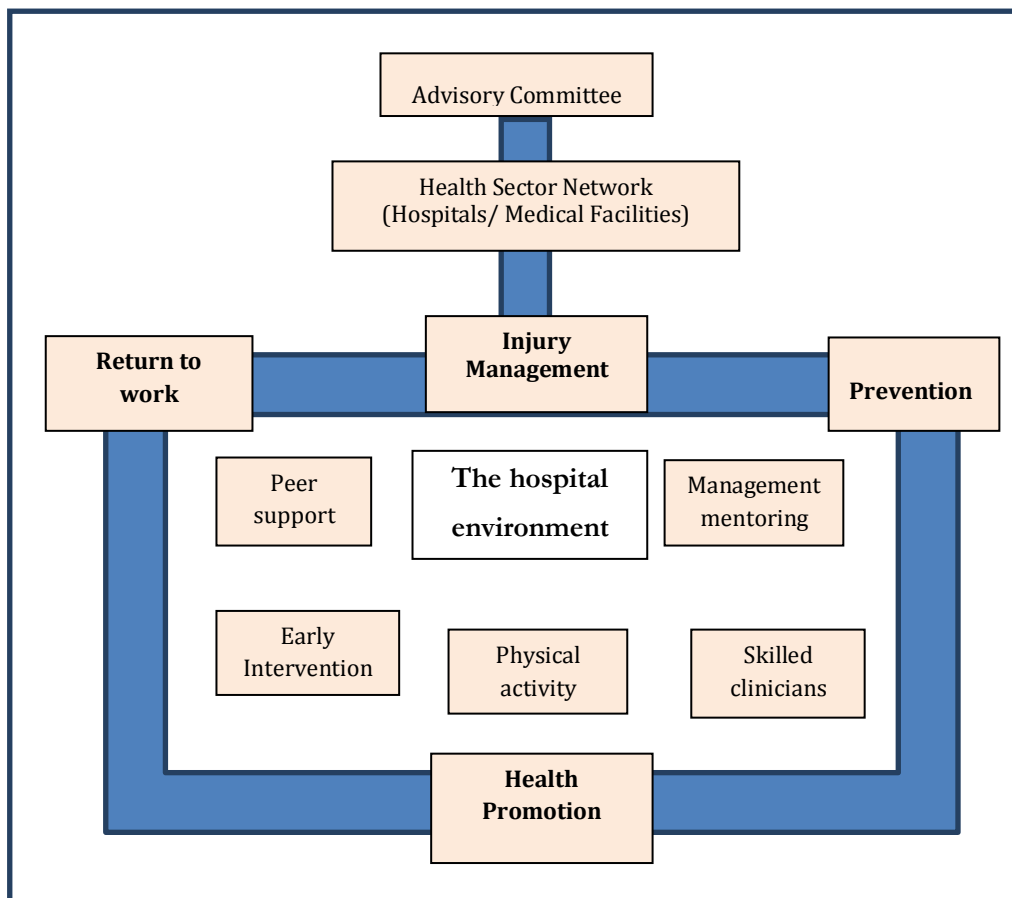
Figure 3.1. Key elements of the project proposal

The author worked with the hospital executive and the health and safety team to develop a strategic plan to implement the program across the two sites of the hospital. The goal was to integrate elements of injury prevention, health promotion and injury management to prevent workplace injuries and when injuries did occur, to establish an early intervention approach to injury management to facilitate the earliest possible safe return to work for injured workers. Figure 3.2 depicts the implementation plan developed by the author for the funding application.
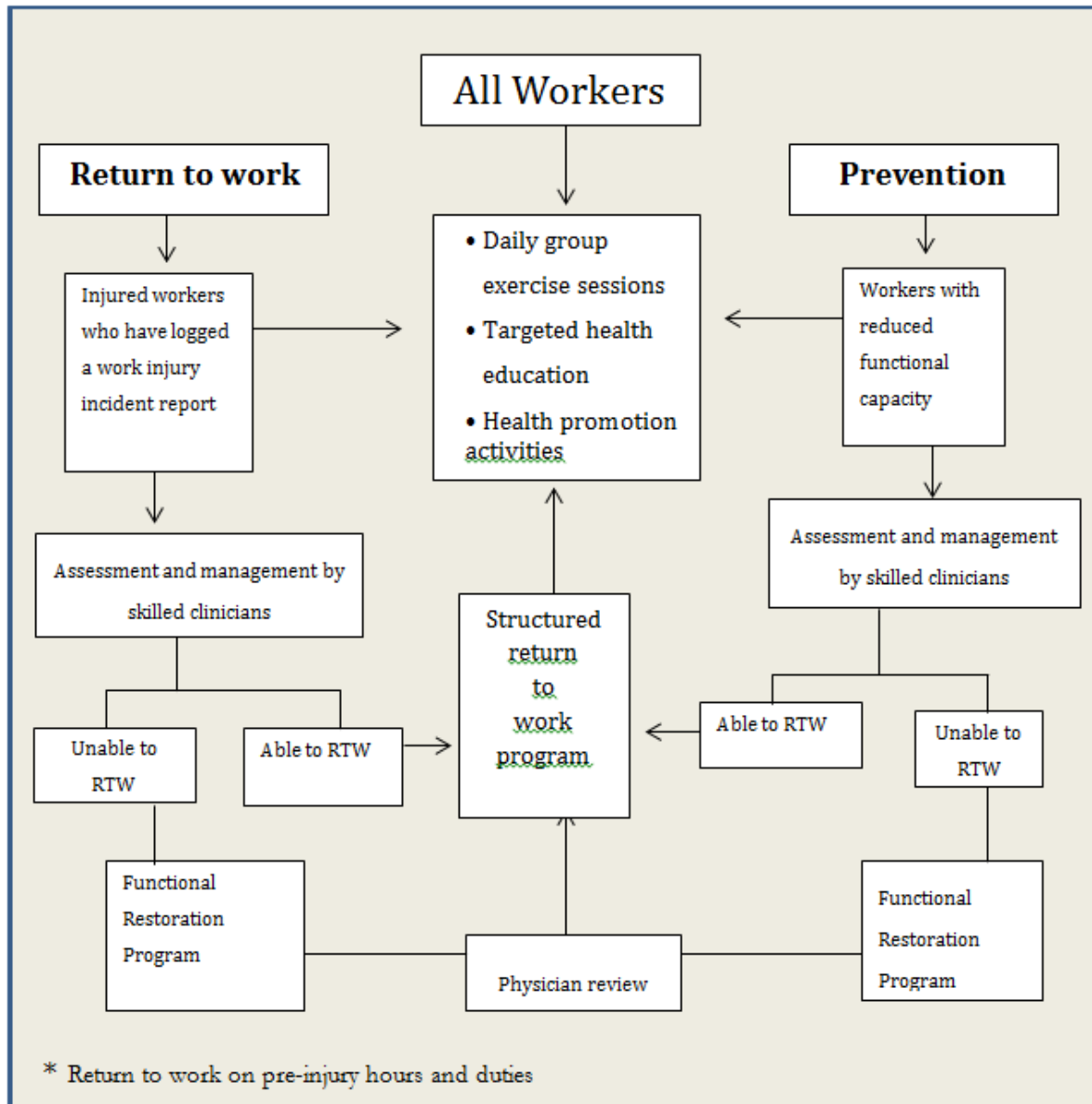
Figure 3.2 Implementation plan for an integrated workplace health management program

The plan sought to refine the existing protocols for managing a workplace injury to: 1) enable workers to return to work whilst recovering from an injury and to 2) establish an injury prevention strategy for workers at risk of developing an injury. The plan embraced the following features:

All workers.

All workers were to be given the opportunity to participate in a range of health promotion activities. Led by a trained leader from within each work team, a daily group exercise program established in each unit would bring injured and non-injured workers together for six minutes to complete a series of exercise activities and to participate in targeted health education and promotion activities. Exercising together would enable workers to 1) observe their own functional capacity in the context of their colleagues; 2)

observe changes in capacity over time; 3) encourage colleagues to seek help from skilled clinicians and; 4) discuss strategies for maintaining health and fitness outside work. A train the trainer approach would enable the program to be sustained by trained and suitably equipped workers from each unit. Refer to Appendix 1 for details of the group exercise program protocol.

Return to work.

Assessment.

A refined protocol for injury management sought a more pro-active intervention starting with an assessment by either the staff doctor or a skilled clinician within the hospital. Workers who sustained a work injury would be immediately assessed to establish their capacity to remain at work and/or their need for treatment. Workers unable to return to work would be triaged to a functional restoration [rehabilitation] program while workers with the capacity to remain at work would be assessed to establish suitable duties.

Structured return to work program.

Instead of waiting for an injury to be completely healed, workers would be encouraged to continue to work within the limits of their assessed functional capacity and to complete their rehabilitation at the workplace. Clinicians would constantly re-evaluate changes in the workers' functional capacity and liaise with managers to identify suitable duties. As workers regained their skills and confidence they could be encouraged to gradually assume a broader range of work tasks over time, targeted towards resumption of their pre-injury hours and duties.

Functional restoration program.

For workers deemed unable to return to work structured rehabilitation programs conducted by skilled clinicians at the workplace would enable workers to maintain contact with their work colleagues by participating in the daily group exercise program in their unit. Non-injured colleagues observing the restrictions of injured colleagues could help to identify suitable duties and encourage the injured worker to return to work.

Physician review.

The Workers Compensation system provides workers with the right to seek treatment from any treating practitioner. The implementation plan encouraged workers to see the doctors at the hospital staff clinic for assessment and re-assessment of their injury. The staff doctors, committed to the principles of early return to work could provide both a timely and pro-active approach to returning injured workers to work. Certificates of capacity identifying specific, relevant restrictions would enable the injury manager to match appropriate tasks to the injured workers' functional capacity.

Rationale for the Implementation Plan

The implementation plan challenged the previous practice of resting following a workplace injury and waiting for an injury to heal before returning to work. The author's experience and extensive research recognised the debilitating effects of this practice which allowed workers to become 'deconditioned.' With each day of rest workers lost more of their functional capacity to complete their regular work tasks. Subsequent attempts to re-enter the workforce led to re-injury and in many instances secondary injuries as a direct result of lack of strength, muscular endurance and propensity to fatigue. Protective postures and movement patterns became ingrained, further reducing the worker's ability to resume work safely. With prolonged periods of rest-recovery, attempts to become more physically active resulted in pain, reinforcing the perception that the injury was made worse by the attempt to exercise. This cycle of deconditioning resulted in workers becoming less and less physically active while waiting for their injury to 'get better.' This not only puts the injured worker at increased risk of re-injury but also of developing chronic diseases such as obesity, hypertension, diabetes and depression. Figure 3.3 depicts this cycle of deconditioning that the author perceived as a significant barrier to workers' ability to effectively return to work.
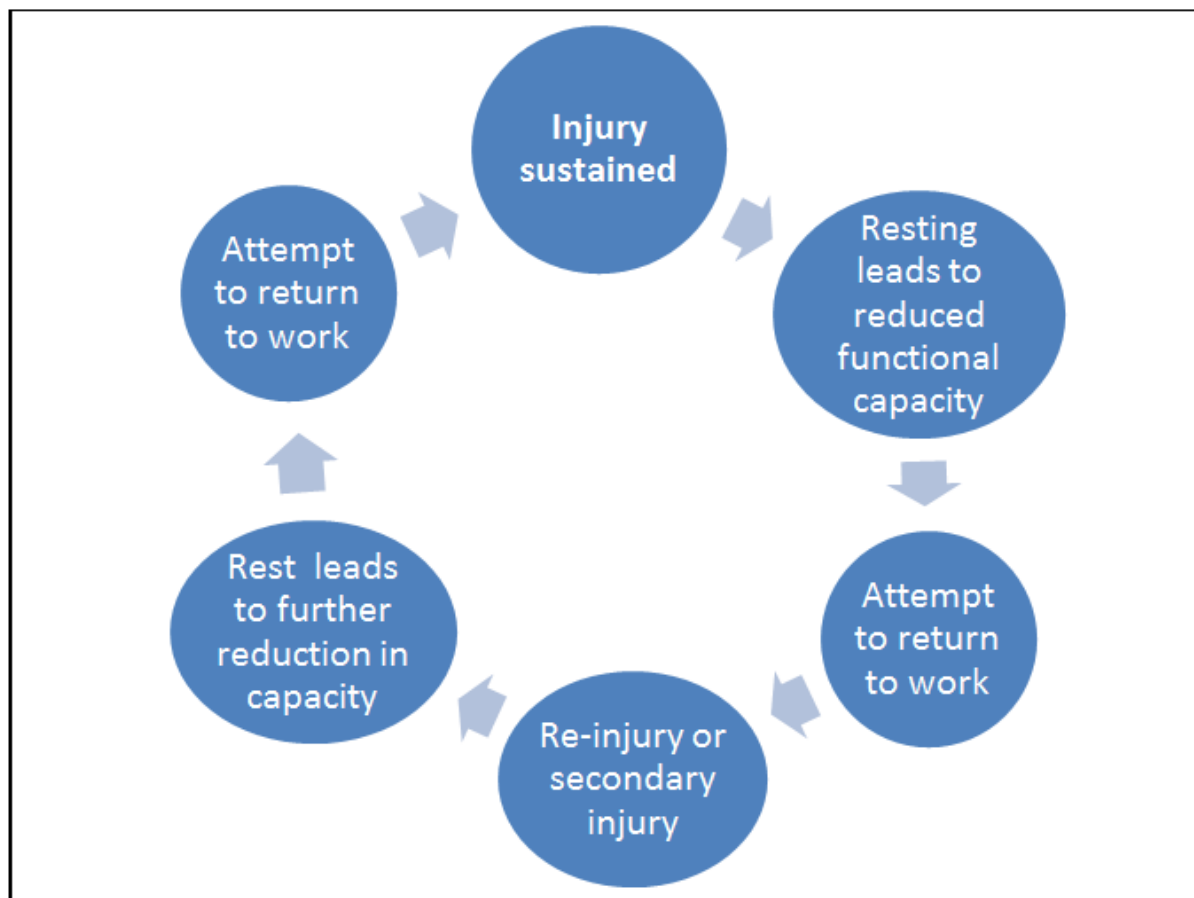
Figure 3.3. The cycle of deconditioning

Treating doctors were seen to both aid and abet this process of deconditioning by providing certificates of incapacity to restrict the range of work activities the employer could provide. This was a particular source of vexation for the hospital's injury manager in her attempt to identify suitable duties for workers with restrictions such as "No bending, lifting, twisting, sitting, prolonged standing" or "Can work for two hours per day on two days per week for six weeks." Workers with some capacity for work were left at home to become deconditioned as no such roles could be found within the hospital. Workers were only required to seek a re-evaluation of their work capacity from their doctor once every month. This practice of providing monthly certificates of capacity failed to provide a more relevant and timely assessment of changes in a worker's capacity denying opportunities for injured workers to resume work activities that could aid their recovery and mitigate the risk of becoming deconditioned.

Other sources of treatment also reinforced the deconditioning cycle by prolonging 'treatment' rather than encouraging workers to become more pro-active in their own health management. External treatment providers (Chiropractors, Physiotherapists and Osteopaths) could delay the return to work process by encouraging injured workers to remain in treatment, further discouraging them from maintaining their functional capacity and fitness.

The implementation plan sought to involve skilled clinicians committed to the practice of early return to work and to establish protocols within the hospital to provide rehabilitation within the workplace. Education for injured and non-injured workers to minimise injury risk and maximise opportunities for active recovery was the cornerstone of the implementation plan. Peers would also support injured colleagues to return to work by involvement in identifying suitable alternative duties and ideas for adapting work rosters and rotations to minimise risk and maximise opportunities to broaden return to work options. Managers would play a pivotal role in observing worker's functional capacity during the group exercise activities, initiating the early intervention protocols to prevent injuries and supporting the return to work of injured workers by identifying suitable duties that could be upgraded continually throughout the recovery process.

The research reported in the current thesis arose out of the evaluation of this project. The application to conduct the project was approved by the Victorian WorkSafe Authority. The research reported in the following pages provides insights into the processes that were followed and some of the outcomes achieved in the implementation of the program from 2007-2009.

The goal of the implementation plan for the integrated work health management program was to develop a pre-emptive, co-ordinated team approach to both the prevention and management of workplace injuries.

The pages that follow provide insights into how well argued and conceptualised projects find their critical expression in the day to day practice of a workplace.

4. Methodology

Introduction

In order to evaluate the effectiveness of the program, multiple sources of data were gathered to build a rich narrative of how the integrated workplace health management program was conceptualized, implemented and then evaluated. The data were collected and analysed (reflected upon), and the insights gained were then used to further refine the program. This open-ended approach to data analysis allowed the author to be constantly alert to unexpected and unpredicted information. Within this illuminative evaluation framework the essential methodological approach to develop and implement the program was provided by the adoption of an action research paradigm.

Rationale.

The rationale for this choice of research design lay in the need to cope with the complexity of the setting in which the program was developed, implemented and evaluated. The integration of injury management and health promotion within such a multifaceted environment required the input, commitment and collaboration of a broad range of key stakeholders to facilitate systemic organisational change. The collaborative approach that is inherent in the action research process afforded the opportunity to learn from the clients themselves. The goal was to establish a model of consultation that would see workers at every level contribute to the development and sustainability of a comprehensive workplace health management approach. The aim was to provide an opportunity for the hospital community to develop its own transformative program by empowering workers to construct and use their own knowledge to change their circumstances.

Elements of grounded theory (Strauss & Corbin, 1998) were used as part of a systematic approach to data collection and analysis. By using a constant comparative process, theories emerged, eventually resulting in hypotheses that were truly grounded in the data. For example, elements of the program were embedded into the day-to-day running of the nursing wards, as had been previously successfully trialled during the initial pilot program in the kitchen. When this approach proved not to be successful, the preconceptions brought from the pilot study were put aside and a 'tabula rasa' adopted in order to examine why the program was not working in the nursing units. Interviews and focus groups were conducted and analysed in order to first identify and then compare the insights and ideas of a broad cross section of both individuals and groups of workers to better understand the issues behind and barriers to the implementation of the program in the nursing units. Through this constant comparative process concepts were identified and grouped around the need for the constant attention of workers to the medical, emotional and educational needs of patients. A theory emerged; nurses were pre-occupied with the needs of their patients and could not prioritise participating in the program. A hypothesis was then developed.

If the program was conducted at times when workers were not directly responsible for patients they would be able to participate. Strategies were then developed to test this hypothesis, the outcome of which was the identification of a second more specific hypothesis. If the program was run between shifts, workers would be able to participate. Illuminative data gathering strategies enabled the development of a detailed description of the processes and outcomes of the organisation which allowed for the identification and ordering of concepts which over time evolved into theories as to how the program might be better developed and implemented.

Designing and evaluating a program in the 'traditional' sense involves the ability to detail a prescriptive blueprint which is linear in nature, i.e. Objectives > method > content > evaluation. The complexity of the setting in which this program was to be developed, implemented and evaluated required a model which could allow for the researchers to learn and adapt as part of the process. An additional part of the complexity of the project was in the diverse range of goals set for the program by a wide range of stakeholders. There was a need to achieve certain specific deliverables for the outside funding stakeholders. These were committed to as part of the funding agreement and were not incongruent with the goals of the organization which were to achieve a health supporting workplace.

Therefore a commitment to illuminative evaluation and a need to be flexible and open to the development of program objectives provided the framework for an action research approach. Situational analysis provided the stimulus for the observational data collection while drawing on elements of a grounded theory approach enabled the rich data collected to be analysed in a way that identified concepts, theories and hypotheses capable of informing the action research processes. Illuminative evaluation fitted well the information gathering component of the research. While grounded theory was not central to this process, adopting its methodologies facilitated the process of adopting newer theories as a basis for moving forward when faced with unexpected challenges that only revealed themselves in the implementation process itself.

Illuminative Evaluation Framework

Illuminative evaluation has its origins in illuminative research which has been described as "research which sheds light on a topic, through the use of open-ended questions" (McWhirter, Boddington, Perry, Clements, & Wetton, 2000). Illuminative evaluation is concerned primarily with description and interpretation (Robinson, 1991). It has been borrowed from educational research and adopts a naturalistic investigative orientation (Gordon, 1991). Parlett and Hamilton (1976) were curriculum theorists who argued against classical approaches to evaluation. The authors proposed an alternative approach which they termed "Illuminative evaluation," drawing on the methods of social anthropology to study program innovations in context, without the need for parallel control groups. Illuminative evaluation has since

been found to offer more appropriate and valuable guidance for evaluation efforts that are primarily aimed at describing, analysing, understanding, and improving practice (Gordon, 1991).

In the present research the program developer was both the source of the observation-based data and a participant in the action.

Following a long tradition of investigations that have sought to conduct meaningful human research the presented study utilised participant observation as a key research strategy. Accepted as a widely used methodology in many disciplines (Bailey, 2007; Lincoln & Guba, 1985; Reason & Bradbury, 2009) the practice of participant observation enabled the author to gain an intimate familiarity with a group of hospital workers and their work practices. It allowed for a more illuminative understanding of a workplace. Greenwood and Levin (2007) acknowledged the critical role of the relationship between the observer (the outsider) and the "local people" in the processes of participatory research and the need for practitioners to build their research from a position of respect for the local people and their culture to enable collaborative learning.

In their discourse on the processes of participatory research, Greenwood and Levin (2007) described the relationship between the participant observer (the outsider) and the "local people". They highlighted the importance of practitioners building their research from a respect for the integrity and resilience of local people and their culture. They described a process of bringing groups of local people together to discuss and analyse their situation and from these analyses, agendas for research and social change emerge they stressed however, that these agendas were the "joint product" of both the outsider and the "local people."

The outsider's view is necessarily abstract and often wrong about a number of the concrete impediments to local action. The insider's view is often so concrete that it impedes action. The dialogue between the two perspectives can create a shared sense of locations where practical interventions are possible. This process involves training local people in research methods and helping them gain confidence in their ability to investigate together, the sources and solutions to their problems. This is not dissimilar to the process envisaged in this research whereby the ultimate is for the 'local people' the hospital workforce to accept responsibility for their own well-being in the workplace. The underlying aim is to level the relationship between the outside agents and local people in a way that opens them up to collaborative efforts. Lewin himself (1946) made issue of this same point:

> ...one of the most severe obstacles in the way of improvement seems to be the notorious lack of confidence and self-esteem of most minority groups
>
> (Lewin, 1946, p. 46).

In her discussion on the role of the researcher as participant observer (outsider), Cherry (1999) argued that it is important to recognise the interpretive perspective, that in the moment of asking a question and listening to the answer, the researcher has created, collected and already commenced the process of interpreting the data, and may even be in the process of developing a theory about it. As a participant observer, the researcher is also encouraged to reflect on their own behaviour and their need to control or contain the research. Cherry maintained that there is a need to acknowledge that the researcher is engaged in self-examination and that this is a legitimate part of the research process.

Owen (2006) described the concept of interactive (or participatory) evaluation. In this form, the evaluation is based on an assumption that those with a direct vested interest in programmatic interventions within organisations or communities should also control the evaluation of these interventions. Representative groups control agendas and the evaluator responds. Interactive evaluations assist with ongoing service provision and structural arrangements, usually with a strong emphasis on process. In some instances, the evaluator may also be involved in facilitating change that is consistent with the evaluation findings. From a participant observer perspective, interactive evaluation encourages the extensive involvement of program providers in the design and implementation of internal evaluations based around the trial of an innovative program, technique or structure.

The author worked as an integral member of the research group (the project team). She observed and participated in some activities but did not participate fully in all activities. She was not employed by the hospital per se and when she attended management meetings she did so in her role as a researcher and not as a member of the hospital's executive team. Observation techniques utilised by the researchers included unobtrusively watching workers as they worked, observing groups of workers interacting, interviewing individual workers and groups of workers, attending meetings and alternating roles as both participants and observers, reading and discussing emails, meeting minutes, agendas, newsletters and annual reports. Team members alternated roles as participants and observers during group and individual interviews. They alternated the roles of facilitator and participant in the group exercise activities. For example a pair of researchers attended a group exercise session, one ran the session, the other participated in the session with the other workers and observed the interactions, noted who did and did not attend and how the group reacted to the leader. At the end of the session the two researchers met to discuss their observations.

The current study sought to examine the processes and outcomes of a program that was to be developed and implemented in a large and complex organisation. The author recognised that while she had some clear pre and post measures (for example the time an injured worker took to return to work post injury) which enabled her to judge the effectiveness of the program against some of its stated goals – she also needed to adopt an open-ended approach in order to gain insight into the <u>processes</u> by which the program achieved or failed to achieve these goals. This was particularly relevant to the goals of sustainability and commitment by the workforce itself to the program and its outcomes.

It was also intended that in terms of the program sustainability that was sought, a closer understanding of the day-to-day activities enabled more effective monitoring and reinforcement of the elements essential to the program's success. Also consistent with an illuminative research strategy was one of the requirements of the funding agency, to develop a detailed case study of the program in action (Weiss, 2004).

Action Research

The collaborative approach that was inherent in the action research framework afforded the opportunity to learn from the clients themselves. An implicit goal was to establish a more effective model of consultation that saw workers and managers at every level contribute to the development and sustainability of a comprehensive workplace health management approach. It potentially provided an opportunity for the hospital community to develop its own program by empowering workers to construct and use their own knowledge to change their circumstances.

Action research has been broadly described as a set of collaborative ways of conducting social research that simultaneously satisfies rigorous scientific requirements and promotes social change (Greenwood & Levin, 2007). It has been traditionally defined as an approach to research based on a collaborative problem-solving relationship between researcher and client to both solve a problem and generate new knowledge. Kemmis (1990) attributed the term 'action research' to the social psychologist Kurt Lewin. Originating from the field of group dynamics in social psychology in the 1940s, Lewin was credited with formalising action research into a theoretical framework. Lewin (1946, 1952) used the term to describe a form of research which could marry the experimental approach of social science with programs of social action in response to major social problems of the day. Lewin argued, through action research, advances in theory and needed social change might simultaneously be achieved.

Coghlan and Brannick (2001) argued that action research *is* a form of science, which differs from the model of experimental physics, but is genuinely scientific in its emphasis on careful observation and study of the effects of behaviour on human social systems. It is a credible paradigm to use in implementing a workplace health management program in a hospital setting and has been utilized by other researchers in similar settings (Bauer et al., 2003; Danna & Griffin, 1999; Egan et al., 2007; Linnan, Sorensen, Colditz,

Klar, & Emmons, 2001; Owen, 2006; Paton, Sengupta, & Hassan, 2005; Whitelaw, Baxendale, Bryce, Young, & Witney, 2001; Wilkinson, Elander, & Woolaway, 1997).

Historically, social science saw the relationship between theory and practice as a problem of application of the results of scientific researchers. It was as if *"the problems of practice could only be addressed from a firm, positive foundation in theory; from an adequate theory, enlightened practice might be expected to flow"* (Kemmis & McTaggart, 1990, p. 31). Elliot (1995) reflected upon the transformative role of action research in education, particularly in changing the practice of teachers. He observed that many of the problems of implementing discussion-based inquiry approaches were caused by a teacher's habitual and unconscious behaviour patterns. He gave the example of how student's failure to discuss ideas could be explained in terms of the teacher's tendency to invite consensus, reinforcing some views rather than others and promoting their own views. It was only by becoming aware of these patterns and reflecting about the theories implicit in them that teachers were able to modify their behaviour. These theories, Elliot observed, once conscious, provided the impetus for refraining from performing under these descriptions thereby generating new practical theories. Theories, identified through the triangulation of multiple sources of data identified practical theories. Formulating these theories into general hypotheses and circulating them to all teachers provided a focus for self-monitoring activity. It was through this exploration that teachers were able to clarify and test their own practical theories. As hypotheses were introduced and tested by more and more individuals, the focus became more generalisable, (Elliott, 1990).

> *"The conscious development of new practical theories from self-monitoring we called "hypotheses," in order to highlight the fact that they are open to experiment. If a theory is held unconsciously, it is not open to experiment. But once a theory is consciously held, it is open"*
>
> (Elliott, 1990, p. 207).

Reason and Bradbury (2009), have suggested that action research is not so much a *methodology*, as an *orientation to inquiry* that seeks to create *participative communities of inquiry* in which qualities of engagement, curiosity and question posing are brought to bear on significant practical issues. In doing so, it becomes a practice of participation, engaging those who might otherwise be subjects of research or recipients of interventions to a greater or lesser extent as inquiring co-researchers, starting from an orientation of change *with* others.

Dick (1999) described action research as a process that involves iterative and cumulative processes of action and critical reflection, continuous refinement of methods, data and interpretation in the light of understanding gained from previous cycles. It uses a cyclic or spiral process which alternates between action and critical reflection and in the later cycles, continuously refines methods, data and interpretation in the light of the understanding developed in the earlier cycles.

The attraction for practitioners in the health professions to engage in action research has become increasingly evident (Stringer & Genat, 2004). Contemporary health practice requires individual practitioners to develop patient-focused, accessible, evidence-based services in diverse settings. To achieve this, greater efforts to ground health services in empirical research to demystify health discourse and enable greater participation of users alongside providers in the development and evaluation of services is necessary. Stringer and Gernat (2004) pointed out that this occurs in a context where within the medical, nursing and allied health professions there is increasing demand for practitioners to simultaneously meet service delivery needs and empower their patients. Such requirements point to the value of action research in enabling health professionals to hone the effectiveness of their work in a broad range of contexts (Kemmis & McTaggart, 1990; Reason & Bradbury, 2009).

There have been many examples of the positive effects of action research in enhancing the day-to-day practice of nurses, physicians and health professionals as they strive to accomplish the complex tasks associated with the delivery of effective healthcare (Keatinge et al., 2000; Mills, 2001; Nomura et al., 2009). Reflecting on the diverse applications of action research in healthcare challenges professionals to consider a holistic way of understanding health by looking at the whole person in context. Empowerment, community participation and capacity building emerge as strategic elements in achieving systemic change that enable workers to maintain their health and capacity to work. Several studies (Arneson & Ekberg, 2005; Wilkinson et al., 1997) have explored these themes using an action research approach.

Arneson & Ekberg (2005) conducted an intervention designed to promote empowerment and health among employees in three organisations (one management department, one dental clinic and one municipal school) within the Swedish public sector. Their aim was to evaluate a theory-based method for workplace health promotion with regard to the possible facilitation of empowerment processes. The method initiated processes of change at organisational, workplace and individual levels as the participants examined their work situation, determined problems and initiated solutions. Improvements in social support and group coherence among employees were reported. The authors concluded that workplace health promotion interventions need to be adapted to the particular needs, culture and values of the specific worksite. They argued that the pre-requisites for such programs call for a problem-based method and they specifically advocated applications of their action research model in the rehabilitation of injured workers.

Wilkinson et al., (1997) used action research to examine the effects of a workplace intervention to reduce the coronary heart disease risk behaviours of workers in a United Kingdom health authority. They found that direct involvement with working people and businesses increased the chance of services being

tailored to the local need. Working to an action-research protocol encouraged organisational and operational changes that allowed delivery of the intervention.

Action research, for the purpose of the present study, is thus seen as a *process,* the goal of which is to bring about changes in some social system and at the same time, learn something about it. It involves a cyclic process of planning, action, observation and reflection (Figure 4.1) or as Chesney and Marcangelo (2010) suggested, it seeks to inform the iterative enhancement of practice. Action research has contributed systematically to the growth of the theory and practice of organisational development and has been significant for organisational research in commercial organisations, education, community work and healthcare (Arneson & Ekberg, 2005; Cherry, 1999; Coghlan & Brannick, 2001; Dooris, 2005; Whitelaw et al., 2001).
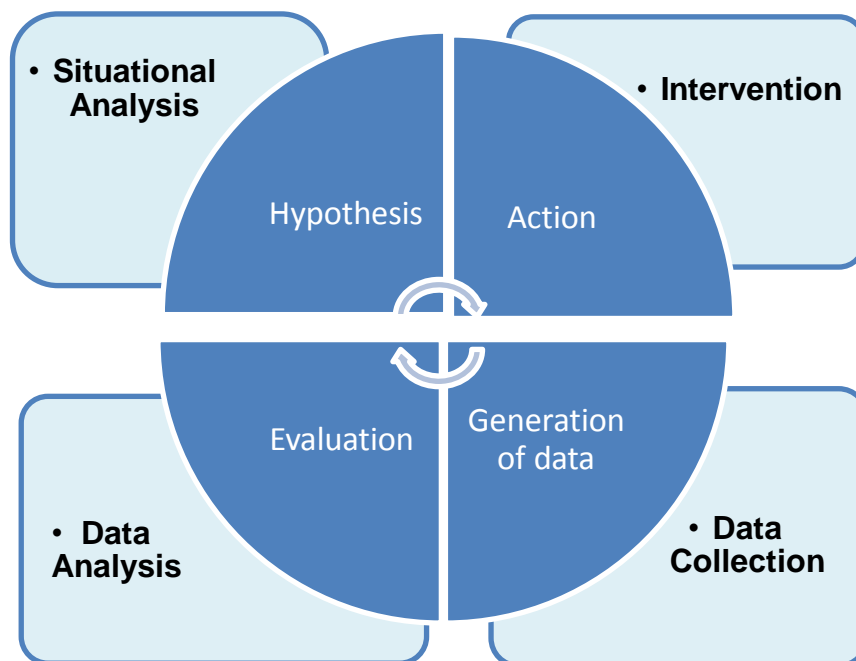
Figure 4.1. Action Research Model

Application of the action research framework.

Action research involves planning, action, observation and reflection (Coghlan & Brannick, 2001). In this evaluation an action research framework was adopted in order to drive the proposed program forward towards its broad desired outcomes in a flexible and adaptive way. Initial goals were developed in the shape of hypotheses rather than as specified objectives. Progress towards their achievement was monitored by means of a process of observation and reflection. This process was underpinned by careful systematic data collection and subsequent analysis. As previously unanticipated barriers were identified

new more appropriate hypotheses were proposed and again tested through cyclic iterations of this planning, action, observation and reflection process.

A situational analysis is a post-modern grounded theory technique that offers a good practice-oriented tool for gaining a deep understanding of the project (Clarke, 2003). The situational analyses conducted in this study served to generate hypotheses to be tested in the development and implementation of the program. Having initiated the situational analysis to identify issues relevant to the implementation of the program, the project team soon realised that they had underestimated the profusion of issues that would impact upon their intention to embed their program into the daily routines of the various units within the hospital. This led the researchers to recognise that they had significantly underestimated the complexity of the work environment and in particular, the unique characteristics of each individual unit. More information was needed and a more in-depth understanding of the issues (particularly in relation to identifying the barriers to participation) was required to develop and test meaningful hypotheses. There were also many more levels that needed to be explored before effective decisions could be made about how, when and where to implement the program, given the commitment to maximise the input of workers and minimise disruption to the work environment.

A second iteration of the situational analysis approach was therefore implemented before the first trial intervention was instigated which included interviews with individual workers, focus groups and questionnaires. The original plan was to collect these data during the implementation phase of the project to monitor the efficacy of the program. The need for a deeper understanding of and relationship with workers brought this information gathering forward as part of a second situational analysis to develop and further refine the plan of action prior to its implementation and evaluation. The second situational analysis therefore took a more interactive approach to seek the opinions, ideas and observations of the hospital workers themselves.

Within the action research paradigm approach data were collected and analysed and when necessary hypotheses were abandoned and new ones were developed. Further observations were made, interventions were conducted to test the new hypotheses, data collected and analysed resulting in the acceptance or rejection of the hypotheses which led to the identification of new hypotheses to again be tested and analysed. This cyclic application of the research paradigm was completed continuously throughout the development, implementation and evaluation of the program in each individual unit within the hospital.

Data.

Project timeline.

The data collection for the evaluation of the project began with the situational analysis conducted during June and July 2007 and continued throughout the eighteen month implementation of the program which was completed in December 2008. Figure 4.2 presents the project time line highlighting major points of data collection.
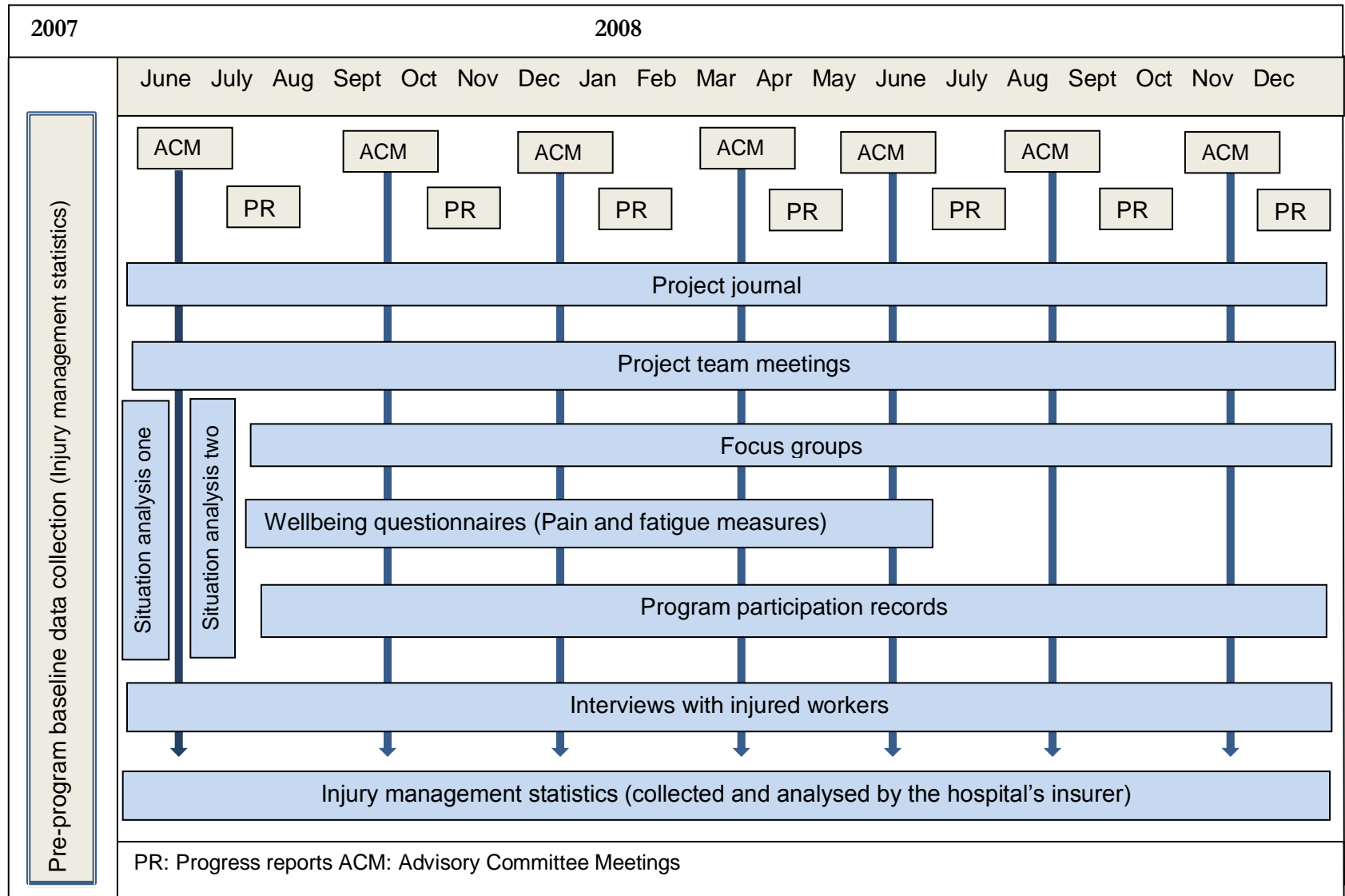
Figure 4.2. Timeline for data collection

The data collected during the project served two distinct purposes, A) Program development data and B) Observational data.

A: The program development data included:-

1) Project journal

2) Interviews with individual workers (both injured and non-injured),

3) Interviews with focus groups,

4) Individual case studies.

B: The observational data included:-

1) Injury management outcomes,

2) Pain and fatigue questionnaires

3) Participation in the program.

A. Program development data.

Program data were an essential component of the action research process and were collected prior to, during and following the implementation of the program. These contributed to a rich description (illumination) of the processes of the program development. These data included the 1) project journal, 2) interviews with individual workers (both injured and non-injured), 3) interviews with focus groups, 4) individual case studies.

Project Journal.

A detailed 'journal' was kept throughout the project. The journal took the role of an active and ongoing database and was used to systematically record the observations, reflections and analyses made each day by the project team. It included the daily observations of the author and members of the project team, interview notes, transcripts of meeting agendas and minutes, notes from telephone conversations, copies of emails and faxes, computer records and participation records, photographs, video footage and reports.

Observations.

To broaden their observational perspective, an older team member joined a younger, and where possible, a male was paired with a female. Each pair took up their observation posts for two hours on the visitor's couch beside the lift in each unit. As they didn't wear uniforms, they could just as well have been visitors waiting for a friend. The starting time was staggered, the first pair starting at 6.30 am to catch the night shift finishing as the day shift took over at 7.00 a.m.

Each day the pairs of observers monitored the comings and goings on each floor. They then met to review their observations before moving to a different unit for a further two hours. The schedule was timed to ensure that each pair was ensconced in a unit by 1.30 p.m. to observe the day shift workers leave and the afternoon crew arrive at 2.00 p.m. Working to a timetable designed to give each pair time in each of the units at different times of the day, pairs moved from unit to unit throughout the day, from the kitchen to the operating theatre, the nursing wards to the sterilising units and angiography clinic, observing, taking notes, listening and watching.

The three pairs of observers attended each of the units at different times of the day and occasionally in the early evening and on weekends. Each observer took their own detailed, unstructured notes as they watched and listened. They drew sketches of the layout of each unit, identifying open spaces as potential meeting places, the proximity of the manager's office, the unit clerk's desk, the tea room or open communal space. They noted the time of each observation and how many workers were in view, when they went for the breaks and where. They identified the roles of workers, which workers were based in the unit and which were coming and going. They noted the patients, their general conditions, whether they were ambulatory or in bed, in a room or in transit. They observed interactions between patients and their visitors, between workers and patients and workers and other workers. They noted the role of the manager and his or her interactions with patients, workers and doctors. After two hours in one unit, each pair met to discuss and compare their observations. They recorded their joint reflections from the descriptions they had made before moving to the next unit. At the end of each eight hour day the three pairs came together to compare, discuss and consider the observations they had made.

Individual interviews (n=100 workers).

A cross-section of workers who had sustained a workplace injury and who had lodged a workers compensation claim "injured workers" (n=27) and workers who did not have a current injury compensation claim "non-injured" (n=73) from across all units were interviewed by members of the project team at different stages throughout the project. All interview data were de-identified.

Injured workers.

At different times during the course of the project, 27 workers who had sustained a workplace injury were referred to the author for rehabilitation. The injury manager made the referral after the worker had been assessed by a medical doctor and had been given a certificate of incapacity for work which restricted either the hours or duties the worker was allowed to work. Each referral was accompanied by 1) a medical referral from the worker's treating doctor citing the nature of the injury and proposed medical management plan and 2) a detailed referral letter which included details of the worker's age, role within

the hospital and employment status (i.e., full/part-time permanent/casual employee), the antecedents of the injury and a request for an assessment and functional restoration program.

Each worker was interviewed by the author for two hours as part of their initial assessment (2x27 hours). Each worker then participated in a 6-12 week individualised 'Functional Restoration Program' during which time the worker was re-interviewed by the author between 8-12 times during their program. The duration of the program was dependent upon the severity of the injury and the length of time taken to return to their full pre-injury hours and duties. The author therefore conducted 324 hours of 1:1 interviews with the 27 injured workers during the course of the project.

Each individual assessment included a detailed analysis of the workers' general health, the circumstances of the injury and any prior injuries including subsequent treatment and outcomes. A record of the workers' past and current exercise history was taken and physical assessment of their functional capacity (tolerances for walking, sitting, standing, driving and stair climbing) were recorded as were the names and contact details of all other clinicians involved (Treating doctor, Medical Specialists, Physiotherapist, Chiropractor, Psychologist, Dietician, Psychiatrist, Osteopath). A detailed physical assessment was completed of the site of the injury (i.e., assessment of a shoulder injury would include an evaluation of shoulder and cervical range of movement, scapular stability and strength of both the injured and non-injured shoulder girdle). Assessments were tailored to the needs and capabilities of each worker but in most instances included an evaluation of their pain (Visual analogue scales and pain mapping), gait, balance, co-ordination, cardiovascular capacity, strength, flexibility and joint range of movement. These assessments were often completed over two to three consultations according to the incapacity and availability of each worker. Individual short and long term goals were established and a detailed plan was developed to assist the worker to achieve their goals. Examples of this process can be seen in the individual case studies (Appendix 1).

The data from each assessment were recorded in an assessment form at the time of the interview, analysed and reported in detail to the workers' treating doctor, the injured workers' manager, the injury manager and all involved clinicians. Each report included an analysis of the antecedents of the injury, the worker's capacity to return to work including recommendations for restrictions and a plan for a graduated return to pre-injury duties, where appropriate.

Non-Injured workers.
The 73 'non-injured" workers were interviewed individually in the workplace for up to one hour (1x73 hours) by two members of the project team. Interviewees were a hand-selected cross-section of workers from a representative sample of units from across both sites of the hospital. Managers from the

90

representative sample of the units at each hospital site (i.e. kitchens, operating theatres, nursing wards) were asked to identify workers from a variety of work-roles and cultural backgrounds, ages and genders who would be prepared to participate in a one hour interview. The managers identified several workers who met this criterion and introduced the pair of interviewers to the worker. After each interview the pair of researchers checked the age, gender and work-role of the worker they had interviewed and met with the manager to select other workers who would broaden the representative sample. The 'snowball' technique was also used to broaden the cross-section by asking interviewees to identify other workers who met the broader criteria for representation of the range of the entire workforce.

Semi-structured, individual interviews were conducted in the workplace (Figure 4.3). A series of open and closed questions (Table 4.1) were posed by one interviewer while the second interviewer recorded the worker's responses to the questions on an interview form (Table 4.1). Questions included personal data such as age, qualification, role at the hospital, years employed, experiences of injury, pain and fatigue. Questions also required the interviewee to form and express their opinions for example; where and when could the group exercise program be run in your unit?

 Both interviewers had been trained in adaptive interview techniques by the author as part of their induction into the program. They had practised applying the techniques with the other members of the project team to refine their skills and observed the author conducting several practice interviews with subsequent group discussions on the techniques used during the interview. The questions were derived directly from the previous situational analysis and reflected the insights the researchers gained during this process.

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│  ┌──────────────────┐      ┌──────────────────┐    ┌──────────────────┐ │
│  │ Team member 1    │      │ Team member 2    │    │ Hospital  Worker │ │
│  │                  │      │                  │    │ responded     to │ │
│  │ Conducted    the │ ───▶ │ Recorded workers'│──▶ │ interview        │ │
│  │ interview with   │      │ responses     to │    │ questions        │ │
│  │ the worker       │      │ interview        │    │ whilst working   │ │
│  │                  │      │ questions on     │    │                  │ │
│  │                  │      │ interview form   │    │                  │ │
│  │                  │      │ 4.1              │    │                  │ │
│  └──────────────────┘      └──────────────────┘    └──────────────────┘ │
│                                                                         │
│  ┌────────────────────────────────────────────────────────────────┐    │
│  │ Team members 1 &2                                              │    │
│  │                                                                │    │
│  │ Reviewed and discussed the data from the interview form (4.1)  │    │
│  │ immediately after the interview and recorded their joint       │    │
│  │ observations (description). They summarised this process on    │    │
│  │ the interview form.                                            │    │
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└─────────────────────────────────────────────────────────────────────┘
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Figure 4.3. Process undertaken to conduct individual interviews

An interview form (see example in Table 4.1) was created. Questions were adapted to accommodate the limited English of some workers. The vernacular of the hospital was also adopted as the researchers became more aware of acronyms and terms commonly used by the workers, particularly in referring to other workers: "My DON (director of nursing) sent me to the staff clinic to see the GMO (General Medical Officer)." (20/07/2007). The interview form was used as the recording instrument during the second situational analysis to elicit specific information from the workers being interviewed. Table 4.1 provides an example of a completed interview form. It was used to interview a 34 year old nurse on the 8th floor. The nurse was identified by her manager as not having had an injury and was therefore interviewed as one of the 73 "non-injured" workers.

Table 4.1.

Interview form with post interview description

Activity		Worker		Project team
Interview: 4		Division 1 nurse		TR/SL
Interview	**Duration**	**Role**	**Gender**	**Pain sites and frequency**
23/07/07 10.15 a.m.	55min	Div. 1 Nurse Acting ANUM	F	Low back pain, numbness in right leg and foot when flexed forward (patient work)
Duration	**Uniform**	**Work shift**	**Breaks**	**Tasks observed**
7 years	Yes	Part-time 3x week 7.30 a.m.– 3.30 p.m.	15min 30 min 15 min	Transf. pt from bed to chair with assistance; phone call; consult with dr; talking to pts; obs; charts; drug checks
Footwear	**Posture**	**Age**	**VAS**	**Causes of pain**
Runners **Travel** 50-60 min. on train/walk	FF during obs, very upright, protecting LBP, stiff	34	Fatigue 9/10 Pain 7/10	Flexing forward when working with patients (e.g. obs). Avoids pushing beds and all heavy work, mostly admin, duties while recovering from back injury
Meals	**Breaks**	**Exercise**	**WHMP**	**Injuries**
Yes x 3 Occ. misses p.m. break **Exercise program** After H/O Near reception	Staff room sitting with colleague	1.5 hr. Stretching & Yoga every morning, Stretching through the day	**Expo** Yes **Census** Yes	2 years ago sustained L5/S1 disc prolapsed at work when a patient slipped in the shower and fell, LL tried to stop the fall. Had 2 months off work LTI and is working P/T on mod. duties

Description: 34-year-old Div.1 nurse who has been working on the 8th floor for 7 years. Was full-time before she sustained a low back injury at work when an elderly patient slipped and fell in the shower. Tried to stop the patient from falling and felt a sharp pain in her low back. Had two months off work to recover and is now on modified duties (limited patient contact, mostly admin work). Training to become a nurse unit manager. Cannot envisage going back to full-time work. Happy to be doing 3 days but money is a big concern with a mortgage, two children and a family to support in India. Hopes to get a full-time management position. Travels an hour each way to work, drops children at school/childcare, very stressful to get to work by 7.30 a.m. Loves being a nurse, is devastated that she cannot do patient work but has been advised by neurosurgeon not to return to full nursing duties. Concerned about other nurses from Asia who are at risk of injury. In India she did not do hands-on nursing and was not physically prepared for this work when she arrived. Concedes she was unfit when she sustained the injury but is much fitter now. Very supportive of the concept of group exercise and educating nurses to prevent injuries; keen to be involved. Suggested times for sessions straight after handover meetings in the space near the reception desk but away from the lift. Potential leader but only part-time.

The data were de-identified and subsequently referred to as Interview No.4. The description was completed immediately after the interview and represents both interviewer's initial impressions and observations and any additional comments made by the worker that were not specifically recorded on the interview sheet.

Focus groups (n=20x6).

Twenty groups of six to eight workers were established from this representative sample and members of the project team met with each group on six occasions (120 hours) over the course of the project. The project team identified a representative sample of the hospital's workforce to provide feedback to the project team about workers' experiences of the program. Their list included:

1. Workers from individual units (i.e. operating theatres, kitchens, nursing wards);
2. Workers from matched units (i.e. two kitchens, two operating theatres from the two hospital sites)
3. Workers from different units (i.e. Neurological/cardiac/orthopaedic nursing wards)
4. Nurse educators (for all disciplines i.e. midwifery, neurology, cardiac)
5. Department heads (from a representative sample i.e. Engineering, medical, catering, nursing)
6. Trainee group exercise leaders (workers involved in the group leadership training program)
7. Experienced group leaders (workers who had completed the training program and who regularly ran group exercise sessions in their units)
8. External and internal stakeholders (the advisory committee)

Recruitment.

