

From Compensation to Rehabilitation – A Social
Review of the Employees’ Compensation
Insurance System in Hong Kong

The Employees’ Compensation Insurance Residual Scheme Bureau

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Abbreviation

- ARIAV ... The Association for the Rights of Industrial Accident Victims
- BHS ... Beck Hopelessness Scale
- C&SD ... Census and Statistics Department
- CI ... Confidence Interval
- CT ... Computed Tomography
- CUHK ... The Chinese University of Hong Kong
- DASS21 ... Depression Anxiety Stress Scale-21
- df ... degree of freedom
- EC ... Employees' Compensation
- ECAFB ... Employees' Compensation Assistance Fund Board
- ECD ... Employees' Compensation Division
- ECIRSB ... Employees' Compensation Insurance Residual Scheme Bureau
- ECO ... Employees' Compensation Ordinance
- ECOAB ... Employees' Compensation (Ordinary Assessment) Board
- HA ... Hospital Authority
- HKFI ... The Hong Kong Federation of Insurers
- HR ... Hazard Ratio
- HSIC ... Hong Kong Standard Industrial Classification
- HKU ... The University of Hong Kong
- ILO ... International Labour Organization
- IOD ... Injury on Duty
- IRR ... Incidence Rate Ratio
- LD ... Labour Department
- MAB ... Medical Assessment Board [A commonly used term referring ECOAB and
Employees' Compensation (Special Assessment) Board]
- MORE ... Multidisciplinary Orthopedics Rehabilitation Empowerment
- MRI ... Magnetic Resonance Imaging
- MSPSS ... Multidimensional Scale of Perceived Social Support
- NGO ... Non-Governmental Organisation
- ODCO ... Occupational Deafness (Compensation) Ordinance
- OECD ... The Organisation for Economic Co-operation and Development

OHC ... Occupational Health Centre
OSHC ... Occupational Safety & Health Council
OSOC ... Orthopedic Specialist Out-patient Clinics
PMCO ... Pneumoconiosis and Mesothelioma (Compensation) Ordinance
PWH ... Prince of Wales Hospital
PYNEH ... Pamela Youde Nethersole Eastern Hospital
QEH ... Queen Elizabeth Hospital
RCT ... Randomised Controlled Trial
RTW ... Return-to-Work
SD ... Standard Deviation
VRP ... Voluntary Rehabilitation Programme

Executive Summary

Overview of the From Compensation to Rehabilitation Project

Work disability is a worldwide problem that shows no sign of decreasing (Feuerstein, 2005). In Hong Kong, there were about 200 fatalities and 55,000-60,000 non-fatal cases resulted from occupational accidents and diseases each year during 2008-2012 (Labour Department, 2014a). These cases on average amounted to approximately HKD 3 billion in claim costs each year. Total claim costs have been steadily increasing in recent years, and the local employees' compensation (EC) insurance business has been facing the challenge of seeing minimal or negative underwriting profits (Deloitte, 2015).

Occupational rehabilitation with the focus on early and comprehensive intervention for workers post injury has long been regarded as the best practice in managing occupational injuries to prevent workplace disabilities. Although it has gained much success in many Western developed countries in recent decades (Chong & Cheng, 2010; Feuerstein et al., 2003; Loisel et al., 1994; Workcover Authority of New South Wales, 2005), it has not been widely adopted locally.

The From Compensation to Rehabilitation Project (the project) aims to examine the role of the EC system in protecting injured workers' physical and psychosocial well-being, in particular, how it is functioning in facilitating occupational rehabilitation. This exercise aims to provide system stakeholders with a thorough understanding of the characteristics of local work-related injuries and the barriers for uptake of occupational rehabilitation. Recommendations are formulated and prioritised to drive improvements that will increase the value of the system to the people it serves.

The project comprises of three elements in achieving its aim:

- 1) Profiling the prevalence and trend of local work-related accidents, injuries, and deaths in the last decade;
- 2) Identifying and engaging a wide range of stakeholders of the local EC system to study its impact on injured workers, with the emphasis on the pathways and barriers of return-to-work (RTW); and

- 3) Evaluating the effectiveness of a local rehabilitation programme, the Multidisciplinary Orthopedics Rehabilitation Empowerment (MORE) programme.

The project engaged a wide range of key players of the EC system, including those in regulatory bodies, legislation, healthcare, RTW service providers, advocacy groups for workers' rights, employers, and insurers, as well as with injured workers, to gain a holistic understanding on the psychosocial challenges in facilitating RTW.