Focus group members were hand-selected by the members of the project team during the situational analysis and individual interviews. They identified workers who 1) expressed an interest in being involved in the program; 2) indicated their antipathy towards the program or 3) had sustained a workplace injury and had a personal experience of the return to work and rehabilitation processes within the hospital. Other criteria included their availability. Workers who worked only part-time, who were contemplating long service or maternity leave were excluded. Managers were consulted about the selection and asked for their opinion as to whether the workers identified would be 1) available and 2) active participants in group discussions. Workers were then approached by the author and invited to participate. In some instances the snowball effect was used to recruit additional workers.

Focus group meetings.

Focus group meetings were scheduled for weeks 1, 2, 4, 6, 8 and 12 following program commencement and were conducted in the meeting room in each unit. In the non-patient care units (such as the kitchens and sterilization units) this protocol was successfully adhered to. In the patient care units (operating theatres and nursing units) the protocol was less strictly adhered to with numerous occasions when meetings had to be deferred for want of access to the focus group participants. Each focus group met on at least six occasions during the first twelve weeks of the implementation phase of the program at both sites.

The group discussions were recorded, transcribed, and circulated to the participants for confirmation as to their completeness and accuracy. The project team met after each focus group meeting to review the group's discussions. These data were analysed by the team to build a description of the issues identified by the group and to then identify recurrent concepts and emergent themes.

Case studies.

A series of six case studies were developed by the author to reflect the experience of a representative sample of the 27 injured workers involved in the functional restoration programs (Appendix 1). These case studies exemplified the process involved and demonstrated how the model was applied to specific situations. The case studies provided an in-depth profile of specific workers, their medical backgrounds and injury histories. They examined how injured workers were identified, assessed and rehabilitated within the program. Anecdotes and observations about interactions between injured workers and their managers and colleagues were recorded. Lost time injury data, feedback from treating practitioners, treatment protocols, progressing of return to pre-injury hours and duties were examined. The outcome measures used to evaluate individual return to work outcomes have also been included. The case studies demonstrate the techniques used by the project team to collect data relating to individual return to work programs for individual workers.

B. Outcome-related measures.

These included data to test pre-specified outcomes identified in, and committed to, as part of the funding application. These included statistical analysis of 1) injury management outcomes, 2) pain and fatigue and questionnaires and 3) participation in the program. As such they were collected systematically during the program as part of the reporting process.

Injury management outcomes.

Injury statistics (including the incidence and duration of lost time injuries and costs associated with injuries) provided feedback about the financial efficacy of the program and were collected and analysed by the hospital's insurer. These data included 1) total injury claims costs [medical treatment and remuneration and insurance premium], 2) lost time injury days [time away from work due to injury] and 3) return to work duration [time away from work in weeks]. These data provided return to work outcome measures to the funding agency as had been specified in the funding application and subsequent funding agreement.

> We are committed to further reduce our Workcover premium over the next three years and have set a target of 20% below the industry average in our 2006-2008 strategic plan.
>
> (WorkSafe funding application 2006)

Wellbeing Questionnaire (n=360).

A '*Wellbeing Questionnaire*' was developed to quantify worker's perceptions of changes in pain and fatigue during a work shift (Figure 4.4). The questionnaire used visual analogue scales (VAS) previously reported as valid and reliable by Ferraz, et al, (1991) and Williamson & Hoggart, (2005). The Advisory Committee expressed concern about workers' willingness to provide personal health information and recommended that the questionnaire be anonymous. The need for anonymity prohibited the opportunity to adopt a repeated measures approach to the collection of these pain and fatigue data. The questionnaire was therefore applied to different groups of 120 hospital workers at three points during the program; 1) prior to program implementation, 2) six months after program implementation and 3) twelve months after program implementation. Table 4.2 describes the questionnaire application protocol.

Table 4.2.

Wellbeing questionnaire application protocol

Questionnaire application	Timing	Site 1: Implementation	Site 2: Control
1	Pre-Program	120 workers (non-participants)	
2	6 months	60 participants	60 non-participants
			Site 2: Implementation
3	12 months	60 participants	60 participants

Wellbeing questionnaire

Thank you for completing this CONFIDENTIAL health questionnaire. Our focus is on how you feel at the end of a work shift. How are your energy levels? Do you experience any pain? Do you have the energy to do the things you want to do at the end of shift?

1. Energy: Compare your energy levels throughout a work day.

Before Work

Energetic (100%)   50%   Exhausted (0%)

I_____I_____I

Midday

Energetic (100%)   50%   Exhausted (0%)

I_____I_____I

After Work

Energetic (100%)   50%   Exhausted (0%)

I_____I_____I

2. Pain: Compare you pain levels throughout a workday (headaches, sore feet, back ache etc.)

0 : NO pain, 10 : extreme pain

Before Work

0/10 Pain   5/10 Pain   10/10 Pain

I_____I_____I

Midday

0/10 Pain   5/10 Pain   10/10 Pain

I_____I_____I

After Work

0/10 Pain   5/10 Pain   10/10 Pain

I_____I_____I

Figure 4.4. The Wellbeing questionnaire

Administering the questionnaires.

Participants were given a sealed envelope containing instructions and the questionnaire. Workers were assured of their anonymity and that the data would be de-identified and collated generically. The managers explained how the questionnaire was to be completed, demonstrating the use of the visual analogue scales. Participants were given a brief explanation of the questionnaire protocol:

1. The questionnaire takes ten minutes to complete. The questionnaire will ask you if (during the previous day) you experienced pain or fatigue and ask you to rate this on a scale of 1-10. You will not be required to put your name on the questionnaire or to identify yourself in any way. You will be given an addressed envelope in which to return your questionnaire to your unit manager who will forward the questionnaire, unopened, to the [author].

2. We do not anticipate that completing the questionnaire will cause you any discomfort and you can be confident that your identity will remain confidential. Please note that withdrawal of survey/questionnaire data, once submitted, is not possible as the questionnaires/surveys are anonymous.

1. Pre-program.

The questionnaire was applied to a hand-selected cross section of workers from a representative sample of units from across both sites of the hospital. Prior to the implementation of the program the managers from all units introduced the questionnaire to their workers during a regular unit meeting and asked specific workers to complete the questionnaire. Managers were asked to encourage workers that would represent a broad cross-section of their workforce including workers of varying ages, genders, roles and cultural backgrounds. 120 workers (kitchens, nursing wards, operating theatres, sterilization centres and administration services) from across the hospital completed the questionnaire.

2. Six-months after program implementation.

The wellbeing questionnaire was applied to another sample of 120 workers (60 participants and 60 non-participants) at six months. It is possible that workers who completed the first application of the questionnaire pre-program may have also completed a second questionnaire at this time. No attempt was made to monitor and prohibit any worker from completing the questionnaire a second time.

60 Participants from site 1: Implementation.

Workers who regularly (3 x week) participated in the group exercise program were invited to complete the questionnaire by group exercise leaders. Their regular participation was confirmed on the questionnaire.

The questionnaire of any worker who indicated that they had not regularly attended 3+ sessions per week was discarded.

60 Non-participants from site 2.

Managers from the second hospital site (where the program had not been implemented) were asked to invite workers to complete the questionnaire. Managers were asked to encourage workers that would represent a broad cross-section of their workforce including workers of varying ages, genders, roles and cultural backgrounds. 60 workers (kitchens, nursing wards, operating theatres, sterilization centres and administration services) from across the hospital site completed the questionnaire.

3. *12 months after program implementation at both sites.*

The wellbeing questionnaire was applied to another sample of 120 workers (60 participants from each site). It is possible that workers who completed the first or second application of the questionnaire may have also completed the questionnaire at this time. No attempt was made to monitor and prohibit any worker from completing the questionnaire a second time.

Participation records (n=100,000 minutes of participation in exercise groups).

All units involved in the group exercise program kept detailed participation records. A chart listing each of the five participation parameters was completed each day by the group exercise leader or a designated participant. Participation parameters included the 1) number of participants and the number of potential participants in each session, 2) frequency of group sessions 4) names of leaders conducting each session and 5) attendance of the manager. The records were collected at the end of each month and the data were collated, graphed and reported to the advisory committee and the managers of each of the participating units.

These data provided participation outcome measures to the funding agency as had been specified in the funding application and subsequent funding agreement. 400 employees across two campuses will be involved in some or all elements of the initiative. Business sectors to be targeted include 1) Environmental Services; 2) Kitchen; 3) Outpatient services 4) Nursing Units and 5) Operating theatres. (WorkSafe funding application 2006)

Data Analysis

Program development data .

Data analysis was a continuous process throughout the program's implementation and development. The data were collected and reflected upon, and the insights gained were then used to further refine the program. The *thick description* compiled in this way illuminated the processes underlying the implementation and its reporting to and reception by key stakeholders, especially the hospital workforce.

Grounded theory.

A systematic approach based on Strauss and Corbin's (1998) grounded theory provided the framework to support the overall strategy of ensuring that the data gathered were as accurate as possible. It also ensured that the data analysis was not limited or preconstrained to pre-generated goals alone but involved the exploration of contrasting views, situations, actions, and experiences of different people in different contexts, comparing incidents and individual interpretations of these observations. The daily review of observations by the six members of the project team during the situational analysis for example, provided the opportunity for stories to be reviewed. The reactions of the various members of the team to each story stimulated discussion and at times provoked debate. The team listed key elements of each story and the various interpretations of members of the team. Often a younger member of the team would have a very different interpretation of an event or observation from that of an older member, or one of the two males in the team would be taken aback by a comment or interpretation from a female in the team. Every discussion was peppered with the comment "*I hadn't thought of that…*"

This process of constant comparison stimulated opportunities to consider alternate views and interpretations of the data, broadening the perspectives of the members of the team. By using this constant comparative process, hypotheses were allowed to emerge. *"If we invite workers who maintain their fitness to be group exercise leaders the sessions will be well attended."* This hypothesis, based on an assumption and a limited interpretation of the data, was then tested. 'Fit' workers were identified and interviewed and by and large were found to be antipathetic to the proposition that they would make effective group leaders. Unfit workers were then interviewed and expressed concern about feelings of inadequacy and the possibility that they could be pushed to do more exercise than they were capable. This led to the formulation of a new hypothesis; *"Fit workers may not appreciate the limitations of non-fit participants and this may deter participation."* The decision to broaden the criteria for engaging group exercise leaders beyond the parameter of 'fitness' evolved directly from this process of constant comparison and hypothesis testing. By using this constant comparative process, hypotheses were allowed to emerge, eventually resulting in a theory that was truly grounded in the data (Strauss and Corbin 1990). This approach enabled a deeper

understanding of the multiplicity of perspectives, issues and ideas that were integral to the day to day occurrences within the hospital.

The three phases of the grounded theory methodology were defined by Strauss and Corbin (1998) as:

1. **Description.**

The use of words to convey a mental image of an event, a piece of scenery, a scene, an experience, an emotion, or a sensation; the account related from the perspective of the person doing the depicting.

2. **Conceptual ordering.**

Organising (and sometimes rating) of data according to a selective and specified set of properties and their dimensions.

3. **Theory.**

A set of well-developed concepts related through statements of relationship, which together constitute an integrated framework that can be used to explain or predict phenomena.

Strauss and Corbin (1998, p. 85) described asking questions and making theoretical comparisons as the tools that help the researcher to gain a better understanding of the data she has gathered. They offered this explanation of the relationship:

1. Help analysts obtain a grasp on the meaning of events or happenings that might seem otherwise obscure

2. Help sensitize researchers to possible properties and dimensions that are in the data but remain undiscovered

3. Suggest further interview questions or observations based on evolving theoretical analysis

4. Help analysts move more quickly from the level of description to one of abstraction

5. Counter the tendency to focus too greatly on a single case by immediately bringing analysis up to a more abstract level

6. Force researchers to examine basic assumptions, their biases, and perspectives

7. Force a closer examination of the evolving theory, sometimes resulting in the qualification or altering of the initial framework

8. Make it more likely that analysts will discover both variation and general patterns

9. Ensure the likelihood of a more fluid and creative stance toward data analysis

10. Facilitate the linking and densifying of categories

(Strauss & Corbin, 1998, p. 85)

Coding.

Coding represented the operations by which the data were broken down, conceptualized and developed. It is the central process by which concepts are built upon to develop theories to be tested as part of action research (Strauss & Corbin, 1990, p. 57).

Figure 4.5 describes the process by which the data were analysed by the project team.

Stage 1: Team Members 1 &2

Reviewed their **description** from each form and initiated the first step of the data analysis to code their joint **reflections** of the information gathered.

Stage 2: All members of the project team:

The two team members presented their **description** and **reflection** to the project team.

The members of the project team discussed the **description** and **reflection** together and further analysed the data to identify concepts within the data.

Stage 3: All members of the project team:

Conceptual ordering was completed using the data from the collective observations and interviews. Lists of concepts recorded on a whiteboard were added to, rated, moved, deleted, expanded upon to further develop the concepts and to identify **emergent theories.**

Figure 4.5. Process of data analysis by the project team

Stage 1: Description.

The first level of observation was the 'description' which was an inherent part of the data collection process. Probing the description was a part of the process of analysing the data. The first stage was the process described by Strauss & Corbin (1990, p. 61) as "breaking down, examining, comparing, conceptualizing, and categorizing data." Data collected during the observation or interview were broken down into discrete parts and were closely examined. The aim was to develop an account (**description**) of the observation/interview from the perspective of the team members that had completed the interview. Table 4.3 demonstrates this first step using data collected during **Interview No.4** as seen previously in

Table 4.1. In this example the nurse was interviewed as a non-injured worker. During the interview she revealed that she had a previous work injury. The complexity of her experience of balancing an injury, work and an extended family became clearer to the interviewers as they completed their line-by-line analysis of the **description (**Table 4.1), they began by highlighting individual words and groups of words that specifically examined the question: 'What experiences does this workers bring to the program?' Through this process they wrote a brief summary of their **reflections** of this coding process.

Table 4.3.

Stage one data analysis.

Description: 34-year-old Div.1 nurse who has been working on the 8th floor for 7 years. Was full-time before she sustained a *low back injury at work* when an elderly patient slipped and fell in the shower. *Tried to stop the patient from falling* and felt a sharp pain in her low back. Had two months *off work to recover* and is now on *modified duties* (limited patient contact, mostly admin work). Training to become a nurse unit manager. *Cannot envisage going back to full-time work.* Happy to be doing 3 days but money is a big concern with a *mortgage, two children and a family to support in India.* Hopes to get a full-time management position. Travels an hour each way to work, drops children at school/childcare, very stressful to get to work by 7.30 a.m. Loves being a nurse, is *devastated that she cannot do patient work* but has been advised by neurosurgeon not to return to full nursing duties. *Concerned about other nurses* from Asia who are at risk of injury. In India she did not do hands-on nursing and was not physically prepared for this work when she arrived. Concedes she was *unfit when she sustained the injury* but is much *fitter now.* Very *supportive of the concept of group exercise and educating nurses to prevent injuries*; keen to be involved. Suggested times for sessions straight after handover meetings in the space near the reception desk but away from the lift. *Potential leader* but only part-time.
Reflection: This nurse has multiple responsibilities outside work but has prioritised her own health to complete a rehabilitation program and return to work on modified duties. She has had a first-hand experience of the role of exercise in preventing and managing an injury. She is committed to her own health self-management. She is supportive of the group exercise program and keen to be involved and has identified a time and place. Having sustained an injury herself, she has concern for other workers and is a potential role model, particularly for other overseas trained workers**.**

Stage 2: Conceptual ordering.

Each pair of project team members presented their description and reflections in a daily joint meeting of the entire project team. The team identified tentative concepts from the data presented. In their analysis of the **Interview No. 4** data they identified three specific concepts as depicted in Table 4.4.

Table 4.4.

Analytical process to identify concepts

Reflection	Concepts
This nurse has multiple responsibilities outside work but has *prioritised her own health* to complete a *rehabilitation program* and return to work on modified duties. She has had a first-hand experience of the *role of exercise in preventing and managing an injury*. She is *committed to her own health management*. She is supportive of the group exercise program and keen to be involved and has identified a time and place. Having sustained an injury herself, she has *concern for other workers and is a potential role model,* particularly for other overseas trained workers. (Interview 4: 23/07/07)	Self-awareness

Personal responsibility

Social responsibility |

These concepts were recorded on a dedicated whiteboard. As the data collection process evolved the opportunity to compare reflections with other team members enabled more comparisons of the data and a broad analysis and ordering of the emerging concepts.

Constant comparison across observations, interviews, and involving different team members decreased the potential for the researcher to impose her own pre-conceptions. It also enabled the team to subdivide concepts to ensure consistency in grouping like with like.

For the coding process to be rigorous, the data were re-visited and re-coded as new concepts emerged. For example, during the observations of the first situational analysis, the concept of *roles* emerged which led the team to group the various roles of workers into workers that were directly responsible for preparing patients for surgery or labour (anaesthetists, surgeons, midwives, obstetricians, nurses, Patient Service Assistants [PSAs] and theatre technicians) and workers who played a secondary role (unit clerks, kitchen workers, cleaners, engineers, pharmacists, physiotherapists, angiography technicians). As this concept was re-ordered, new groupings emerged. Workers responsible for

1. preparing patients for surgery
2. post-surgical care, a group
3. rehabilitation and repatriation of patients in preparation for discharge
4. 'back end' services such as the kitchen workers, engineers and cleaners.

Each group had their own distinct roles but there also appeared to be significant inter-relationships between the roles of these individual groups. The role of managers in each unit was then explored; not as

just responsible for patient care per se but at the coal face of co-ordinating and overseeing the roles within their units. Venn diagrams were used to try to map the interactions of these five groups and from these reflections the concept of _interdependence_ between workers emerged. As each new concept emerged, it was compared against existing concepts for both similarities and differences. From the _interdependence of roles_ emerged the concept of _patient focus._

Questions constantly emerged from the data such as: Why are nurses in one nursing unit returning to work post-injury when in a unit with similar work they are taking twice as long to return to their pre-injury hours and duties? What are the management practices in each of these wards? Are the relationships between the injured workers and their managers in each of these units different? What are the other variables that seem to impact on how quickly and successfully an injured worker is able to return to work after an injury?

What emerged from these questions were more questions, prompting the researchers to seek more information to help identify patterns within the data and to further define each concept. For example, during their interviews, four workers commented that they were disinclined to tell their manager that they had pain because they believed that the manager would restrict their overtime shifts which would cut their pay. Two of the three women had husbands that were unemployed. Their overtime was needed to maintain their mortgage. The _role of managers_ and _inconsistency_ became recurring concepts that became saturated as more workers told similar stories about managers who espoused the importance of early reporting but applied punitive consequences for workers who did so. This process of conceptual ordering became more refined over time as the author became more adept at identifying key issues and workers became more receptive to sharing their experiences.

Stage 3: Theory.

The third and final stage of data analysis sought to systematically refine the concepts into theories and generate hypotheses to test and develop these theories.

Strauss and Corbin (1998) described this process as the step that would pull the other concepts together to form an explanatory whole. They noted that such explanations "should be able to account for considerable variation with categories." As concepts were generated they became linked to other concepts to identify recurrent ideas and observations with a view to reaching theoretical saturation. This was an ongoing process with new concepts constantly emerging and either being incorporated and becoming more refined concepts or rejected. Gradually, through an ongoing process of 1) discussion, 2) re-visiting the units to confirm observations, 3) discussion with participants (through the focus groups and interviews with injured workers), 4) further revision and 5) comparison, no further concepts emerged

from the data. At this point the team agreed that saturation had occurred and a series of theories were generated from these refined concepts. An example of this analytical process can be seen in Table 4.5.

Table 4.5.

Example of how each reflection contributed to the identification of concepts and how through the process of reaching saturation, theories were identified

Date	Reflection	Concept(s)	Theory
23/7 I:4	This nurse has multiple responsibilities outside work but has *prioritised her own health* to complete a *rehabilitation program* and return to work on modified duties. She has had a first-hand experience of the *role of exercise in preventing and managing an injury*. She is *committed to her own health management*. She is supportive of the group exercise program and keen to be involved and has identified a time and place. Having sustained an injury herself, she has *concern for other workers and is a potential role model*, particularly for other overseas trained workers.	Self-awareness Personal responsibility Social responsibility	Developing self-awareness is a pre-requisite for assuming personal responsibility and demonstrating social responsibility for health prioritising behaviour

Consistent with the action research framework, hypotheses were then developed to test and analyse the theories that had emerged from the data. In this instance the hypothesis proposed that increasing worker's awareness of the opportunity to change health management behaviours would encourage them to become more self-aware, to take personal responsibility for their own health management and that of their colleagues. This hypothesis drew from the experiences of this nurse and other workers who had demonstrated their commitment to rehabilitation following a workplace injury and who had successfully changed their own health management behaviours to enable them to be able to return to work.

Observational data.

This comparison of observations, descriptions and journal notes initiated the process of testing the dependability of the observations taken. In their discussions about identifying opportunities to bring groups of workers together for example, the team recognised diverse patterns in various units. During these discussions the team members made lists of their observations on a dedicated whiteboard. Over successive days more descriptions were added and categories began to emerge. For example the descriptions relating to **potential locations included**:

- Open space

- Patient access

- Location of lifts

- Access to defibrillator

- Proximity to unit clerk's desk

- Access to walls for stretching

- Placement of furniture

- Distance from hand-over room

- Safety concerns

From these descriptions a concept of **minimising disruption** to the flow of work emerged. As this concept became saturated through a process of comparison with other data the theory that there were complex and highly individualised routines in and between every unit emerged. From this theory a hypothesis was developed that it would be necessary for the team to test this theory to identify a location and a time that would not disrupt the flow of work and that this would be unique to each unit. Using locations that can be easily accessed and will not disrupt the flow of work will allow the program to be successfully integrated into the routines of each unit.

The daily project team discussions became progressively more animated as stories became more detailed and descriptive. Notes also became more detailed and team members began to use a large dedicated whiteboard to group their observations under the categories. Sandra, the hospital's injury manager and member of the project team collated these notes, typed and distributed them each week to the rest of the team for further consideration and discussion. Over time the group began to recognise a number of concepts, some of which applied to every unit and some to specific units or groups. For example, workers' constant attention to the needs of patients applied to the nursing wards and operating and recovery units but not the kitchen.

Outcome-related measures.

Changes in injury management outcomes.

Data related to monitoring injury management outcomes were independently analysed by the hospital's WorkSafe insurer using their own internal auditing and data analysis tools. This analysis examined pre- and post- program changes in the incidence and cost of injuries, the duration of lost time injuries, the types of injuries and the impact on the hospital's workers compensation insurance premium. Comparisons were made for each of these data sets for two years prior to the program implementation

(2005-2007), during the two year implementation period (2007-2008) and the subsequent year (2009). The outcome measures were also compared to injury data from other hospitals. An 'industry average' was established by the insurer enabling a comparison between the injury management performance of the hospital and other hospitals in the state. The specific methodology for analysing this data remains commercial in confidence and cannot be reported. The data analysis however is a mandatory component of the insurers' relationship with the state's workers compensation authority (WorkSafe) and as such is audited annually by the authority.

Pain and fatigue.

Pain and fatigue data were statistically analysed to compare experiences of pain and fatigue across a work shift between participants and non-participants in the program. Changes in pain and fatigue scores were averaged using the trapezoidal rule (1/4(B+2M+E) (Abramowitz & Stegun, 1972; Whittaker & Robinson, 1967). This algorithm measured the areas under the time-effect curve to compute the fractional derivatives at specific points across a work shift (B: Before work, M: Mid-shift, E: End of shift). These results presented cumulative changes in worker's experiences of pain and fatigue across a work shift.

Participation in the program.

A rating system was developed to provide meaningful feedback to the participating units about their comparative performance on four levels:

1. The number of participants in each session vs. the potential number of participants. If for example there were 20 workers available to participate in a session but only 12 chose to participate this was recorded as 12/20.

2. The frequency of sessions conducted vs. the potential frequency of sessions
   The recording system monitored how many sessions were run in relation to the potential number of sessions for each unit. The nursing units were active 24/7 with three shifts of workers every day for seven days. These units could potentially have conducted 3 sessions in a 24 hours period seven days of the week (21 sessions). If the unit conducted 16 sessions this was recorded as 16/21. Other units such as the operating theatres were only operational for a two shifts every day for five days per week. If the program was conducted at the beginning of every shift this was recorded as 10/10.

3. The involvement of the trained group leaders. The initials of each trained group leader were recorded for each session to monitor whether all trained leaders were participating in the program.

4. The participation of the unit manager

Trustworthiness

Stringer and Genat (2004) suggested that because qualitative methods are essentially subjective in nature and local in scope, a new set of criteria are required to ensure the validity and reliability of the methodology. Schwandt, Lincoln and Guba (2007) described trustworthiness as having elements of credibility, transferability, dependability and conformability. In the current study trustworthiness was established by recording and reviewing the research procedures themselves to ensure the phenomena being studied was accurately and adequately represented. The following procedures were adapted from those suggested by Lincoln and Guba (1985).

Credibility.

During the current study five years of observations were conducted beginning with the initial engagement with stakeholders during the pilot programs through to the conceptualization, implementation and evaluation of the project. Throughout the situational analyses the author and members of the project team undertook lengthy and intensive contact with key stakeholders from within and external to, the hospital. Interviews with individual workers, discussions with focus groups and the advisory committee, participation records, pain and fatigue VAS questionnaires, rehabilitation with injured workers in their respective units as well as individual case studies gave the author the opportunity to continuously observe the workers in the hospital. This persistent observation enabled an in-depth and ongoing analysis of the observations and interpretations of the data between the author and the other members of the project team.

Triangulation of data.

The triangulation of multiple sources of data was used to corroborate the trustworthiness of observations and inferences reported and used in the testing of the hypotheses. The author relied heavily on the triangulation of the observations made by the other members of the project team to deepen her own reflections and to limit the influence of bias. The constant comparison of observations by members of the project team during the situational analysis exemplifies this process. Peer debriefing was a constant and ongoing practice throughout the study. The observations of the researchers were shared and recorded daily throughout the project. The breadth of these shared reflections was instrumental in the iterative cycle of the project, as each observation identified new insights and opportunities to develop and trial new strategies.

To minimise observer bias during the situational analysis, pairs of researchers from the project team worked together to observe, collect, collate and analyse data. Each observer took their own detailed,

unstructured notes as they observed workers. After two hours in one unit, the pair met to discuss and compare their observations. At the end of the day the project team came together to compare, discuss and consider the observations they had made. This process enabled the author to confirm and check data.

Member checks.

The practical nature of action research requires that participants be given frequent opportunity to review the raw data, the analysed data and reports that are produced. This process of review is called member checking and provides the means for ensuring that the research adequately and accurately represents the perspectives and experiences of participants (Stringer & Genat, 2004, p. 52). The project team verified their observations with the members of the focus groups by soliciting their reactions to reconstructions of what the team had observed. The focus groups were also actively involved in reviewing the data that was collected and analysed including participation data and pain and fatigue data.

Transferability.

Thickly detailed descriptions contribute to the trustworthiness of an evaluation by enabling others to clearly understand the nature of the context and the people participating in the study (Stringer & Genat, 2004). Thick descriptive data were collected to provide a rich narrative to provide the context in which the program was conceived, developed, implemented and evaluated. The observations of the project team were detailed and provided time, place and descriptions of the workers, their work environment and inter-relationships between workers and management. This detailed context was developed so that judgments about the degree of fit or similarity could be made by others wishing to apply all or part of the findings elsewhere (Schwandt et al., 2007). The program was repeated at the second hospital site six months after the program was implemented at hospital site one. One of the exercise physiologists who had been a member of the project team was employed to implement the program at the second hospital site using the protocols established during the initial implementation. The goal was to determine whether the program could be repeated without the direct input of the project team and the author and to test the transferability of the program to another hospital environment.

Dependability.

Lincoln and Guba (1985) described the need for an external audit involving both the establishment of an audit trail and the carrying out of an audit by a competent external, disinterested auditor to enable a confirmability judgment. The project included several layers of external audit. The funding from WorkSafe included an audit trail by a competent external, disinterested auditor. The ongoing funding of the project was contingent upon the project's ability to demonstrate measurable outcomes and was examined by WorkSafe auditors at four intervals during the project. Quarterly reports detailing the

implementation processes of the program and the budget were compiled and presented to a committee from the funding body (WorkSafe). Minutes were confirmed by all participants. The eight progress reports were comprehensively audited by WorkSafe. The external analysis of measurable outcomes (return to work, injury patterns and costs) by the hospital's insurer provided transparency, independent analysis and the reconstruction of results (prior to and during the project and in comparison to other similar organisations). The Advisory Committee audited the methodology for the collection and analysis of the program development data. Prior to each of the eight committee meetings agendas were sent to members with copies of the quarterly reports and details of the data collection processes. Meetings provided opportunities for committee members to question the researchers about all aspects of the program including the collection and analysis of the development data.

Confirmability.

Confirmability is achieved through an audit trail, the inquirer having retained recorded information that can be made available for review (Stringer & Genat, 2004). Throughout this evaluation the data have been collected by the participants in the program. Owen (2006), describes this process as interactive (or participatory) evaluation. The organisation itself controlled the evaluation of the intervention. All departments kept their own detailed participation records. The records were collected at the end of each month and the data were collated and graphed by the hospital's injury manager who reported them to the advisory committee and the managers of each of the participating departments for verification. Representative groups from within the hospital controlled the agendas, recorded participation, provided feedback on minutes of meetings and reviewed interview notes. The evaluation reports on this continuous process of interaction between the researchers, key stakeholders and the funding agency to confirm the trustworthiness of the interpretations presented. The discussions, reflections and analysis amongst the project team involved in these processes provided a more complex and trustworthy understanding and interpretation of the issues involved (Stringer & Genat, 2004).

Recurrent cycles of planning, implementing the intervention, observing and measuring the outcomes, reflecting on them and re-planning on the basis of what was learned were completed by the research team. The author was a member of the research team and as such contribute to, but did not control the data. The data is therefore highly representative of the opinions, actions and interactions of all the stakeholders involved in the program.

Ethics approval.

Ethics approval for the conduct of this project evaluation was approved by the Australian Catholic University Human Research Ethics Committee. Registration Number V200708107

5. Results

Introduction

The original pilot programs that had been conducted by the author in the kitchen and operating theatres in 2005 began with a broad starting hypothesis (Pre:H1): - workers could be successfully influenced to prioritise their own health needs if given the opportunity to participate in a workplace health management program. This was the general hypothesis that guided the whole program. Implicitly, it was developed through the literature review and was the fundamental precept that continued to drive the project and the strategies that were implemented.

A second hypothesis (Pre: H2) was also derived and taken into the pilot programs: - a group exercise program would provide a successful medium for the delivery of the health message. At the heart of the workplace health management program was the idea to bring groups of injured and non-injured workers together each day to spend six minutes completing a series of exercises, exchange ideas and share information. Evidence from the data derived from the pilot programs demonstrated 1) a consistent attendance of 80% of the available kitchen and theatre workers, 2) a 100% reduction in workplace injuries, (10 injuries in the previous year, no new injuries in the twelve months following the three month pilot), 3) ten injured workers' successful return to their pre-injury hours and duties and 4) positive feedback from the respective managers of the two units to the Department head. On that evidence, the group exercise program was retained as a key element moving forward to the first situational analysis.

The acceptance of the second hypothesis led to a third starting hypothesis which was also taken into the first situational analysis and focused on the practicalities of the implementation process. This third hypothesis (Pre:H3) posited that identifying an appropriate time and place would be the key to successfully embed the exercise program into the daily routines of sixteen diverse units across the hospital. The project team thus instigated an initial situational analysis to test this third hypothesis by observing the routines of each unit to identify appropriate times and places for workers to get together to participate in the group exercise program.

A fourth hypothesis (Pre:H4) was also formulated which looked forward to the long term sustainability of the program specifically that; after the successful implementation of the program by accredited exercise physiologists, a sufficient cohort of workers from each unit could then be trained and put in place to sustain the program. To this end, the implementation plan for the program included a strategy to conduct a one month trial of the program in each unit run by a team of exercise physiologists to engender

confidence in workers who would then volunteer to take on the role of group leaders. This approach had not been trialled during the pilot program.

Testing the Third Hypothesis (Pre:H3)

The project therefore began with the intention of conducting a two week situational analysis to observe the routines of eight hospital units at site one to identify a time and location for the group exercise program to be implemented. The plan was to analyse the data derived from the observations to identify a time and location to implement the program. The program would then be implemented and workers from each unit would be interviewed to seek their insights about their experience of the program implementation.

When analysed, the data from the first situational analysis led to the rejection of the third hypothesis on the basis that neither a time nor a place could be identified to run the group exercise program in any of the eight units. The project team recognised that they had underestimated the complexity of the hospital environment and agreed that a more systematic and consultative approach was needed to identify and overcome the plethora of barriers that had been identified in the first situational analysis. They agreed that a second situational analysis was needed to seek the input of the workers. The project team, in consultation with the Advisory Committee, agreed to amend the methodology to bring forward the planned interviews in order to apply a more consultative approach by switching the focus of the data collection and analysis to the individual workers rather than the workplace situation.

This chapter will present and analyse the data collected from both 1) the first and 2) the second situational analyses. It will identify the hypotheses that were derived, tested and revised through this process and then tested and again revised throughout 3) the implementation of the program.

Situational Analysis 1

To unobtrusively observe the routines of the eight hospital units, six members of the project team paired up for two weeks to complete an initial situational analysis to test the third hypothesis:- Identifying an appropriate time and place would be the key to successfully embed the exercise program into the daily routines of sixteen diverse units across the hospital.

By the end of the observational period, recurrent concepts became apparent. As the conceptual categories began to emerge from the data, the team sharpened their observations. From their initial brief to observe practical issues around how, when and where the proposed program might be inculcated into each unit, the team's attention gradually honed in on the roles of workers and the routines of each unit. These

concepts then began to crystallise in the context of "What is happening in each unit," and "when and where can we implement the program?"

We are wearing scrubs and observe the comings and goings from the reception desk just inside the entrance of the twelve operating theatres. We can watch surgeries through the glass doors. Nurses and theatre technicians (techs) attend handover at 7.30 a.m. and 1.30 pm at the reception desk. (Note: Opportune time for group program) An enormous whiteboard tracks the events of the day and is the focal point as nurses, techs, anaesthetists and the unit clerk constantly check and change the lists on the board. (Note: Opportune location for group program)

(Journal entry No. 43. 19/7/07)

Emergent concepts.

 Fifteen concepts emerged from the data collected during the first situational analysis. From the analysis of these concepts four theories evolved. The following data have been catalogued in relation to the concepts that were identified and are then linked to the specific theories which they underpin. The first six concepts underpinned the first emergent theory. Three more concepts led to the identification of a second theory and a further three concepts underpinned a third theory. The fourth theory emerged from two additional concepts. The first six concepts were:

1. Acceptance of personal risk.

The project team was taken aback by the physicality of the work being carried out in every unit. It seemed that more than a third of the workers were older (50+years) and overweight which reinforced the perception that these workers were unfit and therefore at risk of injury as they pushed fully-laden beds up ramps, manoeuvred blood pressure machines along carpeted floors and transferred obese patients. These workers were apparently oblivious to their own personal risk of injury as they carried out these roles while caring for patients.

Most of the nurses are old (one is 65, most are 50+) and are relatively short compared to the surgeons and techs. The young nurses are nearly all Asian and very short. All the equipment in the room is set to the preferred height of the surgeons (all male). The nurses maintain a steady flow of physical work throughout the surgery, the 'scout' comes and goes while the 'scrub' is anchored to the table for hours at a time, passing implements to the surgeon. Some of the saws and drills weigh five kilograms and are passed from a low-set table to the extended height of the operating table, so the nurse has to step up and down off a narrow step to reach and lift the equipment above shoulder-height to the surgeon (very risky). The tech remains seated while the nurse continually steps, lifts and passes.

(Journal entry No. 4. 19/7/07)

The hospital has a 'No-lift policy.' All the nurses have been trained not to lift patients but we have seen numerous examples of nurses (particularly older nurses) physically moving patients themselves rather than using a hoist. Hoists sit in the hallways but are rarely used.

(Journal entry No. 30. 12/7/07)

The kitchen workers in particular were older and less fit and pushed trolleys taller than themselves laden with trays of food up and down the hallways delivering meals to patients. They struggled to manoeuvre the trolley over the lip of the lift as the wheels stuck unless they could get enough momentum. The author had previously worked with a kitchen worker who had sustained a shoulder injury when a tray fell from the top of a trolley onto her head and shoulder.

2. Prioritising patient care over personal needs.

Members of the project team were struck by a strong sense that workers prioritised the needs of patients over their own personal needs. Workers were observed to work beyond their allocated shifts, particularly in the operating theatres, CSD and maternity units. Team members also reported instances where they overheard workers discussing that they had not taken a rest break or lunch break despite working a ten hour shift. They also heard that it was not unusual for operating theatre workers to go all day without a break at all. They watched managers encouraging workers to leave the theatre for lunch but the workers did not want to stop midway through a surgical procedure.

Members of the project team bring stories about the number of workers they see who seem to be struggling with work tasks: nurses leaning against walls while they talk to patients, rubbing their feet, complaining of back pain, sitting down to rest in patients' rooms and limping.

(Journal entry No. 37. 16/7/07)

3. Respect for the emotional needs of patients and families.

The commitment to undergo a medical treatment is fraught with anxiety for most patients and their families. The palpable emotional energy observed as patients arrived at the reception desk reinforced this sense that the decision to hand over control to strangers was not taken lightly. To validate this trust, it was imperative that each and every worker be attuned to the medical and psychological needs of patients and their families. From the first encounter at the reception desk, the relationship of confidence and trust was either won or lost.

Portly new patient (60+years) arrives at the reception desk, husband in tow. Nurse told her to "hop on the scales." Patient looked surprised about being weighed in full view of everyone, groaned and stood on the scales

looking embarrassed (no eye contact). The woman whispered "Please don't say it out loud." The nurse nodded, wrote down the weight and took the patient to her room.

(Journal entry No. 22. 9/7/07)

From the far ends of the workforce spectrum, workers also extended themselves to provide a friendly and emotionally supportive environment for patients and their families.

Nurses are constantly attentive to the medical and emotional needs of patients preparing for surgery. They reassure them and their partners using distraction techniques to keep them relaxed. The seemingly banal conversations reinforce a sense of normality. The conversations are urbane and link the patients and their families with the outside world; the day to day events of life. This relaxed, often humorous, interplay clearly helps the families to feel calm and confident that surgery is a common event; that while it is a new experience for them, the staff does this every day and they are calm and relaxed about it. The methodical procedures of checking, adjusting, writing, testing and tidying further reinforce this sense of normality.

(Journal entry No.36. 16/7/07)

The counselling service for patients and their families provided by the pastoral care workers was another example of this attention to the psychological and spiritual needs of patients. Identifying which patients might appreciate this service was yet another of the roles the nurses, in particular, played in supporting patients and families. A priest was just a phone call away to perform the Last Rites. A chapel was on the ground floor open 24 hours a day for private reflection.

Two pastoral care workers have been visiting patients for the past few hours. At first we thought they were visitors but they move from room to room. They don't wear the hospital uniform but do have photo ID. They sit with patients quietly talking for long periods of time.

(Journal entry No.31. 13/7/07)

Nurses talk constantly to the patients as they go through a sequence of checks (blood pressure, IV, pulse): "How did you sleep? How is your pain at the moment? Do you need anything for the pain? Have you had your breakfast? Have you been to the toilet? Do you need help to get into the shower?

(Journal entry No.34. 16/7/07)

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4. Workers educate patients in preparation for their return home.

Many workers were also responsible for preparing patients for life after leaving the hospital. Nurses were responsible for teaching patients new skills and encouraging them to have the confidence to continually move forward towards recovery.

> *Physiotherapists see each patient once a day for a few minutes and leave written instructions on a whiteboard in each room. The nurses are left to coax patients into getting out of bed and taking a few steps. Patients look shocked when confronted with the idea of getting out of bed "so soon?" Nurses are gentle but determined: "The doctor wants you to get up today and sit in the chair for a little while."*
>
> *(Journal entry No.13. 11/7/07)*

This process of recovery would continue once they go home. So it fell to the nurses and physiotherapists to encourage patients, just hours after their surgery, to become as independent as possible in their self-care.

> *The nurses are responsible for initiating the rehabilitation process on the wards. They must establish the expectation that patients need to become independent as early as possible. Family members are protective of their loved ones. They are defensive, and suspicious of any hint that a nurse is not doing everything possible for the patient. This must at times put workers in conflict with some family members.*
>
> *(Journal entry No.23. 9/7/07)*

The process of evaluation therefore took into account not just patients' physical capabilities but how well they were managing their pain, how confident they felt, how soon they were likely to be going home, to what kind of home and with what level of support. A questionnaire asked patients to identify specific risks they might face when they returned home; whether they had stairs to climb or someone to drive them home. Posters in the lifts reminded patients to tell the staff if they were going home alone.

Having worked in a rehabilitation hospital, the author was familiar with this educative process. She was taken aback, however, to see the principles and practices of self-management so central to the management of these acute surgical patients. Workers throughout the hospital took on the role of educators, explaining to patients how to put on compression stockings, how to roll over in bed, use a commode or walk with a frame. The explanation that "every effort is a step towards recovery" was a recurrent theme across the hospital.

> *Dressed in scrubs, we are sitting in the nurses' observation room looking into the two angiography laboratories. An angiogram is being performed in one, where the patient is awake but sedated. We can hear the conversation*

over the intercom. The surgeon is giving the patient a lecture about smoking as he points to the atheroma congealed in the artery he is attempting to probe.

(Journal entry No.27. 12/7/07)

5. Patient trust in the professionalism of hospital staff.

A surgical hospital is a unique work environment. Patients entrust their lives and future well-being to the hospital, and families entrust their loved ones. They therefore put their trust in the professionalism of the hospital staff.

The fastidious checking of details reinforces a sense that these workers do not make mistakes. The precision of the routine reassures patients that every member of the team is taking a personal interest in, and responsibility for their wellbeing. Their bags are safe and so are they. The arrows signify certainty about what is to be done and where. Patients are constantly reassured through the process of preparing for surgery by workers' attention to detail. The sense of routine and the predictability of the procedures normalise the surgical process. 'We know what to do, we've done it before, you can relax and be confident that we know what we are doing.'

(Journal entry No.35. 16/7/07)

6. Focus on the constantly changing medical needs of patients.

There was an ever-present focus on the medical needs of patients. The hallways were cluttered with hoists, chairs, walking frames, commodes, defibrillators, linen bags, all ready for whenever a patient was ready to take a step, use a toilet, request fresh sheets, or have their heart restarted. This contributed to a sense that every need was anticipated, every contingency prepared for, every request responded to. In the intensive care unit, nurses stood guard at the end of each patient's bed, constantly monitoring the vital signs that told them what they need to do to keep their patient alive, with a team of specialists nearby ready to step in and take charge when a change was indicated. In the angiography clinic, a team of nurses and doctors studied the scans intently to ensure the stent was open or the pacemaker was up to speed. Less glamorous but just as important, the gum-boots in the nursing unit bathrooms stood ready for when the more disabled patients needed hands-on help in their toileting and bathing. There was a strong sense that every worker was aware that their actions saved lives. There could be no stronger imperative.

The duress of family members who are unfamiliar with the post-surgical disorientation of their loved ones brings the focus of the staff back to attention and to the constant need for vigilance in meeting the medical and emotional needs of patients and their families.

(Journal entry No.9. 11/7/07)

In the nursing units there was a constant cycle of re-evaluating the changing needs and capabilities of patients. As a step was taken, the patient's chart was adjusted to reflect this new reality. An hour later, a

second step was expected and sought. Day by day a wheelchair was replaced by a walking frame, replaced by a crutch.

The project team began to realise that they had underestimated the pervasiveness of the patient imperative. Workers' constant vigilance in anticipating and responding to the medical, psychological and educational needs of patients clearly challenged their naïve plan to implement the health management program. It became apparent that a much more sophisticated and strategic approach would be needed if these workers were to be able to abandon their practice of patient focus to take some time to care for themselves. This would call for a much more significant 'paradigm shift' in worker's attitudes and behaviours than any of the project team had initially envisaged.

The situational analysis made the project team more aware of the many barriers they would need to identify and breach to establish the workplace health management program in each unit. Underpinning the roles and actions of each and every worker, the patient imperative was the prime directive. The team began to appreciate the importance of identifying times and locations to run the program that would not interrupt the flow of work. This gave rise to the generation of a new hypothesis: – Using times when workers are not directly responsible for the wellbeing of patients was necessary to enable the program to be successfully integrated into the daily routines of each unit.

Tables 5.1, 5.2, 5.3, and 5.4 summarise the concepts that emerged from the first situational analysis and underpinned the theories that then evolved. The relevant journal entries are reported in the appendices (Appendix 2) and are identified here by number.

Table 5.1.

Emergent concepts underpinning the theory of the patient imperative

Journal Entry	3	4	8	11	19	21	22	31	34	36	13	23	27	42	41	22	35	3	9	7	17
Concepts	Acceptance of personal risk Prioritising patient care over personal needs						Respect for the emotional needs of patients and families				Workers educate patients in preparation for their return home				Patient trust in the professionalism of hospital staff			Focus on the constantly changing medical needs of patients			
Theory 1	The patient imperative was the dominating priority within this work environment																				

The data identified four additional concepts that led to the emergence of a second theory.

1. Team work and interdependence.

[Operating theatre] At the reception desk, the nurses, assistant managers and clerks keep the flow of patients moving from the 'prepping' areas, through the surgeries and out into recovery, then back to the wards or ICU. As each patient leaves the surgery, a team of cleaners sweep in, the techs move equipment and adjust beds, nurses bring in more trays, surgeons confer with anaesthetists or study a laptop as the next patient is being positioned. Patient service assistants ferry patients back to the nursing units; the engineers arrive to adjust an operating table.

(Journal entry No.40. 18/7/07)

Workers had allocated roles and worked as interdependent members of a team. A surgeon could not begin to operate until the patient arrived in the theatre. The patient could not get to the surgery on time unless the patient service assistant collected her from her unit. The patient service assistant could not begin to transport the patient until the nurse completed his/ her observations ('obs') and gave the patient the right medication. The nurse could not give the patient the right medication unless the pharmacist has delivered the medication. The pharmacist could not deliver the medication unless the doctor has completed the prescription – every step was dependent on the step before. Each member of the team had a specific role to play; all were dependent on each other. One miscalculation, one missed step and a room full of surgeons, anaesthetists, theatre technicians and nurses were left waiting – the most heinous of crimes.

There was no more dramatic example of this sense of team work and interdependence than during the gas leak emergency in the operating theatre.

….. an alarm went off. The manager grabbed a yellow hard hat and announced on the intercom that a Code Yellow had been called and all surgical theatres were to be evacuated. I stood back and watched as eleven theatres were prepared for evacuation. Every worker in the area arrived from PACU and CSD, with the techs, ward clerk and cleaners ready to help wheel the patients out of their respective theatres. Three engineers arrived and reported that there was an oxygen leak in one of the theatres where a tradesman had been working. Before the patients were evacuated the code was cancelled and everyone was told to stand down, meaning the emergency was over, the patients were safe and everyone could return to where they had come from. The engineers were quick to point out that an 'outside tradie' had forgotten to turn off the oxygen while fixing a pipe.

(Journal entry No.11. 20/7/07)

The subsequent emphasis placed on the fact that an 'outside tradesman' had caused the fracas highlighted the sense that the workers within the hospital would never have allowed such a disaster to have occurred. The engineers, most of all, were determined not to bear the brunt of any such an accusation.

2. Communication, negotiation between colleagues.

There was a constant dialogue between workers as they negotiated a myriad of conflicting tasks and responsibilities. The negotiations were completed quietly and efficiently with a strong sense that this was the norm. Everyone accepted the need to share the load.

> *There is a lull of activity between 9.30 a.m. and 11.00 a.m. when nurses begin to disappear for their breaks. Before they disappear, they tell their nursing partner for the day to keep an eye on their patients and pass on their insights, "Mrs Vella is a bit teary this morning" or "Mr. Lucas is going to the Cath Lab at 11.30, I've booked Karen [the patient service assistant]". So even though there is less physical activity happening, the nurses' attention is constantly taken up with caring for their own patients, or those of a colleague on a break.*
>
> *(Journal entry No.7. 10/7/07)*

In the CSD department a worker who had already spent ten hours cleaning blood from the surgical implements agreed, unquestioningly, to continue working for a further three hours so that a team mate would not have to drive an hour to come to work for such a short shift. The work had to be done and it was expected that everyone would step up to maintain the effective functioning of the workplace.

3. All workers provide emotional support to patients.

Kitchen assistants stopped to check a patient's file so they could greet each patient by name as they deliver the breakfast tray; cleaners chatted to patients as they worked; unit clerks reassured partners and found vases for visitors' flowers; patient service assistants entertained patients and partners on their way to pathology; theatre technicians told jokes to patients as they waited for surgery. A pastoral care worker held the hand of a dying patient.

> *The auxiliary workers complete their allocated tasks as members of a team that focus on providing a friendly and helpful service to patients. Workers interact with each other and the patients.*
>
> *(Journal entry No.19. 13/7/07)*

4. The role of managers in facilitating team work.

The manager's donning of the yellow hard hat during the Code Yellow evacuation was symbolic of the leadership role of managers in each unit. Her subsequent co-ordination of workers during the emergency *(Journal entry No.11. 20/7/07)* reinforced the sense that it was the manager who was mandated to facilitate the team work.

There were several layers of management in each unit. Unit managers were rarely seen outside their offices, their deputies, (the assistant unit managers or supervisors) were more visible. The unit managers made appearances at handover meetings but more often than not remained ensconced in offices.

The unit manager, Maureen, has been in her office since handover. When a doctor arrives, she comes out to talk to him at the reception desk.

(Journal entry No.20. 13/7/07)

In the nursing units they relayed information from doctors to nurses during handover ensuring that the needs of each patient would be met by the nurses allocated to care for them. The nurse with the back injury was allocated to patients that did not require a high level of care. The new graduate nurses were paired with older, more experienced nurses. There was therefore a sense that facilitating team work was a core function of the unit manager in charge of each shift.

In the kitchen, the manager similarly put together teams to ensure the right mix of workers for each shift. The cooking was done early in the day so the chefs were rostered from 6.00 a.m. with the meal delivery workers starting at 7.00. Injured workers were allocated to menial tasks such as putting cutlery into plastic bags and folding napkins. In angiography the manager kept a watchful eye on the flow of patients from the waiting bays into the clinics to ensure the technicians were fed a steady stream of both patients and the support workers to minimise disruption to the flow of work. She seemed to have a formula; if there were more than three beds lined up she would pop out of her office and start her investigation.

In the operating theatres there were several layers of management. The unit manager rarely left her office. Her deputies constantly moved around the unit checking on the flow of work, encouraging workers to rotate duties, to take breaks, to be constantly alert to the needs of the surgeons. They were more relaxed and social, often stopping to chat with co-workers at the reception desk. The patient service assistants were constantly derided by managers of all units for being late. A glut of patient-loaded beds in a hallway would soon see the manager on the phone looking for the patient service assistant responsible for moving patients around the hospital.

While the theory that all workers have allocated roles and work as interdependent members of a team had emerged from these concepts, no specific hypothesis was generated as a result. The team decided this was an integral part of the patient imperative and the resultant need to identify times for the group program that would not disrupt the interactions between workers. It reinforced the notion that not only the needs of individuals had to be considered when seeking opportunities to implement the program, but also that any intervention considered would have implications for more than those immediately targeted.

Table 5.2. illustrates the emergent concepts underpinning the theory of team work and interdependence within units.

Table 5.2.

Emergent concepts underpinning the theory of team work and interdependence within units.

Journal Entry	7	13	17	19	23	10	17	20	25	30	33	36	19	31	36	20	29	29	32	37	38
Concepts	Communication and negotiation between colleagues					Team work							All workers provide emotional support to patients			Role of managers in facilitating team work					
Theory 2	All workers have allocated roles and work as interdependent members of a team																				

Three further concepts underpinned a third theory.

1. Individuality and variety of routines.

Each unit had complex and highly individualised routines that saw workers perform different roles in a variety of locations. The arrival of the chefs in the kitchen occurred at 6.00 am. A team of food services workers started soon after to check the orders and stack the breakfast trays before piling them onto trolleys and heading into the service lift to be distributed to patients in each unit. It was very clear that the timing of the arrival of breakfast was part of an intricate sequence of events. The kitchen workers were highly aware of their essential role in ensuring the flow of the morning's activities. The medical specialist's consultation could not be put on hold while a patient finished his cornflakes.

Patients are ferried around the hospital in their beds or wheelchairs, to and from the operating theatres, angiography clinics, consulting suites or heading home. Patient service assistants are responsible for transporting patients but usually have a nurse to help. This means a nurse is away from her other patients for however long it takes (5–7 minutes) to take the bed to the operating theatres on the second floor. The time variable is the lift that was often very slow to arrive. A lot of negotiating is done between the patient service assistants and the nurses and their colleagues to ensure that all the patients are looked after when a nurse leaves the floor.

(Journal entry No.8. 12/7/07)

2. Transitions between shifts as a point of contact and communication.

In the tranquil quiet I imagine running our program in the open space near the reception desk. I can picture myself with a group of workers enjoying the opportunity to stretch and breathe and spend some time together, preparing for the day ahead. When night transitions into day however, the open space suddenly disappears as does the peace and quiet. The reality of how frenetic the day really is hits me. The dark, quiet, emptiness abruptly converts to light, noisy, frenetic activity.

(Journal entry No.1. 9/7/07)

The project team became aware that any attempt to find a location where workers could come together would require a very intricate examination of the routines of each individual unit. Unlike a manufacturing plant for example where the machines can be turned off and workers can come together without the need for continuous vigilance, the hospital environment is unforgiving of interruption. Meal times, meeting times, surgery, scans, rest, obs, doctors consultations, physiotherapy, medication, showers, exercise, visitors, sleep, all dictate the order of a patient's day and in turn the routine of each unit and the availability of workers. During the transition between shifts the routines are even more rigid, with the

outgoing shift preparing to hand over and the incoming shift preparing to take over. There cannot be a gap in the continuity of care.

3. *Variability of routines within and between units.*

In the surgical nursing units the nurses' handover was run in the meeting room just near reception. This was initially identified by members of the team as an opportune location for the program. Communal meeting locations were less tangible for the kitchen, angiography clinic and CSD units as they had no handovers. In these units it was impossible to pre-empt when and where workers would go to take a break. In most areas, it was rare for groups of workers to take breaks together. In the operating theatres, the routines were even more unpredictable. A surgical procedure such as a knee replacement could take anywhere from one to three hours to complete, with a wide range of confounding variables that could not be anticipated. In the theatre, the tea room was either full or empty, but there seemed to be no way to predict if and when it would be either. Workers were constantly being called upon to back-fill shifts to cover deficits created by this unpredictability.

The routines between units were no less complicated. The routines of many of the units '*beat to the drum*' of the operating theatres.

> *In CSD the focus is on cleaning and sterilising the surgical equipment. A team of six workers (three men and three women) work in an isolated room next to the operating theatres. Their day begins after the first surgical procedure is completed, so the shifts start at 8.00 a.m. and go to midnight.*
>
> *(Journal entry No.44. 19/7/07)*

The dependence of all units on the availability of the patient service assistants to deliver patients to and from their various appointments reinforced a sense that the timeliness of one unit (having a patient prepped and ready to go) when the patient service assistant arrived significantly impacted on the routines of other units.

The project team acknowledged that the plan to introduce group exercise programs would be challenged by the unpredictability of the routines of each unit which dictated the availability of workers. The hypothesis confirmed that both time and location were dependent variables that would be constrained by the patient imperative. Hypothesis two therefore, postulated that using locations that can be easily accessed and will not disrupt the flow of work will allow the program to be successfully integrated into the routines of each unit. Table 5.3. outlines the emergent concepts underpinning the theory of variety and complexity of routines between units.

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Table 5.3.

Emergent concepts underpinning the theory of variety and complexity of routines between units.

Journal Entry	1	7	9	14	6	8	25	32	43	5	6	8	15	25	33
Concepts	Transitions between shifts as a point of contact and communication				Individuality and variety of routines					Variability of routines within and between units					
Theory 3	There are complex and highly individualised routines in and between every unit														

Two additional concepts led to the emergence of the fourth theory

1. Older workers gained confidence, credibility and the respect of patients, families and colleagues by virtue of their experience.

There appeared to be two distinct groups of workers in every unit; a cohort of older workers and another much younger group. For the older workers the routines and inter-relationships with other workers appeared effortless. They were self-assured; they maintained eye contact with patients and families and did not hesitate at the door of a patient or study the theatre list assiduously. They gave instructions, they had an ease in their interactions with both patients and families, a quiet assurance. The older kitchen workers were more likely to address a patient by name, to stop for a few seconds to chat while they delivered a meal. Patients and families seemed to respond to the confidence of these workers. A family member would often follow an older worker out into the hallway for a private conversation.

2. Younger workers lack confidence, are more methodical and lack the respect of patients and families.

The younger researchers in the project team were particularly alert to the inter-generational differences they observed. They felt strongly that the younger workers, particularly the new graduates, lacked the confidence and assurance of their older and more experienced colleagues. In many instances they were deferential, seeking the opinions and reassurance of their older counterparts. This seemed to be the natural order, with younger, less experienced workers being paired with an older colleague. New graduates stood out in their non-hospital uniforms, hesitant, a little agitated at times, more methodical. They stopped outside a room to read through the medical file and went back to the reception desk more often to check instructions. Younger workers had a clear understanding of the parameters of their role, ready to defer to or seek the intervention of their more experienced colleagues.

Seven family members speaking a foreign language arrive with bags of food and all crowd into a patient's room. The patient has a shared room but the family takes over all the chairs, and a couple sit on the floor. They have been here for hours, all eating and talking loudly. A young nurse goes into the room and asks them to be quiet. They ignore her. Later she asks them to wait outside the room. Again they ignore her. She raises her voice and says, "I need you to wait outside," indicating the door with her hands. She does this several times but they do not move and continue to talk amongst themselves. She goes to her manager, Maureen who enters the room, orders the visitors to leave. All seven get up straight away and leave.

(Journal entry 39. 17/7/07)

Two young nurses attempt to move a frail elderly woman from her bed onto a chair. The woman has had both legs amputated, cannot communicate, has not been out of bed for several weeks and is very listless. One nurse wants her colleague to help her to lift the woman manually while the second nurse insists they use the hoist. They agree to use the hoist but cannot find the safety net. They decide to use two slings instead which they try to wrap under the patient's hips. The nurses eventually lift the woman using the hoist but I am horrified to see the patient slip from the hoist and fall precariously down into the chair. The nurses manage to save her from falling onto the floor but the woman has no underwear on and is left exposed to the passing traffic. She looks aghast. The nurses hurriedly close the door.

(Journal entry No.8. 17/7/07)

Patients' medical files are kept on shelves just outside the patients' rooms. The daughter of a patient took the file from the shelf and started reading.

Young Nurse: Can I help you?

Patient's daughter: No that's okay I just want to see how my dad is doing (continuing to read the file)

Young Nurse (Taking the file hesitantly from the woman): If you have any questions you can ask me and I will help you.

Patient's daughter: I really want to talk to my father's doctor.

The young nurse goes and asks Maureen [manager] to talk to the woman.

Families rarely see the doctors who do their rounds in the morning. They accept the reassurance and information from older nurses more willingly than from younger nurses. The younger nurses have less credibility and confidence than their older, more experienced counterparts. The manager plays the role of spokesperson for the doctors. The young nurse acknowledges the experience of her manager in helping to negotiate with a family member who is determined to get the information she wants.

(Journal entry No.28. 12/7/07)

Some patients and their families had difficulty respecting the opinions of the younger nurses and sought the reassurance of older workers. The project team observed numerous examples of younger nurses being talked over, ignored, admonished and generally treated with less respect by their colleagues, patients, visitors and, in particular, doctors. They also noticed that younger workers (nurses in particular) appeared to have an inordinate presence during the more physically demanding morning shifts and less desirable night shifts.

There are more young nurses than older nurses on the morning shift when the work is more physically demanding (e.g. showers).

(Journal entry No.33. 13/7/07)

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This reinforced the perception that younger workers had less say in the running of the unit. The older workers set the rosters. The hierarchy of control between the manager and the medical team (where the manager relayed instructions to the junior nurses) highlighted this observation.

> *The older nurses go straight into the patient's room and introduced themselves while younger nurses stop to check the medical files and take detailed notes.*
>
> *(Journal entry No.34. 16/7/07)*

The realisation that younger workers lacked confidence and authority challenged the project team's plan to induct a broad representation of the workforce into the program as trained group leaders. They were also aware that the younger nurses may have seen the program as an unwelcome distraction from their allocated roles. While the older nurses seemed to work innately, the younger nurses followed a more methodical approach to their work. Without confidence and authority, it was difficult to imagine younger, less experienced (but potentially fitter and more enthusiastic) workers participating in the program, much less being given the opportunity to undertake leadership roles. More insights were needed to understand the nature of these relationships before a strategy could be developed to identify and train leaders within each unit to run the groups exercise program and to mentor workers returning to work post injury. The third hypothesis set out to test whether training workers who have confidence and authority to lead the group exercise program would enable the program to be sustained. Table 5.4. illustrates the emergent concepts underpinning the theory of the value of experience in leadership.

Table 5.4.

Emergent concepts underpinning the theory of the value of experience in leadership

Journal Entry	2	4	9	11	16	20	29	30	34	28	33	34	38	39
Concepts	Older workers gained confidence, credibility and the respect of patients, families and colleagues by virtue of their experience									Younger workers lack confidence, are more methodical and lack the respect of patients and families.				
Theory 4	Experienced workers have more confidence and credibility than younger, less experienced workers													

Hypotheses generated from the Situational Analysis.

The situational analysis had set out to test the third starting hypothesis regarding the identification of a time and location to conduct the program. The data revealed a plethora of unexpected complexities leading to the rejection of the third hypothesis (Pre:H3) and the emergence of four theories which generated three new hypotheses. The four theories were:-

1. The patient imperative was the dominating priority within this work environment
2. All workers have allocated roles and work as interdependent members of a team
3. There are complex and highly individualised routines in and between every unit
4. Experienced workers have more confidence and credibility than younger, less experienced workers

From these four theories three hypotheses emerged:

H1: Using times when workers are not directly responsible for the wellbeing of patients will enable the program to be successfully integrated into each unit

H2: Using locations that can be easily accessed and will not disrupt the flow of work will allow the program to be successfully integrated into the routines of each unit

H3: Training workers who have confidence and authority to lead the group exercise program will enable the program to be sustained.

The project team concluded that identifying suitable times, locations and leaders for the program would require a highly sophisticated appreciation of the roles and routines of each unit.

Implications.

The implementation plan for the program had been submitted as part of the funding application. The plan was developed as a result of the author's experiences during the pilot program in the kitchen and operating theatre only, but not in any of the other 25 units around the hospital. The author had virtually no experience of the routines of the nursing units, the angiography clinic, the sterilising unit or many of the other units within the hospital. The implementation plan was therefore based on a number of false assumptions, none the least of which was that the routines of all the hospital units would be similar. What this initial situational analysis proved unequivocally was that each unit had highly complex and

individualised routines and relationships. As the aim of the project was to embed the program into the routines of each unit, it was naïve to have assumed that the routines within each unit would be as malleable as they had been in the kitchen and operating theatre.

The project team also reflected on the theories that had emerged from the initial situational analysis. The imperative for workers to be constantly attuned to the changing needs of their patients had followed a different pattern in the kitchen and the operating theatre. In the kitchen there were no patients and in the operating theatre, patients were all unconscious! Neither unit was staffed twenty-four hours per day seven days a week as was the case in the nursing units. The constant focus on the medical, psychological and educational needs of patients introduced a new set of variables that needed to be understood and factored into the implementation strategy.

In their observations around the hospital, the project team also encountered a much broader range of worker roles than they had experienced in the pilot. They came to recognise the interdependence across units, and that not all workers were attached to a unit team. Patient service assistants, for example, floated between units, whereas engineers, nurse educators, pharmacists, pathology workers and hygienists were all unattached to a specific unit team. In addition these workers did not attend hand-over meetings nor did they participate in communal break times. Many started at different times and were not present at the beginning of a work shift. A much more complex set of variables needed to be examined if 'all workers' were to be included in the program.

In the kitchen and operating theatre, younger workers had shown initiative in taking on leadership roles and on this basis a set of hypotheses had been framed and accepted that the situational analysis called into question, introducing the team to an intergenerational issue that they had not previously witnessed. Older workers in the nursing units in particular were more self-assured and confident than their younger counterparts. This challenged some of the perceptions about which workers would, and would not, make effective group leaders. The model (and the five propositions upon which the model was based) had therefore failed to take into account the individual characteristics of the other twenty five units within the hospital.

The evidence for the initial situational analysis cast doubt on the hypotheses that had been proposed to guide the implementation of the project. The project team therefore agreed further data were needed and additional hypotheses might need to be formulated before it would be possible to proceed to the implementation of the program. They brainstormed different ways that they might identify times, locations and leaders in each unit and developed a series of strategies to overcome the barriers they had identified in the first situational analysis.

To develop realistic and meaningful strategies the team developed the following plan:

1. Identify the desired outcomes
2. Formulate the strategies that are consistent with the hypotheses
3. Analyse the theory and develop the hypotheses that will lead to the identification of appropriate strategies.
4. Identify the theories that have most relevance to understanding the situation

Table 5.5 demonstrates the process undertaken to identify strategies for the next stage based on the hypotheses arising out of the initial situational analysis.

Table 5.5.

Strategies arising from the hypotheses developed out of the first situational analysis

Desired outcomes	Theory		Hypothesis	Strategies
All workers will participate in the group exercise program	The patient imperative was the dominating priority within this work environment	H1	Using times when workers are not directly responsible for the wellbeing of patients will enable the program to be successfully integrated into each unit	Do not attempt to challenge the patient imperative
				Interview workers to identify times when workers are not responsible for patients
				Interview managers to identify when workers are not responsible for patients
				Encourage members of the executive to participate to encourage workers to see value in the program
The program will be run every day in each unit	All workers have allocated roles and work as interdependent members of a team	H2	Using locations that can be easily accessed and will not disrupt the flow of work will allow the program to be successfully integrated into the routines of each unit	Interview workers to identify appropriate locations
				Interview managers to identify appropriate locations
				Trial various locations; seek feedback from participants and focus groups
				Consult with Health and Safety team regarding the suitability of locations
Confident group leaders will continue to run the group exercise sessions after the one month trial	Experienced workers have more confidence and credibility than younger, less experienced workers	H3	Training workers who have confidence and authority to lead the group exercise program will enable the program to be sustained	Develop a strategy to identify and recruit confident workers
				Model group leadership during one month trial
				Provide training and support to leaders
				Provide ongoing support and mentoring to leaders
				Seek feedback from leaders via focus groups
				Provide a training manual, posters and ongoing support

Situational Analysis 2

The second phase of the situational analysis sought to address the three hypotheses generated in the initial analysis by seeking the views of workers. The team recognised the need to seek the input and involvement of workers to develop and implement the program. The team recognised the possibility that this process of engagement with workers may result in the need to modify the hypotheses, reconstruct the theories of even abandon the current desired outcomes and seek new ones. They agreed that they needed to be open to this possibility.

Emergent concepts and theories.

Eight concepts emerged from the data collected during the second situational analysis. From the analysis of these concepts two new theories evolved. The first four concepts underpinned the fourth emergent theory. Four more concepts led to the identification of a fifth theory.

1. Martyrdom to the cause.

The perception seems to be that if you are on your feet all day, you have to expect back pain, sore feet and aching legs – "Everyone feels this way at the end of a shift."

(Journal entry No. 68. 30/7/07)

Workers constantly monitor changes in their patient's health but fail to reflect on how their work impacts upon their lives or their own health. The interviews drew the project team's attention to the recurring concept of martyrdom. Consistent with but going beyond the observations from the first situational analysis where the theory of the patient imperative was identified, the team became increasingly aware of the strong desire of workers to not just prioritise patients' needs but rather point out examples of their selfless commitment to their patients.

Forty-seven year old Heather has had low back pain (perceived pain level 8/10 at worst on a visual analogue scale of 0–10; 10 being extreme pain) for three weeks. She works full-time and argues that she doesn't have an injury, "just back pain." She does no exercise outside work and argued against my suggestion that she work non-consecutive days to aid her recovery. She insists on working consecutive days because she likes to nurse the same patients.

(Journal entry No. 57, 47/7/07)

Similarly, workers were also keen to provide evidence of their commitment to their colleagues and their allegiance to the team. Workers' willingness to put up with pain, hunger and fatigue rather than question

their right to a short restorative break was testimony to the powerful pull of belonging to a team and the need to be seen to be committed to the work ethic of the organisation.

All but one of the 20 workers interviewed said they felt tired at the end of the day and said that they didn't realise how tired they were until they actually finished work. They all said that they were usually pain free at the beginning of a shift and realised at the end of the day that they had pain (back/shoulder/feet/neck). Many reported not taking regular rest breaks – some don't usually have a lunch break.

(Journal entry No. 65, 30/7/07)

While the managers did encourage their workers to take breaks, they themselves did not stop to have a lunch break, preferring to eat at their desk as they continued to work.

2. Acceptance of inevitability of pain/injury associated with work.

The interview data concurred with the previous observations that workers saw pain and injury as an accepted consequence of the work they were required to do.

She has pain "everywhere" but does not know why: "…the old age, it is the old age, my bones are creaking everywhere" she explained self-deprecatingly. She seems very accepting of the inevitability of this pain and has not spoken to her doctor about it: "what's he going to do? He can make me young again?"

(Journal entry No. 66. 30/7/07)

".....you have to expect back pain, sore feet and aching legs – "Everyone feels this way at the end of a shift."

(Journal entry No. 68. 30/7/07)

3. Professional ethos.

The patient imperative underpinned the personal and professional ethos of the permanent hospital employees. This principle appeared to be endemic throughout all units and was an integral and long standing fixture within the hospital culture. Hospital employees' animosity towards agency workers highlighted this phenomenon.

Many workers report that they regularly skip breaks. The reasons given were 1) when their unit was short staffed or 2) when there was a lot of agency staff on. Three people said agency workers were slow so it was hard to take breaks; agency staff always takes their breaks. "If I come to work and I see a whole lot of agency staff I know I'm going to be run off my feet all day. They just don't see what needs to be done and don't jump in and help."

(Journal entry No. 52, 24/7/07)

According to the permanent workers, the agency workers had a very laissez-faire attitude towards their commitment to patients and colleagues. They lacked commitment to the dominating priority within this work environment; the patient imperative, as demonstrated by their insistence on working slowly, lacking initiative and, most galling of all, taking scheduled rest breaks. They worked to rule. While agency workers had the choice to work slowly, to take breaks and not to take initiative, permanent workers chose to dedicate themselves to the needs of their patients. Implicitly, agency workers chose not to.

Maureen [8th floor manager] agreed that agency workers are less efficient and less flexible about when they take breaks. "It's a vicious circle… the more injured nurses I have, the more agency staff I need, which puts more pressure on my nurses, which causes more injuries."

(Journal entry No. 53, 24/7/07)

The sense of having a choice polarised the workforce between those who shared the professional ethos and those who functioned outside of it. The choice not to take a lunch break seemed to be the benchmark of a worker's dedication to his or her work. The agency workers always took their breaks while the permanent staff soldiered on, subjugating their own wellbeing for that of their patients. The fact that the managers acknowledged this difference, and in a sense actively supported this behaviour and failed to take breaks themselves, highlighted the fact that the martyrdom to the cause was integral to the culture of the hospital.

4. Culture of non-reporting.

Of the twenty 8th floor workers interviewed [16 non-injured, 4 injured], only four had reported their pain to the manager while twelve reported that they regularly experienced back pain which they had not reported because they did not consider themselves to be injured. All twelve wanted assurance that their interviews were completely confidential. They did not want anyone to know they experienced back and / or shoulder pain.

(Journal entry No. 64, 30/7/07)

Workers were generally wary about sharing personal information and there were numerous examples of encounters with workers who would confide during an interview that they had pain, fatigue and ill-health but were anxious for this information to stay confidential.

> *More than 50% of workers interviewed reported experiencing pain every day but less than 25% reported their*
> *pain to their manager. Workers are reluctant to identify their ongoing pain as an injury.*
>
> *(Journal entry No. 64. 30/7/07)*

This attitude was more prevalent amongst older workers.

> *Maureen [manager] is worried about her [a 65 year old nurse] because she seems to be moving very slowly, is*
> *very thin and pale and looks to be in pain. She has not reported an injury and told Maureen she was "fine" but*
> *Maureen is unconvinced.*
>
> *(Journal entry No. 62. 30/7/07)*

At the same time these same workers seemed keen to point out examples of their dedication to their patients, as if wanting affirmation that they were 'measuring up' to the commitment of their colleagues and the expectations of the organisation.

> *Mina is a 34 year old Division 1 nurse who sustained a low back injury six months ago. Initially off work for*
> *three days, she has continued to work full-time since, with intermittent pain and occasional 'tingling' in her left*
> *foot. She has had no treatment and "puts up with the pain."*
>
> *(Journal entry No. 49. 23/7/07)*

From the analysis of the interview data the theory that "the hospital culture espoused values that were incongruent with personal health management practices emerged." The project team felt daunted by this revelation. If the organisation condoned the practice of workers not taking regular rest breaks in a culture of non-reporting of injuries, introducing practices that challenged these fundamental beliefs would require a seismic ideological shift. As the cornerstone of the hospital culture, the notion of martyrdom was a key element of the professional ethos that was not going to be easily over-turned. The project team realised that to attempt to do so would require a very strategic and collaborative approach. It would need the active participation of all the managers both within the participating units and the executive team to convince workers that the organisation valued their health and wellbeing alongside their commitment to the patient imperative. Although the unit managers had indicated their willingness to participate in the program, no such commitment had been sought from the executive team.

The external funding for the project had negated the need for the executive to make a financial commitment to the project. They had indicated their willingness to allow the program to be implemented in the hospital, to participate in the advisory committee and leadership training programs but had not been required to examine or adapt, at an organisational level, the culture within the hospital. This would need to be redressed before the program could be implemented to ensure that workers had the 'permission' of the senior executive to change some of their ingrained cultural beliefs and practices.

Revised hypothesis for future investigation.

The project team saw unit managers' modelling of poor health management behaviours as a model for the martyrdom culture they had observed throughout the interviews. Evidence to support this observation included managers 1) acknowledging that workers missed breaks, 2) doing nothing to insist that workers take regular breaks, 3) having one operation for agency staff and another for permanent workers and 4) not demonstrating appropriate health management practices themselves. The hospital culture encouraged workers to sublimate their own needs and wellbeing and this message was actively reinforced through the role modelling of unit managers. From this analysis a fourth hypothesis was generated: If managers are consistent role models, workers will learn to prioritise their own health needs.

Table 5.6 illustrates the emergent concepts underpinning the theory of the hospital culture that emerged from the interviews of the second situational analysis.

Table 5.6.

Emergent concepts underpinning the theory of the hospital culture

Interview data	47	65	66	68	62	64	66	52	53	58	49	62	68
Concepts	Martyrdom to the cause				Acceptance of inevitability of pain/ injury associated with work			Professional ethos			Culture of non-reporting (pain, fatigue, injuries, ill-health)		
Theory 5	The hospital culture espouses values that are incongruent with worker health management practices												

Multiple barriers to change current health management behaviours.

The project team observed four main barriers to change that they grouped under the category 'barriers to change health behaviours.' 1) Acceptance of pain and fatigue, 2) Lack of awareness of health status, 3) Ignorance of risk levels and 4) Personal engagement of injured workers. They then attempted to investigate whether there were any links between these profiles and the five stages of change from Prochaska's transtheoretical model (Prochaska & DiClemente, 1982). They believed that the TM may provide insights for the development of strategies to overcome barriers to participation. The model's *stages of change* structure was used to question the data in the context of 'what' a person's behaviour was and 'where' it was in the process of change (Bulley et al., 2007). In this context, it was used to examine willingness to change health management behaviours.

One group of workers were seen to be in denial of the changes associated with ageing and continued to perform physical tasks that were beyond their functional capabilities as if to prove that they were just as capable as their younger colleagues. The refusal of some workers to wear glasses despite their obvious difficulty reading a patient file is but one example of this group of older workers who were unaware or unwilling to acknowledge the physiological changes that were occurring as they became older. A simple adaptation such as wearing reading glasses would have been an acknowledgement that they were getting older. There was a defensiveness about this group of workers. A very fit 73 year old nurse working part time in the operating theatre was a good example of this phenomenon, insisting on performing all the physically challenging duties of a theatre nurse until she injured her shoulder. She had not recognised that her functional capacity to lift heavy surgical instruments had diminished. Had she modified her work practices to accommodate these physiological changes she may have been able to continue to work into older age.

In this group the behaviour associated with 'age' that needed to be changed was their refusal of the need to work within their own limitations (or increase their limitations by improving their health management practices). This group was categorised as *pre-contemplators*, workers who were quick to dismiss any suggestion that they were any less capable than they had been in the past. Many of these workers believed they were fit because they were physically active at work. Many of their friends (and husbands) were less physically active which reinforced the sense that performing physical activities at work was enough to keep them fit. Many of these workers were overweight but believed because they were "*on their feet all day*" there was no need for them to do any other form of exercise. They failed to understand that the repetitive nature of their work, (mopping, dusting, pushing hospital beds, and attending to patients) put them at risk of both injury and chronic diseases associated with a lack of cardiovascular fitness and balanced muscular strength and endurance.

The team reflected that these workers could struggle to engage in the program if they felt confronted by the reality of their diminishing capabilities. This would be particularly confronting in a group exercise setting where younger, fitter, more agile colleagues had significantly greater functional capacity.

The third group were categorised as those with 'multiple responsibilities outside work' and were invariably *pre-contemplators*. .These workers (generally women) spoke of caring for their own children and ageing parents while working. Some had families in other countries for whom they felt responsible, ailing husbands, pregnant wives, second jobs, study, extended families and even multiple pets. The team perceived that collectively these stories represented a cohort that was embarrassed by their lack of commitment to their own health management. Many were overweight and when questioned about their health management practices quickly diverted the conversation to their responsibilities as if to assure the interviewer that they knew what they needed to do, but did not have time to attend to their own needs because of their multiple responsibilities outside work.

> *Martina is 32 years old, has two young children and is morbidly obese. She has worked full-time as a PSA for seven years, transporting patients around the hospital. She lodged a worker's compensation claim for a knee injury but continued to work full-time on unmodified duties. She agreed to participate in a Functional Restoration Program. The hospital paid her to attend three sessions per week and sponsored her for a three-month gym membership. She attended regularly for the first three weeks but then argued that she didn't have time to continue because her garage was full of storage boxes that needed to be organised.*
>
> *(Journal entry No. 60. 28/07/07)*

The project team reflected that Martina refused to accept that the choices she was making would inevitably impact upon her health and her ability to continue to work. Despite the hospital's commitment to her, she could not make the same commitment to herself.

An extreme example of this was observed in a sub-group who added selflessness to multiple responsibilities. They took their selflessness to another level, bringing together every conceivable barrier to prioritising their own health. These workers never ate breakfast, had no time at work to take breaks because they were caring for patients and helping out their colleagues, had volunteered to take on extra duties, worked extended shifts and had not had a holiday in years (the record was a kitchen worker who had worked seven days per week for five years without more than a few days off until she sustained a workplace injury). Several workers had unclaimed long service leave that they were saving up until they retired. All seemed to have ailing parents, siblings that needed money, children that refused to leave home, bills that could not be paid, houses in need of repair, and that was before they started on the unending needs of their children's orthodontic bills and ballet classes, the list was endless.

I met with Sandra who had interviewed three nurses. We compared stories and read each other's interview descriptions. Many workers are getting up at 5 a.m., taking kids to crèche or a family member, driving 40 minutes+ to be at work by 7.30 a.m., collecting kids after work, caring for their own families and often their elderly parents/ in-laws. (Journal entry No.46 23/7/07)

Barrier 1: Acceptance of pain and fatigue.

The interviews confirmed previous observations that pain and fatigue at the end of a work shift were considered inevitable consequences of being a committed team member. So much so that workers did not perceive chronic pain to be an injury per se. Workers would report an *injury* if a specific incident caused pain (a trip, fall or collision) but would not report ongoing 'non-injury' related pain. Workers who reported experiencing pain during the day did not perceive that this pain was the result of their own lack of fitness or to changes in their functional capacity. Their definition of an *injury* related to a particular incident rather than an ongoing experience of chronic pain. This suggested a lack of awareness of cause and effect.

The team observed that older workers (40+) were dismissive of questions about whether they experienced pain or fatigue: "No, just the usual aches and pains." They were generally more covert about their health issues than their younger counterparts: "No, no nothing, I am absolutely fine, thank you for asking." (Journal entry No. 56. 25/07/07)

The members of the second group took personal responsibility for their fitness and were categorised as *maintainers.* Many of these workers were enthusiastic about the group exercise concept while for others the concept clashed with their professional ethos.

[Kokoda Kathy] "I come to work to look after patients, not to exercise." She said "I get plenty of exercise walking to and from work every day." She also said she would not help run the sessions because she believed, "everyone should be doing their exercises in their own time." (Journal entry No. 59. 29/07/07)

Barrier 2: Lack of awareness of health status.

The team had not specifically set out to assess the transtheoretical stages of individual workers, their observations however indicated that the hospital's workforce appeared to follow the consistent pattern of stage distributions determined by more structured studies which had found that the distribution was consistently 40% of Pre-contemplators, 40% in Contemplation, and only 20% in Preparation (Laforge et al., 1999). The developers of the TM had theorize that "if only 20% of employees in an organisation are

prepared to take action, it should come as no surprise that a majority of action initiatives fail" (Prochaska & Levesque, 2001, p. 249).

The project team reflected upon these observations in the context of the TM's insights into individual's readiness to change. The lack of awareness of physical changes emerged as a consistent concept from the observations and interviews. Unfit workers took pain and fatigue at the end of a shift for granted.

> *All but one of the twenty workers interviewed said they felt tired at the end of the day and said that they didn't realise how tired they were until they actually finished work. They all said that they were usually pain free at the beginning of a shift and realised at the end of the day that they had pain*
>
> *(Journal entry No. 65. 30/07/07)*

Fit workers saw physical activity as an investment in their ability to continue to work pain free into older age. Unfit workers were unaware of how their work impacted upon them physically. They either did not recognise or refused to acknowledge that the pain and fatigue they experienced at the end of a work shift was linked to their own poor health management practices.

> *Heather has had low back pain for three weeks….she works full-time and argues that she doesn't have an injury, "just back pain." She does no exercise outside work. She was adamant that she did not need any help, did not want to learn how to manage her injury or to participate in a rehabilitation program.*
>
> (Journal entry No. 57. 27/07/07)

They did not appreciate that these outcomes could be mitigated by changing their health management behaviours. Entrenched behaviours of selflessness coupled with a preoccupation with multiple responsibilities outside work were barriers that enabled workers to ignore what the *maintainers* fundamentally understood; if you want to feel good at work you need to maintain your fitness, take rest breaks and eat and drink well regularly.

> *"If you want to feel good at work, you have to be fit– it's as simple as that."*
>
> *(Journal entry No. 59. 29/7/07)*

Theory two identified the potential to bring awareness to workers of their role in learning to change their own health management behaviours.

This tendency towards self-effacing rather than self-efficacious behaviour was clearly a very significant barrier to the team's plan to encourage workers to become more physically active. It was also apparent that unfit workers did not see themselves as being at increased risk of injury. This was particularly the case

with many of the workers who had been trained in other countries. Unfit workers, unaware that they lacked the functional capacity to cope with the physical demands of their work, were oblivious to the risks involved in mopping floors, pushing beds and transferring patients. They were similarly unaware that if they did become injured, their lack of fitness would significantly impact upon their recovery and subsequent ability to return to work. The PSA with the injured knee *(Journal entry No. 60. 28/07/07)* demonstrated the extent to which entrenched attitudes and behaviours limited a worker's ability to accept the need for change.

The acceptance that "everyone feels this way at the end of a shift," suggested that workers did not recognise pain and fatigue as symptoms of ageing, lack of physical fitness or poor nutrition. Workers' strategies for personal coping often seemed to be predicated on the belief that pain and fatigue were inevitable outcomes of the physical nature of their work. Kokoda Kathy *(Journal entry No. 59. 29/07/07)* proved that, despite her age, her fitness enabled her to continue to work beyond retirement age, pain free.

Barrier 3: Ignorance of risk levels.

Workers did not recognise changes in their functional capacity and were reluctant to acknowledge that the pain and fatigue they experienced could be the result of age-related physiological changes. They therefore did not recognise a correlation between their fitness and changes in their functional capacity. Their ignorance kept them in a pre-contemplative stasis as they did not see the need for change. This explained their unwillingness to take responsibility for maintaining their fitness to prevent injuries. The project team therefore agreed that marketing the program as a way of preventing injuries by improving functional capacity would be ineffective.

This was a significant shift from the way the original program had been conceived. The focus had initially been on injury prevention. If workers didn't perceive themselves to be at risk of injury, they were unable to recognise that they were injured, the injury prevention message would be ineffective. So while the outcomes of the program remained based on injury measures, the strategies to achieve these outcomes has significantly shifted as a result of the data generated within the second situational analysis.

Barrier 4: Personal engagement of injured workers.

The injured workers that participated in individualised functional restoration programs had each experienced an epiphany as they came to realise that in most instances it was their lack of functional capacity that had led to their injury. At the same time they had the powerful experience of recovering from their injury during the process of regaining their functional capacity through physical activity.

"I am fitter now than I was before I hurt my back. If I had realised that all I had to do was some exercise everyday maybe I wouldn't have ended up with all that pain. Now I go to the pool three times every week to do the exercises and I feel really good."

(12/7/07 Injured nurse 8th floor)

"When I hurt my back only the exercise help me. I tried lots of drugs, I nearly had to have an operation but then I start the exercise with (author) and slowly slowly I get better. Every day I do my exercise in the morning and I don't have the pain anymore. I tell everyone, do the exercise so you don't get the back pain."

(21/7/07 Injured kitchen worker)

The injured hospital workers were referred to the author by their treating doctors. The referral from the doctor sent a message that physical activity was an important part of the recovery process. Injured workers were receptive to the rehabilitation process because of the endorsement of their doctor. They were willing to try physical activities that challenged them both physically (stretching, strengthening, cardiovascular training) and emotionally (wearing bathers to exercise in the hydrotherapy pool, entering a gym for the first time, sharing personal health information, being weighed).

"I had never be a strong swimmer and wasn't sure about getting in the pool but it has just been the best thing I have ever done. The warmth of the water helped me to relax and I could do exercises in the water that I could never do on land. I am a total convert. I will never let myself get so unfit again and I love the fact that I can do hydrotherapy as I get older to keep fit."

(18/7/07 62 year old theatre nurse)

Injured workers embraced the opportunity to learn how to manage their health more effectively because they wanted to rid themselves of their pain, reduce their dependence on medication, regain their energy and resume work. The project team reflected on the experience of the engagement of these injured hospital workers and the transformation they had undergone to progress through several transtheoretical stages to become *maintainers* of positive health management behaviours. They identified that the rehabilitation process had mirrored Bandura's theory of triadic reciprocal causation. Having sustained an injury that caused them pain and precluded them from work these workers were receptive to reconfiguring their belief systems (personal characteristics) about prioritising their own health (emotional arousal/coping). They engaged in the rehabilitation process (self-efficacy) to build their behavioural capacity through a process of education and positive reinforcement of behaviour change (reductions in pain, reduced dependence on medication, increases in energy and resumption of work). Through this process of experiential learning and reinforcement these workers were able to self-regulate and become maintainers of their own health management. What's more, they also became avid advocates for the role of physical activity in the prevention and management of injuries.

The project team then reflected upon the SCT regarding observational learning and identified the opportunity to capitalise on the enthusiasm of these injured workers to engage the broader hospital community. The team hypothesised that injured workers could make effective group leaders for the daily group exercise program, as role models for other injured workers and to encourage co-workers at risk of injury to seek assistance before they sustained an injury. Through *Social modelling,* the likelihood that if people saw others like themselves succeeding through sustained effort, non-injured workers would come to believe that they could be successful. Through S*ocial persuasion,* workers' beliefs in their efficacy by would be strengthened through the encouragement and example of injured workers. The engagement strategies that had converted the injured workers were identified as potential engagement strategies for the broader workforce, in particular personal experience to change pain and fatigue.

Revised hypothesis for future investigation.

The team observed that injured workers were well placed throughout the organisation, had credibility and first-hand experience of the personal gains to be made through involvement in an exercise program. The team sought to engage injured workers to help their colleagues see value in the program to increase their energy and reduce their pain at the end of a work shift. They agreed that these two outcomes would be more effective engagement strategies than a focus on injury prevention, particularly as so many workers did not recognise themselves as having injuries. To test their theory they identified a fifth hypothesis: - Identifying opportunities for personal gain will encourage workers to engage in the program.

Table 5.7 outlines the emergent concepts underpinning the theory of the need for personal engagement to overcome multiple barriers to behaviour change.

Table 5.7.

Emergent concepts underpinning the theory of the need for personal engagement

Interview data	46	54	57	59	60	50	56	57	60	45	46	55	57	61	49	52	53	60
Concept/s	Multiple barriers to change current health management behaviours					Acceptance of pain and fatigue as a consequence of hospital work				Lack of awareness of health status and ignorance of risk levels					Personal engagement of injured workers			
Theory 6	The need for personal engagement of participants to enable them to overcome multiple barriers to behaviour change																	

Strategies developed to strengthen the hypotheses.

Three strategies were developed to strengthen the hypotheses: 1) Peer support, 2) Harnessing cultural diversity and 3) Team culture resists change.

1. Peer support.

Worker's reliance on each other as members of a team was a recurrent theme observed by the project team. Linked to the concept of the patient imperative, each worker relied on his or her colleagues to enable them to complete their role. Confirming the observations from the first situational analysis, every contribution was an integral part of the whole, and if one worker let the team down, the ability of the team to deliver on the patient imperative was undermined. There were countless examples of the role of peer support observed every day in every unit. The culture of peer support was well established in the hospital and the project team identified this as a potential lever to encourage participation in the program. As one of the five original propositions that had been identified in the literature, the second situational analysis confirmed that peer support could play an important role in the implementation and sustainability of the program.

> 35 y.o. Div.1 nurse: "I'm happy to do it but I already go to the gym three times a week so I don't need the exercise but it would be good to get together as a group before we start the day."
>
> (Journal entry No.51. 24/07/07)

2. Harnessing cultural diversity.

The project team recognised the need to harness the enormous cultural diversity of the workforce. Older workers who were fit and who managed their health independently could encourage other older workers to participate and could be seen as role models for younger workers. Younger nurses who, on graduating, gained weight, took up smoking and stopped exercising could identify with each other and support behaviour change. The many workers with multiple responsibilities at home could relate to each other and see the program as an opportunity to have some time for themselves. Injured workers who had experienced the positive benefits of managing pain and fatigue through exercise as part of their rehabilitation would provide positive role models for both injured and non-injured colleagues. Workers from a variety of cultural backgrounds for whom involvement in group activities was a significant cultural challenge could also support and encourage each other. Perhaps even the much maligned agency workers could find a place.

Two unexpected groups were identified as potential advocates for the program. The first were the injured workers, because of their positive experience of exercise as part of their rehabilitation and successful

return to work and the second were the unit clerks who were generally available and were keen to belong to the team.

> *Today Kylie the unit clerk said "Hi" when we arrived, and lots of people greeted us by name as they came to the desk. As we wandered around, a nurse I hadn't met before asked me, "Are you the one helping people with their back pain?" A PSA asked if she could make a time to see me about her sore shoulder. I have worked with two injured nurses from the 8th floor who have completed functional restoration programs and today they both thanked me for my help. One said, "I am getting to the pool a couple of times a week and am feeling so much better, thank you for all your help." They both agreed to participate in the group program and would consider doing the leadership training course.*
>
> *(Journal entry No.61. 30/07/07)*

3. Team culture that resists change.

The project team had anticipated that a significant proportion of the pre-contemplating workforce would have a vested interest in maintaining the prevailing culture of prioritising patient needs and would be resistant to change. It was the project team's encounter with the fit, pro-active, health self-managing Kokoda Kathy however, that really undermined their collective confidence. The influential Kathy and her colleagues were professionally affronted by the concept of taking paid time out at work to exercise. The program would challenge their personal and professional ethos. They believed that their personal fitness was their own responsibility; these workers came to work to care for patients and not to exercise. They did not experience pain or fatigue and therefore saw six minutes of exercise as superfluous to their needs. Most importantly, their own self-efficacy limited their ability to empathise with their non-exercising colleagues. They were therefore not inclined to take responsibility for encouraging their co-workers to participate in something they themselves did not believe in. Fit workers did not necessarily want to exercise at work and did not want to be responsible for motivating their non-exercising colleagues. The project team was taken aback by this discovery having assumed that this cohort would be both advocates of the program and confident and effective group leaders. In her interview, 'Kokoda Kathy' had made it very clear that she would not support the program because she fundamentally disagreed with the precept upon which it was based. Work is for work, fitness is something you do in your own time. The fervour of her disdain for the program flagged the possibility that such workers could potentially discourage others from participating.

The program design relied on identifying and training leaders who would sustain the group exercise program. New strategies for inducting potential leaders were developed as a direct result of the feedback from workers during the situational analysis. Similarly the concept of peer support was reviewed in the light of these revelations and new strategies were developed to engage a very broad cross section of the

workforce as both leaders and participants. Table 5.8 describes the strategies to test hypotheses from the second situational analysis.

Table 5.8.

Strategies to test hypotheses from the second situational analysis

Desired outcomes	Theories	Hypothesis		Strategies
The participation of the manager will encourage workers to attend the group exercise sessions.	The hospital culture espouses values that are incongruent with worker health management practices	H4	If managers are consistent role models workers will learn to prioritise their own health needs	Managers to address inconsistencies in workers taking breaks
				Managers become more consistent in rostering breaks
				Managers as role models for taking breaks
				Managers participate in workshops and group program
				Accessible introductory workshops (workers paid to participate, repeated at different times and in latter part of week)
Workers will opt to participate in the program.	The need for personal engagement to overcome multiple barriers to behaviour change	H5	Identifying opportunities for personal gain will encourage workers to participate in the program	Introductory workshops in each unit to heighten worker's self-awareness
				Use VAS scales to collect and graph pain and fatigue data to demonstrate potential for personal change
				Demonstrate link between physiological changes associated with ageing and pro-active health self-management
				Utilise the mantra: "Feel good at the end of a work shift"
				Utilise injured workers to reinforce the role of exercise in recovery
				Follow up workers who do not participate
				Reinforce key message re: learning how to feel better at the end of a shift.
				Recognise and respect individual's work ethic and find opportunities to work around the patient imperative
				Focus health education on improving individual's personal coping strategies

Summary.

From the two iterations of situational analyses, five hypotheses were developed. The following section will discuss the evolution of the program within the context of how these five hypotheses were tested.

Program Implementation

A one month trial of the daily group exercise program was conducted to test the first three revised hypotheses in each of the eight selected units at hospital site one. Potential group leaders from each unit were identified by the unit manager and were invited to participate in a leadership training program. A team of exercise physiologists visited each unit every day to run a ten minute group exercise session. Trained group leaders then implemented the program with the intermittent support of the exercise physiologists. Focus groups met regularly to provide feedback about the program. Members of the project team met weekly from the week before the start of the program in their unit to review and analyse the data from the focus group meetings.

The project team's experiences in all eight units will be discussed with a particular focus on the team of twelve workers on the thirty-one bed 8th floor general surgical unit. 65 year old Maureen, the nurse unit manager had lobbied the project team to ensure her team was included in the first trial of the program. She volunteered to take on the role of group leader and attended the leadership training program with five of her team. She also identified six members of her team to participate in the focus group; three nurses, Kylie the unit clerk, a patient service assistant [PSA] and an assistant nurse unit manager.

Hypothesis 1: Scheduling.

Using times when workers are not directly responsible for the wellbeing of patients will enable the program to be successfully integrated into the daily routine of each unit.

Within this hypothesis there were two distinct but related issues. The first acknowledged the primacy of the patient imperative; all workers at all times were responsible for the wellbeing of patients. At no time could a worker be expected to subjugate the needs of a patient to enable their involvement in any aspect of the program. The long-term viability of the program was dependent on the appropriate timing of interventions because the hospital culture dictated that no disruption to the flow of the core business could be tolerated.

The second aspect of this hypothesis related to routinisation. In this hospital context the importance of establishing a regular time each day for groups of workers to come together at the same time was paramount. The aim was to minimise disruption to the flow of work. Any dithering, waiting, considering options or changing the time would all conspire against the habitualisation of the program and potentially lead to its demise. The hypothesis therefore postulated that if a time could be identified that enabled groups of workers to come together at the same time each day, without challenging the patient imperative, then the program had the potential to be successfully integrated into the routine of that unit. The key was routinisation. For the program to be successfully inculcated into the daily routine of each unit, it had to be run at the same time each day.

During the second situational analysis workers had been asked their opinion about what would constitute a suitable time in their unit. Without the context of the actual activity, their responses were merely a hypothetical guesstimate. The leadership training workshops provided a more informed context in which to pose the question and the responses were more specific and considered.

> *I drew two columns on the whiteboard and wrote everyone's suggestions about when we could run the program. Then we went through each suggestion to see what the potential problems might be. Eventually we identified a time to try. I said "let's run the first session today at 11.30a.m.I will meet you at 11.30. If you get there late or need to leave early that's fine just join in for as long as you can. We'll see how it goes and tomorrow we can try 2.00p.m."*
>
> *(8/8/07 introductory workshop 8th floor unit)*

Only Maureen, four nurses and Kylie the unit clerk were ready to begin the first group exercise session at 11.30. Maureen scouted around and found another four nurses and a PSA. The session took ten minutes and two of the nurses left early to attend to patients. The unit clerk took two phone calls (one for Maureen) who told her to take a message. It was very distracting to have people leaving and messages relayed throughout the session. The subsequent discussion confirmed that participants had found the interruptions very distracting.

> *Maureen said she had spoken to her team and they felt that the 11.30 time didn't work. She felt distracted by telephone calls and people coming up to the desk. The nurses felt under pressure to stay for the group but felt they should have been with their patients. They feel that the only option is to run the sessions straight after handover meetings at 2.20p.m.*
>
> *(8/8/07 Discussion with Maureen 8th floor unit)*

The following day the session was run, as agreed, straight after the handover meeting.

I arrived early (2.10p.m) in case the handover meeting finished early. As soon as the meeting was over Maureen brought the twelve nurses out to the reception desk area. The unit clerk (Kylie) and an orderly came and joined us. I ran the session in six minutes and everyone stayed for the whole session. Everyone looked happy and relaxed.

(9/8/07 Author's journal note for 8th floor unit)

The 8th floor focus group met weekly for the first three weeks of the trial to provide feedback and discuss their observations.

The group exercise sessions are working better straight after handover rather than mid-shift.

(Journal entry 16/8/07 Focus group meeting 8th floor unit)

Everyone was happy with the time particularly given that Maureen is cutting the handover meetings short to be on time for the group exercise program.

(23/8/07 Focus group 8th floor unit)

The focus groups in the other seven units also highlighted the time constraints experienced by workers in each unit.

Most workers enjoy getting together and doing the exercises but are rushing to finish their work at the end of a shift to be able to leave on time, or early. Particularly in the handover sessions on the units, workers completing their shift are anxious to leave to …pick up children, catch a train, meet a husband, get the car out of the car park before the fees go up…do the shopping on the way home…go to visit an ageing parent or attend a medical appointment.

(8/10/07 focus group meetings week one)

KP in the Cath lab said even if she personally goes up to someone to ask them to come and join the group, workers say they would "just be a few minutes." By the time they arrive the session is over. TR observed that this was also the response of some managers when approached by the exercise physiologist.

(8/10/07 focus group meetings week one)

The group agreed that there is no point trying to run sessions at the end of a shift, there are too many conflicting priorities. Group sessions need to be run before, or in the first half of the shift and preferably straight after the handover meeting. Once a suitable time is established stick with that time so that people know when it is going to be on and can plan their work around being able to attend.

(8/10/07 focus group meetings week one)

The project team continued to explore options in each unit to identify the least disruptive time to bring workers together. Sessions after handover worked consistently well throughout the duration of the program particularly in the units and operating theatres. In units that didn't have handover, other times were trialled in an attempt to emulate the practice of utilising communal meeting times. For example in the kitchen most workers came together for morning tea. The sessions were run directly after the tea break before people left to return to work. This was challenging as the leader had to interrupt the animated discussions of workers relaxing during their break. In one kitchen a television had to be turned off to gain the attention of the group. While the manager and the exercise physiologists had the confidence to take such action, none of the other leaders were able to do so successfully and the program was not sustained in this particular unit. In subsequent discussions with the manager and workers from both kitchens, the inability to identify a time when people could come together was cited as the most significant limiting factor to the successful integration of the program into the daily routine of the kitchens.

CSD, Angiography clinic, Day procedure unit (DPU) and the operating theatres presented different challenges as they did not run split shifts.

Some units like CSD, Angiography clinic and DPU don't have split shifts, handover or common tea breaks. More often than not workers are under pressure. Occasionally they have nothing to do but this down time is unpredictable and rarely happens at the same time for more than one or two workers. This limits the opportunity to bring groups of workers together.

(8/10/07 focus group meetings week one)

Participation records from each unit were reviewed weekly to monitor the participation of workers at various times. For example in DPU initial participation records indicated that some days 63% of the potential participants joined the program and other days 100% participated (Table 5.9). The team attempted to analyse the variables that influenced fluctuations in participation.

Table 5.9.

Participation record for the operating theatre at 11.00 a.m.

Date	Activity			Location	
14/9/07	Participation record			Operating theatre	
11.00a.m	**Mon**	**Tues**	**Weds**	**Thurs**	**Fri**
Participants	7	7	12	11	12
Potential Participants	12	13	13	13	12
Leader	GK	GK	HP	GK	HP
Manager present	N	N	Y	Y	Y

These records demonstrated an increase in participation later in the week which was consistent with previous observations that the surgical units were busier early in the week. This pattern was seen in all the units directly involved in surgical procedures. The team postulated that the group training sessions, focus groups and other program activities (walking programs, Weight Watchers at Work, Pilates etc.) might be better attended if run in the latter part of the week. This new hypothesis was tested in other units to see if attendance in the program was higher in the latter part of the week. As a generalisation this was found to be the case in all units. It was not always possible or appropriate to do so, but where possible training and health education activities were consequently conducted on Wednesdays, Thursdays and Fridays.