Methodology

The research team adopted a mixed methods research, combining both qualitative and quantitative research techniques, in the project. The project was a concurrent design utilising multilevel samples.

In the qualitative component, data were collected from major stakeholders of the system using key informant interviews (N=19), and from injured workers using semi-structured interviews (N=24). A thematic analysis was applied to identify the psychosocial obstacles to RTW.

In the quantitative component, the research team collected four sets of data: (1) summary statistics from LD; (2) claim data from a local insurance company; (3) secondary data of patients participating in the MORE programme; and (4) a short survey capturing the psychosocial factors of injured workers. Statistical analyses were performed to examine the factors contributing to the increase in claim cost, and evaluate the effectiveness of the MORE programme.

Findings

Profile of Occupational Accidents

- 1) ***Hong Kong has shown some progress in EC***

The number of occupational accidents reduced in recent years. The annual claim rate per 1,000 workers for non-fatal claims decreased from 17.1 in 2008 to 14.2 in 2013, ranking in the middle worldwide (International Labour Organization, 2015). The decrease was more obvious among male, workers aged less than 40, and those engaged

in food and beverage services. However, the number is expected to rebound in the near future due to an ageing workforce.

2) ***Increasing claim costs***

The average cost to settle an EC claim increased in every aspect, including statutory benefit, common law award, medical expense, and legal cost. The increase was shown more outstanding in fractures and some minor injuries such as lacerations and cuts, and in the industry of construction on contract value (industry code: 5c).

3) ***Large costs incurred in relatively small number of cases in construction industry***

Injuries in the construction industry accounted for 7-9% of the total number of claims per annum. Nonetheless, the average settlement cost per claim of these cases was much higher than that from other industries, due to their large size of statutory claims, common law awards, and associated legal costs.

4) ***Large number of relatively minor cases***

About 80% of claims reported to LD had a temporary incapacity less than 2 months. Around 60% of settled claims did not require any assessment on permanent incapacity. Although minor in severity, these claims make up the biggest proportion in number and therefore shared a significant portion of total statutory benefit payable to injured workers.

5) ***Sprains and strains***

Two major types of musculoskeletal disorders, sprains and strains, accounted for one-third of EC claims. These types of injuries or pains require a long time to rehabilitate, and can easily turn into chronic conditions.

Models of Good Practices

To help workers with work-related injuries, early intervention is critical as it facilitates successful rehabilitation, which does not only help regaining productivity, but also restoring the psychosocial well-being of the workers and their families. Successful and effective occupational rehabilitation models do exist in Hong Kong, but their coverage is limited due to lack of resources.

1) ***WorkSafe, Australia***

The workers' compensation system in Australia has shown much success in shifting its focus from compensation to safety at work and return-to-work in the past 30 years by implementing RTW and injury management programmes. Hong Kong can draw on Australia's lessons learnt in making the paradigm shift in its own employees' compensation system.

2) ***Occupational Health Centres (OHCs)***

The OHCs were established by the Hong Kong Government and are under the management of Hospital Authority (HA) to provide RTW services that are based on a multi-disciplinary model of early injury intervention management. Currently these centres are only accessible to government employees.

3) ***MORE programme***

The MORE programme aims to promote early RTW for injured workers suffering from low back pain. The underlying philosophy is early intervention and improvement of management by developing an integrated and coordinated rehabilitation platform through a case management approach, such that patients do not miss the "golden time" of treatment. The programme has been proved to be effective, such as improving chances of RTW by four times and reducing duration of sick leaves by half. Participants also reported that the programme helped them save time and money and enhance their psychosocial well-being.

Obstacles to Return-To-Work

Lagging behind the global paradigm

The EC system today provides adequate social protection, including but not limited to compensation for loss of wages. However, the system has shown poor adaptation to the recent global paradigm shift in workplace disability, which places the focus on injury prevention and occupational rehabilitation.

Five Social Obstacles to RTW:

1) ***Local policy and legislative framework only speak to compensation***

The project observed no central policy positioning RTW as the common goal across the EC system for injured workers. Without a clear collective vision over the

past decades, the provision of RTW has also not been included in the Employees' Compensation Ordinance (ECO). Although the government introduced the Voluntary Rehabilitation Programme (VRP) in 2003 to assist the implementation of RTW in Hong Kong, its success was debatable. In addition, full access to common law could be seen as an incentive to pursue litigation to gain potential additional reward.