As it became clear that the group exercise sessions were proving popular and were not disruptive if run directly after handover, some units that ran multiple shifts chose to introduce two sessions per day at the start of each shift.

Maureen has run the group exercise sessions twice a day most days for the past week, ...at the end of the handover meetings at 7.30a.m and 2.15p.m

(26/9/07 Focus group 8th floor unit)

Groups sessions are becoming easier to run, all have set times.

(4/11/07 Group leader's focus group all units)

In the operating theatre, Saphire the unit clerk initiated the group sessions each day.

We have two group exercise sessions running every day (7.30 am and 1.30 pm) straight after handover. Usually 15-20 in the morning and 8-10 in the afternoon. Everyone is happy with the program and there is never any question about whether or not we will do it. The communal meeting time enabled the group to have a regular time and place to run the program.

(30/11/09 Fifteen month review: feedback from operating theatre manager)

In CSD workers cleaned and sterilized surgical implements. There were no communal meeting times and workers arrived at different times of the day making it impractical to run sessions before a shift began. The unit was manned for 18 hours per day and there were rarely more than four to six workers in the unit at any one time. It was not unusual to find just one or two workers. It was therefore difficult to find a time to bring a group together however, the four trained leaders were very committed and consistently found a time each day to bring a group together. They religiously completed the participation record and for the first twelve months the group exercise sessions were run consistently every day at random times. Generally one of the leaders would call out to his or her colleagues "*Do you want to come and do the exercises with me in five minutes?*" This gave everyone time to finish what they were working on to come together. The unit itself was a long narrow room where everyone could see each other which made this randomized approach feasible.

The 90+% participation rate in CSD clearly challenged the hypothesis regarding the importance of routinisation. The project team met with various members of the CSD team to analyse why the program ran so successfully without the need for a set time every day to run the program. They generally found the same workers completed the same shift every day. There was therefore a very stable workforce, as opposed to the serendipitous shift work observed in other units. They also found that many of the workers in CSD were related in some way to each other (cousins, an aunt, brothers and sisters). The team postulated that this familiarity over-rode the lack of confidence seen in the kitchen, where leaders were reluctant to interrupt co-workers engaged in social activities during their tea break. One of the leaders in CSD was the older aunt of three of the regular workers. When she called to them to come and join her, they came. The workers in CSD were also from similar cultural backgrounds (from either South America or the Philippines) and may therefore have shared a common cultural attitude towards the coming together with colleagues to exercise. These workers were also used to a very high level of autonomy and clearly took pleasure and pride in their ability to work independently, as evidenced by the participation records.

In this unit the worker's cultural backgrounds, the size and stability of the workforce, the familiarity of the workers and their experience of working autonomously were functions that compensated for the lack of routinisation and perhaps enabled the program to be implemented more successfully than in other units

where familiarity and autonomy were not the norm. This example provided an illustration of how even the most fundamental hypotheses do not act simply and uni-dimensionally in the variety of environments provided in a complex organisation like this.

As in the CSD, the Angiography Clinic team had no communal meeting times. They did however all start work at 7.30a.m and worked just the one shift. The exercise physiologists had experienced difficulties in the angiography clinic in finding a time when groups of these workers could come together. Various times were trialled but once the workers had their lead aprons on, they were loath to remove them despite their constant complaints of neck and shoulder pain. The manager (Kerry) was determined to minimize the amount of time the aprons were being worn unnecessarily. She wanted the group session to run every day and for the first six months she was reasonably successful (65% participation rate). She would set the time for each day according to the list of procedures and would write the time on the whiteboard outside her office. She would go to each of the workers five minutes before the session to remind them to start preparing to join the group, including removing their lead aprons and coming to the meeting place. She had a CD player and began to play music just before the start of the session. Once they arrived she encouraged one of the other leaders to choose the exercises and she joined in.

> *Kerry is very happy with the program and enjoys getting together with her team. She would prefer a set time each day to run the session but has found that more people are able to participate if she fits the session in around the work schedule. Attempts to get people together before they start work were unsuccessful. She still finds it difficult to get everyone together and is frustrated that when she is away or unavailable none of the other leaders attempt to bring the group together. The other leaders are happy to run the group once everyone is there but don't have time to go around and get people to come.*
>
> *(6/3/2008: Focus group meeting angiography clinic)*

Table 5.10. summarised the project team's observations of the time identified as being the most appropriate in each unit. When the program was subsequently implemented in matched units at the second hospital site, this information was used to help guide the trials conducted in each unit.

Table 5.10.

Summary of optimal group exercise times at hospital site one

Unit	Observation	Optimal Time
Operating Theatre	Both managers and 15-20 staff consistently happy to participate straight after hand-over, no trial and error with time or location	7.15a.m and 1.30pm
Maternity	No time could be found to bring a group together	
Kitchen	The early morning sessions were poorly attended with people rushing off to start preparing breakfast. Can't get staff to leave their work stations to come together. After the morning tea break when majority of the staff are together with manager joining in best time to get everyone together. Chefs rarely available; smokers often late.	10.45a.m
Day Procedure Unit	Staff frantic in the morning preparing patients for surgery and in the afternoon preparing patients to leave. Best time mid-morning.	11.00am
8th Floor Unit	Straight after handover in the morning and afternoon- Maureen runs the session as part of the handover meeting so no-one has a chance to leave.	7.20a.m and 1.30pm
2nd Floor Unit	Straight after handover in the morning and afternoon	7.20 a.m and 1.30 pm
Angiography Clinic	Nurses & radiographers start at different times. Procedures in individual laboratories, no set time to come together. Manager rarely available. Group sessions trailed at different times of the day but big effort for manager to get all workers together in a group at one time.	Varies from day to day
Central Sterilising Department	No patient contact, quiet times in the morning, busiest later in the afternoon as the surgical instruments return. Morning sessions work well & late in the day when workers were tired and ready for a break. Fridays always very busy	Varies from day to day. Between 11.00a.m- 2.00pm and between 4.30-5.00 pm
Environmental Services	Cleaners and PSAs participated in the group programs in the units in which they were working at the time.	

Revised hypothesis 1 for future investigation.

Feedback from workers and managers enabled the project team to adapt and modify the program on an ongoing basis in response to the changing needs of each unit. Hypothesis 1 was found to work generally but not in all situations and under all conditions. They therefore revised hypothesis one:- The program will be successfully inculcated into the daily routine of each unit, if it is run: 1) consistently at the same time each day,

2) to coincide with regular meetings times when workers are already together, 3) when workers are not directly responsible for patient care.

Hypothesis 2: Location.

Using locations that can be easily accessed and will not disrupt the flow of work will allow the program to be successfully integrated into the routines of each unit.

The same consultative process used to test hypothesis one was adopted to examine this second hypothesis that sought to determine an appropriate location for the delivery of the program. Again the team encountered a surfeit of unexpected feedback.

> *"I am getting complaints from staff about the exercise sessions in DPU. When you run your sessions near the nurse's station the nurses attending to patients in the bays next to you are getting distracted. You cannot ask a nurse to leave a patient and you cannot run your sessions where the nurses in the holding bays are looking after patients."*
>
> *(23/10/07 email from manager: DPU to Sandra)*

Every unit presented a different set of variables in terms of identifying an optimum location. Location trials were conducted according to the suggestions made by the managers and members of the focus groups in each unit. The following list summarises the key criterion identified:

- Not in front of patients
- Not in the way of patients /visitors /other workers moving in and out of the unit
- Not blocking emergency exits
- Near a wall to display the posters
- Near a wall or desk to enable people with poor balance to "hold onto something"
- Not too crowded, enough room to move around without hitting anyone
- Near the reception desk to enable the unit clerk to participate and answer phones
- Near the reception desk in case a doctor wanted to talk to the manager or one of the nurses
- Not too far to walk to [10 seconds maximum]
- Not where furniture needs to be moved
- Not near patient beds where curtain rails would impede tall participants

- Not in infection controlled areas or in surgical theatres or sterile stores

- On flat even floor surface [operating theatre at hospital one has sloped ramp corridors]

- Not near windows in view of the passing public

- Possibly outside but away from public view [hospital two has balconies off each unit] but not if it's too hot/cold/windy/raining/construction workers within view]

- Not outside if protective clothing is worn and would need to be changed

- Not near a lift where people could see the group when the doors open

The units in which workers provided direct patient care had the longest list of limitations. There was a strong sense that exercising in front of people would be a source of embarrassment. Maureen [8th floor manager] challenged this concept by insisting that it would be good for patients and their families to see workers looking after themselves. It would remind them, she argued that;

> *"Nursing is hard work. Patients and their families need to remember this and recognise how physically demanding nursing really is".*

> *(16/9/07 Maureen, nurse unit manager 8th floor)*

In units where workers were not in public view (kitchens, angiography clinics, CSD) the issue of privacy was not a concern but the limited space was a feature of the 'back-end' activities of the hospital where space was at a premium. The kitchen staff room had proven to be successful during the pilot program but the introduction of a television in the interim proved problematic. Those not wanting to participate in the program resented the group being in the way. In the second kitchen there was very limited space and no communal tea room which again made finding a location to bring the group together difficult. The kitchen workers took their breaks in the public cafeteria and refused to stand up in front of people to exercise. An attempt to use a nearby conference room failed when the key could never be located. By the time the room was unlocked, workers had returned to the kitchen. The only viable location proved to be along a wall near the large dishwashing machine which could be turned off while the program was conducted.

In the second CSD there was a large open area that provided a very central space. By being in the visual field of all the workers in the unit it was easy for the group leaders to encourage people to come and join the group. In this unit the program was always well attended and the leaders had no problem bringing workers together. The Angiography Clinic also had an area away from the public. On one occasion the group was

bending forward to stretch when a lift full of visitors opened and were greeted with the sight of ten backsides. The location was unchanged but the workers decided to face the opposite direction in the future.

In the operating theatre, issues relating to infection control were a concern. There the optimum location proved to be an area outside the actual operating theatres near the reception desk. Patients passed through the area on their way to surgery but not, generally, during the time the group sessions were run. Patients appeared bemused at the sight of a large group of gowned operating theatre workers exercising. While the space was limited, the long reception desk proved invaluable for balance and stretching activities. Workers who did not chose to join the group but wanted to watch were told go about their business. Not being centrally located, enabled workers to come together in a space away from other workers who did not wish to participate. In the operating theatre recovery unit and DPU, overhead curtain rails proved problematic for tall participants. They also precluded some of the overhead activities such as the pole stretches. Doorways, ramps, defibrillator machines, windows, televisions, through traffic all had to be taken into consideration when identifying a safe and suitable location to bring groups of workers together.

A cyclical process of consultation, trial and evaluation was implemented in each unit. This process began with the leadership workshops where the group discussed the pros and cons of various locations. On the 8th floor unit the time and location for the first session were agreed upon during the first workshop.

> *Let's run the first session today near the nurse's station on the other side of the lifts and see how it goes.*
> > *(8/8/07 Maureen, Nurse Unit Manager 8th floor introductory workshop 8th floor unit)*

> *The group was happy with the location but Maureen said she felt distracted by telephone calls and people coming up to the desk.*
> > *(8/8/07 Feedback from Maureen following the first group session on the 8th floor unit)*

> *Some people feel uncomfortable exercising near the lifts where visitors and patients stop to watch. One nurse suggested trying to run the sessions around the corner in the tower.*
> > *(23/8/07 Maureen, Nurse Unit Manager 8th floor Focus group meeting 8th floor unit)*

Despite the project team's strong sense that the proposed new location was inappropriate they were obliged to respond to the feedback from the focus group and trial an alternate location. They suspected that moving the program to the tower [50 metres from the reception desk] would potentially add disruptions to the program.

By the time everyone had walked there and back the session had gone for over ten minutes which Maureen felt was too long. Two workers disappeared en route. Maureen said she didn't like being so far away from reception. The unit clerk also said she couldn't leave the desk to join in. When I told Maureen about the feedback from the focus group regarding the location, (people not feeling comfortable exercising in public) Maureen argued that it was important for patients and visitors to see that we are looking after ourselves.

(24/8/07 trial of location change on 8th floor unit)

The issue of privacy continued to worry some workers. One day a group of twelve workers on the 8th floor were stretching when an elderly priest stepped out of the lift. He looked a little taken aback at first but Maureen said *"Come on father, come and join in, we all need a good stretch before we start the day" (4/4/08).* The priest smiled and joined in. All the workers laughed and seemed more relaxed after this.

Some nurses not comfortable exercising in front of patients but no-one could identify a more appropriate site. The group determined that 2.20p.m is the best time and the best site is the nurse's station outside the handover room (but away from the lifts).

(30/8/07 focus group meeting 8th floor unit)

In the nursing units the optimum location was found to be where it could be easily accessed [less than ten seconds from the meeting room] and did not distract workers attending to patients nearby. After the complaint from the manager of the DPU, the program was run in the latter part of the morning when most patients had gone to surgery which negated concerns about workers being distracted. In the second DPU, the program was run in the actual unit earlier in the day before patients went to surgery. Here the patients were often seen to be joining in and there was no issue with distracted workers.

The project team recognised the need to synchronise both time and location in the DPU to accommodate the routines of the unit. Earlier in the day the DPU patients were waiting for surgery and it fell to the workers to keep them calm and relaxed. The group exercise program in this context became a form of entertainment for patients and workers. Later in the day when patients returned from surgery, workers were preoccupied with monitoring vital signs as patient's regained consciousness. Throughout the program these confounders came to light in each unit. It was through the exercise physiologists' ongoing involvement in the program and the feedback from workers via the focus groups, that these barriers to participation were identified and addressed. It took time and consistent effort to monitor and review the impact the program was having on the day to day

workflow of each unit. Without this ongoing analysis the program could potentially have had a negative impact on the running of the hospital and the safety of workers and patients.

In each unit the project team examined the data (observation, focus group feedback and participation records) to identify the impact of the timing and location of each group activity on the workflow. Through a process of hypotheses testing, a specific time and location was identified that met the individual needs of the workers and managers in each unit. The following flow chart (Figure 5.1) demonstrated this process.

- Trial 1 Unit 8 Group Exercise Session
- Time: 11.30 am   Location: Near reception & lifts
- Attendance (4/12) very poor/ Distractions from people coming and going from lifts / interruptions from patients, visitors & other staff; Too many distractions, inappropriate time and location,
- frustration, stressful, feeling anxious about being away from patients for too long,
- Suggested trial after handover

Workers are distracted because they are responsible for patients

Workers can concentrate when patients do not require their attention

- Trial 2 Unit 8 Group Exercise Session
- Time: 2.20p.m (straight after handover) in handover room
- Attendance (12/13) excellent
- Room too crowded to move, airless with door shut / too difficult to see the instructor
- No interruptions from patients, family members or other staff
- Excellent time but the room is too small / trail after handover but outside near reception but away from the lifts

- Trial 3 Unit 8 Group Exercise Session
- Time: 2.20p.m - near reception away froml ifts Attendance (121/13) excellent / Far enough away from lifts that participants were not distracted by people coming and going from lifts
- Telephone attended to by previous shift /No interruptions from patiens, family members or other staff /
- Excellent time and location

Best time: After handover

Best location: near reception away from lifts

Figure 5.1. Action research process for identifying time and location for group exercise sessions

Appropriate locations were determined through a process of consultation with a broad range of stakeholders from within each unit and with the health and safety team. The following table (Table 5.11) summarises the observations of each unit noting optimal location for the group exercise program.

Table 5.11.

Summary of location sites for all 16 units

15/10/07	Summary of optimal location sites for the group exercise program in all units
Unit Observation	**Optimal Location**
Operating theatre 1	Around the reception desk outside the operating theatres.
Operating theatre 2	Patient waiting bays near reception desk
Kitchen 1	Staff tea room away from TV
Kitchen 2	Along the wall near the dishwasher
Day procedure unit 1	Patient waiting room
Day procedure unit 2	Patient waiting room
8th floor unit site 1	Near reception desk away from lift
2nd floor unit site 1	In staff tea room
2nd floor unit site 2	Near reception desk
4th floor unit site 2	Balcony outside under cover
Maternity site 1	No location identified
Angiography clinic site 1	Next to the apron hooks near the manager's office
Central sterilizing department 1	Outside the trolley storage room
Central sterilising department 2	Centre of sterilizing room
Environmental services site 1	Staff canteen
Environmental services site 2	No central location (individual programs)

Revised hypothesis two for future investigation.

While the initial hypothesis identified two important location principles (ease of access and avoidance of disruption) it failed to take into account a number of specific issues that would impact upon the viability of the program. This included a multiplicity of occupational health and safety issues (e.g. access to emergency exits) and a range of psychosocial limitations (e.g. exercising in front of patients). Hypotheses were tested and revised to identify the location that would meet the stringent requirements of the workers, managers and the health and safety team. The second hypothesis therefore was revised to: Identifying locations that 1) minimise disruption to the flow of work that are 2) easily and quickly [less than ten seconds] accessed, 3) minimise risk of injury for workers, patients and visitors, 4) have space for workers to complete the exercises 5) can be consistently utilised each day without the need to 6) move equipment will enable the program to be successfully routinised.

Hypothesis 3: Group leaders.

Training workers who have confidence and authority to lead the group exercise program will enable the program to be sustained.

The project team had initially aimed to limit the involvement of unit managers to that of participants rather than group leaders because they had observed that the managers were often unavailable and to give other workers the chance to develop their leadership skills. They assumed that older, more experienced workers would make effective group leaders because they had witnessed their confidence and authority;

> *Older nurses have the respect of patients and their families. Younger nurses lack the authority of older, more experienced nurses. Not all workers have the confidence to take a leadership role and not all workers will be led by younger workers. We may find that the young nurses struggle to lead the group exercise program because of this tendency to defer to older workers.*
>
> *(17/7/2007 observation in the maternity unit)*

However, they found that the program conflicted with the professional and personal ethos of many of these older workers;

> *"everyone should be doing their exercises in their own time"*
>
> *(Journal entry No. 59. 29/7/07)*

They then attempted to target the younger, fit workers to take a leadership role

"I have already been to the gym this morning I don't need any more exercise thanks"

(26/9/07 Division two nurse 2nd floor unit)

I play golf on my days off, swim and walk every other day and I'm on my feet all day at work so the last thing I need is to be exercising at work.

(1/10/07 Maternity unit worker)

The project team analysed the feedback from the focus groups to identify the source of worker's reluctance to take on a leadership role. They surmised that workers lacked confidence which was a consequence of their inexperience in leadership roles. This supposition was consistent with observations made during the situational analysis where younger workers in particular were seen to be given limited autonomy. The doctors conferred with the managers and the managers passed on instructions to the workers. The communication hierarchy did not provide opportunities for workers outside the management infrastructure to step up and take on leadership roles. The highly systematised work environment relied on a top-down management model which negated worker's opportunity to demonstrate initiative.

"What is wrong with the nurses on 3rd floor? Someone has just logged an engineering request to get the tyres on a wheelchair pumped up. How hard can it be?"

(11/7/07 email from injury manager).

The role of group leader required workers to have the confidence to stand up in front of peers to demonstrate and explain the exercises. In some instances (units that did not have a communal meeting time) they were also called upon to bring their colleagues together. Leaders also needed initiative to choose and modify exercises for workers experiencing difficulties. For workers unfamiliar with these tasks, the prospect of taking on these roles was clearly very daunting. It seemed that the opportunity to observe the exercise physiologists running the group sessions had not necessarily given workers more confidence in their ability to take on a leadership role. Years of training enabled the exercise physiologists to become adept at standing up in front of workers, demonstrating exercises and modifying them to meet the needs of individuals. Instead of giving workers more confidence in their ability to emulate these skills the effect was rather that the exercise physiologists had 'set the bar too high' and had potentially undermined the confidence of potential leaders.

The search for group leaders therefore took on a sense of urgency. An amended recruitment strategy sought a broader cross-section of the workforce and included 1) confidence building within the exercise groups, 2) persuasion within focus groups, 3) encouragement from managers, and 4) recruiting previously injured workers. The project team developed posters and a training manual with detailed instructions and illustrations. The exercise physiologists trialled the practice of asking each participant in the group exercise sessions to suggest an exercise that the group could perform. They encouraged participants to demonstrate their own ideas for stretching and carefully adapted the stretch to meet the needs of the group.

> *I have been trying to encourage participants to suggest an exercise, either one that we have done previously or one that they like. I have put a series of five posters on the wall near where we meet. Each poster has three pictures of stretches with clear instructions. Some of the workers are keen to take a turn to suggest a stretch, others are clearly not comfortable. If I try to push people they may be reluctant to participate at all. I want people to feel that they have the potential to become group leaders. I have put a poster on the wall explaining the train the trainer concept and an invitation to talk to me about joining the six week (three sessions) training program. No-one has approached me as yet.*
>
> *(5/9/07 2nd floor unit)*

It took time, positive reinforcement and persistence but gradually some of the younger workers agreed to become group leaders. They were invariably reluctant to do so unless there was a strong quorum of co-workers to share the role. This observation had significant implications for the notion of leadership and the role of peer support in encouraging workers to speak out and contribute. The project team had observed that pairs of workers (friends) had joined the focus groups supporting the adoption of the strategy that having the support of a peer would encourage workers to volunteer.

> *The two nurses in the focus group are prepared to do the train the trainer program to become leaders. Strategies to recruit more potential leaders discussed; suggested the exercise physiologists ask people in each group to suggest exercises and demonstrate them.*
>
> *(23/8/07 2nd focus group 8th floor unit)*

In many instances members of the focus groups did volunteer to become group leaders and also recruited friends and colleagues. In most instances they volunteered in pairs,

"I'll do it if you do it"

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(Journal entry 11/07/07).

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The team's attempt to encourage managers to identify potential leaders created more problems than solutions as the managers tended to nominate themselves and other senior members of their teams who already had leadership roles. While this was the project team's least preferred option, in some units the dearth of volunteers led them to agree. As the aim was to identify and empower a broad range of workers to take on leadership roles the team were reluctant to relinquish this strategy.

The project team started to look to previously injured workers who had completed functional restoration programs to find additional leaders. The author met with injured workers with whom she had previously worked when conducting their individual rehabilitation programs. Here was a cohort of workers that had credibility, knew the working of their own units intimately and had developed relationships with their colleagues. Most were positive role models in that they had returned to their pre-injury hours and duties in a timely way. Importantly, they were vocal proponents for the role exercise had played in their recovery and appeared to exert some influence over their colleagues.

> *"Only the exercises, they help me. I had a very bad back injury lifting the potatoes and I was in hospital, I had to take a lot of medication and my pain was very, very, bad. Then (author) come to help me and she showed me the exercises to help me... she took me in the hydrotherapy pool and now my pain is gone. I do the exercises every day. If I don't do the exercises the pain comes back so I know I have to do them."*
>
> > *(26/9/07 chef who had previously completed a functional restoration program with the author)*

Case studies.

The following two case studies provide insights into the complexity of the breadth of management styles and leadership skills that influenced the successes and failures of the program.

Case study 1: 8th floor unit.

A general surgical nursing unit with 23 beds the 8th floor generally had eight nurses, a nurse unit manager a clerk, a patient services attendant and several cleaners. Throughout the day there will also be visits from kitchen staff taking meal orders and delivering meals, registrars including an oncologist, haematologist, cardiologist, thoracic specialist, as well as physiotherapists, a home help co-ordinator, social worker, and a pastoral care worker. Patients stay anywhere from one day to several weeks.

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Throughout the initial four week trial, the author and Sandra met regularly with Maureen the 65 year old nurse unit manager. She was always available and prepared to talk at length about her enthusiasm for the program. She was delighted that "*her people*" were so involved and dismissed any suggestion that any of them may feel coerced to participate. She argued that if she didn't encourage them to join in they would revert to their usual practice of prioritizing patient needs over their own. She did not believe that she was in any way pushing any of her workers to do something they didn't want to do. She pointed to the amount of laughing and chatting that occurred in every session as evidence that her team were enjoying the program "*immensely.*" She was not surprised that only two of her team had initially volunteered to become program leaders. She was adamant that she herself would undertake the training program and would bring along as many leaders as we needed. Attempts to dissuade her from becoming a leader on the basis that the program was an opportunity to share the leadership role with workers who do not usually have the opportunity to take the lead were summarily dismissed.

Maureen was open, friendly, enthusiastic, relaxed and supportive of every aspect of the program. The author found it difficult to question Maureen's commitment or motives and could not find an effective counter argument to her insistence on becoming a group leader. There were several older women on the 8th floor who had previous injuries who were enthusiastic participants in the group exercise program. One nurse (Magda) reluctantly agreed to complete the training program. She had had a back injury and had returned to work despite ongoing pain. She enjoyed participating in the group exercise program but had no experience in a leadership role despite being an experienced division one nurse. She agreed only when strongly encouraged to participate in the training program.

Maureen's enthusiasm for the program imbued the author with confidence that she would mentor her co-leaders. She assumed, given Maureen's experience and lauded management skills, she would embrace this opportunity to see some of her younger colleagues step up and take on a leadership role. She articulated this intention on several occasions and the project team was left in no doubt that the program would be well sustained by the team of five leaders from diverse backgrounds on the 8th floor.

> *"I can think of six girls that would make terrific leaders. I will bring them all along to the training workshop."*
>
> *(11/7/07 Maureen 8th floor unit)*

The group leadership training program brought together a diverse group of workers from each of the units.

Maureen and two of the six volunteers from the 8th floor team joined 17 workers from other units to complete the train the trainer program. The other three volunteers will join tomorrow's session. Today's session focused on skill building using a series of posters and the training manual. Most participants were enthusiastic but some were clearly more confident about standing up in front of a group than others. From the 8th floor team the young nurse was less confident about leading in this bigger forum than in her own unit. Kylie the unit clerk was very confident as was Maureen. The plan is for each of the six trainees to take turns to run the program every day at the designated time. They have been taught a range of exercise activities but have also been encouraged to use exercises that they themselves enjoy (subject to review with an exercise physiologist). These leaders will now take over running the daily group exercise program in their units. The exercise physiologists will continue to visit each unit regularly for a further four weeks to ensure each of the group leaders are competent and able to work independently. The leaders will meet again in one week for further training and to review their experiences. They will also join a focus group that will meet each week to discuss their perceptions of how the program is working in their respective units.

(19/9/07 First leadership training workshop)

The aim of the training program was to build autonomy and confidence. The exercise physiologists continued to attend the group exercise sessions in each unit to provide support and feedback to the trainees.

The new leaders have started running the daily group exercise program. Exercise physiologists have been joining in the group exercise program as observers on the 8th floor for the past week.

(26/9/07 Journal entry)

Maureen had spontaneously begun to implement the program twice daily.

Maureen has run the group exercise sessions twice a day most days for the past week. Kylie ran it one morning when Maureen wasn't on and said she found it easy and fun. The nurses that have done the leadership training have yet to "have a go." They don't see the point in running the session if Maureen is around because "she's really good at it." At the end of the handover meetings at 7.30a.m and 2.15p.m she hands out the poles and does the shoulder and back stretches. Everyone other than Kokoda Kathy takes a pole and joins in. There is never any dissent and everyone smiles and chats throughout the session. Maureen is very flexible and has a full range of movement in her shoulders. Many of her team struggle with these exercises and Maureen encourages them as she demonstrates her own prowess. She generally makes the point that she is older than everyone else but she keeps fit. She repeats the same exercises in the same sequence every day. Maureen has also come up with the idea of finishing with a "quick massage" so for one minute the team lines up behind each other and massages the neck and shoulders of the person in front. Everyone seems to genuinely enjoy the sessions, everyone joins in and there is a strong sense that they are happy to be together. Maureen collects the poles at the end and wishes everyone a good day. The whole session takes about 6-8 minutes. The

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focus group agreed that it is important for all the leaders to practice running the sessions to gain confidence. Maureen is going on a week's leave so the leaders will have an opportunity to run the sessions. Marlene will run the session tomorrow; (author) to participate.

(26/9/07 Focus group meeting 8th floor unit)

Maureen was very keen to be the leader and had the confidence and authority to do so effectively. However there were concerns that her authority and competence had undermined the other leaders. While Maureen was away, the other leaders were encouraged to step-up.

I went to try to encourage some of the trained workers to run the group session this week while Maureen is on leave. Marlene had agreed to take the 2.15p.m session today and I said I would come and give her a hand. When I arrived at 2.10p.m the group had already dispersed after handover. When I asked her what had happened, Marlene said they finished early because they were really busy and no-one had time to do the exercises.

(27/9/07 8th floor unit)

The author and Sandra met with Maureen to discuss this observation.

Maureen reaffirmed her enthusiasm for the program. She described it as "a lot of fun," and said that she feels much closer to her team as a result of spending time with them. I felt some concern about broaching the subject of the leadership issue; I didn't want to dampen her enthusiasm. I asked her how she thought the other leaders were going. She said that she had tried to encourage them to take over some of the sessions but they always deferred to her; "No, that's okay Maureen, you're doing a good job." She said that when she wasn't available Kylie ran the sessions. She did not seem to see a problem with this. I told her about the experience with Marlene and the fact that the program wasn't run while she was away. She was not perturbed by this and said that she would try to encourage the other leaders to run the sessions. I asked if she felt confident to include some of the other exercises (not just the pole stretches) she said that she tries to add a new stretch in each session but feels that the pole really helps everyone to see improvements in their range of movement.

(1/10/07 Meeting with author and Maureen)

Maureen's inability to see that her leadership team was not engaging with the program flagged a number of issues, none the least of which was her lack of insight. When questioned about why she thought the program had not been run while she was away, she was dismissive. She did not seem to see a problem with the idea that the sustainability of the program was dependent upon her personally. The leadership role had been arbitrarily taken over by Maureen who clearly had a very strong sense of ownership of the program. The

project team felt compromised about challenging this situation because the program was running more successfully in this unit than any other. It was difficult to know who to turn to for advice within the organisation as Maureen was an active and popular member of the executive team. The member of the executive team appointed to oversee the project [Karen] was unwilling to confront Maureen about her leadership practice. The project team did not want to lose Maureen's support. Clearly Maureen had failed to understand that her role as a manager was to encourage and mentor her workers to take on the leadership role.

The long term sustainability of the program could not depend on one worker. Challenging Maureen's authority and commitment however, could lead to the program being cancelled altogether on the 8th floor. Sandra and the author met with the focus group for their feedback.

> *Only four members of the focus group available (two trained leaders, Kylie and Magda). All very happy with the program, everyone enjoys getting together, having a laugh. They like the fact that the exercises only take a few minutes; they are organized and have the poles on hand. They know what to do and Maureen leads the session. They can see that they have more movement in their shoulders and feel better after they have stretched. They all like the massages "Everyone fights not to be on an end because they miss out." Everyone is apparently happy to join in and the other trained leaders are happy for Maureen to take charge. "She is really good at it." They said they didn't usually worry about running the sessions when Maureen wasn't there (week-ends) because they did them every other day. They enjoyed having a break from it last week when she was away. They had no suggestions for changing the program and were happy for it to continue as it was.*
>
> *(12/10/07 Focus group 8th floor unit)*

The focus group provided a two-way communication loop that enabled the project team to receive and pass on constructive feedback about the program on a regular basis. As Maureen was not part of this group participants had no obvious constraints against speaking freely. They were clearly not likely to attempt to challenge Maureen's leadership. In hindsight the project team recognised that Maureen should have been encouraged to enable her co-workers to become confident group leaders. Despite the lack of shared leadership, the program was consistently well attended (90%+) and proved to be effective in reducing worker's pain and fatigue at the end of a work shift.

> *Maureen continued to lead the same exercises twice daily on the 8th floor for nine months. I have popped in to join the group from time to time (once a fortnight) and have tried to add some variety to the routine but Maureen always*

reverts back to the same six pole exercises and the group massage. I have tried to encourage the other leaders to run the sessions when Maureen is unavailable but they are not at all keen.

(14/05/08: nine month review of the 8th floor unit)

As an external consultant the author acknowledged a strong investment was needed for the successful integration of the program. At the same time she felt a keen commitment to see the model successfully adopted and sustained by the organisation and was torn by the need to empower workers within each unit to influence this process. These concerns were well founded.

Two weeks ago Maureen was hospitalized unexpectedly and remains in intensive care. The day she left, the group sessions stopped. I only heard about this yesterday through Sandra. I went up to the 8th floor at 2.15 today and saw that Marlene (one of the trained leaders) was acting manager and was running the handover meeting. At the end of the meeting the nurses dispersed and there was no suggestion that they would stop to do any exercises. I offered to run the session but Marlene said "That's okay, thanks anyway but we're taking a break until Maureen gets back."

(14/5/08: nine month review of the 8th floor unit)

Maureen remained in intensive care for four months and was not expected to live. She survived but remained off work for six months during which time the workers on the 8th floor chose not to continue to run the program. Several unsuccessful attempts by the author were made to revive the program. A focus group meeting was convened.

The original focus group and the three trained leaders met with me today to discuss why the group exercise program has stopped since Maureen has been away. The trained leaders all said they were reluctant to run the sessions because everyone was "sick of doing the same thing."

They had run so few sessions that they had lost their confidence to try anything new and if they tried to bring out the poles that Maureen had used the rest of the team were going to "shoot them." The other workers agreed that everyone was sick of doing the exercises and had decided not to continue. Kylie said that since Maureen has been away she was too busy to participate anyway. Marlene the acting manager also said she felt under too much pressure to think about the program. "There just isn't enough time to get everything done." Apparently they had put it to the vote and the response to stop was unanimous. They talked about feeling guilty and knew that Maureen would be disappointed in them, but assumed once she returned she would get the program going again. In the meantime, they were having a break. There seems to be no way to get the program going without Maureen. I have tried running a few sessions myself without the poles or massages and only a handful of people joined in. After three attempts I noticed people actively

avoiding the area where I was waiting. I put up a new poster with some new stretches but I could not get anyone to take on the role of group leader.

(22/5/08 focus group meeting)

Every attempt to re-invigorate the group program was met with the same negative response. Several nurses conceded that they had more back pain since stopping the exercises but were still reluctant to come together as a group. Many argued that they knew what to do but preferred to do the exercises in their own time and were observed doing so.

Maureen remains off work; no group exercise sessions have been run on the 8th floor. Today I interviewed individual workers who had been regular participants in the program. All six reported increased low back pain, shoulder pain and fatigue at the end of a work shift since stopping the group exercises. Some said they were doing the exercises by themselves while others said that they wished the group program was still going but they didn't think anyone could get them together without Maureen. When questioned about whether they would be prepared to complete the training course they were all adamant that they wouldn't have the confidence.

(12/6/08 Author's summary of her interviews with individual workers on the 8th floor unit)

After six months Maureen returned to work.

Marlene called me and said that Maureen is coming back to work next week. She wants me to come to the 8th floor and get the group exercise program running again before Maureen comes back. She said that the workers on 8 knew that Maureen would be disappointed in them and despite having chosen not to continue with the exercises for over six months, they wanted to start again. I went up to the floor today and everyone (except Kathy) joined in. They all seemed quite pleased to be together and were looking forward to having Maureen back. "She nearly died you know" they told me.

(3/11/08 8th floor unit)

The author struggled to understand this behaviour and the meanings behind it. None of the workers on the 8th floor could explain why they hadn't continued with the program beyond the fact that it was *"Maureen's"* program.

I joined the group program today at 2.15. At the end of handover Maureen didn't say anything but handed out the poles as people left the room. Everyone took a position outside the handover room. They were all smiling and laughing and as Maureen went through the range of motion exercises everyone copied her while they chatted. Then Maureen

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gathered up the poles and without anyone saying anything they all lined up behind each other and started giving one another a shoulder massage. Maureen called out "swap over" and the line turned and the order was reversed. After a minute Maureen said "thanks girls, have a great afternoon." The group dispersed as Maureen put the poles back in their container. Six minutes on the dot. I felt very emotional watching the team as they exercised with Maureen. They were like children and she was their mother and they were so happy to be with her. They knew what to do and without thought or discussion they slipped easily back into their former roles and routines. The challenge of taking over the running of the unit without their manager had been too much for the team. The routine of the unit was compromised when she left. The acting manager and unit clerk had both reported feeling stretched. When Maureen returned the routine went back to normal. Everyone could relax and enjoy getting together to exercise.

(Journal entry 10/11/08)

The author remained puzzled by these experiences and organised to meet with Maureen to discuss her observations and seek her insights.

Author: Why do you think the girls stopped running the program while you were in hospital?

Maureen: They just don't think they can take time to do anything for themselves. They are so used to just focusing on their patients that it is a huge challenge to get them to see that it's okay to take six minutes for themselves. When I run the program I don't give them a choice, they know that I expect them to join in. When I'm not here I know they rush off to their patients. I don't think there's anything else that you can do. If you don't have a manager that pushes people to join in they just won't do it.

(20/11/08 discussion with Maureen 8th floor unit)

The author did not have the heart to tell Maureen that the program was running well in the other units and none of the managers were pushing people to join in. There was no doubt that Maureen was a highly effective nurse unit manager. She was loved by her workers. Every day the author witnessed the effectiveness of Maureen's mentorship in the efficient, sensitive and caring way in which her staff interacted with patients. As the manager of a post-surgical unit Maureen was a highly effective manager. She was systematic and organized and everyone that worked with her knew how things were to be done. With only six minutes to dedicate to the group exercise program, time was of the essence and Maureen was a consummate manager of time. As she chaired the handover meeting anyway, she obviously convinced herself that it was "*quicker and easier*" to then run the group exercise sessions herself.

There can be no doubt that Maureen saw the program as an opportunity to have some fun with her workers. As a member of a dragon boat team she felt connected to her fellow rowers. Bringing this sense of play into

her highly systematized work environment was an opportunity she relished. Her massage initiative attests to her commitment to connect with her team and encourage them to connect with each other. However, rather than empowering her team by sharing the leadership role, her inability to relinquish power limited her team's ability to operate autonomously.

There were six members of Maureen's team that had completed the training program. Between them they could have provided a varied program of exercises each day rather than the repetitive exercises that Maureen chose to do. Over time they could have adapted the program to better cater to the needs of their colleagues, challenging them and giving them a variety of activities to alleviate boredom and maximize motivation. They would have had the opportunity to observe their co-workers exercising and recognize changes in their functional capacity, as they had been trained to do in the leadership course. Instead, Maureen insisted on doing the same exercises every day. She was able to achieve full range of movement in her shoulders without difficulty while many of her younger counterparts struggled with these exercises. Maureen took great delight in pointing this out, until she left.

> *Maureen retired last week (six months after she returned to work following her protracted illness). Her team presented her with her own pole that they had all signed. The program stopped again the day she left. Today I went to see her replacement (Julie) whose first words were "Don't think I'm waving some stick around because it's not going to happen." She said she didn't want to do the exercises herself but if I came every day at 2.15 I could run a session then.*
>
> *(20/5/09: 8th floor unit 18 month program review)*

In the months that followed Maureen's departure, the author visited the 8th floor unit from time to time to monitor injured workers. Invariably workers would comment that they had *"really enjoyed the exercise program."* They recalled having fun and feeling better when they were doing the exercises regularly. They repeatedly complained about increases in their pain (back pain in particular). "*I wish we were still doing those exercises,*" was a regular refrain. The author was regularly confronted by workers asking "*Can't you come back and run the sessions?*" When workers from the 8th floor moved to another unit where the program was running, they were generally enthusiastic participants. One trained leader from the 8th floor moved to the 6th floor and took on the role of leader for their program.

Maureen represented the prevailing hospital culture that respected the autocratic management style of women who had once been nurses and had ascended to management roles. It seemed that Maureen had an idea that her role as a manager was to mentor her team but she lacked the leadership skills to make this transition.

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Case study 2: The operating theatre.

The operating theatre unit had eight individual operating suites with two shifts of workers. The team comprised a unit manager, two assistant managers, 30 nurses, eight surgeons, eight anaesthetists, six theatre technicians, a patient services assistant, a clerk and two admin workers, and several equipment co-ordinators. A whiteboard sat outside the unit identifying which surgeon was working in each theatre and the names of the team assisting. Patients were constantly ferried into the waiting bays prior to surgery, then later into the post-operative care unit.

The program flourished in the operating theatres despite a lack of space, a busy schedule and the distraction of patients being wheeled in and out through the reception area where the group sessions were conducted (Figure 5.2).

Figure 5.2. Operating theatre participants. *Note*: the lack of open space and posters in the background demonstrating the exercises.

Jenny, the manager of the operating theatre, was ten years younger than Maureen but was equally well qualified and experienced. As a nurse who had moved into a management role she too saw the program as an

opportunity to spend some time with her team. She took a different leadership approach and after fifteen months met with the author to describe her experience of the program.

"We have two group exercise sessions running every day (7.30 am and 1.30 pm) straight after handover. There are usually 15-20 people join in the morning and 8-10 in the afternoon. Not everyone joins in, some of the blokes don't come along, I have tried to encourage them but they don't want to so that's fine I just tell them to go and get started on their work. I don't let them hang around and watch - it's too distracting. Everyone else is happy with the program and there is never any question about whether or not we will do it. No-one really runs the sessions, everyone contributes, and we take it in turns to choose an exercise from the posters. We are all a little competitive to see who can stretch the farthest; we are all much fitter and more flexible. Everyone is complaining less about aches and pains. Sometimes we have to run to get things if we're busy and we all really notice the difference. Saphire keeps the participation records and we are really proud that we have so many people involved. We like it when we get feedback from Sandra that we are the most consistent department in the hospital. Saphire makes sure that anyone new to the department knows what the program is about and encourages them to join in. She loves it that we all get together and there's lots of laughing and chatting. Feeling better myself inspired me to get fit and I have joined a gym and lost 27 kilograms. I went on annual leave for three months earlier this year and the program ran every day, no problem."

(30/11/2009: 15 month review- feedback from theatre manager)

In the operating theatre participation in the program was not mandatory. This manager was happy to share the leadership role with the other trained leaders including Saphire the unit clerk. Jenny joined the program as a participant, embracing the opportunity to spend time with her co-workers. The project team interviewed Saphire about her experience of the program.

What I like most about the program is that I feel more a part of the team. I am the only one that doesn't go into the theatres. I wear scrubs but I don't go into the theatres. So when everyone comes together to stretch I feel part of the team.

(12/7/08 Interview with Saphire unit clerk, operating theatre)

As on the 8th floor, the theatre team had a consistent communal meeting time and location which did not interrupt the flow of work or challenge the patient imperative. It had a committed manager with strong leadership skills who was keen to spend time with her team and an enthusiastic unit clerk who enjoyed the opportunity to be a part of the team. However, the manager wanted to be part of the team not the leader of the team. She had completed the training program but took the opportunity to be a participant rather than a leader. She used her management skills to empower her co-workers. She was committed and led by example

not only by participating in the program herself but also in the behaviour changes she adopted to manage her own health.

The unit clerk, given the opportunity to lead, took the initiative and in doing so minimised the need for the manager to organise and administer the program. Many auxiliary workers put effort into their contribution to patient care but do not feel part of the medical teams that are seen to be directly responsible for patients. The consistency of this program was largely the result of the unit clerk's desire to feel part of her team. Figure 5.3 summarises the relationship between this manager's approach and the outcomes for the implementation process.
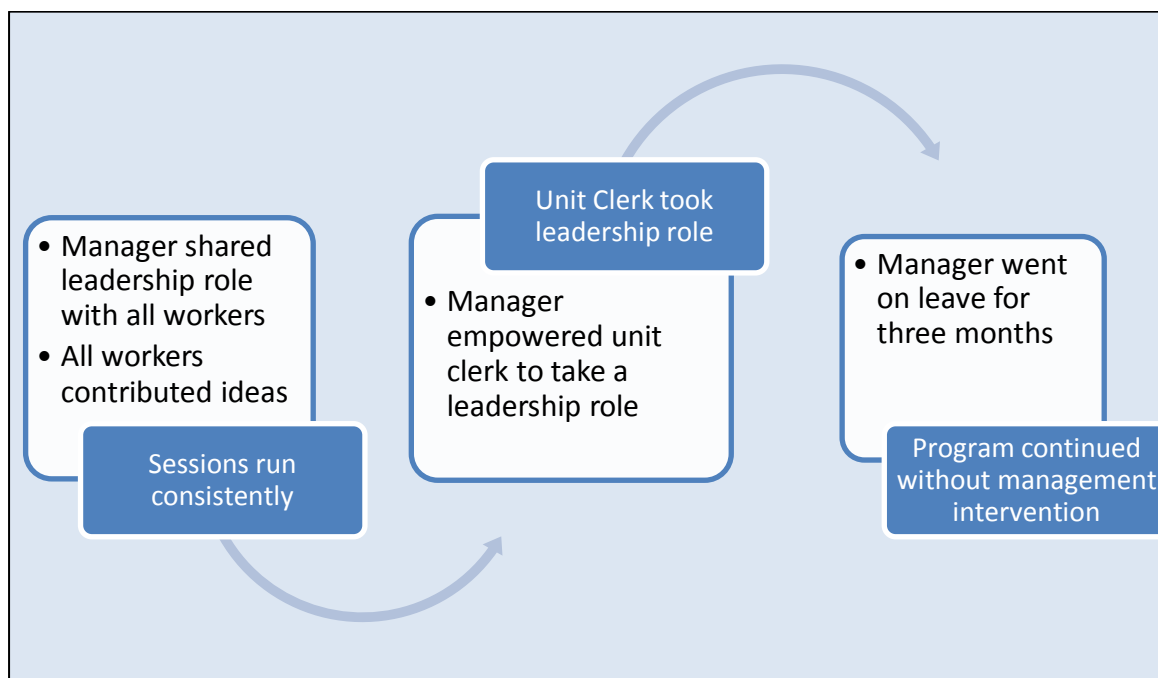
Figure 5.3. Relationships between management behaviour and program outcomes in the case of the operating theatre

Overview of the implementation and the role of managers in all units.

The program was successfully sustained in units where the program was led by a reliable worker such as a unit clerk or an assistant manager. Most units came to rely on only one or two consistent leaders, for example in the operating theatre the program was sustained by Saphire at the second site by a senior nurse. In CSD a cleaner ran the group exercise program every day.

The managers were all influential in the implementation of the program but there was a broad dichotomy of leadership capabilities and styles. The program challenged Maureen's management style on several levels because it was predicated on the need to relinquish authority and to respect the opinions and ideas of co-workers. Maureen did not see the other workers in her unit as co-workers, she was the manager and they were '*her people.*' She expected them to do as she required as evidenced by her autocratic approach to bringing workers together. While Maureen was an effective manager, she was not an effective leader. At the other end of the spectrum Jenny was adept at delegating responsibility to her co-workers and she enjoyed the opportunity to be a member of the group. Like many managers, Jenny embraced the opportunity to spend time with their co-workers, to reconnect with team mates rather than managing subordinates. There were numerous references to the '*fun'* and *'enjoyment'* managers experienced coming together with colleagues for a non-work related activity. Jenny's participation helped her to build her relationship with her co-workers. Her willingness to be a participant rather than the leader gave her subordinates a clear message about her trust in their ability to take on a leadership role which led to the long term sustainability of the program in her unit.

In CSD one of the workers ran the program with both the unit and departmental managers happy to be participants. In the operating theatre the unit clerk took charge. In CSD the manager was not physically located in the actual unit. She had engendered a culture of trust as she relied on her workers to work autonomously. The program was successfully inculcated into the unit with very limited input from the manager. When this manager took a six week break in the middle of the year the workers simply re-organised themselves to take on her role while she was away.

Revised hypothesis 3 for future investigation.

Strong leadership by experienced and capable managers enabled this complex work environment to function effectively and this dictated the culture of the organisation. The patient imperative was pervasive, the team had witnessed numerous examples of managers taking charge of interactions with families rather than encouraging co-workers to develop these interpersonal skills. Not all managers have effective leadership skills and in this organisation there were limited opportunities for managers to become more effective leaders. The third hypothesis evolved from its original inception to one that better reflected the realities of the work environment in which it was conceived and tested: Where managers learn and practice effective leadership skills the program will be successfully implemented and sustained.

Hypothesis 4: Managers as role models.

If managers are consistent role models, workers will learn to prioritise their own health needs.

The fourth hypothesis posited the involvement of managers as change agents. It called on managers to model positive health management behaviours and to consistently demonstrate and reinforce appropriate occupational health and safety practices. By participating in the daily group exercise program, managers would also demonstrate their commitment to the program and empower their workers to participate.

To enable transformational learning workers needed to work towards a vision of the new way of thinking and working. This needed to be articulated and modelled by managers. There were numerous experiences of managers who had changed their own health management behaviours, both before and during the implementation of the project.

> *"I realised about two years ago that I wasn't spending much time with my two children who were two and six months. By the end of the day I was totally exhausted. My dad died when I was young and I didn't want to miss out on being there for my kids so I decided to make some changes. Now I go to the gym every day in my lunch break and I watch what I eat and drink. I feel fantastic and have so much more energy at the end of the day to spend with my family."*
>
> *(16/8/2007 Glen, 42 year old environmental services department manager)*

> *"After we'd been doing the exercises for a while at work I started to feel better. One morning at 5.00a.m I finished work after being called in for an emergency caesar [caesarean section] and I was leaving with a colleague and I said to her, 'where are you going?" and she said she was going to the staff gym and I thought, what a good idea. So I started going to the gym and then they started the Weight Watchers at Work program and I joined in and I've lost 23 kilograms and I feel absolutely fantastic. I have so much more energy. I used to go home and just lie on the couch but now I go out, I spend time with my friends, I just feel so much better."*
>
> *(7/4/2008 Jenny, 50 year old operating theatre unit manager)*

"I absolutely love dragon boat racing, I've been doing it for years. We row down on the river and into the docklands two nights a week and sometimes we race on weekends. On a summer's night we have a b.b.q. afterwards and everyone sits around and has a drink and a sausage. It's sensational. I'm by far the oldest in the team but I am stronger than most of the young things. It keeps me young and fit and gets me away from thinking about work."

(13/2/2007 Maureen, 63 year old nurse unit manager)

These managers provided exemplary role models in terms of their own health management. They were not necessarily the fittest workers but they were people who had taken control of their deteriorating health and made a number of positive changes. Maureen was a very robust 65 year old and despite her demanding role as a unit manager, exuded health and energy. She took on the role of group exercise leader with a great deal of zest and vitality. Her dragon boat exploits informed her determination to build a team spirit around the program and, despite her shortcomings as a leader; she did provide a credible role model. Jenny was also an effective role model. Her dramatic weight loss was a very visual reminder to her workers that she had made changes to the way she managed her health it bore witness in both her weight loss and her concurrent increase in energy.

Glen completely changed his work practices. He came to work an hour earlier so that he could go to the gym in the middle of the day. Everyone knew that he was heading off to the gym and his public statement about his commitment to his fitness training had a positive effect on many of his workers. He emanated energy and was a very positive and enthusiastic manager of a diverse portfolio of units across the organisation. During discussions with Glen and an injured worker he was quick to tell them about his own story and how different he felt having lost weight and regained his fitness. He focused on the effect of his lifestyle change on his family, his children in particular. When his wife contracted breast cancer he kept going to the gym. His workers knew he was under a great deal of pressure but he was determined to maintain his commitment to his own health. "*How can I take care of my family if I'm not well myself?*" he was often heard to say.

Other managers also demonstrated a strong commitment to their health and fitness. Cathy in the day procedure unit, played netball for the state while Silvia in maternity was an avid walker. Allie from CSD rode her bike to work. Mary-Anne in the post-operative care unit had been a netballer until she rolled her ankle and had gained thirty kilograms while recovering and Daniel on the 7th floor unit hurt his back but continued to work and was getting back into walking. Jean in the operating theatre was forever starting a diet and joining a gym but never quite managed to stick with it. The effort of these managers to prioritise their health and fitness provided workers with a vision of how their own lives could be enhanced by adopting new health management behaviours and recognising the importance of sustaining that commitment.

While there were several examples of managers demonstrating a consistent commitment to their own health, there were also less positive examples of managers failing to change their own work health management practices. The hospital had two sites approximately two kilometres apart, separated by a magnificent park. Management meetings were alternated at each site but rather than take the fifteen minutes to walk through the park from one site to the other, some managers would be seen jumping on a tram. *"It's quicker"* they would say. This neglected opportunity implied that time taken to exercise was less valued than time taken to work. While there were managers who took the initiative to discuss work issues while walking with a colleague, more often than not managers took the tram. Workers witnessed these behaviours which reflected the work ethic of the managers. By association their behaviours reflected the values of the organisation and the culture of the hospital.

During the situational analyses the project team witnessed numerous breaches of safe work practices by managers. The hospital's *'No-Lift'* policy restricted the transfer of all patients to lifting apparatus such as hoists, pat-slides, commodes or sit-stand machines. In the nursing units managers would also work shifts where they provided direct patient care, alternating their management roles. Many of these managers were older nurses who had trained in the practice of physically lifting patients. These nurse/managers would manually lift patients themselves, transferring patients from chairs into bed, pulling them up the bed into sitting, lifting two legs onto the bed rather than the prescribed single leg lift, or pushing patients in commodes across carpeted floors. When a manager ignored the no lift rule they sent a clear message to other workers that it was acceptable for them to absorb risk. When challenged these managers were dismissive "*I only pulled him up the bed*" rather than acknowledging the significance of the risks they were taking.

Younger nurses were university trained and indoctrinated in safe lifting practices. There were numerous examples where older workers encouraged younger nurses to move a patient without the appropriate equipment. This was often done in full view of a unit manager and yet there were no repercussions for the older nurses. When this occurred managers reinforced the prevailing perception that the needs of patients outweighed the needs of nurses.

Twenty-four year old nurse Alexia sustained a low back injury when lifting a patient in the shower.

> *"I was in the bathroom with a patient on my own when she slipped on the wet floor and fell. I felt something pull in my back. When my partner (older nurse) came she told me to grab the patient under the arm so we could lift her. I wanted to get a hoist to lift her because the floor was wet and I knew I'd already hurt my back but she wouldn't*

listen. I could tell she was really cross so I just did what she told me to do and now I'm stuffed. When I told my manager how I got injured she wanted to know how I let the patient fall in the first place. She didn't say anything about what (older nurse) did."

(25/1/2008 Division one nurse, 2nd floor unit)

37 year old cleaner on 8th floor unit injured her shoulder when lifting a loaded laundry bag. She had previously complained to the manager that the nurses were over-filling the bags with heavy wet laundry which made it difficult for the cleaners to lift but nothing had been done to change this practice. The worker conceded that she had been in the practice of lifting the bags and throwing them down the laundry chute, rather than using the trolley, splitting the load and tipping the bags down the chute..... because it was quicker. She said that her manager had told her to split the load but she didn't have time to do that thirty times a day so she just lifted the 15+ kg bags.

(25/4/2008 Journal entry)

For transformational learning to occur, particularly at an organisational level, the desired behaviour needs to be non-negotiable, particularly when these behaviours relate to the health and safety of workers. It was the responsibility of the unit managers to ensure that workers did not risk their own health. If managers did not provide positive role modelling of appropriate risk management behaviours, workers were unlikely to take a pro-active role to minimise their own risk of injury. As health and safety were inextricably linked in both principle and practice. It seemed clear that if managers modelled appropriate health and safety behaviours and were consistent in their enforcement of safe work practices, workers were more likely to adopt the same behaviours.

Managers were rarely seen taking rest breaks. The project team struggled to recall a single instance when they had observed a unit manager eating his or her lunch in the staff room with their colleagues. They did however observe managers 1) regularly asking workers to work extended shifts, 2) not scheduling work breaks for themselves or their workers, 3) assigning workers to other units despite lack of experience or functional capacity, 4) encouraging injured workers to work beyond their restricted duties and 5) condoning the practice of scheduling back to back shifts (i.e. a late followed by an early). Managers were also observed to work well beyond their scheduled shifts.

Ada, the manager in the kitchen, readily admitted to coming in to work on weekends to *"catch up on paper work."* One of her kitchen workers started work three hours early at 4.00. a.m. to also "*catch up on some cleaning*" before then completing a ten hour shift. These workers were not paid overtime. Ada was aware that this 68 year old worker was in the habit of starting work three hours early but did nothing to discourage the practice.

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Managers modelled these selfless behaviours; it was quicker to carry arms full of medical files than use a trolley ergo, their workers found it quicker to take the lift, push a bed on their own, forego a rest break or to skip lunch.

These observations concerned the project team who recognised how pivotal the managers would be in encouraging workers to participate in the program. The inconsistencies witnessed during the situational analyses flagged the possibility that workers would not participate in the group exercise program if they did not believe their managers really wanted them to do so. It also called into question the role managers played in monitoring the work practices of injured workers attempting to return to their pre-injury hours and duties. During the interviews, some workers had described the hospital management as hypocritical, in espousing values that were not upheld by their unit managers. If the managers were not prepared to prioritise their own involvement in the program it was unlikely that their workers would participate.

A key strategy was to draw upon the leadership skills of unit managers to model participatory behaviour in the group exercise program. This strategy required managers to 1) encourage potential leaders to take up leadership roles and 2) join in the daily group exercise program themselves. As the gate-keepers of the hospital culture the managers would have to make a very significant commitment to change their own attitudes and behaviours around prioritising the program if they were to become effective and convincing advocates for it. The participation of the unit manager in the exercise programs was recorded on the participation sheet (Table 5.12). Each day the group leader would record the number of participants, the number of potential participants (i.e. workers allocated to the unit at the time of the session) and whether the acting unit manager at the time had participated.

Table 5.12

Group exercise attendance by managers and workers in the kitchen

Date	Activity		Location		
20/11/2007	Participation record		Kitchen 1		
10.45a.m	**Mon**	**Tues**	**Weds**	**Thurs**	**Fri**
Participants	14	9	14	9	13
Potential Participants	22	18	15	17	14
Leader	JK	LP	JK	AF	TP
Manager present	Y	N	Y	N	Y

The participation data were reviewed weekly, as well as the feedback from focus groups and the exercise physiologists who participated in the group program. Initially the managers attended most of the sessions, most of the time. Over time (three months) the data indicated that managers were participating less often and when they did not attend there was usually a concurrent drop in the attendance of the workers in that unit.

At the end of the first twelve months of the program the data were collated (Table 5.13). The attendance of the manager was seen to relate to both the consistency of the number of sessions run as well as the participation of workers. Not all units collected participation data consistently and their data has not been included in this table. Environmental workers participated in programs in other units and the nursing units at site 2 did not collected data consistently enough to analyse their results comprehensively.

Table 5.13.

Participation record in group exercise settings for a cross section of units over twelve months.

	1.	2.	3.	4.	5.
	Participation of workers in group sessions	Number of sessions run in each unit (%)	Rotation of leaders in each session	Participation of manager in each session (%)	Overall rating (cumulative score)
CSD 2	63	90	Y	100	84
8th Floor 1	77	79	N	90	77
Kitchen 2	65	92	Y	85	84
Theatre 1	72	82	N	100	74
Kitchen 1	31	79	Y	85	70
Theatre 2	18	85	Y	75	70
1st Floor 2	32	63	Y	75	63
2nd Floor 2	27	56	Y	75	60
DPU 1	20	36	N	30	40
DPU 2	15	40	Y	50	39
CSD1	22	29	N	10	38
Angiography	3	2	Y	10	19
Maternity	0	0	N	0	0

1) Average percentage participation of workers in each session vs. the potential number of participants
2) The frequency of sessions conducted vs. the potential frequency of sessions (i.e. some units are active 24/7 whilst others such as the operating theatres are only operational five days per week)
3) Rotation of leaders
4) The participation of the manager.
5) The overall rating: the composite score derived for parameters 1- 4

The role of managers in the sustainability of the program.

The following cases provide some insights into how the participation of managers (or lack thereof) influenced both the participation of workers and the sustainability of the program. These cases are presented as brief summaries only.

The maternity unit.

Silvia was 63 and had been at the hospital for more than 20 years. She was thin, tall and fit. Her role was predominantly administrative although she did attend births when required. She was initially extremely keen to see the project implemented in her department, citing injuries and fatigue as key concerns for her staff. She provided access to her team but did not attend any of the meetings or training sessions herself. She kept the exercise physiologists waiting for up to half an hour at times while she completed her hand-over to staff and would then leave before the group exercise session began. On a number of occasions she left the author waiting at the reception desk for twenty minutes before telling her to leave because they were all "*too busy.*"

Silvia was often unavailable for discussion and on several occasions failed to attend meetings which she herself had scheduled. She requested pieces of equipment (a treadmill) for the staff room to enable her nurses to keep fit when things were quiet in the department. A treadmill was hired and sat in the staff room for three months. No-one ever used it. Attempts to discuss these concerns with her were fraught. Silvia was adamant that her team were too busy to stop and stretch or to participate in health management training. She had identified two staff members to complete the group leader training sessions and neither attended. Her catch cry was always "*we are too busy.*" On most occasions this was not the case, the exercise physiologists often found five or six nurses sitting in the tea room watching television or chatting. When they attempted to engage these women they were either ignored or asked to leave. "*We do enough exercise in this job already*" was the most common response.

The member of the executive team appointed to oversee the project [Karen] was unwilling to confront Silvia about her lack of commitment. When the project team decided to withdraw the program from this department Silvia wrote a scathing letter to the hospital director stating in effect that the project team had been an inconvenience in her department and that *she* was withdrawing her team's involvement. Karen subsequently surmised that Silvia's motivation for requesting the program in her unit was to provide evidence to the senior executive team that they were so busy in the maternity unit that they needed more staff. At no time did any of the members of the executive team question these behaviours or attempt to intervene on behalf of the project team. Karen made it clear that if the program was not a priority for Silvia it was her choice not to participate.

The kitchen programs.

In the kitchens, both managers were very enthusiastic and attended 85% of the time. Table 5.14 illustrates the relationship between the participation of the manager and the workers in the kitchens over twelve months.

Table 5.14

Comparison of participation records in group exercise sessions between the two kitchen units

	1.	2.	3.	4.	5.
	Participation of workers (5)	Number of sessions run (%)	Rotation of leaders	Participation of manager (%)	Overall rating
Kitchen 1	31	79	Y	85	70
Kitchen 2	65	92	Y	85	84

A higher participation rate amongst the second kitchen may be attributed to the different functions of the two kitchens. Kitchen one cooked and prepared all the food. The chefs and food preparation workers were rarely available to join the group program in the morning but completed their exercises at their workbenches independently. At the second kitchen, food arrived pre-prepared and was only heated and served. This meant that the majority of workers were able to stop and join the program. Both managers were equally committed and participated in an equal number of sessions. They were both strong advocates of the program and during the year provided good leadership, modelling to their workers through their own participation, their willingness to take a turn at running the sessions and also in their willingness to share the leadership role. They actively encouraged their workers to participate, to complete the leadership training program and to be involved in running the sessions whenever possible.

At the first kitchen where the pilot had originated, Ada was a very staunch advocate and made a consistent effort to attend the daily group session straight after morning tea. She found that her commitment to the program strengthened her relationship with her team, particularly given that she began to join them for morning tea each day, before joining the group program. Because she was in the tea room the group leader found it easier to bring people together.

"Ok, come on you lot, let's get started on our exercises. Can someone turn the TV off? I've got a really sore back today Alma (group leader), can we do some back stretches today? Has anyone else got a sore back?"

(10/10/2007 Kitchen manager)

When Ada was in the tea room the group leaders felt more confident. They often waited for her to call an end to morning tea and stand up ready for the exercise session. The group leaders relied on her to instigate the coming together and were then able to run the session themselves without the need for further input from her. One of the workers took responsibility for completing the participation record every day and also developed a roster of the leaders so everyone knew whose turn it was to lead the group. The leaders consistently took their turn and over time became more confident and adept. An exercise physiologist participated regularly and provided positive reinforcement, particularly to the leaders, and suggestions for modifying and adapting the activities. Glen, the Department head, also attended regularly. He was also an effective advocate, providing encouragement to the leaders and the unit manager.

The program continued for twelve months during which time workers began to incorporate the exercises into their work routines. Workers were seen stretching as they cut sandwiches, pushed trolleys or waited for lifts. These workers clearly felt empowered to take time to exercise throughout the day. Ada also reported that the kitchen workers had been more pro-active in reporting potential injuries (e.g. episodic experiences of pain that could, if untreated, become an injury).

At the end of twelve months the exercise physiologists withdrew and the kitchen group leaders were left to sustain the program. The participation records were not completed and towards the end of the eighteen months the group program was being run just once per week by Anna, one of the supervisors. In an interview Ada expressed regret about her inability to sustain her involvement in the program. Glen had been away from work for six weeks and during that time she had taken over his role as department head. Without her presence in the kitchen the sessions had dwindled and when she returned she didn't have the energy to re-invigorate the program. Ada's inability to maintain her commitment to participate in the program had a very significant impact on the participation of her workers. She was "*too busy*" to attend, her workers were therefore also "*too busy*" to continue. The leaders reported they were "*too busy.*" Everyone was busier than they had been the year before when they were able to take six minutes to come together to exercise every day. There seemed little doubt that if Ada had continued to attend, the program might have continued. Similarly if an exercise physiologist had continued to attend, the program would have continued. These workers had clearly enjoyed getting together and doing the exercises. Ada had enjoyed being involved and spending time with her team. Everyone reported improvements in their fitness and decreases in their pain and fatigue. There

were fewer injuries. Despite all these factors the evidence appeared to show the program could not be sustained without the active involvement and support of the manager.

Glen the Department head was disappointed about the loss of interest in the program. He had been very impressed by the significant reductions in injuries over the first year and was adamant that the program had to succeed. He asked the author to meet with him and a team of supervisors from the kitchen and told them that they were responsible for running one group session each per week. The author worked with the three supervisors, ran a series of sessions herself to get the group program going and reintroduced the participation recording system. Glen made the supervisors accountable for the program by monitoring the participation records.

> *Anna, Noni and Nilma have been running three group sessions per week for the past three months. Ada joins in occasionally but does not instigate the sessions. After our August meeting with Glen, Anna and the other supervisors I put together a new program that can be done sitting or standing. I put up new posters and worked with the group after their tea-breaks for a few days to get something happening (Nilma was too busy to come to the tea room.) Have also identified a new chef (Robert) who has shown some interest so I will talk to him as well. Met with Glen who is very happy with the program and joins in whenever he can.*
>
> *(30/11/2009 interview with Ada, kitchen manager)*

It was only after the department manager insisted that the supervisors take responsibility for running the program that the sessions were run consistently. The intervention of the department head proved to be successful after he 1) articulated his expectation, 2) committed to personally monitor participation via the record keeping system and 3) provided consequences for inaction.

Accountability procedures.

This observation reinforced the validity of the hypothesis that to be successfully sustained in the long term, the department heads and members of the senior management team needed to provide leadership and an active presence. A brief comparison of how the group exercise program fared over the 18 months at site one and 12 months at site two provides further support for this hypothesis.

The operating theatre.

The manager of the operating theatre at site one attended every session. She made sure everyone available joined in and constantly talked about how fantastic she herself felt as a result of stretching and how wonderful

it was to have the opportunity to spend some time with her team before the shift began. She volunteered and encouraged her colleagues to train as a group leader and ensured that they regularly ran the sessions. As a result the participation rate was consistently above 70% and the frequency of sessions above 80%.

Day procedure unit.

Within six weeks of the program's introduction the participation in the DPU dropped off significantly. The manager rarely attended the sessions (30%). Her team tried to coax her out of her office to participate and she would come begrudgingly. More often than not it was a case of, "*I'll be there in a minute*" and then she would not appear. Only one trained leader ran the sessions. Attempts were made to trial different times for the group sessions and different locations. The sessions were rarely run (36%). If the exercise physiologist attended, a few workers would join in, but the workers in this department were generally required to attend to their surgical patients 1:1 throughout the shift. Patients were either being prepared for surgery or recovering and needed to be closely monitored before leaving the hospital.

The manager argued that there were very few opportunities for workers to come together as a group. The author therefore put posters up beside each bed and encouraged workers to work on their own programs while they were attending to patients. This approach only worked well for workers who felt confident about stretching in front of patients. As these workers were not coming together in a group the opportunity to identifying workers at risk of injury was lost. The experience in the DPU confirmed the hypothesis that the program could not override the patient imperative and could only be sustained if conducted at a time and in a location that did not disrupt the flow of work with the support of the manager.

Central sterilising departments.

In the first central sterilizing department the majority of the staff were women and as in the kitchen, the majority were from non-English speaking backgrounds. The manager worked in an office rather than in the unit itself and was rarely available when the groups were run. A small team of workers developed their own protocol for stretching with a series of exercises they performed individually or in pairs on arrival then another set in small groups at regular intervals throughout the day. The unpredictability of their routines meant that this regimen worked well for them. Three of the men in the department were less inclined to participate than the women. They were interviewed by the male member of the project team and reported that they felt uncomfortable stretching with the women. They were receptive to other options and as a result a punching speed ball with a counter was set up in one corner of the unit to enable these workers to have some fun and compete with each other. Once trained in the appropriate technique, they regularly worked on the speed ball, recording their times and frequency and compared results with each other.

The manager of the second CSD was enthusiastic. She worked in the unit and embraced the opportunity to bring some fun into her workplace. She was concerned about the number of ageing and injured workers in her team and was mindful of the repetitive and physically demanding nature of the sterilising work. She was appreciative of the prospect of improving the health of her team. "Quite a few of our team have ongoing problems with their necks and shoulders. It is really good to see them doing something to help with this."(Hanna, CSD manager 6/5/2009). The assistant manager shared the leadership role and continued to bring her team together every day to complete six minute of exercise with no ongoing support from the project team or the exercise physiologists.

Revised hypothesis 4 for future investigation.

The observed relationships between the participation of managers and their workers in the group exercise program led to the refining of the fourth hypothesis: - **Managers who demonstrate that they see value in the program will encourage their workers to prioritise their own health needs.**

Hypothesis 5: Motivation for engagement.

Identifying opportunities for personal gain will engage workers to participate in the program.

In the present study the very people with the most to gain from a workplace health management program were the ones least likely to participate (Aittasalo & Miilunpalo, 2006). Opportunities were explored as to how to motivate workers to engage in the program. Workers appeared to have a limited awareness of the physiological changes associated with ageing that many were experiencing. They were seen to be limping, using one arm, leaning against a wall to alleviate back pain, moving more slowly, rubbing sore feet, straining to read medical charts for want of a pair of glasses. Many workers had been colleagues for decades yet had not recognised these changes or thought to point them out to each other. *"What do you mean I have a limp?"* queried one worker of her friend. "*You've had a limp for months"* her friend replied. It was hardly surprising therefore that these workers appeared to have a low level of awareness of the aches and pains and the fatigue that had crept up on them over time.

Recognising physiological changes (such as pain and fatigue) and understanding that they could be mitigated through improved health management practices would introduce the concept that through their own actions, workers could improve the quality of their own lives. Increased awareness provided a means for the worker to

see some potential gains in participating and thus could motivate them to initiate changes in their health management practices. The key message therefore was that a small amount of daily exercise can result in less pain and fatigue. If this could be demonstrated in six minutes in an enjoyable format, perhaps these workers would see value in exploring other opportunities to improve their health and fitness. If older and injured workers could see benefit from their involvement in the program, the remainder may also see the potential to derive personal benefit from their own participation.

This fifth hypothesis therefore set out to test the theory that if workers felt better in some way at the end of a work shift as a result of having performed some specific exercises, they would be more inclined to participate in the program. Five specific strategies were employed as a means to test this hypothesis.

1. Implement introductory workshops to familiarise workers about the various aspects of the program and heighten workers' awareness of the physiological changes associated with ageing
2. Provide participants with the means to monitor changes in pain and fatigue in order to demonstrate potential for personal change
3. Demonstrate how the physiological changes associated with ageing can be mitigated by pro-active health management
4. Encourage workers to expect to "*Feel good at the end of a work shift*"
5. Utilise injured workers to show and promote the role of exercise in injury recovery

The experience of implementing these strategies is summarised below.

1. Introductory workshops.

The first introductory workshop was run at 7a.m on a Wednesday morning on the 8th floor. Eighteen workers attended including Maureen. An interactive session was run that included discussions, brainstorming and group physical activities to give workers an opportunity to compare their physical capabilities with that of their co-workers. The 'pole range of movement' exercise for example (Figure 5.4), clearly demonstrated to the group those workers who had full range of pain free movement in their shoulders, and those who did not. This led to discussions about why some people had maintained their mobility.

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Figure 5.4. Workers exercising in the operating theatre recovery unit

Maureen was the oldest member of the group and took obvious delight in her ability to complete this activity when many of her younger colleagues could not. She explained that she was a member of a dragon boat racing team and maintained her strength and flexibility by rowing three times a week. Other workers who had successfully demonstrated full range of movement had similar stories, they were the swimmers, the ones who did water aerobics or played netball. This discussion was the catalyst for a heated debate about how these people found time to participate in physical activities outside work.

> *"By the time I get the kids up and ready for crèche, drop them off, get to work and get home again I'm too exhausted to even think about going to the gym."*

> *(8/8/07 Nurse 8th floor unit)*

"I have kids too but I try to get out at lunchtime for a walk around the park. I always feel better when I have had some fresh air and done some exercise."

(8/8/07 unit clerk DPU)

"My kids are grown up so that's not the problem, I just feel too tired to exercise consistently and I lose interest. I'll start something and do it for a few weeks but then I just (shrugs) stop."

(8.8.07 PSA operating theatre)

Pain and fatigue graphs were used to demonstrate how work activities led to increased pain and fatigue over the course of a shift. A series of exercises were introduced to demonstrate how the program could reduce pain and fatigue. Some workers were taken aback at their inability to perform activities that their colleagues found apparently easy.

"Oh my god, I can't believe I can't balance, it must be these shoes."

(8/8/07 Nurse 8th floor unit)

"Wow I can really feel that in my tummy, it's not as easy as it looks is it?"

(8/8/07 Nurse DPU)

Workers were amazed at the vast difference between the physical capabilities of their colleagues.

A few struggled with some of the exercises. There was a lot of "How come I can't do that," and "wow, look at Judy – that's incredible that you can do that…" Some had trouble with their balance. Maureen was clearly very pleased with the session and enjoyed demonstrating her flexibility.

(9/8/07 Introductory workshop 8th floor)

Some workers saw a clear relationship between the exercises and the physical activities they performed every day at work.

"This one is like when I am mopping the floor so I can do it no problem."

(8/8/07 Cleaner, Angiography Unit)

Such experiences were taken as evidence that the introductory workshops were successful in heightening attendees' awareness of the potential benefits of exercise particularly in relation to reducing pain and fatigue at the end of a work shift. This was further supported by feedback from the focus groups.

2. Monitoring changes in pain and fatigue.

The visual analogue scale questionnaires were used to heighten worker's awareness of how their work impacted upon pain and fatigue across a work shift. Furthermore, it was also used to provide feedback to workers about changes in their pain and fatigue at the end of a shift as a result of their involvement in the program.

These data were reviewed at the end of six months in each unit and the results were graphed and used to reinforce the concept that the program could facilitate reductions in pain and fatigue at the end of a work shift. The results demonstrated a 65% reduction in perceived pain and 9% reduction in perceived fatigue at the end of a work shift in those workers who regularly (3+ times per week) participated in the daily group exercise program. There was no change in worker's perceptions of pain or fatigue recorded in the control groups that had not participated in the group exercise program. Table 5.15 presents the results of pain and fatigue scores recorded using VAS from 120 workers prior to and following their involvement in the program.

Table 5.15

Data analysis of pre and post program pain and fatigue data

	Start of shift	Mid shift	End of shift	Daily Average
Pre- program Pain	1.45	4.65	5.79	4.14
Post program Pain	1.09	2.69	3.57	2.51
% Change	**33%**	**73%**	**62%**	**65%**
Pre- program Energy	7.84	6.17	3.12	5.82
Post program Energy	7.58	6.58	4.61	6.34
% Change	**-3%**	**7%**	**48%**	**9%**

The strategy to heighten worker's awareness of their experiences of pain and fatigue and the impact of daily exercise was deemed to have been successful in contributing to worker's decision to participate in the program. Through this process of awareness, workers were taught how to adapt their work practices to manage their pain.

"I found if I did two hours and then lay down for ten minutes with a hot pack my pain went from a 7 down to a 3 so then I was okay to do two more hours before taking another break. If I kept working without taking the break by about 11o'clock I was in agony and had to go home. By breaking up the day with rest breaks and doing my stretches I have been able to gradually build up my hours over the past two weeks. I feel more in control and the pain stays under 4 most of the time so I feel better at the end of a shift."

(19/12/2008 injured angiography technician)

In addition to monitoring pain and fatigues, the VAS provided a consistent message that workers were experiencing less pain and less fatigue at the end of a work shift if they participated regularly in the program.

3. Demonstrate how the physiological changes associated with ageing can be mitigated.

Throughout the program opportunities were sought to link the management of physiological changes associated with ageing its benefits. The daily group exercise program was one forum where workers were given the opportunity to monitor changes in their functional capacity and reflect on the benefits. During their involvement in the exercise program workers were constantly encouraged to reflect upon the changes that they could see and feel in their own bodies and that of their colleagues as a result of their participation in the program.

"How come I can't do that?"...."wow, look at Judy – that's incredible that you can do that…"*

(9/8/07 Second leadership workshop)

"How come you can do that and I can't even get my hands together behind my back?"

(8/8/07 PSA operating theatre)

As workers began to recognise improvements in their functional capacity they were encouraged to share their observations.

People are shocked at how well some workers are able to complete the exercise while others really struggle. Some people are reporting improvements in flexibility already. Some workers are using the exercises as they work (preparing to push a bed, move a BP machine).

(23/8/07 focus group 8th floor unit)

Many workers particularly recognised improvements in the range of movement in their shoulders and reductions in low back pain.

"We are able to stretch much further and with less pain, there was less moaning and groaning than when we first started."

(23/4/2008 nurse unit manager, operating theatre)

"Before when my back was sore I felt terrible all day. When I do some stretching I feel good, the pain is not so bad. Sometimes I don't even feel the pain at all."

(10/6/2008 kitchen worker)

Jenny in the operating theatre observed that in the second week the exercises were becoming easier and by the end of the fourth week she was able to stretch much further and she could feel a difference in her own back and neck pain.

(4/11/07 group leader's focus group)

Opportunities were also sought to stimulate discussion within each group about a broader range of health management practices, and associated benefits.

JS asked the group "What did you have for breakfast this morning?" which led to a discussion about low GI foods and how complex carbohydrates prolong energy and satiety. The team agreed to try this approach with other groups. Participants are starting to say that they feel better after a session, that the exercises are becoming progressively easier over time and that they recognize increases in joint range of movement, particularly in their shoulders. Some have commented that they feel better at the end of a shift, less fatigue and pain. Workers are also saying that they enjoy getting together "it's fun."

(3/9/07 project team discussion)

The increased spontaneity of the group discussions suggested that participants were becoming less self-conscious over time and more relaxed and confident. They were also curious about what the "fit" workers were doing. *"How come you can do that and I can't."* The fact that the participants carried out similar roles, were of

similar ages and gender, cultural backgrounds etc. and all were constrained by multiple responsibilities both at and outside work made these discussions of particular value. Rather than a health professional berating them for their poor health management practices, they were hearing first hand, in an unscripted and very impromptu forum, about how other people managed their health. This included not only specific health management practices such as nutrition and exercise but the more practical realities of juggling work and families.

On the 8th floor 64 year old 'Kokoda Kathy' was revered by her colleagues. They often referred to the fact that she walked ten kilometres to and from work every day and never complained of pain. She was walking proof that it was possible to continue to work full-time pain-free despite her age. The project team did manage to coerce Kathy into allowing an article about her experiences as an older nurse to be written in the hospital's newsletter. The article featured a photograph of Kathy at 60 completing the Kokoda trail in Papua New Guinea. Workers around the hospital recognised Kathy as an inspiring role model. The project team was constantly alert to such opportunities to reinforce the positive benefits of health and fitness. Despite Kathy's unwillingness to engage in the program personally, the team utilised her positive health managing behaviours to motivate other workers.

The social communication that occurred spontaneously in each exercise session was deemed to be one of the most valued aspects of the group program. It was not unusual to encounter a group of workers stretching as they sang *"Happy Birthday"* to a colleague in the group. Managers and workers alike often commented that the opportunity to *"chat"* with co-workers about their experiences was of significant value.

The fact that these conversations happened whilst workers completed the exercises challenged the argument that people had *"no time"* to exercise. The program clearly demonstrated that it was possible to conduct a meaningful exchange between colleagues whilst they simultaneously performed exercises. The exercise physiologists gradually introduced the concept of incidental exercise, inculcating more physical activity into daily activities such as taking the stairs instead of the lift. Over time this led to a proliferation of workers seen stretching in corridors whilst talking to a colleague, pairs of workers stretching as they prepared to move a bed, pairs of workers taking the stairs and continuing their conversation en route. The kitchen workers had their own service lift and a copy of the stretch poster appeared one day in the lift. One of the workers had taken the initiative to photocopy the poster and put it in the lift so that she could do some stretches on her way to and from the units.

4. Feel good at the end of a shift.

The goal was to reinforce the message that participation in the program enabled workers to *"feel good at the end of a shift."* The term was used regularly, particularly when introducing the program into a new unit.

There were numerous examples of workers explaining to new colleagues that they joined the program so that they would feel better at the end of a shift.

> *"Some days I just don't get time to join in and I really feel it in my back at the end of the day."*
>
> *(13/5/2008 Kitchen worker)*

> *"If I get the chance to do the stretches I feel less back pain."*
>
> *(18/8/2008 PSA 2nd floor unit)*

> *"When I do the exercises my legs and feet don't ache so much."*
>
> *(19/8/2008 nurse 2nd floor unit)*

> *"I don't need to wear Teds [support stockings] now that I'm doing the stretches in the morning."*
>
> *(18/8/2008 nurse 2nd floor unit)*

When the program faltered or failed in a unit it was not unusual to hear workers refer to the fact that they had felt better when they were doing the exercises regularly. On the 8th floor several workers referred to the return of back pain and shoulder pain after the program stopped.

> *"I felt better when we were getting together to exercise. I really miss it."*
>
> *(27/11/2008 Nurse on 8th floor unit)*

> *"I miss the exercises. I try to do myself but it's not the same. I like it when you come to do the exercise with us. Nobody here do them anymore. No-one help us (sic). Why can't you come every day to do them?"*
>
> *(15/7/2007 Kitchen worker)*

5. Utilise injured workers to show the role of exercise in their recovery.

Wherever possible I have tried to work 1:1 with the injured workers in their work place. This has given me the opportunity to get to know the workers and their colleagues, to build relationships with them and their managers.

(12/11/2009 Journal description on the functional restoration programs)

The group exercise program was used to help re-integrate these injured workers. Through their participation in the program injured workers were able to demonstrate to their colleagues the role exercise had played in their recovery. Exercise had enabled them to regain their functional capacity, reinforcing the correlation between exercise and recovery from injury.

"I had a very bad accident with my back and had so much pain. I couldn't do much because of the pain and I had to take lots of medication. Then (author) taught me some exercises to help the pain and I started to be able to walk again. Then I started back at work but I couldn't do much but it was good to be back with everybody and I could do some of the exercises with everybody else and that made me feel a bit better. Slowly, slowly I got better and now I still do the exercises because I don't want to have that pain ever again."

(12/7/2008 kitchen worker)

The injured workers also played an active role in establishing a communication network between the project team and the workers in each unit. Having established trust with the author they would at times confide in her about other workers.

Mary doesn't want anyone to know she hurt her back again because she doesn't want to stay home, but I told her you could find her some other things to do at work and fix her back.

(19/8/2008 Margot: injured worker operating theatre)

Injured workers were credible role models. The strategy to utilise injured workers to encourage workers to participate in the program worked well and also helped to reinforce the importance of early reporting and seeking the assistance of skilled clinicians.

Confirmation of hypothesis 5.

The hypothesis that identified intrinsic reward as a motivator for individual's engagement in the program began with the theory that identifying opportunities for personal gain would engage workers to participate in

the program. The willingness of workers to share their experiences and to bring their friends and colleagues along to share the gains they had experienced provided evidence that the strategies used to motivate engagement in the program were successful. These observations confirmed hypothesis five: - **Identifying opportunities for personal gain will engage workers to participate in the program**.

Hypothesis 6 (H6): Harnessing peer support.

Identification of hypothesis 6.

In exploring strategies for engagement during the implementation of the program the project team observed the role of peers in bringing people to the program, in identifying and supporting injured workers during the return to work process. The theory that colleagues influence the desire to participate started to emerge. From that theory a sixth hypothesis was identified: - **Harnessing peer support will influence workers to participate in the program and support the early return to work of injured workers.** Consistent with the underlying theory a number of strategies were developed and implemented.

Table 5.16

Strategies to test hypothesis 6 on harnessing peer support

Desired outcome	Hypothesis		Theory	Strategies
Peers will support each other to participate in the program, to identify workers at risk of injury and support colleagues returning to work	**H6**	**Harnessing peer support will influence workers to participate in the program and support the early return to work of injured workers.**	**Colleagues influence the decision to participate**	Team Building: encourage workers to see the program as an opportunity to belong to the team
				Active observation: workers could observe changes in colleague's functional capacity
				Shared empathy: encourage workers to identify with each other (i.e., injured workers, new graduates, older workers etc.)
				Respect for workers' contributions: demonstrate how their ideas actively contributed to the development of the program.
				Respect workers' individual right not to participate or contribute
				Seeking feedback from non-participants

Harnessing peer support will influence workers to participate in the program and to support the early return to work of injured workers.

The sixth hypothesis sought to enlist peer support as an additional engagement strategy. The aim was to call upon workers to encourage each other to become actively involved in the program by becoming participants, group leaders, focus group members and in supporting injured co-workers to return to and remain in employment. The influence of peers in decision making around sustainable behaviour change has been strongly identified in the literature (Elfering et al., 2002). It was also one of the initial key determinants identified for successful return to work outcomes.

Strategies to test hypothesis 6.

Six specific strategies were developed to target peer support and test this hypothesis (Table 5.15).

Team building.

"…..everyone enjoys getting together, having a laugh."

(12/10/08 focus group 8th floor unit)

The importance of the concept that peers could potentially influence workers' decisions to participate was drawn from the camaraderie observed during the situational analyses and the recognition that belonging to the team was a key component of the organisational culture.

"I come to work to be with my family, all my friends are here, I love to be at work. Sometimes I come at four in the morning to get ready for the day. What else am I going to do?"

(30/8/07 Marika, food services assistant, employed at the hospital for 37 years)

Roulla said she had planned to retire ten years ago but her husband died so she just kept working. She said she couldn't imagine what her life would be like if she didn't work. An 82 year old cleaner, Roulla continued to work full-time and was extremely fit and active. She just laughed when asked about retirement and was emphatic that she had no interest in retiring and couldn't see any reason why she would ever retire. She said she had no pain and never felt tired.

(24/7/2007 Interview with 82 year old cleaner)

"I came to work yesterday. It was the first anniversary of my twin sister's death. I knew I'd be feeling very upset and I thought about going to visit her grave but then I thought, no I'd rather be at work with my friends."

(3/7/2007 Interview with 57 year old nurse in operating theatre)

This concept of belonging to the team was strongly associated with the hospital culture. Each worker relied on his or her colleagues to enable them to complete their role. Every contribution was an integral part of the whole, and if one worker let the team down, the ability of the team to deliver on the patient imperative was undermined. Examples of the role of peer support were observed every day in every unit. Workers took on extra duties to help an injured colleague. Workers argued with each other about who would take the first break. Colleagues insisted that it was their turn to push the loaded trolley. Workers drove out of their way to drop off a co-worker after a late shift. The culture of peer support was integral to the personal and professional ethos of the workforce. The program relied heavily on the desire of workers to belong to the team. If other members of the team joined the program, to be part of the team you would want to be involved in the program.

The desire to be a member of the operating theatre team motivated the clerk in the operating theatre to ensure that the program was sustained. There were numerous other examples of workers joining the program for the purpose of spending time with colleagues.

She also said she didn't think she would like to be a leader but she would love to be involved in anything that gives her the chance to be part of the group.

(30/7/07 interview 18 with cleaner)

Kerry is very happy with the program and enjoys getting together with her team.

(6/3/2008 angiography focus group)

"I'm happy to do it but I already go to the gym three times a week so I don't need the exercise but it would be good to get together as a group before we start the day."

(24/7/2007 div.1 nurse 2nd floor unit)

Maureen reaffirmed her enthusiasm for the program. She described it as "a lot of fun," and said that she feels much closer to her team as a result of spending time with them.

(1/10/07 manager 8th floor unit)

The singular approach to the patient imperative was daunting but it was what defined workers as members of the team. The different attitudes towards the patient imperative between "agency" workers and "hospital" workers were scrutinised. The program sought to capitalise on the resolve of workers to become and remain members of the "hospital" team. To be admitted into this group required daily demonstrations of selflessness, loyalty and dedication, underpinned by martyrdom. As is the case in many families, these were the characteristics that define membership of the inner sanctum and as was seen on a daily basis in the hospital, what underpinned the decision making of these workers.

The influence of peers was equally a potential de-motivating force as was seen during an early attempt to trial the program in the maternity unit. An over-zealous manager had imposed the program on her unsuspecting and unwilling team. Their reaction was to refuse to participate en masse. As the author arrived one morning to run a group exericse session she overheard one of the midwives warning her colleagues *"don't go into the tea room because that exercise lady is in there." (27/7/2007 maternity)*

The strength of this sense of belonging was demonstrated most profoundly during a telephone conversation between the author and a 68 year old injured worker. Maria had worked as a kitchen supervisor for 47 years. She had struggled with back pain for many years and had taken three months off work on injury compensation. Her injury was a degenerative condition exacerbated by years of heavy lifting in the kitchen. The injury manager had attempted to ascertain whether it was in Maria's best interest to attempt to return to work given she had unrelenting, in-operable back pain. In the following telephone call Maria is referring to the injury manager.

> *"I hate her, I hate that woman. She say to me, why don't you just retire! That what she say to me, she say Maria, why don't you retire? After 47 years she just throw me on the rubbish (crying) I can't believe, I can't believe she say this to me after 47 years of working every day at the hospital. What am I going to do? How can anyone say this to me? I hate her; I never want to see this woman again. I never hate no-one in my life ever before but I hate her, my husband hate her, all my children hate her, she is a bitch."*
>
> *(20/11/2011 Maria kitchen worker)*

This worker was bereft at the thought that she was no longer a valued member of the team. Her self-esteem was inextricably linked to her need to belong to the extended work-family that she had supported for more than half her life. The idea that she was superfluous to the needs of her work family was inconceivable. Such a powerful connection to the organisation was not uncommon and explained the pervasiveness and strength of the patient imperative and the extent of the hospital worker's disdain for the agency workers.

Active observation.

Workers were encouraged to observe changes in co-workers' functional capacity. Often the banter during the group exercise activities was unrelated to the exercises but there were occasions when a worker would recognise a change in the physical capacity of a work colleague:-

Vera: "" What's wrong with your right arm Carol? You were able to get your elbow up to your ear last week and now you can hardly lift it... what have you done to yourself?
Carol: "I spent the weekend pruning all my fruit trees and now my arm is really tight and sore."
Vera: "Well, you'd better give Sandra a call and see if she can do something about your arm before it gets any worse. You won't be able to work with it like that today."

(19/9/08 Interaction between a nurse and a PSA 2nd floor unit)

These types of interactions provided opportunities for people within the group not only to observe changes in the capacity of their colleagues but also to offer solutions.

"Maybe you need to stretch before you do stuff like that or do a little bit of pruning each weekend instead of doing it all in one hit."

(19/9/08 Interaction between a nurse and a PSA 2nd floor unit)

The project team became aware of the potential for workers to offer solutions and for groups to develop their problem solving skills and tolerance for others' opinions. The team identified that shared learning could potentially lead to sustained behaviour change. Workers were encouraged to develop their observational and problem solving skills with a view to heightening their awareness of themselves and each other. In each exercise session the group leader modelled an exercise then invited members of the group to suggest how the exercise could be modified to meet the needs of individual workers. *So if you can't reach your ankle to bring your heel up towards your back what can you do?*

Colleagues were also encouraged to work with managers to identify potential duties for injured workers returning to work.

Ada: "What about in the sandwich area? Could Helen do some work with you girls?"

Irene: "Can she stand up all the time, it's very hard to make the sandwiches if you are sitting down, you need to be able to walk over to the bench to get things, and come back, it's too slow if you are sitting down. If she slows us down we won't be able to get it done in time."

Gracia: "But if we move this trolley over to the end she could put the napkin on and cover the gladwrap, she could do that sitting down or standing up."

Irene: "I think I know where we can find a higher stool so she isn't too low."

(5/3/2008 kitchen workers)

When Helen returned to work Irene and Gracia took a particular interest in working with her and monitored her progress. They enjoyed being given the opportunity to help a co-worker but they particularly appreciated having their opinions sought.

"When Ada asked me to help with Helen I was surprised. I see people come back to work all the time and I think to myself, I know what she can do but no-one ever ask me before. I know what it's like to have back pain it's good to sit down little bit and stand-up little bit. It's good to have Helen back at work, I like to work with her and help her. I feel good I can help."

(5/3/2008 kitchen worker)

This practice reinforced important concepts around working despite limitations, continuing to work whilst recovering from injury and the importance of adapting activities to meet the changing needs of individuals. These same principles and practices were applied to manual handling tasks. For example, workers were encouraged to think about the process of transferring a bariatric (obese) patient from a bed to an operating table. In teams of three they observed each other prepare for and carry out the manoeuvre. They then reflected upon their observations and offered suggestions as to how the transfer could be conducted with less effort and risk. This practice of meaningful consultation was inculcated into the program at every opportunity. How can you make this easier? What can you do to feel better at the end of the day?

"I feel better when I do this stretch before I push a bed."

(Nurse from 8th floor 18/9/07)

Skilled clinicians helped managers to develop their problem solving skills facilitating a consultative approach between an injured worker and his or her manager/s and supervisors to identify alternate duties. The organisation's previous approach to return to work had seen injured workers assessed by medical specialists

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off-site whose return to work recommendations were often inappropriately restrictive. Utilising skilled clinicians who were familiar with the workplace and prepared to meet with managers in situ to examine, discuss and customise a specific return to work plan gave managers more confidence in supporting an injured worker to return to work whilst recovering from an injury.

"When Miriam wanted to come back to work after she hurt her shoulder I was a bit worried. She's been injured before and has been difficult to get back to her pre-injury duties. Having the physio to help me work out what Miriam can and can't do means I don't have to constantly watch her to make sure she has enough to do so she's not a disruption to the other workers, but so that she can make a contribution and get better."

(5/8/2007 kitchen manager)

This approach enabled the practitioners to provide well informed advice regarding the return to work of injured workers and to identify suitable alternate duties. Consulting with managers and listening to and respecting their opinions built a co-operative working relationship between the injured worker, their manager and the clinician. To integrate an injured worker back into the workplace whilst recovering from injury required a very high level of consultation and monitoring. Empowering managers and supervisors to develop their problem solving skills enabled them to be responsive to the changes in capacity of a worker without the need for protracted periods of waiting for feedback from external specialists. The skilled clinicians empowered managers to make good decisions, to seek the support of colleagues and to provide encouragement and support to the worker. This process of consulting within teams brought injured workers into the program and enabled them to return to work more quickly and effectively.

Shared empathy.

The variability in the workforce was another observed feature. New graduates worked alongside workers who had been at the hospital for 40 years. Cleaners worked with surgeons, women with men, medical with non-medical, smokers with non-smokers, workers from Croatia, the Philippines, Peru, Thailand and Australia, all with their own individual cultural practices and beliefs. Opportunities were sought to encourage workers to identify with and learn from each other.

In the operating theatre, Margery, an older nurse often walked in the park nearby at lunchtime. Some of the younger women in the morning group exercise session questioned how she managed to eat lunch, change out of her scrubs, change her shoes, go for a walk and be back in the department within half an hour. Margery explained her routine and invited the girls to join her at lunchtime. She showed them what she brought to eat as she walked and a group was formed. The women continued to walk several times per week. Had the author

suggested a walking group she would not have had Margery's insights, credibility or time management skills. She would not have been available three times per week to join the group and would not have been able to offer the conversation that these women enjoyed as a result of their shared interests.

There were many examples of workers supporting each other to participate in the program and to join the various other health promotion activities associated with the program. It was unusual for example to see a worker arrive for the Pilates class by themselves. They invariably arrived in pairs. The instructor observed that if one worker failed to attend a session, in all probability their usual buddy did not arrive either. Having a friend to exercise with was a strong motivator for many workers. Older workers, who were fit, encouraged other older workers and were role models for younger workers. Workers with multiple responsibilities outside work were able to relate to each other. Gender groups, age groups, cultural groups, professional groups found shared meaning and motivation from the characteristics that linked them as subgroups within the broader hospital culture.

Developing empathy towards injured workers, who had experienced exercise as part of their rehabilitation, seemed to strengthen their value as role models for both injured and non-injured colleagues. Their determination to continue to work despite injury and pain provided an inspiration for their colleagues.

> *"It really hurts to lift my arm above my shoulder but I know I have to do it if I want to get the use of my arm back. My specialist has told me I have to do this 10 times a day and it really really hurts but I don't want frozen shoulder so I have to do it. If I don't do it I can really feel it stiffen up, then the next time I try to do it, it is so much worse, so I know I have to be consistent."*
>
> *(26/11/2008 Danni lab worker, angiography clinic)*

Danni's colleagues became solicitous of her. They would discourage her from doing too much, but she was consistent in her message to them. *"I need to keep my injured arm active or I will not improve."* Her colleagues reported that her example inspired them to join the program.

> *"Some days I don't really feel like doing the exercises but I see Danni doing it and I think well she obviously feels it is benefitting her, and wearing aprons all day my shoulders get sore so it makes me more inclined to join in."*
>
> *(26/11/2008 theatre tech, angiography clinic)*

Building empathy between members of the workforce to promote the benefits of participation in the program proved to be a valuable and effective strategy. The focus groups helped to facilitate this sharing of insights.

"The younger nurses are great, they are really enthusiastic and there are quite a few girls that would make good leaders."

(7/10/08 2nd floor nurse)

"The blokes in our unit never join in. They reckon they're self-conscious about doing the exercises in front of everyone. I am going to talk to them about setting up a separate group for them in the tech room away from everyone to see if that makes them feel less obvious"

(27/8/2008 theatre tech. supervisor)

Respect for workers' contributions.

During the implementation of the program every attempt by members of the project team to engage with workers was underpinned by a strong commitment to respect and appreciate the information being shared. Workers' constant criticism of the organisation was that management didn't listen to them.

"Can you believe it? They've just spent a fortune renovating this wing and we can't get the commodes into the bathroom. The call buttons are on the other side of the bed so to turn it off we have to lean all the way across the bed. No-one ever asks out opinions about these things, they get all kinds of experts in but no-one ever asks the people that have to work here every day what they need."

(14/10/2008 nurse 2nd floor unit)

Every contribution made by a worker was acknowledged and, where possible acted upon. If workers were to be the spruikers of the program to their colleagues, they needed to trust that what they were being asked to tout was of value. The more investment individuals had in the development of the program, the more likely they were to feel ownership and pride in their involvement. Therefore every contribution had to be acknowledged and ideas acted upon. This process can be seen in attempts to identify suitable times and places for the group exercise programs. Even when a worker made a suggestion that the project team knew would not work (i.e.; Audrey suggested running the session in the handover room) they ran a session in the handover room. Audrey was the first to observe that the room was too small. This led to a discussion about what size space was required. Stimulating such discussions enabled workers to develop their own problem solving skills and gave them ownership of the program. Importantly, they demonstrated and reinforced the team's commitment to develop a program that was responsive to the ideas and needs of the workers.

Workers often reported maintenance issues to managers and were frustrated with the lack of follow up by the engineering department. Sandra established a protocol to encourage workers to report these issues directly to the engineering department. By putting their own name on the request form they would be personally

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contacted by the engineering department. In this way workers came to see that they had a role to play in making the changes that they wanted to see, happen.

> PSA: "I have been complaining about this broken cupboard for years, it's really dangerous, one day someone is going to get hurt."
>
> Sandra: "Have you told the engineering department?"
>
> PSA: "No, that's not my job."
>
> Sandra: "As you are the one that can see the problem, you are the best person to organise to get it fixed. If you fill out this engineering request and put your details here, someone from engineering will come and talk to you about what you think is the problem and what you would like them to do about it."
>
> *(11/07/08 angiography clinic)*

Similarly, in the program workers' ideas were actively sought as well as a more pro-active approach encouraged, to involve workers in addressing their own concerns. The same approach was taken when a worker reported an injury.

> Cleaner: "My arm has been sore for three weeks"
>
> Author: "Have you been to see the doctor? Did you log a 'Riskman' report when you hurt your arm?"
>
> Cleaner: "No, it's not that bad and it will get better eventually"
>
> Author: "I can see that it is really troubling you and you are using your arm all day at work. I think it would be a good idea to get it looked at."
>
> Cleaner: "But it takes a week to see my doctor, he is very busy
>
> Author: "If you log an incident report when you hurt yourself we can organise for you to see the staff doctor straight away. The staff clinic is downstairs, you could see a doctor there today and they bulk bill, so it won't cost you anything. Here is the phone number for the clinic. I can come with you if you like"
>
> *(19/03/08 2nd floor unit)*

Respecting the information shared moved workers towards taking a more pro-active approach to their own health management. It also reinforced the idea that by voicing a concern, solutions might be found. Listening to workers ideas often took time. Many lacked the communication skills to be succinct. For some the opportunity to share was seen as a chance to divulge years of disquiet and frustration. The process was often taxing but was always informative and provided insights into the culture of the organisation that proved invaluable. The author found it useful to be able to refer to injured workers with whom she had worked in the

same department or role. For example, a kitchen worker wanted to explain the minutiae of how she had hurt her elbow making sandwiches. To circumvent the very discursive explanation, it was helpful to be able to say.

> *"Do you remember when I worked with Angela when she hurt her hand doing the sandwiches? I know that it is a very demanding job and you have to work very fast when you do the sandwiches."*
>
> *(7/10/2008 interview with kitchen worker)*

The focus groups provided an effective forum for workers to voice their opinions and share their ideas. At times the focus groups were a platform for complaints and most groups had one or two workers who sought to speak on behalf of the group. It took a concerted effort to actively seek the input of all participants. It was helpful to pose specific questions to individual workers.

> *"Kylie, you have run a couple of sessions this week, how did you find the new time?"*
>
> *(5/8/2007 group leader focus group)*

> *"Harold, Jason told me that the session you ran yesterday was fantastic. Did you enjoy it? What made it so good?"*
>
> *(14/9/2007 group leader focus group)*

Workers were generally keen to share their opinions if given a supportive environment. To provide such an environment it was important to establish rules of engagement to encourage all participants in this process to respect the opinions of the other group members.

Workers were also involved in the collection and analysis of data. The participation records were completed by a member of each unit team. In the kitchen, Uma completed the record every day. Her colleagues were aware of her psychiatric condition and actively supported her efforts to colour in the chart each day. She brought along her own coloured pens.

> *"Uma loves to be the one to fill in the record sheets and she's very reliable. She doesn't have the confidence to run a session but she always fills in the sheet every day."*
>
> *(29/8/2007 kitchen manager)*

Sandra collected the charts each month and made a point of seeking out the record keeper and asked their opinion about what the charts reported.