2) ***Stakeholders feed into the culture of compensation***

Many current practices by major players revolve around processing compensation claims and do not systematically monitor the trajectory of workers' recovery. These practices reinforce the compensation culture and create opportunities for recovery agents and some lawyers to take advantage of the workers' vulnerability and their misunderstanding around compensation and RTW, which subsequently encourage pursuit of litigation.

3) ***Healthcare system lacks focus on work rehabilitation***

Currently the healthcare system fails to recognise the urgency in treating injured workers to facilitate RTW over other groups that are not in the labour force. Fragmentation and compartmentalisation in provision of services also create inefficiency in allocation and access to medical resources, which makes the wait for medical services unacceptably long. Furthermore, medical and para-medical professionals often miss the golden opportunities of instilling correct concept of work and health to employees at the initial stages of injuries due to the lack of training in occupational health. Medical services are often delivered basing on a biomedical model than one incorporating RTW. This gives rise to the lack of control observed in medical certificates, which in turn leads to prolonged absence from work and development of disability. Long wait for medical professionals also lengthens the process of assessment of permanent incapacity and poses tremendous amount of stress on employees and burden on society.

4) ***Workplaces lack capacity to support RTW***

Not all employers have the capacity to accommodate modified duties, especially those of medium or small sizes. Although the government tried to put incentives in place (e.g., Job Training Programme) to facilitate placement of injured workers, the complexity of the administrative procedures was a huge barrier for uptake.

5) ***The system lacks occupational health support***

A multi-disciplinary case management model is considered the good practice model in managing work-related injuries. A coordinating role (e.g., a case manager) is critical in ensuring communication between all stakeholders involved in occupational rehabilitation, so to increase the cohesion of services and the chances of success in RTW for injured employees. The availability of occupational rehabilitation resources to support the implementation of such model is not sufficient currently, especially in view of the large number of claims for musculoskeletal problems arising partly from an ageing workforce.

Six Psychological Obstacles of Employees to RTW:

1) ***Fear and anxiety affect emotional readiness for RTW***

Workplace injuries can bring a lot of fear and anxiety about the uncertainty of the future, especially around family finances. Many workers interviewed had feelings of hopelessness, fear, guilt of burdening family, and sadness over negative impacts of injuries on social life, all of which contribute to the low self-esteem that hampers the success of RTW.

2) ***Personal perception of wellness influences self-confidence in RTW***

Workers' subjective feelings about their own wellness affect their confidence in RTW. While many interviewed genuinely believed they would like to return to work, they reported suffering from persistent pain from sequelae of their injuries; and that was the reason stopping them from making progress.

3) ***Lack of an accommodating environment for RTW***

Workers also felt the lack of acceptance and social support from workplaces due to peer rejection by coworkers and/or poor relationship with employer as a result of disputes over liabilities and compensation claims.

4) ***Distrust due to conflict of interests perceived in current practices***

RTW is now offered conditional on workers' insurance coverage and the process is administered through insurers. In the absence of active communication about RTW from government bodies, workers are often unaware of the role of RTW in their

recovery and therefore not giving RTW the deserved consideration because of the perceived conflict-of-interest in the administrative body of the service. Without proper understanding in the relationship between compensation and rehabilitation, and in the benefits of work on health, some workers see rehabilitation merely as a way to avoid paying higher compensation by insurers.

5) ***Frustration towards the current healthcare system***

The project saw a lot of frustration among workers towards the long wait for medical investigation and treatment in the current healthcare system. Workers felt discouraged about gaining physical recovery; and this in turn reinforced their low confidence regarding the prospect of returning to work.

6) ***Rights vs. responsibilities and the perception of injustice***

Some stakeholders pointed out that employees' perception of injustice having suffered from injuries may be a reason for them consciously opting for litigation. Contrary to common beliefs, monetary compensation is not the answer to resolving such perception. Although the current system ensures employees' rights in receiving social protection by means of compensation, it fails to educate employees that such rights should be exercised conditional upon being sick is undesirable, and that it would be a good thing to get well as soon as possible, and that they need to seek intervention and to cooperate in the process of getting well (Waddell & Aylward, 2010).

Injury Prevention – Safety Issues

Safety culture – prevent injuries from happening in the first place

Efficiency of completing duties at work is sometimes achieved at the expense of workers' safety. Both employers and workers take safety issue too lightly. Poor community awareness of safety makes strict compliance to safety requirements challenging. Employers are also not proactive in improving safety and risk mitigation measures even after accidents happen. This attitude gives rise to repetitive occurrence of injuries and contributes to poor relationships between employers and workers.