Sandra: "Why do you think there are more people joining in on a Wednesday Uma?

Olga: "That's when we don't have to make the lunch for the nursing home up the road so there's more time."

(12/9/2007 kitchen worker)

Workers developed a sense of participation in the development, implementation and evaluation of the program as they came to see that their ideas were incorporated into the program.

Respect for worker's right not to participate or contribute.

While the patient imperative was found to be fundamental to the hospital culture, there was diversity within the workforce about how this needed to be interpreted. To engage a broad cross section of all workers, and to ensure that individuals or groups of workers were not ostracised, acknowledgement and respect for each worker's right not to participate in the program was recognised. Actions included 1) encouraging people to join the daily group program when they could, 2) not setting unrealistic expectations about people being on time, 3) recognising that people sometimes needed to leave before the session was finished, 4) identifying opportunities to get feedback from workers who chose not to participate.

Seeking the feedback from non-participants proved to be an invaluable opportunity to gain insights into the barriers that precluded participation. In some instances these 'non-participants' chose to join the program when they recognised that their feedback had been acted upon. For example, the workers in CSD wanted their own program and responded enthusiastically to the speed ball program. When a group of workers in a unit chose not to participate, the author naturally attempted to find out whether there was a common issue within the group. In the operating theatre she tried to engage one of the senior theatre technicians to ascertain why the male theatre technicians all refused to participate. He was dismissive of her and the program and summarised the men's disinterest by indicating that they were all doing enough exercise in their daily work. Some months later he injured his knee and was unable to work. He was appreciative of the assistance he received from the author and this enabled a bond to be established that allowed for more open communication. Over a number of weeks he explained the reasons for his non-participation in the program.

The timing of the program at 7:15am does not suit the Theatre Techs as this is their busiest time setting up for the day ahead. Many theatre cases start at 7:30am. Ken is 'not a gym person' and has read information that stretching before work or activity does nothing to prevent injuries. This notion is firmly entrenched in his mind. He doesn't believe the statistics provided to him by management that during the period of the program that injuries across the hospital have decreased significantly. He resents the push by managers above him to participate in the program. As the head theatre tech he sets the example for the people working underneath him, this prevents other techs from

possibly participating. Because he doesn't think the program is appropriate for him, he has actively discouraged the other techs from participating. He feels that he exercises enough through the day (wide variety of job tasks), and therefore has no reason to participate in the program. He feels this activity and kayaking on the weekend is enough to condition his body sufficiently for the physical tasks required. He is not interested in the social aspect of the program and prefers to keep to himself. He mentioned that away from work he actively doesn't socialise with people from the hospital.

(9/12/2009 Interview with senior theatre tech)

Clearly the theatre technician had thought about why he didn't want to participate. He had made a conscious decision not to join the program and shared his thoughts with his colleagues. As a result none of the techs participated either. Through his rehabilitation he came to see the role exercise played in his recovery and gradual return to work following surgery. He continued not to participate in the group program but did encourage his team to work on a series of exercises designed for them specifically.

Throughout the project the team learnt more from the things that went wrong than from the program's successes. The strategy to follow up workers who did not participate arose from an observation early in the program implementation when two older workers walked out of the group exercise program. The initial assumption made was that they were not interested. In a subsequent interview with one of the women it was obvious that the author had misinterpreted the reason behind the women's non-attendance.

JS located one of the nurses who had disappeared after handover rather than join the group session. He asked if he could interview her. She was a Div.1 nurse who has been on annual leave for two weeks. She said she didn't join in because she hadn't heard anything about the program and was anxious to get back into her routine. He explained the program to her and she seemed interested and said she was sorry that she hadn't participated. She reported that she doesn't have any injuries, goes for a half-hour walk every day before work and said next time she would be happy to join the group.

(25/7/07 interview with div.1 nurse 8th floor unit)

This experience reinforced the importance of finding out what discouraged worker's participation. The following journal entries provide examples of the feedback recorded from non-participants, the corrective actions that were taken as a result of the disclosure and the outcomes that eventuated from the interaction. A cleaner on 2nd floor did not participate in the group exercise program despite repeated invitations to do so. The author met with the cleaner.

She is excited about the idea of the group exercise program and if she has time to join in she will, but she is not always available or near the desk when handover is finished. Someone would have to come and tell her when it is time to come because handover finishes at different times and she can't be standing around waiting.

(30/7/07 Interview 18 with cleaner)

As a result of this interaction a pager was used to notify the cleaner that the program was about to begin. The cleaner did join the program from time to time but only when someone took the time to send her a page. A Manager reported that men were not participating in the group program in operating theatre. A male member of the project team met with the men.

Not everyone joins in, some of the blokes don't come along, I have tried to encourage them but they don't want to so that's fine I just tell them to go and get started on their work.

(30/11/2009 Senior theatre tech operating theatre)

One is a marathon runner and has his own ideas about exercise, one is waiting for a knee replacement and doesn't want to risk injury by joining the group, two theatre techs need to set up the operating theatres before the handover meeting is finished but would like to join in.

(30/11/2009 operating theatre tech meeting)

A specific program was developed at a time and location that suited these workers and was run by the male exercise physiologist. The men didn't often meet as a group but did complete a set of exercises individually before starting a shift.

Revised hypothesis 6 for future investigation.

This study produced considerable data with regard to the role of peers in encouraging participation in health promotion activities and in supporting injured colleagues to return to and remain in employment, supporting the sixth hypothesis: - **Harnessing peer support will influence workers to participate in the program and support the early return to work of injured workers.**

The outcomes achieved and insights gleaned reflect the value of the action research approach in coping with a complex and varied environment. The approach enabled the program to grow and develop in a way that was responsive to the needs of the participants and the constraints and realities of the environment.

6. Discussion

Introduction

This study examined the processes and outcomes of a program that attempted to integrate the principles of both workplace health promotion and injury. Health promotion strategies included education and group physical activity sessions to improve the personal health management skills of workers within an Australian hospital setting. Injury management strategies included early intervention, management mentoring, and the use of skilled clinicians to prevent and treat injuries at the worksite with the aim to better facilitate the early and sustained return to work of injured workers. The program had two general goals; 1) provide overall health promotion to enhance the health of hospital workers and 2) reduce the incidence and impact of workplace injuries to improve the organisation's return to work outcomes.

The attempt to integrate the program into a busy surgical hospital encountered a multiplicity of barriers on many levels, many of which were initially unexpected. The project team realised during the situational analysis that the initial planning process had significantly underestimated the obstacles. This highlights how context specific ideas and strategies for implementation need to be, and why ideas that seem plausible in one context, don't immediately translate into another, even, as was evident here, within the same organisation.

Achieving the Initial Adoption of the Program

Engagement of key stakeholders and decision makers.

Engagement of key stakeholders is needed in order to achieve workplace healthcare reform (Kirkman & Rosen, 2000; Loisel et al., 2005; Whysall, Haslem, & Haslem, 2006). From the outset it was necessary to engage a broad range of key stakeholders, both from within the organisation and external to it to achieve the adoption of the project. The organisation's injury manager, while a key stakeholder, was not a decision maker or a member of the senior executive team. She rather served as a gatekeeper for access to the decision making process and was instrumental in facilitating the author's introduction into the organisation. It was she who provided the opportunity to trial the combined injury prevention and return to work approach.

The success of the initial pilot program in the kitchen confirmed the potential value of the integrated workplace health management concept. The success of the second trial involving three workers from the operating theatre confirmed the potential of the program. The external funding obtained from the workers compensation authority consolidated the engagement of the key stakeholders and decision makers. The

funding provided the opportunity to conduct the program without hospital expenditure which facilitated the CEO's subsequent decision to implement the program.

Identifying relevant outcome measures.

Identifying meaningful and relevant evidence based outcomes in order to engage senior executives was necessary (Aldana et al., 2004; Berry et al., 2010). The inverse relationship between time away from work and the likelihood of a successful return to work has been well supported in the literature (Staal et al., 2003; Waddell & Burton, 2001; Waddell et al., 2008). The executive saw value in return to work as a measure of productivity, morale and financial savings. Speedier return to work was therefore seen by both WorkSafe and the hospital executive as an altogether justifiable and desirable outcome for the program.

The immediate goal was to improve the health management practices of the workforce to enhance their health status. If such a change could be achieved, workers would consequently be less susceptible to work place injuries and more able to return to work sooner if they did sustain an injury. The funding therefore presented an opportunity to develop a workplace health management program that integrated injury prevention and health promotion with both injury prevention and early return to work outcomes as the primary outcome measures. These met the needs of the key stakeholders while providing an opportunity to develop a more broadly health promoting workplace.

Effectiveness of the methodology to match the program to the organisation.

The initial situational analysis demonstrated the initial implementation plan had significantly underestimated the complexity of the organisation's work practices. A second situational analysis was therefore implemented which focused on more actively 1) engaging managers, administrators and workers as a means to understanding the complex interactions between workers, 2) identifying barriers to implementation and 3) accessing strategies to maintain the program.

This process revealed a willingness among both injured and non-injured workers to talk about the challenges they faced on a daily basis to meet the expectations of the hospital. The worker's stories flagged anomalies between the culture formally espoused by the organisation and the experiences of individual workers. The decision to adopt an action research methodology proved pivotal to engage with workers and managers throughout the hospital. A willingness to listen and ask relevant questions of workers, whose opinions had not previously been taken into account, gave credibility and respect to both the team and the process.

"….No-one has ever asked me how I feel, I have never stopped to think about how I am feeling."

(Journal entry 47. 24/7/07)

The concepts identified and theories that emerged through this process (in particular those related to the patient imperative and the ethos of martyrdom indicated the need to work within the prevailing hospital culture. It was clear that a more consultative approach was needed to ensure that the program would not be seen as conflicting with the core business of the hospital, which was first and foremost patient care.

The observed organisational infrastructure predicated a reactive approach to injury management, based on the legislated edicts from outside the organisation (WorkSafe, Insurers, Unions), carried forward by the Health and Safety team. The 'top down' organisational model observed in the initial adoption phase, also presented significant impediments to engage the workforce in the development of the program. It was the use of an action research methodology that enabled input and ongoing feedback from a broad cross section of the workforce and facilitated reciprocal learning between participants and the project team. Workers from diverse backgrounds made a significant contribution to the development, implementation and revision of the program plan.

In the context of the program's goals and rationale, the hospital's health and safety team were under-skilled, over-mandated and under-resourced. In the year prior to the implementation of the program two of the three members of the team had resigned including the manager of the unit. Team members had limited qualifications, experience or training in health promotion or health education but were charged with the responsibility of injury prevention, health promotion, injury management, safety regulation and compliance as well as return to work and manual handling training. They had no substantive power to effect change up or down the chain of command and were at a loss to identify strategies to reduce the hospital's escalating injuries and associated costs. With an increasingly ageing workforce, they were aware that a more responsive approach was needed than the existing 'top down' management system could deliver. This integrated workplace health management program offered them the opportunity to introduce a more participatory style of interaction that facilitated improved communication between workers, managers and external agencies.

The methodology was therefore underpinned by the need to understand the environment in which the program was to be developed. The illuminative approaches developed for the situational analyses provided valuable insights about the organisation and its relationships with individuals and groups of workers. The action research methodology allowed for the engagement of workers in the adaptive development,

implementation and evaluation of the program. The heuristic approach to program design, bringing hypotheses rather than firm objectives to the implementation process, facilitated the active participation of workers. Strategies and outcomes were pursued as hypotheses rather than as predetermined and fixed targets and consequently modified and adapted to cope with the unexpected and unforeseen emergent realities of the journey.

Key Strategies for Implementing the Program

Obtaining the successful engagement of the participants in the program was one of the key initial challenges. The following three strategies were found to be successful in achieving this.

1. Directing attention to immediate personal benefit.

Workplace health promotion programs traditionally engage workers who already manage their health effectively (Aittasalo & Miilunpalo, 2006). Identifying an immediate potential personal benefit was a successful engagement strategy for workers. As the majority of workers suffered pain and fatigue at the end of a work shift, involvement in the program was presented as an opportunity to work with less pain and fatigue and to *'feel better at the end of a shift'.* The Visual Analogue Scales were used successfully to provide systematic and credible feedback about changes in pain and fatigue. Through their participation in the group exercise program injured workers demonstrated to their colleagues the role exercise had played in their recovery reinforcing the potential personal benefit of exercise in reducing pain and fatigue, as well as in preventing and recovering from injury.

The program also provided the opportunity for colleagues to get together to have fun, relax and socialize, reinforcing participants' peer support networks. The social impact of the program on relationships (between medical and non-medical workers and workers and managers and workers and group leaders) was a motivator for a broad cross section of the workforce. The program provided valuable opportunities for managers to engage in social interaction with workers. This finding was consistent with the reported link between happy, healthy and productive workers (Quick & Quick, 2004).

2. Providing accountability for regular participation through systematic recording.

Monitoring participation in the group sessions provided important feedback for the program's management. Systematic recording enabled the active monitoring of the program and the ability to intervene to strengthen participation when necessary. Observing for example the drop in participation when sessions were not run at

the same time each day flagged the importance of routinisation, enabling corrective action to be taken to identify a more consistent schedule. The drop in the number of sessions run in December indicated that the lead up to Christmas was a particularly busy time which made it difficult for workers to give precedence to the program. This observation led to discussions about prioritising, pacing and strategies for health-management beyond the boundaries of the group programs. In general, recording of participation appeared also to enhance a realisation that attendance was recognised.

3. Respect for participant choices.

Respect for an individual's choice not to participate was essential to the general acceptance of the program. Not all workers wanted to join the group program. Recognizing their right not to do so, reduced friction between participants and non-participants (for example Kokoda Kathy became less critical of the program when her choice not to participate was discussed, acknowledged and accepted). Feedback from non-participants also provided useful insights into barriers to participation and identified alternate opportunities for engagement such as the suggestion about working individually and introducing speed balls in the operating theatre. Seeking input from non-participants was an important part of the engagement strategy which contributed to the acceptance and development of the program.

Key Strategies for Long Term Program Sustainability

The goal of the Integrated Work Health Management Program was to achieve long term sustainability without the ongoing presence and support of the project team. Continuation of some of the key strategies developed within the program was seen as essential to this goal.

Integration of the program into hospital routines.

Standardisation and routinisation are primary processes permitting sustainability of programs within all organisations (Pluye et al., 2004; Yin, 1981). Standardisation and routinisation of both time and place were non-negotiable variables for the sustainability of the program.

Participation and adherence were most consistent when the program was run directly after communal meeting times. Attempts to extricate workers from their work generally proved unsuccessful. In work units that had no communal meeting time the program could not be sustained with the exception of one unit (CSD). Sessions were always better attended at times when workers were not directly responsible for patient care.

Strategies to identify appropriate locations in each unit involved the active engagement of workers, managers and the health and safety team. From their feedback hypotheses were developed, tested and revised until a location that met the specific criteria of each unit was identified. There was no universal set of criteria that could be applied to the identification/selection process however fundamental issues around safety, access and privacy were found to be consistent between all units. Utilising the same space each day was also found to minimize disruption.

Identifying potential leaders.

The most effective group leaders proved to be individuals who were consistently available to run the group exercise sessions and were not challenged by the patient imperative. They did not have positions of authority but were keen to belong to the group. With coaching and peer support these workers became effective leaders who were successful in sustaining the program. Injured workers also made effective group leaders. Having themselves completed functional restoration programs; they had credibility, knew the workings of their own unit intimately and had established relationships with their colleagues. Most were positive role models in so far as they had managed to return to work despite their injuries. Importantly, they were often vocal about the role exercise had played in their recovery. Engendering confidence in potential leaders proved a more effective strategy than looking for leaders among the fit workers or those in positions of authority.

Dissemination of power and encouragement of peers to have more involvement in the day-to-day delivery of the program gave workers greater ownership of the program and an opportunity to build confidence in their own leadership skills. This was best demonstrated in CSD where the manager left her team to run the program themselves and in the operating theatre where the manager delegated responsibility for the program to her unit clerk.

Peer support and encouragement strongly influenced the willingness of workers to take on leadership roles. Workers were generally reluctant to volunteer without the support and encouragement of their peers. However, once one worker volunteered, a friend or colleague was more likely to do so. Training workers in pairs or small groups was found to be an effective strategy to build confidence in leaders.

Establishing a link between physical activity and working into older age.

Fit older workers like 'Kokoda Kathy,' Joan the 73 year old theatre nurse and Maria the 78 year old cleaner were effective role models. They demonstrated their ability to continue to work in physically demanding roles,

without pain, into older age. *"Joan is amazing; she still works full-time in the busiest theatre and does yoga three times a week."* The fact that they were older, competent and fit encouraged non-participants to see the importance of regular physical activity. *"Kath did the Kokoda trail last year and walks twenty kilometers a day. She has never had a day off sick in her life and has no back pain; I'm half her age and it makes me feel tired just to think about what she does every day."* The example provided by older, active managers also reinforced the link between regular physical activity and working into older age; Maureen raced dragon boats, Kate played netball, Glen joined the gym, Jenny lost 27 kilograms.

Ensuring the participation of managers.

Managers who saw value in the program reinforced its worth and gave workers permission to make this attitudinal shift. The personal and professional ethos of workers was challenged by the concept of prioritizing their own health needs ahead of commitments to patients and colleagues. Without management validation workers could not sustain their involvement. On the 8th floor Maureen saw value in the program so the program was successful under her influence. Unfortunately her replacement saw no value in the program and the program was discontinued. The attitude of the managers was seen as a reflection of the true values of the organisation and an integral part of the hospital culture. To challenge the principle and practice of prioritizing patient needs above the health and safety of workers was a significant paradigm shift and one that the program challenged on a very fundamental level.

Those managers who were also group leaders struggled with their commitment to attend the group sessions regularly. This internal conflict caused angst and frustration and was a reflection of the inadequacy of depending upon the prevailing top-down line of command within the hospital to provide the supporting infrastructure. The commitment of managers to the program was found to be best demonstrated by encouraging others to run the sessions and to participate as a colleague rather than a leader.

Engaging the senior management team.

The most senior executive was an enthusiastic supporter of the program. The CEO responded to every request to participate. His presence garnered credibility for the program and his regular attendance brought workers who had previously shown no interest, running. The CEO attended every advisory committee meeting while the other two executives who had initially committed to do so were rarely seen. He presided over award ceremonies, popped into units to join group exercise sessions on occasions and at every opportunity spoke at length about the value he placed on the program's role in preventing injuries, improving the health and wellbeing of workers and enabling injured workers to return to work. Other senior members of

the executive failed to take an active role in the program and refused to sanction managers who had committed to the program but failed to meet their commitment. Just as the need for middle managers to demonstrate that they saw value in the program was very important to encourage workers to participate, so too did middle managers look to the senior executive team to test their endorsement of the program.

The manager of DPU had requested her unit be included in the program but was obstructive from the outset. There were no mechanisms in place for the executive team to intervene or challenge her lack of commitment to the program. The member of the executive team appointed to oversee the project [Karen] was unwilling to broach Maureen about her inability to adapt her management approach to mentor group leaders. She was similarly unprepared to question Silvia in the maternity unit who used the program for her own agenda. Karen made it clear that if the program was not a priority for Silvia it was her choice not to participate. At no time did any of the members of the executive team question these behaviours or attempt to intervene on behalf of the project team. The support of the executive was also lacking when staffing changes occurred at the middle management level. When Maureen left her replacement chose not to continue. The new manager of the angiography clinic similarly chose not to participate. Managers were given no mandate by the executive to support or sustain the program.

The external funding for the project had negated the need for the hospital executive to invest financially in the program. It had not been required to prioritise the program in their budget and this denied an opportunity for active debate between members about the commitment they needed to make to support the project. In hindsight more work needed to be done to fully engage with the executive and to provide more opportunities for senior managers to contribute.

Key Findings About the Outcomes Achieved by the Program

1. Improved return to work outcomes.

External measures from the hospital's workers compensation insurer were used to monitor changes in injury management outcomes in the two years prior to and during the two year implementation of the program. These results were reported directly to WorkSafe and included:-

1. The cumulative cost of injuries (including medical treatment and remuneration costs) was reduced by 56% over the two years of the program
2. The number of compensation claims was reduced by 43%

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3. Lost Time Injury days (number of days an injured worker is away from work due to a workplace injury) reduced from 1600 in the year prior to the program to 400 and 200 respectively in the two subsequent years

4. When a worker sustained a compensible injury the time to return to work reduced (on average) from 80 days to less than 20 days, a reduction over the two years of 68%.

(Gallagher Bassett, 2009)

Facilitating an early return to work post- injury was seen by both the health and safety and executive teams as a major target. They sought significant change from a prevailing practice of "*wait until you are better*" to a new practice of *"come back to work to get better."* The key strategies for achieving improved return to work outcomes were: 1) the initial response of a manager; 2) the reaction of work colleagues; 3) the response of the injury management team; 4) the approach taken by doctors and treaters.

Injured workers indicated that the initial response of managers during the first minutes following an injury was a key determinant of their return to work outcome. During the two years of the program twenty-seven workers were recorded as sustaining a workplace injury, fifteen of these workers continued to work on their pre-injury hours and duties without any injury leave. All fifteen reported that their initial experience at the time of their injury influenced their attitude towards their return to work. In each instance the managers responsible acted promptly and decisively (called an ambulance, took the worker to the staff clinic, contacted the injury manager, identified alternate duties and remained positive and supportive). These findings concur with current literature which argues that the psychosocial experience has a far greater impact on how a worker will respond to an injury than the physical injury itself (Bernacki & Tsai, 2003; Franche & Krause, 2002; Krause, Dasinger, et al., 2001; O'Donnell et al., 2004).

2. Early detection and treatment of injuries reduced their impact in the workplace.

Injury management data reported a 45% increase in incident reporting and a concurrent 43% reduction in workplace injury compensation claims from the two years prior to (2004-2006) to the two years after the program implementation (2007-2009) (Gallagher Bassett, 2009). The 45% increase in incident reporting reflected a change in the organisation's culture of reporting/non-reporting rather than an increase in injuries. Workers were more aware of the precursors to injury as was noted when workers encouraged colleagues to seek help for reduced range of movement in joints or indications of pain during the group exercise program. Unit managers also observed that workers had adopted the practice of reporting changes in their functional capacity and experiences of pain more consistently and without having experienced a specific 'injury' per se.

These changes facilitated the early intervention and management of injuries that led to the decrease in injury compensation claims.

3. Enhanced awareness of the protective role of physical activity.

Workers who chose to participate in the group exercise activities became more aware of the correlation between reduced physical activity and reduced functional capacity. "*I used to be able to do that, why can't I do it anymore?*" Feedback from colleagues reinforced the protective role of physical activity. "*I swim twice a week so I have full range of movement in my shoulders*" Non-participants were "*….too tired to do the exercises.*" Regular participation in the program saw workers increase their functional capacity "*look I can reach much further*" which reinforced the protective role of physical activity "*I feel better when I do the exercises in the morning.*" Colleagues reinforced this awareness "*Colleen can do these back exercises easily because she does yoga,*" "*Judy walks to work that's why she is always full of energy.*" "*When I do the stretches I don't get back pain.*"

The participation of injured workers in the group exercise program demonstrated how exercise was used to increase their functional capacity, reinforcing the importance of maintaining range of movement, muscular strength and endurance through physical activity for both injury recovery and prevention.

7. Recommendations

As organisations vie for skilled workers in modern economies, it has been observed that they will need to develop cultures that demonstrate respect for workers (Australian Health Workforce Advisory Committee, 2004; Hatcher et al., 2006; Runy, 2008; Stinchcomb, 2007). The purpose of this study was to evaluate the development and implementation of an integrated workplace health management program in a large complex health organisation. Within this process, key strategies emerged that were associated with successful steps towards establishing a health sustaining workforce. The following four recommendations have been drawn from these findings:-

1. Adopt an Approach that Allows for Flexibility and Learning

This evaluation identified the workplace culture as a significant constraint with workers identifying inconsistencies between the espoused values of the organisation and the prioritisation of the needs of the organisation. The application of an action research approach for the implementation of the program facilitated giving workers an experience of genuine consultation and an opportunity to see that the organisation valued not only their health but also their ideas and contributions.

2. Establish Guiding Propositions Relevant to the Organisation

There was evidence that the five propositions (early intervention, physical activity, the support of skilled clinicians, peer support and managers as mentors) identified at the outset for this program positively influenced the successful implementation of the program. The application of the propositions established a pre-emptive approach to promoting workplace health through the introduction of early intervention for workers at risk of injury and workplace based rehabilitation to enable injured workers to return to work. Physical activity was a key component of this with regard to both proactive and reactive interventions. The program also demonstrated the importance of timely contributions on the part of local physicians and skilled clinicians to assess treat and facilitate the return of injured workers to the workplace. The immediate response of managers when a worker sustained an injury was also important. Peer support and manager mentoring were evident in some of the more successful examples. Equally however their absence could be seen as a feature of the unsuccessful examples.

Future programs will of course always need to examine the literature to identify the particular guiding propositions that are relevant to their own organisational needs and aspirations.

3. Identify Relevant Outcome Measures

"Research is essential to strengthen the knowledge base and to emphasize organisational change as an action area of health promotion."

(Heward et al., 2007, p. 177)

In a workplace setting, outcome measures must be meaningful to the particular organisation, practical to administer and responsive to the evolving needs of the participants in the intervention. The present study has demonstrated the effectiveness of several examples including:-

1. Data collection strategies and records integral to the action research methodology included the adaptation of a simple visual analogue scale to demonstrate changes in pain and fatigue across a work-shift. These data enabled workers to recognise personal gain as an outcome of their engagement.
2. Participation records collected by program participants provided the project team with the opportunity to review analyse and monitor patterns in program participation.
3. Injury management outcomes were used to monitor changes in the efficacy of the program. As these data are collected and collated by every organisation's insurer this is an example of externally generated outcome measures that can provide a cost effective and transparent measure of the effectiveness of interactions targeting injury prevention and management.

With support and training, managers are well placed to develop and implement responsive small scale action research projects in which they can identify additional meaningful outcome measures, based on simple and responsive data collection strategies. Such purpose driven strategies are consistent with Chu and Dwyer's (2002) observation that workplace health management programs need to be "….affordable according to workplace capacity and prioritized needs" (Chu & Dwyer, 2002, p. 181).

4. Ensure Stable Structures for Sustainability are in Place

The present project achieved mixed results in its objective to establish and sustain the integrated workplace health management program for the two year duration of the project. It showed that the longer term sustainability of work place health promotion will require a significant investment over a much longer period of time. Consistent with Yin's routinisation framework (1979) that called for long term investment to sustain health initiatives, future programs need to strive for systemic change to establish a health sustaining workforce based on the findings of this study. Three dimensions emerged as requiring attention to ensure sustainability of a workplace health promotion program:-

1. The achievement of necessary cultural and structural change.

Future programs need to establish a capacity building framework for health promotion with targeted strategies to enable all workers to prioritise their health. To be meaningful, organisational change is needed to place this goal alongside and central to the core business. Within this paradigm is the recognition that the capabilities of workers change across their work life. In a health sustaining workplace that seeks to fully develop and use the skills of its workforce, it is necessary to not just be aware of, but accommodate and support the multiple capabilities of workers and the experience and skills of ageing workers. Strategies can then be developed to provide more flexible work options embracing such arrangements as flexible maternity leave, shorter shifts, split shifts, scheduled rest breaks, extended meal breaks, opportunities to work in a variety of areas and facilities for workers to rest during work-shifts. Opportunities for extended leave periods can be explored such as the 48-52 model (where workers can opt for eight weeks leave each year) which has been adopted by some organisations. These approaches have been reported to improve workforce sustainability (Runy, 2008). New graduates, pregnant workers, ageing workers, workers from diverse cultural backgrounds represent components of today's diverse workforce. All workers have the potential to experience changing capabilities at different stages of their lives.

Acting upon such realisations and emphasising workers within the organisation's priorities, involves a radical cultural shift. Yet this is not sufficient alone. To achieve sustainable health outcomes, organisations also need to establish an *organisational* framework that provides all workers the opportunity to work, at all stages of life within their abilities and constraints. Such a *'whole of life'* approach, a more "person centric" attitude needs to be inculcated into every aspect of the 'business.' Indeed integral to the capacity building framework is the role of the human resource team to establish recruitment strategies that identify employees who are fit for the work for which they are employed and who demonstrate a commitment to both the values of the health sustaining workplace and the patient imperative.

2. The establishment of a new Work Health Framework.

This study recognised the pivotal role played by managers at both middle and executive levels. It identified that not all managers were effective leaders in their ability to support the program. Strategies to build the capacity of managers to become more effective leaders within a health promoting and managing framework will depend heavily on the support and commitment of key stakeholders from within and external to the organisation. A Work-Health Framework comprising of stakeholder teams is needed to enable on the role of supporting and empowering managers. Adopting a 'whole of life' approach will need the development of flexible strategies from recruitment, induction, training, rostering, employment contracts, leave entitlements, and promotion to retirement planning in order to accommodate the changing needs of individual workers.

The physical activity-based group exercise program should remain at the heart of the program helping managers to identify workers whose capabilities are undergoing transition. With all members of the organisation rotating to join the sessions in every unit, relationships can be built between the various levels of the organisation. Such whole of organisation involvement reinforces the perception that health and wellbeing are highly valued. With the opportunity to get to know workers, to 'have fun' and share ideas and observations, such practices may facilitate the development of more open and honest communication between the various levels of the organisation by providing the opportunity for managers to come out of their offices and into the units to see and hear what is actually happening in the organisation.

3. Adoption of an education focus.

Professionals who are proficient in leadership training, behaviour change and health and safety management are needed to enhance health and safety teams for a reinvigorated process of educating and empowering workers to become more effective managers of their own health. Divesting the health and safety team of some of their current roles (manual handling trainer, injury prevention, injury manager, return to work co-ordinator etc.) in order to build an holistically conceived education team would embed a new culture. As members of a Work-Health Coalition, the education team will implement and maintain the health message on the front line.

These recommendations are based on the evaluation of an eighteen month integrated health management program and complement the earlier notion of Chu and Dwyer (2002) who have suggested that employers need to become

… change agents and visionary leaders who adopt a proactive, interdisciplinary and integrative system approach to formulate and develop company policies and workplace culture that facilitates employee participation, professional growth and team work. These contemporary management principles and strategies form the basis of the integrative model for workplace health management.

(p.175)

Future programs in similarly complex settings may benefit from the adoption of an action research approach to achieve a sustainably health promoting workplace.

Postscript: The Challenge of Change Within Large Organisations

The implementation of this Integrated Work Health Management Program introduced opportunities for managers throughout the organisation to explore and in some instances, implement, 'transformative' leadership. Described by Caldwell and colleagues as an "ethically based leadership model," transformative leadership "integrates a commitment to values and outcomes by optimizing the long-term interests of stakeholders and society and honouring the moral duties owed by organizations to their stakeholders" (Caldwell et al., 2012). Those managers that were ready to take up the opportunity to actively contribute to the current program were able to share new practices of consultation and participation with their colleagues. In doing so they reversed the top down traditional management systems of this classically hierarchical organisation. The transformative leaders were those managers who were willing to inspire their colleagues, to build trusting relationships with them, encourage them to participate and motivate them to take on leadership roles. In calling for a higher standard of leadership conduct in organisations, Bennis and Nanus (2007) explained that transformative leaders are needed who will commit people to action, who inspire followers to become leaders and who can convert leaders into agents of change. If the nature and scale of the changes that this project has suggested are confirmed as necessary, then it is leaders such as this that will be required in order to achieve sustainable health promoting workplaces.

During the situational analysis in the current program the complexity of the organisation and the diversity of the needs and interests of a diverse range of stakeholders challenged the plan to embed the program into the existing infrastructure of the organisation. The analysis flagged the need to recognise the workplace from a cultural perspective as a social system. This gave impetus to the decision to adopt an action research approach, the goal being to better understand the needs of individuals within the organisation so that adaptive strategies could be designed following the development of insights and understanding acquired through the

process of implementation. The inherent egalitarianism of this paradigm afforded the hospital community the opportunity to empower workers to construct and use their own knowledge to become better managers of their own health. Those who took that opportunity changed their personal circumstances and contributed irrevocably to changing the workplace culture. The recognition by the author of the inherently subversive nature of this process was perhaps the least expected of the theories to emerge from the entire project.

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Appendices

Appendix 1: Group Exercise Protocol

Appendix 2: Case Studies 1–6

Appendix 3: Situational Analysis 1 Data (Examples of Journal Entries)

Appendix 4: Situational Analysis 2 Data (Examples of Journal Entries)

Appendix 1: Group Exercise Protocol

Above Head Chest Stretch
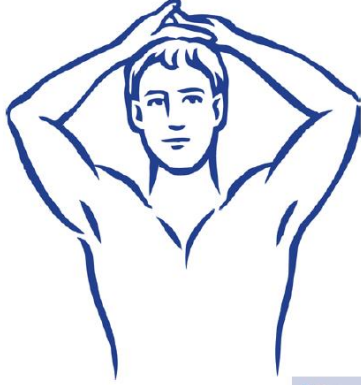
Stretches the chest, upper back and arms

1. Stand tall with feet apart
2. Interlock your fingers
3. Bend your arms and place them above your head
4. Push your elbows and hands backwards
5. Hold 15-20 seconds and relax

Tips :
Vary the height of your hands. Lower your hands behind your head then raise them above your head and lift your elbows. Keep your neck long and don't push down on your head.

Rationale :
This exercise stretches the muscles of the chest, upper back and arms. It is particularly useful for Rotator Cuff injuries.

Wrap Around Shoulder Stretch

Stretches the Shoulders, Back and Neck

1. Stand tall with feet apart
2. Wrap your arms around your shoulders as if hugging yourself Pull your shoulders back
3. Hold 15-20 seconds and relax

Tips :
Do not pull on your shoulders. Ease into the stretch by slowly pulling your shoulders back.

Rationale :
This exercise stretches the trapezius muscles in the back of your neck which are often very tight. It also stretches the muscles across your shoulders and down your upper back.

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Wall Push-Ups
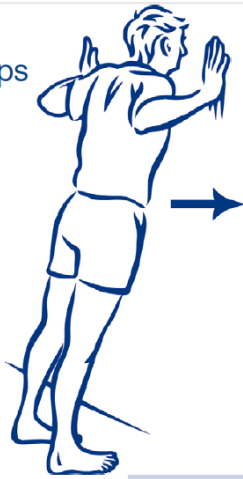
Strengthens the muscles of the chest, shoulders, arms and upper back.

1. Stand tall with feet apart about 50 cm from a solid wall & place your hands at shoulder height

2. Bend your elbows to bring your chest towards the wall keeping your shoulders down (Repeat x 10)

3. Repeat using your right arm only then your left

Tips :
Vary your distance from the wall according to your upper body strength. If you cannot repeat the movement without raising your shoulders move closer to the wall. Most people cannot perform this activity with one hand without moving closer to the wall initially. As you get stronger you can increase the number of repetitions you do and move further away from the wall.
Rationale :
This exercise strengthens the muscles of the chest, upper back and arms. It is particularly useful for improving posture and reducing fatigue.

Kneeling Quad Stretch

Stretches the Quadricep muscles in the front of the leg

1. Stand and take a long step forward with your left foot

2. Allow your right heel to lift from the floor

3. If needed use something to help you keep you balance (chair/ wall)

4. Slowly lower your right knee towards the floor until you feel the stretch in the front of your right leg

5. Hold for 15 – 20 seconds and repeat on the left leg

Tips :
Regulate the intensity of the stretch by pushing your hips forward.

Rationale :
This exercise stretches the muscles in your hips and the front of your legs. These are muscles that you use constantly for standing, walking, pushing and pulling. If they become tight they can cause hip and low back pain

Neck Tension Release

Reduces the tension in your neck and shoulders

1. Stand tall with feet apart, arms hanging by your sides

2. Take a deep breath in as your bring your shoulders up towards your ears. Squeeze the muscles across your shoulders as tight as you can without causing pain and keep holding your breath (try and make your neck disappear)

3. Squeeze, Squeeze, Squeeze until you need to take a breath
then let your shoulders drop as your EXHALE (breathe out)

Tips :
Close your eyes and picture the tension in your shoulders being released as you PULL your shoulders down and EXHALE.

Rationale :
This exercise helps to prepare the muscles for stretching by releasing tension in the neck and shoulders. It is a good way to start your stretches. If you have a lot of tension repeat this two or three times before stretching.

Squatting Achilles Stretch
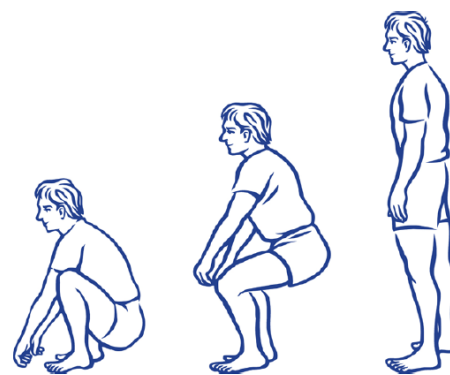
Stretches the calf an Achilles tendon in the back of your ankle

1. Stand tall with feet apart

2. Slowly bend your knees and lower into a sitting position – extend your arms for balance or hold onto the wall. Make sure your toes are facing forward

3. Try and keep your heels down and stop when you feel the stretch. Hold for 15- 20 seconds and slowly come up into standing

Tips :
Extend your arms forward for balance or hold onto the wall. Make sure your toes are facing forward.

Rationale :
This exercise stretches the muscles in the back of your lower legs (calves) and ankles (Achilles Tendon) and strengthens your leg muscles (quadriceps).

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Lower Back Stretch

Stretches the Lower Back

1. Stand tall with feet apart, place your hands in the small of your back

2. Breathe in and as you breathe out slowly lean backwards using your hands to support your low back. If it doesn't feel good STOP. Go as far as is comfortable for you and HOLD

3. Hold 10 - 15 seconds and come back to standing, taking your hands above your head reach towards the roof

4. Repeat x 3

Tips :
If anyone has a low back injury ask them to check with their doctor before trying this exercise. Make sure that everyone understands that if they have ANY PAIN they should stop. An alternative is to reach your arms forward bending at the hips in between each reverse stretch.

Rationale :
This exercise stretches the muscles of the low back. Most of the work we do uses the muscles to bend forward so this stretch helps to alleviate the tension in these muscles.

Ankle Rotation Stretch

Stretches the ankle, calf and shin

1. Stand tall with feet apart, hold onto a wall or chair

2. Stand on your right leg and lift your left foot from the floor

3. Slowly rotate your foot and ankle in all directions x 10 each :
Up and Down, Side to Side, Around in a Circle – change direction

4. Repeat on the right foot

Tips :
Once your balance improves you can try to do this without holding on. Find a visual cue to look at to help you keep your balance. Make the ankle movements SLOW and LARGE. Start with a small circle and gradually make it bigger, then smaller. See if you can write your name with your big toe. Try separating your toes from your big toe(big toe up, other toes down and change)

Rationale :
This exercise stretches the muscles in your ankles and shins (front of your lower leg). It is helpful if you spend long periods of time on your feet and is a good stretch for before and after walking or sports.

Calf Stretch
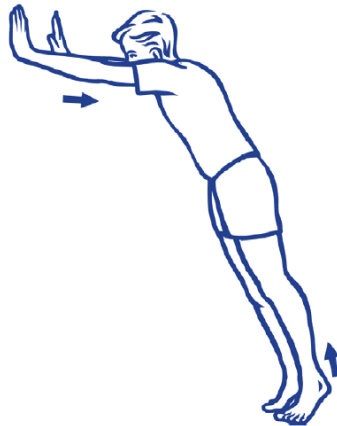
Stretches the muscles in your calves and ankles

1. Stand tall with feet apart and 50 cm from a solid wall

2. Place your hands at shoulder height. Lift your heels and stand on your toes (hold 5 sec)

3. Come down and bend your elbows to bring your chest towards the wall and hold 5 sec

4. Lift your toes (5 sec) and stand on your heels. Come down and again bring your chest closer to the wall and hold 5 sec

5. Repeat for one minute, alternating between standing on your heels and toes

Tips :
This one takes a bit or organizing but once you understand how to do it you will find it very effective for alleviating calf, ankle and foot pain.

Rationale :
This exercise stretches the muscles in the calves and ankles. When tight, they can cause sore feet, ankles, knees and back.

Parallel Chest Strength
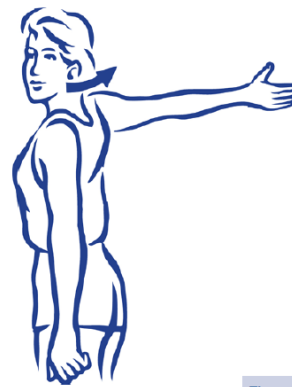
Stretches the chest & arms

1. Stand beside a wall

2. Extended your right arm to hold onto the wall with your hand turned, facing to the rear. Your arm should be parallel to the ground

3. Hold the wall and slowly turn your shoulders and body away from your outstretched arm

4. Hold for 15 – 20 seconds and repeat on the other arm

Tips :
Keep your arm parallel to the ground and fingers pointing backwards
As the tension releases see if you can turn your body further to increase the stretch.

Rationale :
This exercise stretches the muscles of the chest and arms.

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Triceps Stretch

Stretches the muscles Tricep and Upper Back Muscles

1. Stand tall with your right hand behind your neck and elbow pointing upwards

2. Use your left hand to push gently on the elbow to push your arm down behind your back

3. Hold 15-20 seconds and relax

Tips :
Do not perform this stretch for more than 20 seconds. Concentrate on standing tall and gentle encouraging the arm down by pressing on the elbow.
Try to keep you head upright.

Rationale :
This exercise stretches in the back of the arm (triceps) and upper back (lats)

Back Stretch
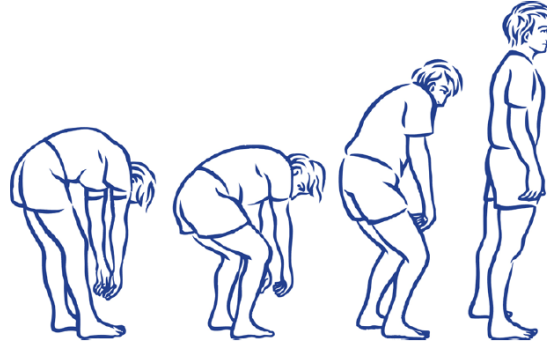
Stretches the Back, Buttocks and Legs

1. Stand tall with feet apart and knees slightly bent

2. Slowly take your chin towards your chest and vertebrae by vertebrae roll your body forward down towards the floor.

3. Bend your knees slightly if you need to and allow your arms to hang towards the floor.

4. Hold 15-20 seconds and slowly come up, vertebrae by vertebrae until you are standing upright

Tips :
This is a fantastic stretch for relieving tension in your back, chest and legs. Take your time and enjoy the sensation of stretching as you slowly come down and then up. Repeat 2 -3 times before doing other stretches and remember to breathe deeply while you are doing this. If anyone feels dizzy on coming up ask them to take time to recover before doing other exercises and remind them to go slowly next time.

Rationale :
This exercise stretches pretty much everything. If you don't have time for any other stretches this is the one to do!

Side Stretch

Stretches the chest, back, hips and arms

1. Stand tall with your feet apart

2. Take both arms up above your head and with your feet flat on the floor reach up towards the roof. Hold 15-20 seconds

3. Bring your right arm down by your side and reach both hands in opposite directions (left arm up, right arm down) hold 15-20 seconds

4. Swap arms

*   Remember to continue to breathe in through your nose and out through your mouth as you do these stretches.

Tips :
To extend this stretch gently take the left arm across to the right as you reach up but continue to stretch the right hand towards the floor.

Rationale :
This exercise stretches nearly everything. It is particularly useful for opening the ribs and stretching the hips and shoulders.

Hip Stretch

Stretches the back of the Legs, Buttock and Hips

1. Stand tall with your feet apart

2. Hold onto a wall with your right hand and use your left to bring your left knee towards your chest

3. Hold for 15-20 seconds

4. Swap Legs

*   Remember to continue to breathe in through your nose and out through your mouth as you do these stretches.

Tips :
To extend this stretch gently push your hips forward once you have lifted your knee as high as you can.

Rationale :
This exercise stretches the hips, buttocks, and legs.

Calf Stretch
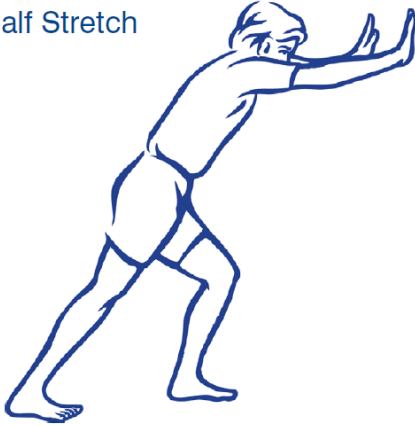
Stretches the muscles of the back of the legs

1. Stand with outstretched arms against a wall
2. Place one foot in front of the other
3. Hold front knee bent and back leg straight
4. Keep both heels on floor and push hips toward the wall
5. Hold 15-20 seconds on each side

Tips:
Push the rear heel into the ground during the stretch. Moving the involved leg further back will intensify the stretch.

Rationale:
These muscles propel the body up and forward thousands of times a day. When tight, they can cause sore feet, ankles, knees and back.

Forward Neck Stretch

Stretches the muscles of the posterior neck

1. Sit or stand upright
2. Lengthen through the neck
3. Pull the chin in towards the chest
4. Slowly roll the head down towards the floor
5. Hold 15-20 seconds

Tips:
Light pressure can be applied with hands on top of the head to intensify the stretch.

Rationale:
The muscles of posterior neck typically become tight in activities of daily living. Tight neck muscles are a major contributor to headaches.

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Hamstring Stretch

Stretches the muscles of the posterior thigh

1. Stand upright, place one leg in front on a chair or box
2. Slightly bend the supporting leg
3. Maintain a straight spine, slowly lean forward at the hips
4. One or both hands can be placed on the thigh for support
5. Hold 15-20 seconds on each side

Tips:
Do not bend the back. Imagine gently lowering the chest towards the knee.

Rationale:
This exercise stretches the muscles of the posterior thigh. These muscles get 'sat on' for much of the day. When tight, they can cause knee and back pain.

Quadriceps Stretch

Stretches the muscles of the anterior thigh

1. Stand upright opposite a chair or wall for support
2. Bend one leg up towards the buttock
3. Grasp ankle or pants and gently pull the leg further towards the buttock
4. Hold 15-20 seconds on each side

Tips:
Keep the knees side by side. Maintain upright posture, avoid arching the back.

Rationale:
This exercise stretches the muscles of the anterior thigh. These muscles can become shortened with extended periods sitting or standing. This in turn can place increased stress on the knees and back.

Standing Back Extension Stretch

Stretches the abdominals and muscles of the anterior torso

1. Stand upright with feet shoulder width apart and knees slightly bent
2. Place hands on the lower back at hip level for support
3. Keep hips still and slowly lean back as far as is comfortable
4. Hold 15-20 seconds

Tips:
This stretch can be performed seated on a bench if balance is insufficient.

Rationale:
Extended periods of sitting or bending forward can result in shortened abdominals, giving rise to a 'hunched' posture. This stretch helps maintain length in the anterior torso.

Standing Side Bend Stretch

Stretches the upper and lower back and sides of the torso

1. Stand upright with feet shoulder width apart
2. Raise one arm above your head and place the other hand on the opposite hip
3. Slowly bend sideways towards the hand on the hip
4. Hold 15-20 seconds on each side

Tips:
Avoid leaning backwards, forwards or rotating during the stretch. Standing up against a wall will ensure correct technique.

Rationale:
This exercise stretches the muscles of the lower, middle and upper back as well as the abdominals and shoulders. It is particularly useful in correcting postural imbalances due to repetitive use of the dominant side.

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Standing Upper Back Stretch

Stretches the muscles of the Upper Back

1. Stand upright with feet shoulder width apart
2. Clasp both hands together with outstretched arms
3. Push hands forward and stretch shoulder blades apart
4. Hold 15-20 seconds

Tips:
The focus of the stretch can be manipulated by changing the height of the arms.

Rationale:
The muscles of the upper back, neck and scapula can develop a lot of tension throughout the day. This stretch helps maintain optimal length and tension in the region.

Ten Tips for a Healthy Work-life Balance

Achieving more with less pain and effort is the key to feeling good at the end of a work shift.

1. Start the day with a low GI breakfast and some stretches
2. Eat and drink at regular intervals throughout the day.
3. Take regular rest breaks – alternate sitting and standing
4. Maintain your flexibility by stretching
5. Pace your work, and ask for help if you need it
6. Maintain good posture – stand tall - breathe deeply
7. Go for a walk outside every day
8. Have regular health checks with your doctor
9. When you are unwell don't go to work
10. Smile and feel the muscles in your face relax.

Pre-Work Warm-up Group Exercise Protocol

Action	Activities	Time frame
1. Management meeting	Introduce project Identify key stakeholders Quantify commitment Establish plan Establish Training Schedule	Week 1
2. Assessments	Establish at time to meet 1:1 with each staff member for an assessment	Depends on size of unit Week 2 – 3
3. Introductory Workshop	Group session before work	Week 2
4. Identify potential group leaders	1:1 request for commitment	Week 2
5. Instigate Training Program	Weekly meetings Weekly supervised group sessions	Weeks 3 – 8 weeks
6. Sustainability	Weekly reviews with trainees and management	Weeks 9 - 15
7. Evaluation	Review Training Program Review outcome measures	Week 15
8. Maintenance	Monthly reviews	Weeks 15 – end of project

Group Exercise MM monitoring

Sample :

Monday	Ex. Completed	How did it go?	Next time :
10.30 after hand-over.	Posture check and breathing, neck exercises 1-4	A few people rushed through the neck exercises	Explain the importance of taking it slowly and count the stretch to 15
15 staff, 1 manager	Shoulder exercises 5-8	One person couldn't do the tricep stretch	Contact injury manager to review
Mm: Margaret	Theraband arm work	Didn't have time to complete	Limit the number of reps to 6

Problem :
Several distractions during the session with people leaving to attend to patients.

Solution plan :
Encourage staff to leave quietly without needing to apologise as this adds to the distraction. It also means that people are more likely to join in for a short time without feeling bad about having to leave.

Day :	Ex. Completed	How did it go?	Next time :

Planning

Goal:
Establish daily pre-work and workbreak exercise program in ……….. dept.

Objectives :
- By (date) all staff in the (dept) will have completed individual and group training sessions on the Workbreak program.
- By (date) all staff will be completing individual workbreak exercises before and during work.
- By (date) staff members will have volunteered to become Movement Motivators and will begin the six week training program.
- By (date) six staff members, with support from the WHM team will conduct daily workbreak group activities.
- By (date) there will be daily workbreak group activities as well as individuals completing pre-work warm up stretches and workbreak activities daily.

Sample Implementation Plan

	Dept.	Dept	Dept.
Complete one hour Introduction workshop to all staff	26 April	23 May	21 May
Posters / theraband / poles	23 May	23 May	23 May
EP observation of roles	1 May – 30 May	10 May – 30 May	10 May – 30 May
1:1 assessment with EP s	1, 7 , 14, 21 June		
	1,7,14,21 June	June	
AM group sessions led by EPs (7 am)	5, 12, 19 , 26 June	5, 12, 19, 26 June	TBA
One hour Review workshop	26 July 7 – 8 am	26 July 7 - 8	TBA
Identify key staff for workbreak leader training			
	1 July	1 July	1 July
Implement 6 week Workbreak leader training program	1 July – 12 August	1 July – 12 August	1 July – 12 August
Weekly group program led by EP	Ongoing	Ongoing	Ongoing

Date : _____

Exercise Physiologist : Toni

6 Minute Stretch Sessions

Session Time	Department	Location	Number of participants	Manager partic.	Comments / Potential trainees

Energy Conservation / Work Simplification

Fatigue

Fatigue is the most common cause of injury at home and work.

If you are tired you are at much higher risk of injury and ill-health.

Avoid fatigue by taking regular rest breaks. Always work within your capacity.

Plan your day to be sure have time to eat, drink at rest at regular intervals.

Having enough energy at the end of the day to do the things you want and need to do is achievable if you follow these simple steps. If you make a commitment to take care of your health, it is possible to reduce the energy and effort required for daily work activities.

Fitness

Maintaining good fitness is the key and the key to maintaining good fitness is to find activities that you find intrinsically enjoyable. If it's not fun you are not going to do it often enough and for long enough for it to do you any good.

Committing to your exercise program will ensure that over time you will have MORE energy. You will find that you can do MORE with less pain or fatigue. By slowly increasing your strength, flexibility and cardiovascular fitness you will find that tasks take less effort. You will have MORE energy to do the things you WANT to do.

If you haven't exercised for a long time or have an injury, seek help to put together a fitness plan. Doing too much too quickly causes fatigue while doing too little limits your potential to maximize your energy and to feel good.

Look for opportunities to build incidental exercise into your day.

Try and plan your day around doing more walking - walk to the tram stop or station.

Find a work colleague to walk with in the park at lunch time. Walk to a local café for a coffee. Build up gradually so that you are walking for 20 – 30 minutes every day. Try using a pedometer to measure your steps. Set your goal to walk 10,000 steps every day.

Go for a swim on your days off. Have a spa. Join a hydrotherapy program, try Tai Chi or Yoga. Give Pilates a go to keep your core muscles strong.

Use the stairs. Start by walking DOWN one flight then try going UP the stairs. Gradually increase your stair climbing over time.

Fuel

Eat a nutritious breakfast, lunch and dinner every day. Your body cannot work effectively without the fuel that provides energy. Low GI foods will give you the energy you need over time to keep alert and focused.

Drink 6 - 8 glasses of water and spread these throughout the day – build this up gradually over a week.

Sleep

Sleep for 6 - 7 hours every night. Avoid naps. Even if you are tired at the end of a workshift avoid the temptation to have a nap on the couch. Try to stay awake until you are ready to go to bed for a good long sleep. This is particularly important if you are a shift worker. Napping often leads to poor sleep patterns which contributes to fatigue.

Plan

Plan your day.

Be sure to schedule rest, food and drink breaks. Don't be a martyr – everyone has time for rest breaks during the day. Make sure your colleagues take their breaks too.

Resting for a short time regularly through the day is important to avoid fatigue.

Short rest periods need to be planned following activity periods. Establish your priorities and be realistic about what you can expect to be able to manage safely.

Simplify tasks. Is there an easier way? Consider other options – seek help, use a machine, break tasks into steps and do one step at time, rotate tasks to use different postures and muscle groups. The equipment you use is also important. Look for ways to minimize bending, lifting and carrying. Split loads and use a trolley where you can. Maintain your equipment so it works efficiently and is easily accessed. Avoid overhead cupboards or places that require bending and pulling.

Alternate sitting and standing activities. Practice one or two of your WORKBREAK exercises while you are resting.

Plan your week.

If you are working consecutive shifts make sure you use your day off as a recovery day.

Don't try to do too much, try and delegate tasks that others can help you with.

Spread appointments and physically demanding tasks across the entire week at home and at work. Make a list of the activities you think need to be done.

Think about the energy and effort involved in each activity

and the time that it will take you to complete each activity safely and

without stress. Compare it to the time that you have and establish your priorities.

If you are a shift worker, plan how you will get enough uninterrupted sleep. It is even more important for you to keep fit and eat regularly.

Help

Ask for help. If you are feeling stressed talk to a colleague or your supervisor. Avoid injury by making sure you have the support you need to work safely.

If you have an injury or are not feeling well tell someone. Injuries happen when people are feeling unwell and tired. Know that it is okay to work with an injury but you need the support of your injury manager and your doctor to make sure that you are safe to do so.

Smile

Be Positive and SMILE as often as you can. Feel the muscles in your face relax as you use less energy to smile than frown. People will respond positively to you if you are doing your best to be a positive person. Look for opportunities to laugh.

Health

See your GP regularly and commit to maximize your health. Be aware of the risks you may face as you get older. Be aware of your family health history and take evasive measures to minimize your own risks of ill-health.

Monitor your blood pressure, blood sugars and cholesterol.

Get your vision and hearing checked regularly.

Have a flu injection. You are working in an airconditioned environment with people that are sick. Minimise your risk of infection by getting a flu vaccine.

If you are not well enough to be at work go home. Don't try to work if you are unwell. Your risk of injury is much higher as is the likelihood that your illness will take longer to recover.

At home and at work the principles are the same. Our goal is for you to be safe at work and to have the health and energy you need to enjoy your life. This can only be achieved if you take responsibility for your health.

Using these principles of work simplification will enable you to gradually increase your work capacity. You need to communicate with your supervisor/s and work colleagues and seek their help to support your efforts to work safely. If you are injured or not feeling well you need to talk to your manager or supervisor.

When recovering from an injury doing too much exercise too quickly and working beyond your capacity will limit your recovery. At the same time doing too little will not enable you to achieve your potential and may hinder your progress. Take a thoughtful approach to gradually increasing your activity with the support of your doctor and the workplace injury manager will get you back to work more safely.

The workplace health management team are here to support you to stay safe and well and to enjoy your work.

Timing for 6 x 30 min. Training Sessions

1:1 EP assessment / training session protocol

3 EPs to attend each area for 3 hours

1. Set up room / equipment
2. Check that the area manager has organized a timetable for staff to attend in half hour blocks from 1 – 3.30.
3. Staff member to have completed Medical History Form prior to attending (see form attached)
4. Staff member to complete ROM assessment, ten minute massage and re-test ROM.
   * discuss EXPO during massage
5. Staff member to meet with EP 1:1 for 20 minutes to review history, discuss Exercise regime and work through the Workbreak Stretch Program
6. EP to request feedback from staff member about the session and their understanding of the broader program.
7. EP to seek commitment from staff member to work on specific stretches during the following week.
8. EP to seek commitment from staff member to participate in workbreak leader training program IF they seem appropriate.
9. EPs to note commitment / injury issues of Staff member history form and discuss with Toni

Equipment :
Poles, theraband, stretch posters, assessment kit (dynamometers) cervical ROM

Walking Program

Why choose Walking?

Researchers now believe that WALKING is the most beneficial form of exercise. It is a low impact activity that can be done anywhere, anytime and with minimal equipment. It is an inexpensive and effective activity that includes the three components of fitness. When you walk you stretch and strengthen your muscles as well as increase your heart rate. People with injuries or disabilities can walk, as can older people. You can walk on your own or with a friend, or even a group of people.

Walking is beneficial for you because it :
- Reduces body fat
- Increases the fitness of your heart
- Reduces the risk of heart disease
- Strengthens the muscles in the back and legs
- Increases the flexibility of the trunk
- Increases lung function
- Increases energy levels
- Improves Posture
- Prevents Osteoporosis
- Alleviates stress
- Improves sleeping patterns
- Gives a sense of well being

Walking every day will increase your energy levels, help you to manage pain more effectively and help you to sleep more soundly.

- Wear loose comfortable clothing, cotton socks and walking shoes
- Start slowly and give your body time to warm up
- Take a drink of water, a hat and sunblock with you if the weather is warm
- Make your walk enjoyable – listen to the radio, a talking library book or music
- Walk with a friend and have a chat
- Walk on an even, soft surface – a walking track or path is best
- Wear a watch and keep track of the time that you have walked

Stretch BEFORE and AFTER you walk
Do each stretch slowly once and hold for 15-20 seconds.

Once you have done your stretches its time to go. Begin with 3 minutes of slow walking to get your heart rate up gradually and prepare the muscles. This is your WARM UP.

Then see if you can speed it up. BRISK walking means walking as quickly as you can without running. You will feel your heart beating faster and you will breathe more heavily. Keep you head up and get your arms pumping. Keep going for five minutes and then slow down again. Walk slowly for a further 3 minutes to COOL DOWN.

Do your three stretches again and relax. Each time you go for a walk see if you can add another minute of BRISK WALKING. After a few weeks you will find that you can walk much further and longer without feeling puffed out or tired. When you are able to walk for half an hour of BRISK WALKING you are doing well. Try to do this every day.
Once a week try and go for a longer walk. You can slow it down a little but give your body the opportunity to have a long leisurely walk somewhere beautiful like a park or by the beach or a river. Your walking program will look something like this :

Week	Warm Up	Brisk Walk	Cool Down	Total Walk Time
1	3	10	3	10
2	3	15	3	15
3	3	20	3	20
4	3	25	3	25
5	3	30	3	30
6	3	35	3	35
7	3	40	3	40

You can keep a walking diary – write in your TOTAL WALK TIME each day

Mon	Tues	Weds	Thurs	Fri	Sat	Sun

Workbreak Exercise Program Questionnaire

Dept _____

Thank you for giving us your feedback about the daily exercise program running in your department. Your input will help us to ensure that the activities are meeting your needs. We do not need your name but would appreciate knowing your dept.

Have you participated in a group stretch session?   Yes ☐ No ☐

	Very Much	Ok	Not at all
Did you enjoy the session ?	I_____	I_____	I

If not why haven't you participated? _____

_____

Do you think the sessions are : (tick as many as apply to you)

Worthwhile ☐   Good Fun ☐   Run at the right time ☐   Boring ☐   Exercises are too difficult ☐

The location is appropriate ☐   Too difficult to get to ☐   A waste of time ☐   Beneficial ☐

Likely to make a difference over time ☐   Making you feel better ☐

Motivating you to become more active ☐   Good to spend time together ☐

Which activities do you enjoy ?

Stretches ☐   Pole Exercises ☐   Theraband ☐   Wall Push Ups ☐   Self-Massage ☐   Games ☐

Do you have any feedback or suggestions? _____

_____

If you would like to join the six week training program to be a, "Movement Motivator" please contact

_____

Thanks for your input.

Injury Management
Information For Staff

Commonly Asked Questions & Answers

How do I make a claim following an injury at work?
- You are entitled to weekly payments (compensation) and medical expenses if you injure yourself at work.
- You must have a WorkCover Certificate of Capacity from your G.P. stating the type of injury/disease and capacity for work.
- St Vincents & Mercy Private in consultation with it's Insurer (Gallagher Bassett. Workers Compensation), determines liability for your injury.

You must also ensure the following occurs:
- Riskman report must be completed.
- Report the injury to your Manager.
- Attend a consultant doctor appointment arranged through your Manager.
- Consult your treating doctor.
- Obtain a 'workcover certificate of capacity'.
- Obtain a claim form from the Injury Manager. Complete & return this to the O.H.& S. Department.

What happens next?
- The WorkCover Claims Manager submits your claim to the Insurer (Gallagher Bassett Workers Compensation).
- Gallagher Bassett in consultation with St Vincents & Mercy Private will determine liability. (i.e. claim accepted/pending/rejected.)
- To assist with this process, an independent medical examination and/or investigation may be necessary, the Insurer will notify you if this is required.
- The Insurer has 28 days to make their decision regarding liability.

Pre-existing Injury.
- You are asked to disclose any pre-existing injury/ disease you were aware of that might affect the type of work you will be undertaking.
- This statement is on the employment application form.
- If you did not disclose this information and the injury/disease recurs or gets worse, you will not be entitled to workcover compensation for this particular injury/disease.

What happens with my pay?
- Whilst a decision on liability is determined, you will be paid from your existing entitlements. (e.g. sick, annual leave)
- When a claim is accepted, these entitlements will be reinstated.
- If you are a casual employee, payments will not commence until liability has been determined.

What happens when the claim is accepted?
- You are entitled to weekly compensation and medical & like services.
- You are also required to participate in the Hospital Rehabilitation Program.
- Certificates of capacity must have a signed declaration on the reverse side or payments will be suspended.
- Only upon receipt of valid workcover certificates will payments be reinstated within 7 days of your normal pay period.

How are my weekly payments/benefits calculated?
- Your weekly benefits are calculated as a percentage of your "pre injury average weekly earnings" (PIAWE).
- Your PIAWE is the average pay you received before you were injured and is calculated by totalling all ordinary pay 12 months prior to your date of injury and dividing by 52 weeks.
- For injuries sustained after 1 September 2000, any regular overtime and shift allowances are included in the PIAWE calculation for the 1st 26 weeks of compensation payments only.

- Shift allowances include day, evening & night shift penalties, but do not include laundry, uniform, certificate, meal, travel or any other allowances.
- Your weekly benefits are also influenced by your "current work capacity".
- This establishes whether or not you can return to suitable employment, even if it's not the same job/role/duties as prior to your injury.
- If you cannot do any work at all, then you are considered to have "no current work capacity".

No current work capacity
First 13 weeks:
- WorkCover will pay 95% of your pre-injury average weekly earnings (to a maximum of $1,250 a week).
- The hospital will pay make-up pay to your Award wage for a period of 39 weeks whilst recovering from your work injury.

Make up pay.
- Accident pay will be paid as per Award entitlement (e.g. Nurses Victorian Health Services Award).
- Entitlement is up to 39 weeks, dependent on your work capacity.
- Make up pay will be suspended for non compliance of medical attendance or R.T.W., invalid certificates and no formal notice of injury (i.e. incident report)

What medical costs will WorkCover pay?
- WorkCover will pay the approved schedule fee for all referred, reasonable medical and like costs directly related to a workplace injury or illness.
- Treaters must be registered with Worksafe Victoria.

Reasonable medical and like costs include bills for:
- Medical treatment
- Hospital services
- Nursing care
- Ambulance travel
- Transport to & from medical treatment (qualifying category)
- Pharmacy
- Physiotherapy
- Osteopathy and other like services
- Home help (assessment required)
- These services must have a referral from your treating doctor and must be approved by either the employer or the WorkCover Insurer.
- (This is still required if your claim is for medical expenses only.)
- If you are requested to pay up front for treatment provided, please be aware that you can only be refunded the approved schedule fee.

Who will arrange my medical treatment?
- After a workplace injury or illness you will be referred to the Consultant Doctor, at the Staff Health Clinic for immediate review and return to work planning.
- It is recommended that you attend your treating doctor for further assessment and treatment advice.
- The Consultant Doctor will then liaise with the treating doctor for ongoing rehabilitation and return to work.
- The Staff Health Clinic is located on the,ground floor of the ▮▮▮▮▮ Hospital and appointments can be made by calling 9288 2022.
- When you complete a claim form for a work injury/illness, you also sign an Authority to Release Medical Information.
- This means that your doctor, or anyone who provides you with medical treatment relating to the injury, can provide relevant information to the O.H. & S. Department and the Insurer, as required, to assist in your recovery.
- If you have any further questions, do not hesitate to contact the O.H. & S. Department by phoning:

Appendix 2. Case Studies 1–6

All individuals have been de-identified.

All case studies are functional restoration program reviews for injured workers.

Case study 1: Mrs Nerinda Andrews.

58 year old Mrs Nerinda Andrews was referred for a review of a workplace injury sustained in November 2009. At the time Nerinda was manoeuvring a loaded trolley that began to fall forward. She attempted to stop the trolley by reaching and pulling it, wrenching her shoulder. She has had pain in her neck, left shoulder and low back with radiating pain down her left leg for eight months.

During the initial assessment in I noticed that Nerinda had developed a tremor in her right hand and leg. She described numbness in both hands and a loss of power at times. I referred her to Dr. J at the Staff Clinic who then referred her to a Neurosurgeon who arranged for an MRI. I attended the review appointment but the surgeon could not identify the cause of the tremor from the MRI and recommended referral to a Neurologist. I attended this appointment also and was able to discuss his diagnosis (of Parkinson's disease) with Nerinda and her daughter. The Neurologist recommended that Nerinda continue to work in CSD at the hospital. He believes that the pain she has been experiencing is linked to the neurological condition and the symptoms should subside with medication. He did not believe the injury sustained in November in any way contributed to the condition which he feels Nerinda has had for five to ten years. He did note that her reduced co-ordination and balance may limit her ability to respond quickly to physically challenging situations. He did suggest that heavy lifting should be avoided as Nerinda cannot be confident of her ability to lift trays of instruments for example. He encouraged her to work on her fitness and strength, to manage her weight and to be aware of the importance of a positive attitude to managing her condition.

Nerinda's manager Andrea, injury manager, Sandra and I have worked with Nerinda to develop a plan to enable her to continue to work within the restrictions prescribed by the Neurologist. Our plan includes:

Action plan.
- Nerinda to take a week off work to establish her medication regime
- (Author) to talk to the CSD team to reassure them and provide information as required

- Andrea and Nerinda to work together to establish a return to work plan that identifies tasks that Nerinda can currently manage

- Nina to participate in a graded exercise program at the hospital gym

- Sandra to provide a three month membership to the gym

- Author to provide feedback to Alison regarding Nerinda's functional capacity on a monthly basis

- Nerinda to provide feedback to Alison about how she is coping and any help she requires

- Nerinda to attend regular reviews with the Neurologist

- Nerinda to participate in daily group exercise program with modified exercises developed by the author.

Postscript.

Nerinda remains at work on modified duties. She no longer experiences neck pain and her tremor is well managed with medication and continues to regularly participate in the group exercise program regularly. As the unit supervisor she is quick to refer injured workers or colleagues she suspects are experiencing difficulties to the health management team.

Case Study 2: Mrs Leaha Rakshminaran.

Ms. Rakshminaran is making good progress with her involvement in a functional restoration program. She has increased her exercise tolerance without exacerbating her back pain. She will continue to work two days per week for the next two weeks when her progress will again be reviewed. In the meantime she will continue to attend the gym three times per week to work on her program.

Leaha's GP recommended she continue to work two, non-consecutive seven and a half hour shifts per week for a further four weeks. She is to remain on restricted duties that include lifting no more than one kilogram, no patient work, sitting and standing limited to twenty minutes. Her role as ANUM enables her to rest when needed and does not involve direct patient care. There are no activities that appear to be causing any difficulty or exacerbating her pain. She concedes that she feels tired at the end of a shift. She has agreed to continue as per her GP's recommendations for the next two weeks and we will review her progress at that time. She will attend the gym three times per week to work on her rehabilitation program.

Action plan.

1. Sandra to liaise with GP to develop a return to work plan
2. Continue with regular rest breaks whilst at work including opportunities to lie down for 5 minutes at a time plus work break stretches
3. Continue to monitor and upgrade a graded, individualized exercise program at the fitness centre
4. Focus on core strengthening and recruitment, alternate postures for sitting, standing and walking to incorporate core stability

Postscript.

Leaha returned to her full pre-injury hours and duties and while she continues to experience episodic back pain she is managing her pain with exercise and rest and has undergone further training to move into nursing management.

Case Study 3: Mrs Margot Saunders.

Mrs. Saunders has seen by Dr. T who found she has an L5/L6 disc bulge, more to the right side and almost certainly irritating the S1 nerve root. He believes this to be consistent with her clinical presentation. She will see Dr. D on 27th April to be assessed for an epidural to help manage her pain. She continues to work independently on a hydrotherapy program which she finds helpful and is working two days per week for five hours.

Program.

Margot has been working on an individualised, graded hydrotherapy program for the past month at the Monash Aquatic Centre. She is making good progress and finds the exercises in the water less likely to exacerbate her pain than was the case when she tried working out in the gym. She is also walking daily and is coping well this.

Return to work.

Working two part-time shifts per week in the Cardiology Unit on day shift, Margot reports that she is coping well. We have discussed a range of self-management strategies that includes work/rest/sit/stand/walk rotations. She has identified a number of tasks such as preparing for an audit, that enable her to work at her own pace and she is coping well with these. Sandra will continue to monitor her graded return to work over the coming months and will participate in the group exercise program with her colleagues.

Plan.

I will continue to liaise with Margot regarding her hydrotherapy program over the coming months, but feel she has been well resourced to continue to work on her program independently.

Postscript.

Margot returned to her full pre-injury hours and duties and continues to attend her local pool to exercise in the water each week. She works night shift and so completes her pre-work stretches on her own.

Case Study 4: Mr Peter Bains.

I met with 48 year old Peter in the engineering department where he has been employed full-time as an Engineer for the past eleven years. Peter reports a recent panic attack at work and hypertension which has been investigated by cardiologist Dr. J. Peter experienced chest pain and tingling in his fingers during the attack and while he did not lose consciousness, was taken to the emergency department at the hospital for investigation. He has since had an angiogram which has identified some thickening of the left ventricle. Peter's previous medical history includes low back pain which he manages with exercises and chiropractic treatment. He sees Chiropractor Dr. B every three months.

Employed full-time as an Engineering supervisor, Peter's role includes administrative duties, supervision of the engineering team and some hands-on engineering work. Recent staff shortages have meant that Peter has worked additional shifts, including being on-call at night and weekends. He stated that at times he sleeps on the floor of his office if called in at night, rather than drive home and rest between shifts.

Peter reports that does not find the work stressful or taxing physically but spoke at length about his frustration with management and what he perceives is a lack of respect for himself as the manager and lack of appreciation of the role he and his team play. This was a recurrent theme throughout the interview. An additional grievance is the installation of the hospital's new hydrotherapy pool. According to Peter he was not consulted about the development of the pool and has not been provided with any training but will be *"expected to maintain it."*

On assessment Peter reported having had a headache for several days which he scored at 7/10 at the time but 10/10 the previous day. He did not take any medication for the pain, nor did he rest, preferring to come to work to "*keep busy*." He described the pain as escalating during the course of a work shift.

Peter reports pain in his low back but believes this is well managed with a series of stretches which he demonstrated. He stretches regularly throughout the day. He did concede having gained 15 kilograms in body weight over recent years and agreed that this would not be helping his back pain. The knee pain occurs only occasionally and is not a concern to him at the present time.

Program review.

Peter was offered the opportunity to participate in a hydrotherapy program at work but declined. I attempted to give him some simple breathing and muscle relaxation activities to practice at home and work but had no feedback regarding their effectiveness. Peter had stated that he was keen to participate in an individualized, graded gym program but cancelled three subsequent appointments. He did not return phone messages and did not join the group exercise sessions either in the Engineering unit or the nearby operating theatre program.

Postscript.

Peter chose not to engage in a workplace functional restoration program and took three months off work. He returned to work part-time on modified duties, relinquished his management role and remains physically incapacitated.

Case Study 5: Mr Ken Overton.

Employed full-time as a maintenance manager, 47 year old Ken enjoyed good health and a high level of physical fitness prior to the 2007 motorbike collision in which he fractured his right leg and injuring his right shoulder. A rod and four pins stabilized the right tibia and were followed by several skin grafts. The fibula was shattered and could not be repaired. A Hydrodilitation alleviated most of the shoulder pain and rehabilitation saw Ken return to work on modified duties whilst still on crutches six months later.

Despite ongoing pain, Ken was determined to return to work. The health management team liaised with his doctor to develop a graded return to work plan and identify suitable duties. A member of the team provided transport to and from the hospital as he was unable to drive. It was clear that whilst Ken was anxious to resume his pre-injury duties, he was experiencing severe levels of fatigue by the end of a work shift. He had an acute sense of responsibility and was at risk of working beyond his functional capacity in his enthusiasm to resume his role and support his co-workers. His return to work was therefore closely monitored and carefully planned.

(The author) developed a functional restoration program that included daily stretching activities at work, close monitoring of his graded return to pre-injury duties and a physical rehabilitation program. An Orthotic ankle support was provided and a trolley to transport his tools. A membership was organized and paid for by the hospital at the local heated pool where Ken worked on an individualized, graded regime of strengthening exercises. A keen scuba diver, he was very keen to work in the water and within weeks was able to swim several laps of the pool.

Being on his feet for most of the working day, climbing ladders and working on heavy machinery, it was imperative that Ken regain his strength and fitness to be able to successfully return to work. He made good progress until the rod was removed and he experienced a significant increase in pain on weight bearing. The team again modified his duties, liaised with his treating doctor and adapted his physical training program to accommodate his changed circumstance. His multiplicity of injuries contributed to his anxiety that he may further injure himself. A highly structured and closely monitored program was needed to help Ken to learn how to move forward safely and achieve his goals.

An accident involving a lawn mower at home four months into his return to work meant that he could not go into the water. His rehabilitation was again modified to include a gym based program until he was able to resume his water program.

Postscript.

Five years later Ken is working full-time on his pre-injury duties. He has had several surgical procedures during this time but has managed to return to work on each occasion. His injured ankle remains unstable and his enthusiasm to continue to work may mask any deterioration in his health. He needs to continue to wear his orthosis and to maintain his fitness, particularly as he gets older. Annual medical reviews to monitor the patency of his leg and the possible need for further surgery are required.

Case Study 6: Mrs Nilma Naghemi.

Mother of two, 44 year old Nilma had worked as a nurse in her home country of Egypt before migrating to Australia. Her qualifications were not recognized here and she retrained as a chef. She had been working in the hospital kitchen for seven years when she experienced an acute episode of low back pain in 2006 whilst lifting and twisting to move a 20kg bucket or potatoes. She underwent seven weeks of physiotherapy treatment which reduced her pain significantly and resumed her pre-injury hours on restricted duties.

The health management team liaised with her treating GP who was confident the injury would resolve but Nilma continued to experience numbness and referred pain in her right leg. Her sitting tolerance was limited to ten minutes and she continued to rely on analgesics to manage the pain. She had recently purchased a new home and was very concerned that if she could not continue to work as a chef, she would lose her home.

She had stopped swimming regularly seven years before when she returned to work and study and had since gained seventeen kilograms. She was travelling two hours each day to get to work and had no time to keep fit. An assessment found that Nilma's swimming technique was poor, despite assertions that she had previously been an adept swimmer. It was difficult to ascertain whether her technique was hindered by her back pain, lack of fitness or body mass.

Nilma completed an eight week functional restoration program. The program began with a four week intensive hydrotherapy program three times per week at her local indoor heated swimming pool. She enjoyed being in the water and quickly progressed from walking and stretching to resistance activities, swimming and water aerobics. She was sponsored for a three month membership to the pool and attended three times per week.

She was then sponsored for a three month membership to the staff fitness centre where she attended the gym three times per week to work on an individualized graded gym program focusing on building core stability and fitness. Nilma applied herself diligently and consistently to all aspects of the program and made excellent progress. She reported a marked reduction in her back pain and improvements in her energy levels and confidence. She lost five kilograms in body weight and her sitting tolerance increased to two hours without pain or fatigue. She resumed her pre-injury hours and duties. Nilma developed excellent self-management skills and five years later, continues to work injury free. She has maintained her membership and attendance at her local fitness centre where she trains several times per week.

A group exercise leader, Nilma has been an enthusiastic proponent of the group exercise program. She is very supportive of her work colleagues and encourages them to contact the health management team if they are experiencing difficulties. She recently enjoyed a holiday to Egypt for three months where she did not have access to a hydrotherapy pool. She was alarmed at the return of her back pain and resumed her program at the pool as soon as she came home. The pain has since desisted and she continues to work full time on her pre-injury duties without incident. A recent worksite visit saw Nilma being vigilant with all manual handling tasks. She plans her day carefully, rotating through a range of activities throughout the day. She was seen to intersperse sitting, standing and walking activities. She reports having lost a further five kilograms and feels well supported by her colleagues and hospital management. She stated that she will remain loyal to the hospital because of their support of her when she was injured.

Postscript.

A pro-active approach to support this worker's willingness to return to work despite ongoing back pain achieved an excellent outcome for the worker and the hospital. Five years later she continues to work full-time on her pre-injury duties without further lost time injury leave. The worker has maintained a high level of loyalty to the hospital as a result of the support she received from the team when she was injured.

Appendix 3: Situational Analysis 1 Data

(Examples of Journal Entries)

Journal Entry 1	Time	Location	Project team
9/7/07	6.45 a.m.	8th Floor Ward	TR/JS
Description: Everything is dark and quiet, no movement or sound. Patients' bedrooms are dark and still, doors ajar. Hallway lights dim, corridors empty. A lone nurse sits at the reception desk reading. In an instant the whole ward is awake. A sudden cacophony of light, noise, smells and activity heralds the start of the day. Nurses appear as if from nowhere to draw the blinds in each room and wake each patient with a "Good morning Mr. O'Brien." Vacuum cleaners drone as breakfast trolleys smelling of toast and bacon clatter out of the lift. It seems that everyone is suddenly awake and busy. Nurses taking obs while simultaneously extricating patients from their beds and into bathrooms. The day has begun; from the silence of the night erupts a flurry of activity.			
Reflection: In the tranquil quiet I imagine running our program in the open space near the reception desk. I can picture myself with a group of workers enjoying the opportunity to stretch and breathe and spend some time together, preparing for the day ahead. When night transitions into day however, the open space suddenly disappears as does the peace and quiet. The reality of how frenetic the day really is hits me. The dark, quiet, emptiness abruptly converts to light, noisy frenetic activity with no time or space for our program. I wonder if there will be another opportunity for it.			
Concept(s)	Transition between shifts, moving between routines		

Journal Entry 2	Time	Location	Project team
19/7/07	3.45 p.m.	Intensive Care Unit	TR only

Description: In the intensive care unit (ICU), each nurse is allocated to one patient for the entire shift and all seven patients are currently unconscious. The nurses stand at a desk at the end of the patient's bed and do not leave the patient's bedside unless relieved by a colleague. Doctors, specialists and physiotherapists come and go regularly. There is very little talking between workers and the only sounds come from the ventilation machines and the alarms on auto-IV machines. At a circular desk in the centre of the open unit, the manager sits overseeing all seven beds. The workers are very focused, constantly checking their patients and the digital readings on their machines and writing notes. It takes two or three workers to change the position of a patient, which doesn't seem to happen very often. Families wait in a small room outside. The manager (an older nurse) goes out to talk to them from time to time.
The families seem reassured by this. Handover is done one-on-one with the manager, the nurse from the previous shift and the incoming nurse. The younger nurses listen intently to the manager's instructions.

Reflection: The medical management of patients requires the intense focus of a multidisciplinary team. There is an intensity in the room with workers constantly vigilant to the needs of the patients. There is a strong sense of team work as doctors, medical specialists, nurses and physiotherapists work closely together. It is difficult to imagine how we could bring these workers together as a group to exercise but they could potentially perform exercises in situ. There are periods when the nurses seem to be just standing around watching.

Concept(s)	Intense focus on patient's medical management, respect for workers' experience

Journal Entry 3	Time	Location	Project team
19/7/07	1.45 p.m.	Operating Theatres	TR/SL

Description: Each theatre has a senior surgeon, an assistant, an anaesthetist, one or two techs, and three or four nurses. Early in the day the techs move equipment from room to room, adjusting operating tables, traction machines and monitoring equipment. The scrub nurses (all women over 40 and many very small Asian women) push, then unpack loaded trolleys of surgical instruments, laying them out on mobile tables. Patients arrive conscious but are slid across from their bed onto the operating table using a 'pat slide' by a team of four (nurses and techs do the work, occasionally an anaesthetist helps). The techs work physically hard between patients. The nurses are on their feet throughout the surgery (several hours). The operating tables are too high for the nurses, who stand on platforms to reach.

Reflection: Everyone focuses intently on the medical management of the patient. The physical demands of surgical work put workers at risk of injury. This risk is exacerbated by the physiological differences between workers (their height in particular), and their interface with the work environment which is set up to accommodate the needs of the surgeons.

Concept(s)	Care of patients over-rides risk to workers

Journal Entry 4	Time	Location	Project team
19/7/07	2.15 p.m.	Operating Theatres	TR/SL

Description: Most of the nurses are old (one is 65, most are 50+) and are relatively short compared to the surgeons and techs. The young nurses are nearly all Asian and very short. (One of the injured Asian workers told us that nurses with limited English prefer to work in the theatres than in direct patient care.) All the equipment in the room is set to the preferred height of the surgeons (all male). The nurses maintain a steady flow of physical work throughout the surgery, the 'scout' comes and goes while the 'scrub' is anchored to the table for hours at a time, passing implements to the surgeon. Some of the saws and drills weigh five kilograms and are passed from a low-set table to the extended height of the operating table, so the nurse has to step up and down off a narrow step to reach and lift the equipment above shoulder-height to the surgeon (very risky). The tech remains seated while the nurse continually steps, lifts and passes. Each surgery had its own stereo, and the surgeon dictates his choice of music.

Reflection: In the operating theatre, workers must adapt to the needs and preferences of the surgeons. The work is highly repetitive and small ageing women do most of the physically demanding work, despite their lesser size and strength, and are therefore most at risk. Surgeons prefer to work with older more experienced nurses. Asian workers are particularly at risk. Techs work hard for short periods then rest while the nurses work continuously. Rest breaks are arbitrary and unscheduled.

Concept(s)	Patient needs prioritised over personal needs, respect for experience of older workers

Journal Entry 5	Time	Location	Project team
9/7/07	3.30 p.m.	8th Floor Ward	TR/JS

Description: From the couch by the lift, we have a good view of all the workers coming to and from the reception desk, patients arriving and leaving via the lift and visitors armed with gifts, looking for their loved ones. New patients arrive on foot, clutching bags and the occasional pillow. Everyone comes to the reception desk where the ward clerk directs the traffic: "Mrs Jackson was in room 12 but she's being moved to 17 as soon as the cleaners have finished getting her room ready."

Reflection: The hallways are never empty as a steady stream of people careen around the unit. As patients and visitors arrive and leave throughout the day one worker (the ward clerk) plays the role of traffic controller.

Concept(s)	allocated roles, routines

Journal Entry 6	Time	Location	Project team
10/7/07	7.15 a.m.	8th Floor Ward	TR/JS

Description: As the breakfast trolley passes by rooms without stopping, we realise which patients are off to surgery. These rooms are the focus of a steady stream of loved ones, nurses, anaesthetists and doctors. Eventually a bed awkwardly nudges its way out the door, patient on board (deprived of their pillow), partner following close behind. The Patient Service Assistants (PSAs) manoeuvre the beds and chat as they head towards the lift.

Reflection: A great deal of attention is diverted to patients being prepared for surgery. This creates a new routine and disrupts the "normal" routine of the morning. Other patients must wait while the surgical patients are made ready to go to surgery. Their needs are prioritised as time is of the essence.

Concept(s)	Specificity of roles, timing of routines within and between units

Journal Entry 7	Time	Location	Project team
10/7/07	11:30 a.m.	8th Floor Ward	TR/JS

Description: There is a lull of activity between 9.30 a.m. and 11.00 a.m. when nurses begin to disappear for their breaks. One by one, or in pairs, they head into the staff room or take the back lift to the car park for a cigarette. (There seems to be an inordinate number of young women smokers – we can smell them when they return.) Before they disappear, they tell their nursing partner for the day to keep an eye on their patients and pass on their insights, "Mrs Vella is a bit teary this morning" or "Mr. Lucas is going to the Cath Lab at 11.30, I've booked Karen [the PSA]". So even though there is less physical activity happening, the nurses' attention is constantly taken up with caring for their own patients, or those of a colleague on a break. There does not appear to be any 'quiet' times for the nurses, the cleaners or the PSAs when they might be available to come together.

Reflection: We look for 'quiet transition times' when staff might be available to get together to exercise. During this apparent lull, the nurses who are left behind are responsible for 8 to10 patients. What initially appeared to be transition is in fact a time of intense concentration for the nurses left to care for two sets of patients. It is hard to imagine when, in all the chaos of the morning, we will be able to get everyone together at the same time, other than at handover but the cleaners, kitchen assistants and PSAs don't attend the handover meetings. They are usually scattered all over the unit attending to their tasks. Our consistent observation in every unit is that there are no times when all the workers in a unit are available.

Concept(s)	Focus on the changing needs of patients, transitions within shifts, communication, co-ordination

Journal Entry 8	Time	Location	Project team
12/7/07	11.00 a.m.	2nd Floor Ward	TR/AM
Description: Patients are ferried around the hospital in their beds or wheelchairs, to and from the operating theatres, angiography clinics, consulting suites or heading home. PSAs are responsible for transporting patients but usually have a nurse to help. This means a nurse is away from her other patients for however long it takes (5–7 minutes) to take the bed to the operating theatres on the second floor. The time variable is the lift that was often very slow to arrive. A lot of negotiating is done between the PSAs and the nurses and their colleagues to ensure that all the patients are looked after when a nurse leaves the floor.			
Reflection: Workers negotiate to find order in the chaos of the day. To ensure patients are able to access the services they need, workers must co-operate with each other. Every worker is accountable for the safety and wellbeing of the patients.			
Concept(s)	Patient focus, variety of routines within and between units, Negotiation between workers to clarify roles, co-ordination,		

Journal Entry 9	Time	Location	Project team
11/7/07	2:00 p.m.	2nd Floor	TR/AM

Observation: The afternoon shift is in handover meeting; the morning shift are doing their final round for the day, checking charts and saying goodbye to patients. The afternoon routine is calmer, slower, quieter; no vacuum cleaners. Visitors entertain the patients and each other. Nurses gather around the reception desk, chatting and writing up charts. This seems to be a time when workers may be available to come together. There are more older nurses than in the morning shift. There are no showers to attend to or patients to prepare for surgery. As the surgical patients reappear later in the afternoon, the nurses rally to settle them with drugs, obs, reassurance and positioning. Family members become more demanding as patients come out of anaesthetic and are distressed or disorientated: "My mother is in pain, what are you doing about it?" Nurses continually repeat the instructions for using the self-administered drug machines as the patients are not fully awake. They check with the older nurses in front of patients to reassure them.

Description: The level of physical activity fluctuates throughout the day. There are transitions between routines where nurses seem more relaxed, albeit briefly. They tend to spend more time together in the afternoon until the surgical patients return. I wonder if this is why the older nurses choose to work this shift. It seems that groups of workers may be more available in the afternoon than the morning. Afternoons could be a good time to run the group exercise program and run the training sessions for the second shift but no point doing at the end of the shift for a.m. staff. Within these transitions, there is the constant sense that at any minute the tension could return. The duress of family members who are unfamiliar with the post-surgical disorientation of their loved ones, seek the reassurance of the older, more experienced nurses. They bring the focus of the staff back to attention and to the constant need for vigilance in meeting the medical and emotional needs of patients and their families.

Concept(s)	Focus on changing needs of patients, Transitions, routines, respect for older, more experienced workers

Journal Entry 10	Time	Location	Project team
19/7/07	5.15 p.m.	Central Sterilising Unit	TR/JS

Description: Elric (one of the central sterilising department workers) has just agreed to work an extra three hours tonight after he has already completed a ten hour shift because a colleague has called in sick. Elric looks very tired and has been on his feet all day. He says if he doesn't stay, then another worker will have to come into work just for the three hours, and they all live at least an hour from the hospital. He doesn't want them to have to come in so he has agreed to stay and work the extra shift. He said that he probably does an extra few hours at least once or twice each week. "Someone has to do it" he explains.

Reflection: Workers have their own allocated roles but also work as members of a team, and are supportive of each other. This is another example of a worker putting others needs ahead of his own. Working on his own at night can be stressful and, being already tired, this worker is putting his own health at risk. He will be driving an hour home after a very long and tiring day. Sandra has analysed the injury statistics and found that injuries tend to happen either very early in a shift or later when workers are tired. The effective functioning of the hospital depends on the goodwill of the workers. The unpredictability of much of the work means that workers are expected to take up the slack when things fall behind or if unscheduled events require additional workers.

Concept(s)	Team work, peer support, prioritising the needs of colleagues, acceptance of personal risk

Journal Entry 11	Time	Location	Project team
20/7/07	10.45 a.m.	Operating Theatre	TR only

Description: I was visiting an injured nurse in the theatre this morning when an alarm went off. The manager grabbed a yellow hard hat and announced on the intercom that a Code Yellow had been called and all surgical theatres were to be evacuated. I stood back and watched as eleven theatres were prepared for evacuation. Every worker in the area arrived from PACU and CSD with the techs, ward clerk and cleaners ready to help wheel the patients out of their respective theatres. Three engineers arrived and reported that there was an oxygen leak in one of the theatres where a tradesman had been working. Before the patients were evacuated the code was cancelled and everyone was told to stand down, meaning the emergency was over, the patients were safe and everyone could return to where they had come from. The engineers were quick to point out that an 'outside tradie' had forgotten to turn off the oxygen while fixing a pipe, the implication being that the emergency had not been caused by one of the hospital team.

Reflection: The prompt response of every worker highlights the focus on patient care and team work. Roles convert instantaneously, from cleaner to emergency worker, every one focused on the wellbeing of the patients. Workers take great pride in and are defensive about their professionalism.

Concept(s)	Prioritising patient care, acceptance of personal risk, , credibility and respect for experienced workers

Journal Entry 12	Time	Location	Project team
11/7/07	2:30 p.m.	8th Floor Ward	TR/JS
Observation: There are a lot of old people who stay in bed all the time. They sleep a lot and don't get many visitors during the day. The nurses do more for them physically (positioning, turning, feeding) and the physiotherapists don't go near them.			
Description: Some patients work towards recovery, others receive palliative care. Nurses provide the hands-on medical management of older patients. There seem to a number of very frail patients on the 8th floor; apparently some have been here for many weeks and have come here to die. The nurses generally seem to be very gentle and tender in the way they approach these patients who are unable to respond. This is a very different kind of nursing.			
Concept(s)	Attention to the individual needs of patients		

Journal Entry 13	Time	Location	Project team
11/7/07	2:30 p.m.	8th Floor	TR/JS
Observation: Physiotherapists see each patient once a day for a few minutes and leave written instructions on a whiteboard in each room. The nurses are left to coax patients into getting out of bed and taking a few steps. Patients look shocked when confronted with the idea of getting out of bed "so soon?" Nurses are gentle but determined: "The doctor wants you to get up today and sit in the chair for a little while."			
Description: The notion of becoming physically active is at odds with some patients' expectations, particularly in the first few days after surgery. Patients and their families seem to question the argument that being more physically active is in the patient's best interest. The delegation of this rehabilitation role from physiotherapists to nurses is an added responsibility for nurses untrained in rehabilitation. This additional role adds to the nurses' risk of injury and seems inconsistent with the 'No-lift' policy as an unstable patient is at increased risk of a fall. I need to find out more about how well nurses are trained to complete this role.			
Concept(s)	Communication between workers to define roles, Preparing patients to return home, patient's perceptions of the role of workers		

Journal Entry 14	Time	Location	Project team
11/7/07	3:30 p.m.	Maternity	TR/JS

Observation: By 2:00 p.m. there is a constant stream of visitors, balloons and flowers. The lifts are full to capacity, PSAs jockey for space for beds. The maternity ward is full of smiling grandparents and grumpy siblings. No-one arrives empty handed. Boxes of chocolates for the nurses are kept in the staff tea room. Visitors change the energy of the ward and the focus of the nursing staff. In addition to caring for patients, nurses are now also responsible for chatting to family members and, in many instances, answering their questions and reassuring them. There don't appear to be any opportunities when workers are available to come together during the afternoon routine.

Description: The social milieu of the unit changes in the afternoon as families and friends arrive. The transition from morning to afternoon changes the routine from the medical focus of the morning to a more social interaction. The constant stream of visitors gives the unit a much more social feel; there is more noise, colour and activity as people constantly arrive with gifts and flowers. Workers are attentive to the needs of patients and families, so they are unavailable to come together.

Concept(s)	Routines, transitions, patient focus

Journal Entry 15	Time	Location	Project team
12/7/07	8.30 a.m.	8th Floor Ward	TR/JS

Observation: From our vantage point, we can observe the length of the hallway, the arterial hub where workers weave their way up and down and in and out of patients' rooms. We watch bucket-toting cleaners, ambulance workers delivering patients on precarious-looking portable gurneys and pastoral care workers quietly entering and exiting one room after the next. We recognise the PSAs negotiating loaded hospital beds around corners to catch a lift and nurses moving briskly from the drugs cupboard to the patients' rooms, pushing BP machines while carrying armloads of drugs, pads and clipboards, their bulging tool bags strapped to their hips.

Description: Within the organised chaos I see that while individual workers have their own tasks to complete, they do so in a methodical and unassuming way as part of a coordinated team. What seems like chaos is actually a highly ordered routine.

Concept(s)	Patient focus, routines between units, working as a team, allocated roles

Journal Entry 16	Time	Location	Project team
12/7/07	8:00 a.m.	8th Floor Ward	TR/TH

Observation: In the morning, the whole ward feels alive with people coming and going. The hallways are cluttered with blood pressure machines outside bedroom doors, hoists, vacuum cleaners, breakfast trays stacked on trolleys, bags of linen, beds moving being moved from room to room. The nurses are rarely at the reception desk; they are usually in the patient's rooms. The ward clerk stays at the desk, fields questions and talks incessantly on the phone. There is a hum throughout the ward, nothing loud just a subdued hum of activity. The younger nurses seem to move a little more quickly than the older nurses; they record their every movement and observation in notebooks whereas the older nurses seem more assured. The communal bathrooms are awash with commodes piled high in one corner and gum-boots sitting by the door.

Description: Despite all the activity, the noise is subdued, almost reverential. The routine of the morning and the calm confidence of the older nurses, in particular, brings a sense of order and control despite the undercurrent of constant activity. The younger nurses take their notes covertly, as if hiding their lack of competence. The central reception desk is the hub of activity where everyone comes to and leaves from throughout the day. The mess in the bathroom where the more disabled patients are showered is away from public view. The gum-boots signify the very mundane work done at times by the nurses.

Concept(s)	Routines, mundane tasks, knowledge, wisdom, experience, confidence, intergenerational differences

Journal Entry 17	Time	Location	Project team
12/7/07	11:00 a.m.	8th Floor Ward	TR/TH

Observation: Once showered, patients sit in armchairs by their beds watching TV or reading the paper. The physiotherapists arrive to get patients up and walking. Some patients are reluctant to get up–"I don't think I can" –while others are champing at the bit to do another round of the ward – "I did seventeen laps yesterday," one man brags. The physiotherapists write instructions for the nurses on patients' whiteboards about what activities each patient should be expected to do each day (e.g. Leg raises x 10).
Patient to nurse: What's a leg raise?
Nurse: I think you have to lift your leg up and down.
Patient: "But it hurts when I lift it."
Nurse: Well just do the best you can.

Description: The process of recovery begins in the wards, with nurses providing the direct patient care while the physiotherapists set the tasks. The whiteboard provides a conduit for communication between the workers. The nurses are responsible for encouraging patients to complete their allocated program.

Concept(s)	Focus on patient recovery, Co-ordinated roles, communication between workers to clarify roles

Journal Entry 18	Time	Location	Project team
13/7/07	7.00 a.m.	8th Floor Ward	TR/JS

Observation: The noise of the day begins with the cleaners vacuuming the hallways, and the clatter of breakfast trays arriving. Everyone is preoccupied with the tasks of the morning. There is very little conversation between staff. Everyone is focused on the tasks to be done, in sequence. The cleaner comes out of a patient's room with the vacuum cleaner as the breakfast delivery tray is whisked into the room by the kitchen assistant. The nurse then follows with the blood pressure stand, followed by a doctor. The choreography of the morning is a well-rehearsed routine.

Description: While each member of the team has their own well-learned role to play, their ability to perform their role effectively depends upon the other members of the team. This applies equally to the medical and non-medical workers. The order of events is critically important and depends upon the contribution of each individual worker.

There is a constant interplay and interdependency between the medical and non-medical groups of workers. If breakfast is not delivered on time, the patient will not be ready when the doctor arrives. If a patient inadvertently eats breakfast when they are fasting, they cannot have surgery. If the PSA doesn't arrive in time, the patient cannot get to surgery. If the ward clerk doesn't update the medical chart, the nurses don't know what drugs to administer. If the physiotherapist doesn't come and teach a patient how to walk, the patient stays in bed. If the doctor doesn't write the prescription, the pharmacy doesn't deliver the drugs. Every worker must complete their allocated roles efficiently and on time to ensure that the routines of the unit flow smoothly.

Concept(s)	Routines, Interdependence, Communication, co-ordination;

Journal Entry 19	Time	Location	Project team
13/7/07	7.45 a.m.	8th Floor Ward	TR/JS

Observation: A cleaner zips in and out of each room with a vacuum cleaner strapped to her back. As she leaves, the food services worker starts taking the breakfast trays into each room. She stops to read the name of the patient on the file outside each room and as she enters she calls out, "Good morning Mrs Venda, how are you this morning? She pulls the table across to where the patient is sitting, either in bed or in a chair, and places the tray within reaching distance. She stops to chat for a few seconds, usually about what they are having for breakfast or what they have ordered for lunch.

Description: The auxiliary workers complete their allocated tasks as members of a team that focus on providing a friendly and helpful service to patients. Workers interact with each other and the patients.

Concept(s)	Patient Care, All workers provide emotional support for patients

Journal Entry 20	Time	Location	Project team
13/7/07	8.25 a.m.	8th Floor Ward	TR/JS

Observation: The ward manager, Maureen, has been in her office since handover. When a doctor arrives, she comes out to talk to him at the reception desk.
The Manager: "Good morning Rd. Andrews, how are you?"
Doctor: "Fine thanks Maureen, and you?"
The doctor checks the files and writes notes and prescriptions. His instructions are relayed to the nursing staff through the files and the manager.

Description: Doctors communicate with the rest of the team through the nurse unit manager. Together the doctor and the manager discuss the medical treatment plan for each patient at the beginning of the day. The manager then passes on this information along the communication chain to the rest of the team during the handover meetings. This hierarchy is seen constantly in this unit, where nurses follow the instructions issued by a doctor they have not met. Each shift picks up the instructions from the previous shift through the manager. The manager documents and succinctly interprets the plan established by the doctor or specialist.

Concept(s)	Routines, role of managers, team work, credibility and respect through experience

Journal Entry 21	Time	Location	Project team
13/7/07	3:15 p.m.	2nd Floor	TR/AM

Observation: When the surgical patients return, the nurses move quickly. They begin the routine of settling patients, monitoring signs, checking bags of outgoings, setting up electronic IVs and reassuring patients and families. In the orthopaedic ward, it takes two nurses to position a knee replacement patient into the continuous passive movement machines. One nurse is very tall and one very short. They work together for ten minutes to strap the patient into position – the tall nurse stoops while the much shorter nurse stretches, standing on the balls of her feet to reach. As they work, they explain to the patient and her husband how to self-administer the pain medication. They are both concentrating on the needs of the patient rather than thinking about how to minimise their own risk of injury.

Description: The different physiology of workers affects their ability to perform tasks together safely. A tall nurse working with a much shorter nurse must stoop, adding load to her low back. A task that takes time means that the tall nurse is in this flexed position for a prolonged period of time, causing back pain and risk of injury. A short nurse must reach and work from the balls of her feet, causing instability and risk of a fall or trip. We need to point this out to these workers as part of making them more aware of their personal risk but also to help them identify solutions to these types of problems. Work simplification techniques; core and scapular stability recruitment. Discuss with Maureen pairing nurses according to height.

Concept(s)	Prioritising patient needs, acceptance of personal risk

Journal Entry 22	Time	Location	Project team
9/7	7.15 a.m.	8th Floor Ward	TR/JS

Description: Portly new patient (60+) arrives at the reception desk, husband in tow. Nurse told her to "hop on the scales." Patient looked surprised about being weighed in full view of everyone, groaned and stood on the scales looking embarrassed (no eye contact). The woman whispered "Please don't say it out loud." The nurse nodded, wrote down the weight and took the patient to her room.

Reflection: The ignominy of being weighed in public was this patient's first encounter with her loss of privacy. I wonder why the scales are in such a public place. Surely there is somewhere more private that patients could be weighed.

Concept(s)	Respect for the emotional needs of patients, patient's trust in professionalism of workers

Journal Entry 23	Time	Location	Project team
9/7/07	3:00 p.m.	8th Floor	TR/JS

Description: The nurses speak quietly to each other and their patients; there is very little physical contact. Patients are encouraged to do as much as they can for themselves (the hospital has a "No lift" policy).

Young Nurse: Come on Mrs Hammond, you need to pull yourself up the bed, just hold onto this bar and pull your bottom back towards the pillows.

Patient's daughter: "But she only had her surgery this morning, how can she pull herself up? I'll help you mum…."

The nurse explains that it is better for the patient's recovery if she is physically active.

Reflection: The nurses are responsible for initiating the rehabilitation process on the wards. They must establish the expectation that patients need to become independent as early as possible. Family members are protective of their loved ones. They are defensive, and suspicious of any hint that a nurse is not doing everything possible for the patient. This must at times put workers in conflict with some family members.

Concept(s)	Families' perceptions of allocated roles, responsibility to prepare patients to return home

Journal Entry 24	Time	Location	Project team
10/7/07	8:00 a.m.	2nd Floor Ward	TR/AM

Description: A young woman follows as her mother, lying in bed, is taken to surgery. When they arrive at the lift the girl steps forward, kisses her mother and says "Good-luck mum, I'll be here when you get back." She appears tense and her smile seems forced. They are still waiting for the lift six minutes later, and the PSA chats while the mother and daughter wait.

Reflection: Here I sense that the daughter is very anxious about delegating her responsibility for her mother to the surgical process. At this point of separation, the wait at the lift is interminable. So much left unsaid, as the banter of the PSA fills the void.

In this very public domain patients and families share their intense personal emotions with the public. Their vulnerability is demonstrated in the held hand and the lingering wait at the lift. Patients and families look to the staff for support and reassurance; they need to feel that their trust in this process is well placed. There have been many such interactions that we have witnessed. It feels somewhat voyeuristic to be so physically close to these raw emotions and yet these people seem almost oblivious to our presence, they are so caught up in their own intense personal experience.

Concept(s)	Workers attuned to the emotional needs of patients

Journal Entry 25	Time	Location	Project team
11/7/07	11.30 a.m.	2nd Floor Ward	TR/AM

Description: PSA: "Julie can you give me a hand to take Mrs Johnson to theatre please?"
Julie: "Just give me a minute" (goes in search of the nurse she is partnered with for the day). "Karen. I'm just going to the theatre with Mrs Johnson, could you keep an eye on 21,22 and 24 please? Mr. Bell is waiting for the physiotherapist and the other two are okay for the minute." As the PSAs manoeuvre the beds, they chat to patients on their way. The one-sided conversation is generally a monologue about where they are going
PSA: "Here we are at the lifts, we could have a bit of a wait." The patients generally look distracted but the banter of the PSAs fills the silence as they wait for the lift. The PSAs invariably press the lift call button repeatedly.

Reflection: A simple activity (transporting a patient) takes a great deal of co-ordination, team-work and physical effort. It is completed without disruption to the flow of activity around the ward through the co-operation of workers. The repeated pressing of the lift button gives the impression that this patient is to be given priority. We are seeing many physically demanding tasks that workers are required to perform (manoeuvring beds) that require upper body strength and core control. We note that these muscle groups need particular attention in our program.

Concept(s)	Co-ordinated care, routines between units, communication, collaboration, co-operation, team-work

Journal Entry 26	Time	Location	Project team
12/7/07	7.45 a.m.	8th Floor Ward	TR/TH

Observation: An elderly man holds his wife's hand as she lies in her hospital bed, waiting for the lift that will take her to surgery. They do not look at each other or speak until the lift doors open, then he leans forward to kiss her hand, his eyes fill with tears. "I'll be right lovey," she says with a reassuring smile. When the lift doors close, he turns away, his head down.

Description: I feel embarrassed that I am sitting just a metre away from this very private interaction between a husband and wife. I have no idea what surgery she is having and whether it is potentially life-threatening but he is clearly very worried and she is trying hard to reassure him. His attempt to hide his tears from his wife, and from us, suggests that he felt aware of his public surroundings. I recall waiting with my husband to be taken to surgery last year and the rising sense of panic as it came closer to the time for him to be taken away. It was the longest day of my life, waiting for his return fourteen hours later. I remember watching every move everyone made in the lead up, needing reassurance that everyone was totally focused and organised; that nothing would be left to chance. I recall double-checking that his arrow was in the right place. I can visualise the moment at the lift, wanting to look confident and for him to feel my confidence. I must ask him if it worked.

Concept(s)	Moments of intense personal intimacy, trust in the staff

Journal Entry 27	Time	Location	Project team
12/7/07	9:30 a.m.	Angiography Clinic	TR/JS

Dressed in scrubs, we are sitting in the nurses' observation room looking into the two angiography laboratories. An angiogram is being performed in one, where the patient is awake but sedated. We can hear the conversation over the intercom. The surgeon is giving the patient a lecture about smoking as he points to the atheroma congealed in the artery he is attempting to probe.

Description: While medical management is a constant focus, many workers take on the role of educators and use every opportunity to educate the patients.

Concept(s)	Workers focus on educating patients, not just on medical management

Journal Entry 28	Time	Location	Project team
12/7/07	2:15 p.m.	8th Floor Ward	TR/TH

Observation: Patients' medical files are kept on shelves just outside the patients' rooms. The daughter of a patient took the file from the shelf and started reading. *Young Nurse:* Can I help you? *Patient's daughter*: No that's okay I just want to see how my dad is doing (continuing to read the file) *Young Nurse* (Taking the file hesitantly from the woman): If you have any questions you can ask me and I will help you. *Patient's daughter*: I really want to talk to my father's doctor. The young nurse goes and asks Maureen to talk to the woman.	
Description: Families rarely see the doctors who do their rounds in the morning. They accept the reassurance and information from older nurses more willingly than from younger nurses. The younger nurses have less credibility and confidence than their older, more experienced counterparts. The manager (Maureen) plays the role of spokesperson for the doctors. The young nurse acknowledges the experience of her manager in helping to negotiate with a family member who is determined to get the information she wants. There is a constant interplay between families and the medical team to pass on enough information to keep them satisfied without breaching the confidentiality of the relationship between the patients and their doctors. The fact that a patient is incapacitated seems to give family members a sense of responsibility and entitlement over their loved one's privacy. There is also a sense that doctors have better things to do than make themselves available to family members.	
Concept(s)	Young nurses lack confidence and credibility, Confidence comes with experience

Journal Entry 29	Time	Location	Project team
12/7/07	3:00 p.m.	8th Floor Ward	TR/TH
Observation: *Patient's adult daughter to ward clerk at reception desk:* "When can I talk to the doctor?" *Ward Clerk*: "The doctor came to see your mother this morning. I will ask the nurse who is looking after her to come and talk to you." A young nurse comes to see the daughter and speaks with her for some time (they stand in the hallway outside her mother's room). Two minutes later the daughter returns to the reception desk and tells the ward clerk that she wants to see her mother's doctor. The ward clerk speaks to Maureen and asks if she should call the registrar to meet with the daughter. Maureen says "No, that's fine I'll handle it." She goes out to the desk to talk to the daughter and takes her into her office where she closes the door. They speak for some time and the daughter leaves looking reassured.			
Description: Nurses, ward clerks and managers are the conduit between patients' families and the doctors. The hierarchy is well-established and families have restricted access to the doctors. In a private hospital, families are paying to have their own physician but they rarely seem to access him or her. The lack of credibility and confidence in the young nurse undermines the confidence of this patient's daughter, who wants to speak to her mother's doctor. The ward clerk is responsive to the daughter and recognises the need to seek a higher authority. Maureen has the option of calling the registrar (the doctor on call) but decides that she can "handle it" herself. The daughter seems happy to have been able to talk in private to a senior member of the medical team.			
Concept(s)	Older workers receive respect for their knowledge and experience, role of managers		

Journal Entry 30	Time	Location	Project team
12/7/07	4:15 p.m.	8th Floor	TR/TH

Observation: The hospital has a 'No-lift policy.' All the nurses have been trained not to lift patients but we have seen numerous examples of nurses (particularly older nurses) physically moving patients themselves rather than using a hoist. Hoists sit in the hallways but are rarely used. The older nurses seem more inclined to 'hoik' a patient into sitting up the bed than to use a hoist or take the time to encourage a patient to do it for themselves. As the older nurses are often paired with a younger nurse' there are times when 'looks' are exchanged (a hesitant pause followed by a facial expression that reflects resignation). Younger Nurse look: "Are you going to make me lift this patient up the bed with you? Is there any point me suggesting we get the hoist? Older nurse look: "Don't even think about questioning me, just grab his arm."

Description: More experienced nurses are in the habit of 1) taking charge, 2) working quickly, 3) working more physically with their patients. Young nurses lack the confidence to assert themselves. Trained not to put themselves at risk, they defer to their older counterparts. The older nurses have the functional capacity to move patients because they have been doing it for years while the young nurses are at significant risk because they are university-trained and not fit for such physically active roles.

Concept(s)	Older nurses have experience and authority over young nurses

Journal Entry 31	Time	Location	Project team
13/7/07	3:00 p.m.	2nd Floor	TR/AM

Two pastoral care workers have been visiting patients for the past few hours. At first we thought they were visitors but they move from room to room. They don't wear the hospital uniform but do have photo ID. They sit with patients quietly talking for long periods of time. Their conversations can't be heard. If a patient is not in their room when they come to visit, they leave a brochure on the bed. The brochure explains that they are counsellors who work at the hospital to "provide counselling support and pastoral care." The brochure invites patients to contact them or to visit the hospital's chapel.

Description: The emotional needs of patients are an integral part of the medical management of every patient. The nurses provide a level of support but have neither the time nor skills to counsel patients. The counsellors have time to sit with patients. There is a greater focus on privacy and taking time to talk.

Concept(s)	Counsellors provide emotional support to patients and families

Journal Entry 32	Time	Location	Project team
13/7/07	4:15 p.m.	2nd Floor	TR/AM

Observation: PSAs are constantly on the run as pagers call them from one end of the hospital to the other. As they arrive, they are chastised for being late but are constantly held up by the lifts. Visitors don't seem to mind waiting for the lifts but the staff are always impatient. Some PSAs use Gazundas (electric bed-moving machine) which means they don't need to find a nurse to accompany them when transporting patients in their beds. PSAs are not members of the medical team. No-one checks to see if they have taken a break; they are never where they are supposed to be fast enough. It will be difficult to include the PSAs in the group program as they are rarely available – their routine is unpredictable and they don't attend handover meetings.

Description: While all workers within a unit are members of the unit team, some workers are less members of the team than others. This Orwellian construct sees PSAs held accountable for the smooth workflow of a unit but not cared for as much as other workers. The PSAs will find it difficult to join the group exercise program. Their routine is unpredictable, they are rarely available at a particular time and none of the managers seem to take responsibility for them.

Concept(s)	Allocated roles, individual routines, not all workers are members of a unit team, role of managers

Journal Entry 33	Time/Location	Project team
13/7/07	Author's descriptions at the end of the first week of observations	TR/JS

Observation: After a week, we are beginning to recognise the ebb and flow of the day. While there is a constant hive of activity, it is not frenetic or chaotic; quite the opposite. The nurses know what to do and work methodically with each of their four or five patients. From time to time, they work in pairs for a short period but usually they work on their own. There are more young nurses on the morning shift when the work is more physically demanding (e.g. showers).
The cleaners, PSAs and orderlies all work together to get patients to where they need to be. The routine of the morning shift focuses on preparing patients for the day (showering, breakfast, cleaning rooms and preparing for surgery or treatment). The afternoon routine is less structured (monitoring patients and visitors and, as patients returned from surgery, organising their medication and settling them for the evening). The routines pivot around the changing needs of patients throughout the day

Description: Each day, the routines are the same; the mornings are highly structured, the afternoon less so. While each worker has their own specific role to play, they co-ordinate their work around each other. This creates a strong sense of team work. There is a predictability around the routines of the day. I wonder if the young nurses are given the morning shifts because they are more physically capable or because the older nurses don't want to work so hard.

Concept(s)	Predictable daily routines, intergenerational differences, inter-dependence of roles

Journal Entry 34	Time	Location	Project team
16/7/07	8.00 a.m.	2nd Floor Ward	TR/JS

Observation: In the surgical wards, most nurses have to prepare at least one patient for surgery. The older nurses go straight into the patient's room and introduced themselves while younger nurses stop to check the medical files and take detailed notes. Nurses talk constantly to the patients as they go through a sequence of checks (blood pressure, IV, pulse): "How did you sleep? How is your pain at the moment? Do you need anything for the pain? Have you had your breakfast? Have you been to the toilet? Do you need help to get into the shower? The same questions are repeated in each room as nurses move methodically from one patient to the next.

Description: The routine of the morning and the calm confidence of the nurses brought a sense of order and control. Older nurses are more experienced. Patient's physical and emotional needs are constantly monitored.

Concept(s)	Experience and confidence of older workers, attention to detail, younger nurses more methodical

Journal Entry 35	Time	Location	Project team
16/7/07	10:00 a.m.	2nd Floor Ward	TR/JS

Observation: There are two groups of surgical patients: the ones who stay the night before who are in bed and ready to go and a second group who arrive early in the morning and need to be 'worked up.' The newly arrived patients are weighed, allocated a bed, have their bags stored and changed into surgical gowns while the nurse asks them a series of questions.
Nurse: "What surgery are you having done today?"
Patient: "I am having a knee replacement."
Nurse: "Which knee are you having replaced?"
Patient: "The left knee."
The nurse records this information on the chart and leaves. Ten minutes later, a different nurse arrives and asks exactly the same questions and again records the responses on the chart. The anaesthetist comes in and talks for a while then asks the same questions. He draws a large black arrow on the women's lower left leg pointing upward towards the knee.

Description: The fastidious checking of details reinforces a sense that these workers do not make mistakes. The precision of the routine reassures patients that every member of the team is taking a personal interest in, and responsibility for their wellbeing. Their bags are safe and so are they. The arrows signify certainty about what is to be done and where. Patients are constantly reassured through the process of preparing for surgery by worker's attention to detail. The sense of routine and the predictability of the procedures normalises the surgical process. We know what to do, we've done it before, you can relax and be confident that we know what we are doing.

Concept(s)	Precision of the routine, trust in meticulous patient care

Journal Entry 36	Time	Location	Project team
16/7/07	2:00 p.m.	2nd Floor Ward	TR/AM
Observation: Nurses speak quietly but continually to patients and their partners as they wait for surgery. They use a range of strategies to keep them distracted: a form to fill in; adjusting the telly; endless questions; chat about family and grandchildren, their own lives, the footy, the front page of the newspaper, the odd spot, what they had ordered to eat later in the day. The banter is more often between the nurse and a family member rather than the patient. All these conversations happen as the nurses move around the room, organising, checking, adjusting, writing, testing, tidying. The conversations appear banal but fill the space. Nurses talk directly to patients who are on their own. Two nurses chat about their kids, their mortgages, their husbands. When it is time to go to surgery, the room suddenly fills with people to move equipment, push the bed, carry the charts and take the pillows.			
Description: Nurses are constantly attentive to the medical and emotional needs of patients preparing for surgery. They reassure them and their partners using distraction techniques to keep them relaxed. The seemingly banal conversations reinforce a sense of normality. The conversations are urbane and link the patients and their families with the outside world; the day to day events of life. This relaxed, often humorous, interplay clearly helps the families to feel calm and confident that surgery is a common event. That while it is a new experience for them, the staff do this every day and they are calm and relaxed about it. The methodical procedures of checking, adjusting, writing, testing and tidying further reinforce this sense of normality.			
Concept(s)	Communication, emotional and medical needs of patients; support of families; team work		

Journal Entry 37	Time	Location	Project team
16/7/07	5.30 p.m.	OH&S office	TR/SL/TH/JS/AM/TG

Observation: Project team meeting. Everyone brings stories about the number of workers they see who seem to be struggling with work tasks: nurses leaning against walls while they talk to patients, rubbing their feet, complaining of back pain, sitting down to rest in patients rooms and limping. JS (young man) commented that a lot of the older nurses seem to delegate the physical work to younger women. TH (young woman) agreed that she wouldn't want to be a nurse: "They work too hard." SL (injury manager) very concerned about the number of workers with unreported injuries. TR asked if anyone had encountered any workers who had returned to work after an injury. There was general agreement that these workers seemed to be coping better than others with day to day tasks, several were seen to be stretching while doing their work. All agreed that the tasks of finding a time to bring 'all workers' together was more daunting than had been anticipated. JS asked what the managers do all day, sitting in their offices. SL explained that they monitor the work through the medical files and the ANUMs.

Description: The daily project team meetings have become more animated as everyone has stories to tell. We have been keeping a record of everyone's observations but have also started to identify concepts within the stories and use the whiteboard to keep track of the ones that seem to recur. There is growing evidence that there are workers who have unreported injuries. We are also becoming more aware of how difficult it is going to be to find a time and place to run the group programs. The managers don't appear to be actively involved in the day to day activities.

Concept(s)	Prioritising patient needs over personal health, role of managers

Journal Entry 38	Time	Location	Project team
17/7/07	2:00 p.m.	8th Floor	TR only

Observation: Two young nurses attempt to move a frail elderly woman from her bed onto a chair. The woman has had both legs amputated, cannot communicate, has not been out of bed for several weeks and is very listless. One nurse wants her colleague to help her to lift the woman manually while the second nurse insists they use the hoist. They agree to use the hoist but cannot find the safety net. They decide to use two slings instead which they try to wrap under the patient's hips. The nurses eventually lift the woman using the hoist but I am horrified to see the patient slip from the hoist and fall precariously down into the chair. The nurses manage to save her from falling onto the floor but the woman has no underwear on and is left exposed to the passing traffic. She looks aghast. The nurses hurriedly close the door.

Description: Younger nurses don't know how to confidently use the hoists which led to this patient being put at risk of an injury and subjected to extreme embarrassment. I would hate to see my mother put through such an experience. She would die of embarrassment. Using the hoist takes skill and practice which these young women won't get if they rely on the older nurses to teach them. We need to provide additional training and opportunities for the nurses and PSAs to practice using the hoist on each other so they become more aware and empathetic.

Concept(s)	Inexperience of nurses, Learning roles

Journal Entry 39	Time	Location	Project team
17/707	3:30 p.m.	Maternity	TR/AM

Observation: Seven family members speaking a foreign language arrive with bags of food and all crowd into a patient's room. The patient has a shared room but the family takes over all the chairs, and a couple sit on the floor. They have been here for hours, all eating and talking loudly. A young nurse goes into the room and asks them to be quiet. They ignore her. Later she asks them to wait outside the room. Again they ignore her. She raises her voice and says, "I need you to wait outside," indicating the door with her hands. She does this several times but they do not move and continue to talk amongst themselves. She goes to her manager, Maureen who enters the room, orders the visitors to leave. All seven get up straight away and leave.

Description: Younger nurses lack the authority of older, more experienced nurses. Not all workers have the confidence to take a leadership role and not all workers will be led by younger workers. We may find that the young nurses struggle to lead the group exercise program because of this tendency to defer to older workers.

Concept(s)	Inexperienced workers defer to older colleagues

Journal Entry 40	Time	Location	Project team
18/7/07	3:00 p.m.	Operating Theatres	TR/SL

Observation: At the reception desk, the nurses, assistant managers and clerks keep the flow of patients moving from the 'prepping' areas, through the surgeries and out into recovery, then back to the wards or ICU. As each patient leaves the surgery, a team of cleaners sweeps in, the techs move equipment and adjust beds, nurses bring in more trays, surgeons confer with anaesthetists or study a laptop as the next patient is being positioned. PSAs ferry patients back to the nursing units; the engineers arrive to adjust an operating table.

Description: Workers complete their allocated roles in sequences that are interdependent on their co-workers. Workers can be members of multiple teams. Without attention to detail and a focus on the needs of the surgeons, the flow of work is interrupted. The role of the cleaners is pivotal as the next surgery cannot begin until each theatre is cleaned. The theatre techs are like stagehands, constantly re-setting the stage. The routines of the theatre pivot around the needs of the surgeons; everyone in the theatre anticipates the surgeon's every need; surgeons cannot be kept waiting.

Concept(s)	Workers have allocated roles and can be members of multiple teams

Journal Entry 41	Time	Location	Project team
19/7/07	7:45 a.m.	Maternity	TR/JS

Observation: A woman in labour waits by the lift to be taken down to surgery for an emergency caesarean. Lying on a hospital bed, she holds her partner's hand. They both look exhausted. His face strained and pale, her hair a tangled sweaty mess. Neither speaks as they wait for the lift. Two nurses are with them, one talking quietly to him and the other to her.

Description: Clearly this couple are on a precipice. They look defeated and dazed. Their control has been vanquished and they have been forced to relinquish all control to the surgical process. The nurses are calm and reassuring. One can only imagine how anxious this couple must be. Again I feel embarrassed to be witnessing such a private moment but this couple seem oblivious, such is their state. This most private of moments in their lives is suddenly on public display as they wait for a lift to take them to surgery. It may already be too late, so the waiting is interminable. The allocation of two nurses to care for this couple highlights the intensity of their need. Nurses are constantly challenged to meet the medical and emotional needs of patients. They must work in teams at times to meet these needs.

Concept(s)	Patient's trust in the professionalism of medical staff

Journal Entry 42	Time	Location	Project team
19/7/07	9:00 a.m.	Maternity	TR/JS
Observation: We are only able to sit in the reception area of the maternity unit which is outside the delivery suites. Women in labour arrive from the public lift and disappear into the delivery suites, only reappearing to be taken to the operating theatre or to be settled into the maternity nursing ward with a new baby in tow. Maternity nurses spend most of the day teaching new parents how to care for their babies by encouraging them to practice feeding, changing, dressing and bathing their new baby. The nurses use dolls to demonstrate the various techniques but expect parents to perform the tasks themselves.			
Description: This is the only unit where patient privacy seems to be a priority. The nurses are very focused on up-skilling new parents to care for their new baby. Most patients only stay 48 to 72 hours so there is no time to rest and recover; these patients need to become confident self-managers very quickly.			
Concept(s)	Strong focus on patient education		

Journal Entry 43	Time	Location	Project team
19/7/07	10.45 a.m.	Operating Theatres	TR/SL
Observation: We are wearing scrubs and observe the comings and goings from the reception desk just inside the entrance of the theatres. We can watch surgeries through the glass doors. Nurses and theatre technicians (techs) attend handover at 7.30 a.m. and 1.30 pm at the reception desk. (Opportune time for group program.) An enormous whiteboard tracks the events of the day and is the focal point as nurses, techs, anaesthetists and the ward clerk constantly check and change the lists on the board. (Opportune location for group program.)			
Description: The reception desk is the central hub of all the theatres. Workers meet there regularly throughout the day, providing a potential time and location for the group program. The ward clerk seems very enthusiastic and is a constant in the comings and goings of the unit, she knows where everyone is at any time. The risk of infection means we all have to wear scrubs. I will have to factor this into the planning for the group program in the theatres, as the EPs will need to change into scrubs to be able to enter the operating theatre area. This takes time.			
Concept(s)	Complexity of routines		

Journal Entry 44	Time	Location	Project team
19/7/07	12.30 p.m.	Central sterilising department	TR/SL

Observation: In CSD the focus is on cleaning and sterilising the surgical equipment. A team of six workers (three men and three women) work in an isolated room next to the operating theatres. Their day begins after the first surgical procedure is completed, so the shifts start at 8.00 a.m. and go to midnight. These workers are on their feet for the entire shift and have no contact with other hospital workers or patients. They wash, sterilise and pack the implements, stack them on trolleys and leave them in a room to be collected by the scrub nurses. The manager works from a separate office. There are no handover meetings and no other communal meeting times.

Description: While these workers are not in direct contact with patients, they are under pressure to complete their allocated tasks quickly. The lack of patient contact means they are available but the lack of communal meeting times may limit the opportunity to bring workers together, particularly as the manager does not work in the area. While there is a routine, workers complete their allocated roles in isolation from their manager and the rest of the surgical team. They appear to work autonomously with no direct supervision but are held accountable for having the surgical instruments prepared for the surgeons at all times of the day and night, seven days per week.

Concept(s)	Highly repetitive work

Appendix 4: Situational Analysis 2 Data (Examples Of Interview Data)

Journal Entry 45	Activity	Worker	Project team
23/7/07	Interview: 4	34-y/o Div. 1 nurse	TR/SL

Description: 34-year-old Div.1 nurse who has been working on the 8th floor for 7 years. Was full-time before she sustained a low back injury at work when an elderly patient slipped and fell in the shower. Tried to stop the patient from falling and felt a sharp pain in her low back. Had two months off work to recover and is now on modified duties (limited patient contact, mostly admin work). Training to become a nurse unit manager. Cannot envisage going back to full-time work. Happy to be doing 3 days but money is a big concern with a mortgage, two children and a family to support in India. Hopes to get a full-time management position. Travels an hour each way to work, drops children at school/childcare, very stressful to get to work by 7.30 a.m. Loves being a nurse, is devastated that she cannot do patient work but has been advised by neurosurgeon not to return to full nursing duties. Concerned about other nurses from Asia who are at risk of injury. In India she did not do hands-on nursing and was not physically prepared for this work when she arrived. Concedes she was unfit when she sustained the injury but is much fitter now. Very supportive of the concept of group exercise and educating nurses to prevent injuries; keen to be involved. Suggested times for sessions straight after handover meetings in the space near the reception desk but away from the lift. Potential leader but only part-time.

Reflection: This nurse has multiple responsibilities outside work but has prioritised her own health to complete a rehabilitation program and return to work on modified duties. She has had a first-hand experience of the role of exercise in preventing and managing an injury. She is committed to her own health self-management. She is supportive of the group exercise program and keen to be involved and has identified a time and place. Having sustained an injury herself, she has concern for other workers and is a potential role model, particularly for other overseas trained workers.

Concept(s)	Self-awareness, personal responsibility, social responsibility

Journal Entry 46	Activity	Worker	Project team
23/7/07	Peer review: 1	2 nurses, a PSA & a cleaner	TR/SL

Description: I met with Sandra who had interviewed three nurses. We compared stories and read each other's interview descriptions. Many workers are getting up at 5 a.m., taking kids to crèche or a family member, driving 40 minutes+ to be at work by 7.30 a.m., collecting kids after work, caring for their own families and often their elderly parents/ in-laws. Few have the time or energy to exercise regularly. Most seem receptive to the possibility of exercising at work and suggested before or after handover near reception. Mondays are very busy so may not be able to run the program on Mondays. None want to be leaders. Two said they are already physically active enough at work. All are "exhausted." Causes of pain: transferring patients with slide sheets, stockings, not taking breaks, not eating breakfast and skipping lunch in particular.

Reflection: Workers have multiple responsibilities at work and home with no time to look after themselves. We need to educate them about the difference between "work" and "exercise" and highlight the opportunity the program offers in terms of being able to have some time to look after themselves during paid work time.

Concept(s)	Open to opportunity to change health behaviours, multiple responsibilities outside work

Journal Entry 47	Activity	Worker	Project team
24/7/07	Interview: 6	Older Div.1 nurse	TR/SL

Description: A woman who had been a nurse at the hospital for 18 years asked me why I was asking so many questions about her life and her work. When I explained that I wanted to understand how her work affected her life, she said, "No-one has ever asked me how I feel, I have never stopped to think about how I am feeling."

Reflection: Workers constantly monitor changes in their patient's health but do not reflect on how their work impacts upon their lives or their own health. Asking questions gives workers the opportunity to reflect upon their experiences and offers permission for them to think about themselves.

Concept(s)	Permission for self-reflection

Journal Entry 48	Activity	Worker	Project team
23/7/07	Injury statistics	All workers	TR/SL

Description: Sandra collated the injury statistics from the 8th floor for the past six months. There have been ten reported workplace injuries with six generating a lost time injury (LTI) compensation claim. This equates to a 50% increase in injuries from the previous six months and 35% more injuries than any other unit in the hospital. Six were low back injuries, two of which were exacerbations of previous injuries, two were shoulder injuries, one was a trip that resulted in a wrist sprain and one was a neck injury.

Reflection: Maureen is at a loss to explain why so many injuries have occurred in the past six months. She cannot identify any specific changes to the staff, the workload or the patient cohort to account for the increase. The exacerbations of previous injuries highlight that these workers have not undergone any rehabilitation and are therefore at increased risk of an injury. This is disappointing as Maureen is aware of the referral procedure. She said that the injured workers had both "sorted themselves out" previously so there had been no need to refer them for rehabilitation. We need to get more information about the causes, antecedents and reporting of these injuries and look at how these workers are being re-integrated back into the workplace.

Concept(s)	A culture of non-reporting, manager ignoring injury management protocols

Journal Entry 49	Activity	Worker	Project team
23/7/07	Interview: 5	Division 1 nurse	TR/SL
Description: Mina is 34 year old Division 1 nurse who sustained a low back injury six months ago. Initially off work for three days, she has continued to work full-time since, with intermittent pain and occasional 'tingling' in her left foot. She has had no treatment and "puts up with the pain." Has become unfit and overweight because she has been unable to exercise because of the pain. Last week she was helping to roll a bariatric patient (150kg) when the bed moved unexpectedly (another nurse forgot to put on the brake) and the patient fell forward onto Mina. She felt a sharp pain in her low back and has been in "agony" since. She has lodged a worker's compensation claim and is unable to work in any capacity for at least four weeks. An MRI shows she has an L4/5 disc prolapse and has been referred to a neurosurgeon for assessment.			
Reflection: I feel very frustrated and disappointed that Maureen didn't refer Mina for a rehabilitation program six months ago. She became deconditioned and did not know how to manage her injury and is now badly injured. The fact that Mina herself failed to seek help is telling. I wonder how many other workers have injuries that have gone untreated. This is clearly an injury that could and should have been prevented and now a young woman is injured and may not be able to return to work.			
Concept(s)	A culture of non-reporting, manager ignoring injury management protocols		

Journal Entry 50	Activity	Worker	Project team
24/7/07	Project team discussion: 1	Project Team	TR/SL/JS/TH
Description: Discussion about the number of workers with non-reported pain in all units: it seems that workers do not perceive chronic pain as an injury per se. They would report an 'injury' if a specific instance causes pain but would not report ongoing "non-injury related" pain.			
Reflection: Workers who report experiencing pain during the day do not perceive that this pain is related to their work. Their definition of an injury relates to a particular incident rather than an ongoing experience of chronic pain. This suggests a lack of awareness of cause and effect.			
Concept(s)	Selflessness, acceptance of the inevitability of pain while working		

Journal Entry 51	Activity	Worker	Project team
24/7/07	Focus group: 1	Sample group of 6 workers	TR/SL/JS

Description: 6 workers (Ward clerk, PSA, 3 Div. 1 nurses, 1 Div. 2 nurse, manager). Sandra introduced the program and explained that we were keen to get their ideas about what we needed to do to be able to run the group exercise program on the 8th floor. Most were positive about their own involvement but doubtful about their colleagues.

Ward clerk: "I'd love to do it, I can do it every day but I'm always at the desk pretty much so it's easy for me. Most of the others are out and about, you won't get them to join in."

Div.2 nurse: "I probably won't be able to do it every day, Mondays are really busy so I probably won't have time on Mondays, but the other days should be okay. I don't go to the handover meetings so it won't worry me when you do it."

PSA: "There's no way I'll ever get to do it, I'm never in the same place at the same time and I don't go to the handover meetings either."

40+ y.o. Div.1 nurse: "The only way you'll get a group together is if you run it straight after handover in the handover room. Don't let people out, once they get out the door they're gone."

35+ y.o. Div.1 nurse: "I'm happy to do it but I already go to the gym three times a week so I don't need the exercise but it would be good to get together as a group before we start the day."

27 y.o. Div.1 nurse: "It's about time something was done about all the injuries we're getting. I don't think there's anyone on this floor that hasn't hurt their back at some stage so I think everyone should be made to do it if it's going to help. I would like to see more hoists on this floor as well and maybe a standing machine like they have on 7."

This led to a discussion about the number of workers with non-reported injuries.

Reflection: These focus group participants had been recruited by the project team during the initial situational analysis; all were women. They seem generally happy with the idea of coming together to exercise but each has reservations. The only real consensus is that we won't get everyone to attend every session, and that Mondays are particularly fraught; handover is the best time and the handover room is the best location. We had specifically avoided asking Maureen to join the focus group as we wanted workers' uninhibited feedback and ideas. None of the focus group participants were prepared to volunteer to be trained as leaders and were doubtful any of the other workers would volunteer. These workers are aware of unreported injuries but are reluctant to challenge the status quo

Concept(s)	Acceptance of the inevitability of injuries, workers unwilling to champion change

Journal Entry 52	Activity	Worker	Project team
24/7/07	Project team discussion: 2	Various	TR/SL/JS/TH

Description: Many workers report that they regularly skip breaks. The reasons given were 1) when their unit was short staffed or 2) when there was a lot of agency staff on. Three people said agency workers were slow so it was hard to take breaks; agency staff always take their breaks. "If I come to work and I see a whole lot of agency staff I know I'm going to be run off my feet all day. They just don't see what needs to be done and don't jump in and help." Nurses and PSAs also said they often missed out on lunch for the same reasons. For some, lunch consisted of coffee and a cigarette. Staff often took a handful of "thank you" chocolates as they walked past.

Reflection: Permanent hospital staff are members of the team. They take responsibility for the care of patients. They put patients' needs before their own to the detriment of their health and wellbeing. There is a sense of martyrdom about this idea of skipping meal breaks. They perceive that agency workers lack initiative and therefore, by implication, lack a sense of responsibility for the wellbeing of patients. If you are a member of the team, you put the patient's needs first. To belong to the team, this is what is expected. If you are from the agency, you do not belong to the team and are not expected to make the same priorities. The chocolates symbolise the prize that reflects the gratitude of patients for this selflessness.

Concept(s)	Personal and professional ethos, lack of commitment to personal health management, belonging to the team

Journal Entry 53	Activity	Worker	Project team
24/7/07	Interview: 7	Maureen the manager	TR/SL

Description: Maureen agreed that agency staff are less efficient and less flexible about when they take breaks. "It's a vicious circle… the more injured nurses I have, the more agency staff I need, which puts more pressure on my nurses, which causes more injuries." She also stated "I usually have my lunch at my desk."

Reflection: The manager is complicit in using the agency staff as an excuse for not encouraging workers to take responsibility for their own health self-management. Her leadership skills are questionable, given her acknowledgement of poor work practices and their consequences. She knows there is a problem but takes no action to stop the practice. She demonstrates her own poor self-management mentoring by eating her lunch at her desk.

Concept(s)	Professional ethos, poor role modelling by managers of health management practice

Journal Entry 54	Activity	Worker	Project team
25/7/07	Peer Review: 3	Various	TR/JS

Description: Day 3: We have again observed that the morning handover starts at 7.30 a.m. and finishes between 7.45-7.55 a.m. The night shift leaves at 8 so the meeting has to finish before they leave. The afternoon shift starts at 2.00 p.m. and handover finishes at around 2.20 p.m. The morning team leave the floor at 2.30 p.m. so the afternoon shift need to be ready to take over by then. During both meetings, the previous shift continues to monitor patients as the handover is in progress. There does seem to be the opportunity to run a group exercise session straight after the handover meetings. JS suggested we try running a session today to see how it goes and to give everyone an idea of what we are talking about.

Maureen was very keen so today I ran a 5-minute stretch session straight after handover. There were nine nurses, myself and Maureen in the room. It was way too crowded so we went outside to the space near the reception desk and everyone joined in. Maureen joined in and was very enthusiastic. JS joined in, and we both later noted that the group was generally extremely unfit and inflexible with the exception of Maureen and two of the younger nurses and Kelly the ward clerk who joined in and seemed to enjoy being part of the group (she usually stands behind the reception desk). JS noted that two older, overweight nurses slipped away before the group began. The consensus from those that did participate was that the time and location were "great." Maureen also said the time and location suited her.

Reflection: JS observed that two nurses slipped away as soon as we started, they were both older and overweight. I hadn't noticed and I don't think Maureen had either. We need to find out why the two women opted not to join the session. The time and location worked well but there are clearly other issues at play that are limiting some workers' involvement.

Concept(s)	Barriers to embracing the opportunity to change health behaviours

Journal Entry 55	Activity	Worker	Project team
25/7/07	Interview: 8	Disappearing nurse	JS only

Description: JS located one of the nurses who had disappeared after handover rather than join the group session. He asked if he could interview her. She was a Div.1 nurse who has been on annual leave for two weeks. She said she didn't join in because she hadn't heard anything about the program and was anxious to get back into her routine. He explained the program to her and she seemed interested and said she was sorry that she hadn't participated. She reported that she doesn't have any injuries, goes for a half-hour walk every day before work and said next time she would be happy to join the group. She wasn't so sure about being a leader.

Reflection: When JS told me he had seen two older, overweight nurses "sneak away," I assumed that they had chosen not to join the program because they felt embarrassed about their size or lack of fitness. I wrongly assumed that being older and overweight meant that they would be self-conscious about not being able to perform the exercises. JS found that at least one of the women didn't know what was going on and was receptive to the concept of a group exercise program. It will be interesting to see if she participates next time. Maureen is over 60 and overweight but she is very enthusiastic and was one of the more flexible participants so is a great role model.

Concept/s	Need for personal engagement to change health behaviours

Journal Entry 56	Activity	Worker	Project team
25/7/07	Project team discussion: 3	8th floor	TR/TH/SL/JS

Description: The team observed that older workers (40+) were dismissive of questions about whether they experienced pain or fatigue: "No, just the usual aches and pains." They were generally more covert about their health issues than their younger counterparts: "No, no nothing, I am absolutely fine, thank you for asking."

Reflection: The "No" and the "just" suggested that the older workers don't see their pain as relevant or of concern. The "usual" signifies that this had been an ongoing issue for some time. "Absolutely fine" is an all-encompassing dismissal of the question. The project team wonders if these workers don't want to be seen to be getting old.

Concept(s)	Acceptance of the inevitability of pain associated with work

Journal Entry 57	Activity	Worker	Project team
27/7/07	Case study: 1	8th Floor	TR

Description: Forty-seven year old Heather has had low back pain (perceived pain level 8/10 at worst on a visual analogue scale of 0–10; 10 being extreme pain) for three weeks. She works full-time and argues that she doesn't have an injury, "just back pain." She does no exercise outside work and argued against my suggestion that she work non-consecutive days to aid her recovery. She insists on working consecutive days because she likes to nurse the same patients. She also visits her elderly mother on her day off. She was adamant that she did not need any help, did not want to learn how to manage her injury or to participate in a rehabilitation program. She stated that she was sure her injury would "settle down again," if she continued to take anti-inflammatories for a few more weeks. "This has happened before," she said, "and it always goes away eventually."

Reflection: This older nurse refuses to prioritise her own health over her responsibilities at work and home. She doesn't want to deal with the fact that she has an acute injury that may be getting progressively worse. Her assertion that it is "just" back pain highlights her unwillingness to own the injury. She is clearly determined to continue to do what she wants/needs to do in spite of the pain which she has probably had a longer period of time than she is admitting to. Despite evidence to the contrary, she wants to believe that the pain is transient and will "go away." She is in denial that she is experiencing physiological changes and does not want to deal with the fact that these changes are impacting upon her ability to work and care for her family. She is at very high risk of sustaining permanent damage if she does not learn how to manage her injury more effectively.

Concept(s)	Self-effacing, acceptance of the inevitability of pain associated with work, martyr

Journal Entry 58	Activity	Worker	Project team
28/7/07	Interview: 9	Ward clerk	TR/JS

Description: 24 year-old ward clerk has been working on the 8th floor for 2 years. Previously a receptionist at a travel agency, loves her role and feels that she makes an important contribution. Apologetic that she couldn't spend more time with me today because she has "four new agency girls on." Explained that this means that everyone is stressed, the permanents will be "flat out all day" because the agency workers are "so slow." Her litany of complaints about the agency workers include: 1) don't know their way around; 2) don't know the patients or the routine; 3) don't follow protocols; 4) insist on taking their breaks on time; and 5) rub everyone up the wrong way. "None of us will get a break this afternoon," she said.

Reflection: Members of the 8th floor team seem to resent the impost of agency workers. The agency workers challenge the patient imperative by putting their own needs before the patients and their co-workers. "Us' and "them" attitude.

Concept(s)	Team culture, selflessness, poor leadership

Journal Entry 59	Activity	Worker	Project team
29/7/07	Interview:12 [Kokoda Kathy]	Division one nurse	TR/JS

Description: Kathy is a tall, lean 64 year-old red-headed nurse who works full-time and "never gets any pain." She walks ten kilometres to and from work most days and for her 60th birthday she completed the Kokoda trail. She said, "If you want to feel good at work, you have to be fit– it's as simple as that." I asked her why she didn't join the group exercise sessions. She said "I come to work to look after patients, not to exercise." She said "I get plenty of exercise walking to and from work every day." She also said she would not help run the sessions because she believed, "everyone should be doing their exercises in their own time."

Reflection: This worker sees a clear correlation between her fitness and her ability to continue to work beyond the retirement age, pain free. She was dismissive of the group exercise concept and was not going to participate in the program on any level because it fundamentally challenged her deeply held beliefs about her role as a nurse and her responsibility as an employee. I had thought that workers like Kathy would be strong advocates for the program and positive roles models. Kathy is certainly a role model but not an advocate.

Concept(s)	Self-efficacy, personal and professional ethos

Journal Entry 60	Activity	Worker	Project team
28/7/07	Case study: 2	PSA	TR

Description: Martina is 32 years old, has two young children and is morbidly obese. She has worked full-time as a PSA for seven years, transporting patients around the hospital. She lodged a worker's compensation claim for a knee injury but continued to work full-time on unmodified duties. She agreed to participate in a Functional Restoration Program. The hospital paid her to attend three sessions per week and sponsored her for a three-month gym membership. She attended regularly for the first three weeks but then argued that she didn't have time to continue because her garage was full of storage boxes that needed to be organised. She said her knee pain was manageable with medication and using the Gazunda (bed-moving machine) meant she could cope at work. Wouldn't commit to participate in the group exercise program because she is rarely in the same place at the same time.

Reflection: This worker refused to accept that the choices she was making would inevitably impact upon her health and her ability to continue to work. Despite the hospital's commitment to her, she could not make the same commitment to herself.

Concept(s)	Choosing to be a martyr, self-effacing, multiple responsibilities outside work

Journal Entry 61	Activity	Worker	Project team
30/7/07	Observations	Various	TR/SL

Description: Today Kelly the ward clerk said "Hi" when we arrived, and lots of people greeted us by name as they came to the desk. As we wandered around, a nurse I hadn't met before asked me, "Are you the one helping people with their back pain?" A PSA asked if she could make a time to see me about her sore shoulder. I have worked with two injured nurses from the 8th floor who have completed Functional Restoration Programs and today they both thanked me for my help. One said, "I am getting to the pool a couple of times a week and am feeling so much better, thank you for all your help." They both agreed to participate in the group program and would consider doing the leadership training course.

Reflection: Working with injured workers in the workplace helps all workers to see the value of exercise and health management. The Functional Restoration Programs help to build relationships with workers. These recovering injured workers would make great role models for the program and are potential advocates, given my relationship with them.

Concept(s)	Changing values, the need for a sense of personal gain, injured workers accept the opportunity to change self-management practices

Journal Entry 62	Activity	Worker	Project team
30/7/07	Case study: 3	Division one nurse	TR

Description: Audrey is a scowly faced 63-year old Division 1 nurse who has been at this hospital for 35 years. According to Maureen, Audrey came to Australia on holiday with two nursing friends from England in the early 70s. Her friends, both married, had kids and stayed. Audrey also stayed but has never married and has no children or family. She lives alone in a 2nd floor unit and does not drive. She does not attend social functions at work and, while Audrey is an efficient nurse, Maureen is worried about her because she seems to be moving very slowly, is very thin and pale and looks to be in pain. She has not reported an injury and told Maureen she was "fine" but Maureen is unconvinced. She has offered Audrey a senior position to reduce her patient work but she refused. Maureen asked me to talk to Audrey about her back pain. I asked Audrey if she would be prepared to talk to me about her work and experience on the 8th floor. She almost tripped over in her rush to get away from me. "I don't have time for any of this" she said, walking away. I followed her and suggested we have a coffee together in her break but she said she likes to go outside for a cigarette "to get away from work." Maureen came up and said to Audrey that she would really like her to talk to me but Audrey just walked away. I talked to Sandra about this and she said she couldn't do anything unless Audrey lodged an injury claim or was unable to do her work.

Reflection: Audrey's resistance suggests a very high level of denial about her deteriorating health. She is clearly at risk of an injury but is refusing help. If she does get injured, the hospital is liable for her injury. She may not have an injury per se but does not look well and is unwilling or unable to discuss her difficulties with her manager. I have a sense of the difficulties faced by managers who deal with ageing workers and the frustration of Sandra the injury manager who can see the consequences of inaction but is powerless to do anything.

Concept(s)	Hospital culture of enabling poor health management practices

Journal Entry 63	Activity	Worker	Project team
30/7/07	Interview:18	Cleaner	TR/JS

Description: 22 year-old Connie has been a cleaner on the 8th floor for five years. She loves her work, loves being with the patients and talking to them (she is very cheerful and chatty). She enjoys the cleaning and making the beds, and has no pain. She sometimes feels a bit tired at the end of the day but keeps fit – she goes boxing with her boyfriend on the weekend. She lives at home and travels an hour by public transport to and from work. She walks three kilometres at each end to get to the station. She said she does lots of stretches while she works and showed us some stretches she does when she makes the beds or pushes the cleaning trolley. She has trouble with the wheels sometimes on the carpet they won't turn but she hasn't reported this to engineering to fix. "Do I do that do I?" she asked.

She is excited about the idea of the group exercise program and if she has time to join in she will, but she is not always available or near the desk when handover is finished. Someone would have to come and tell her when it is time to come because handover finishes at different times and she can't be standing around waiting. She also said she didn't think she would like to be a leader but she would love to be involved in anything that gives her the chance to be part of the group.

Description: This woman does a very physically demanding job but also works hard on her fitness outside work. She arrives at work with muscles that have walked and are ready for the rigours of her role. She stretches regularly at work and is a positive role model but may not have the confidence to lead a group exercise program. She needs education about reporting faulty equipment.

Concept(s)	Commitment to positive health management behaviours, young workers lack confidence

Journal Entry 64	Activity	Worker	Project team
30/7/07	Project team discussion : 6	Various	TR/SL/TH/JS
Description: Of the twenty 8th floor workers interviewed, only four had reported their pain to the manager while twelve reported that they regularly experienced back pain which they had not reported because they did not consider themselves to be injured. All twelve wanted assurance that their interviews were completely confidential. They did not want anyone to know they experienced back and or shoulder pain. They did want to know if anyone else had reported pain.			
Reflection: More than 50% of workers interviewed reported experiencing pain every day but less than 25% reported their pain to their manager. Workers are reluctant to identify their ongoing pain as an injury. They seem anxious that they are not seen to be complaining but are also curious about the experiences of their colleagues. There is a sense that there is an unspoken agreement not to complain but also a sense that workers are aware that there is a problem.			
Concept(s)	Workers complicit in not to be seen to be complaining, hospital culture that ignores the risks workers accept		

Journal Entry 65	Activity	Worker	Project team
30/7/07	Project team discussion: 7	Various	TR/JS/TH/SL
Description: All but one of the twenty workers interviewed said they felt tired at the end of the day and said that they didn't realise how tired they were until they actually finished work. They all said that they were usually pain free at the beginning of a shift and realised at the end of the day that they had pain (backs/shoulders/feet/neck). Many reported not taking regular rest breaks –some don't usually have a lunch break, some use their lunch break to go outside and have a coffee and a cigarette. Twenty-eight workers subsequently completed the visual analogue scales to rate their levels of pain and changes in energy before, during and after work.			
Reflection: Workers were generally unaware of physical changes such as increases in pain and decreases in energy across a work shift. They were too focused on caring for their patients and completing their allocated tasks to reflect on how they themselves were feeling.			
Concept(s)	Patient focus, poor health management practices		

Journal Entry 66	Activity	Worker	Project team
30/7/07	Interview	Food services assistant	SL/JS

Description: Hamaria is a 56 year-old food services assistant who is based in the kitchen but delivers meals to the 8th floor twice each shift (either breakfast and lunch or lunch and dinner). She has worked at this hospital in this role since she was 23 years old. Her English is limited (she is from Croatia), and is friendly and efficient but does not greet patients by name (may not be able to read the names on the file?) She is overweight and walks with a lumbering gait. She has pain "everywhere" but does not know why: "…the old age, it is the old age, my bones are creaking everywhere" she explained self-deprecatingly. She seems very accepting of the inevitability of this pain and has not spoken to her doctor about it: "what he going to do? He can make me young again?" She works full-time (plus overtime if it is available). Her husband died two years ago so she prefers to be at work: "I come to work with my family, all my friends are here, I love to be at work. Sometimes I come at 4 in the morning to get ready for the day. What else am I going to do?

Reflection: This worker accepts that the pain she experiences is an inevitable part of ageing but does not see that being overweight and unfit are contributing factors. She is accepting of her pain and is devoted to her work. Like the patient imperative, the focus of this worker is on her work and not on her own health and wellbeing. Could possibly participate in the morning group session but is unlikely to do so unless all the breakfasts have been delivered.

Concept(s)	Bonds with co-workers, acceptance of inevitability of pain associated with work, unaware of opportunities to change behaviours

Journal Entry 67	Activity	Worker	Project team
30/7/07	Project team discussion : 8	Young nurses	TR/SL/TH/JS

Description: When questioned about their fitness, most young nurses reported that they had been fit (netball, gym work, team sports) before they studied nursing but had stopped when they went to university because they "didn't have time." Many of the new graduate nurses reported gaining weight during their training and first year of nursing. Only 20% of the nurses interviewed said that they exercised regularly.

Reflection: Younger nurses are at risk of injury because they lack the functional capacity to cope with the demands of their work. They fail to recognise the correlation between fitness and fatigue.

Concept(s)	Professional and personal ethos of nurses, lack of awareness of responsibility for health management

Journal Entry 68	Activity	Worker	Project team
30/7/07	Project team discussion: 9	Various	TR/SL/JS/TH

Description: When questioned about their pain, workers generally seem to relate their pain to the type of work they were doing rather than to any change in their functional capacity or ageing. The perception seems to be that if you are on your feet all day, you have to expect back pain, sore feet and aching legs – "Everyone feels this way at the end of a shift." Few recognise these changes as symptoms of ageing or lack of physical fitness or poor nutrition. A few smokers conceded that smoking "probably doesn't help." JS said his mother is a nurse and has had back pain for as long as he can remember – "She doesn't do anything about it, she just puts up with it." There is a strong trend for 'non-injured' workers to regularly experience pain without reporting, particularly workers over 40+. They don't report pain because they don't see the pain as an injury per se, because "everyone gets pain." This same trend was seen in all six units. JS told the story about an older nurse who was squinting as she read a patient file and when one of her colleagues suggested she might need glasses, she retorted, "What do you mean I need glasses?" TH said that she had seen a nurse limping but when she questioned her about it she said that she didn't know anything about a limp. Her co-workers assured her that she had been limping for many months. From the interviews, it seems that unfit workers generally experience more pain and fatigue at the end of the day than those that are physically active outside work. Unfit workers do not see a correlation between their pain and fatigue and their lack of fitness.

Reflection: Workers believe that pain and fatigue are inevitable consequences of the physical nature of their work.

Concept(s)	Denial of physical changes associated with ageing, powerlessness, lack of responsibility, acceptance of inevitability of pain associated with work