A summary of the problems identified and the stakeholders involved can be found in Table 6.2 (p.102).

Recommendations

An effective EC system should have the following important components:

- i. ***Injury prevention:*** have a strong focus on injury prevention;
- ii. ***Injury management:*** not only provide social protection to injured workers, but also facilitate social integration.

Prevention of Injuries

1) ***Enhance safety education***

Education on safety for the general public needs to be continued and further improved to achieve clearer understanding on the legal requirements of safety for both employers and workers. Education should be targeted at migrant workers, self-employed persons, and sub-contractors, for whom claims and disputes are often filed due to misconceptions about one's identities and/or the rights and responsibilities associated. Specific safety training and certification for workers should be made more stringent.

2) ***Stringent safety inspection***

Safety inspection needs to be a meaningful engagement, which actually adds value on safety of the workers, but not merely administrative procedures.

3) ***Establish effective mechanisms at the workplace for reporting risks for injuries***

Prompt communication between employees and employers about workplace health is instrumental in identifying and mitigating risks at work. This is especially effective in preventing minor injuries such as sprains and cuts, which constitute a large volume of insurance claims. Such mechanisms and prompt actions to address concerns also have positive impacts on the relationships between employers and employees.

4) ***Introduce proper incentives to discourage unsafe practices at work***

The project recommends higher penalty for violation of law, negligent practices at work that result in injuries and illnesses, and deaths from work-related accidents. Penalties should also be exercised for any violation of safety standards during regular inspections.

Management of Injuries: Facilitating Return-To-Work

1) ***RTW as the common goal – System-wide education about work and health***

RTW should not be mistaken as working against compensation, but a parallel measure to facilitate social integration. Access to knowledge and expertise in occupational health should also be made more easily available to all stakeholders.

2) ***Realign roles of stakeholders and introduce a management body***

Roles of stakeholders in current practices should be realigned to avoid giving the impression of conflict-of-interest to employees, and to enable stakeholders to focus on their intended responsibilities. The project suggests exploring the Occupational Safety & Health Council's (OSHC) potential role in overseeing the provision of rehabilitation services and introducing a new authorised body to manage the operation of the EC system. This body should consist of representation from major stakeholders of the system. Its responsibilities may include formulating relevant strategies and policies, determining and enforcing liabilities of accidents, administrating compensation payments, and streamlining processes across different disciplines to build cohesion in service delivery.

3) ***Formulate a policy around management of workplace injuries combining compensation and social integration***

A policy outlining the intended outcomes, and the methods and principles to adhere to achieve such outcomes, in the event of workplace injuries, is needed. RTW should be the ultimate goal across all stakeholders in supporting recoveries from injuries, and efforts should be directed towards early intervention addressing the biopsychosocial needs of injured workers to achieve this goal. The project sees a central policy as a precursor to enact any necessary legislations to support its implementation.

4) ***Promote and increase capacity of existing local models of good practices for occupational rehabilitation services***

There is a need to expand on human resources with the expertise in occupational medicine. More specialised centres offering services grounded in good practice models (e.g., multi-disciplinary case management) should be established to provide assistance in managing workplace injuries such as prompt medical assistance and safe and early RTW services.

5) ***Reduce excessively long wait time for medical services***

Workers' compensation on medical payments should be revised (e.g., amount and structure) to broaden the accessibility of medical services. Different departments in the healthcare system should work closely together to avoid fragmented and compartmentalised services, which play a role in prolonged sick leaves, unnecessary medical expenses, and confusion in workers. Prompt biological clearance and reduction of clinical uncertainty are important to prevent chronicity of injuries.

6) ***Introduce incentives to facilitate RTW***

Utilise employment subsidy programmes as an incentive (e.g., programmes sponsored by the Social Welfare Department) for employers to employ injured employees in recovery. Administrative process of their applications should be simple to facilitate uptake. Furthermore, other incentives for workplace to accommodate RTW should be introduced, which can also discourage access to common law.

A summary of the recommendations is presented in Table 7.2 (p.120).

Implementation

The aforementioned recommendations are proposed to be implemented through a ***continuous improvement framework***, which consists of stages of planning, doing, checking, and acting, to achieve the following objectives:

- 1) to establish a feedback process;
- 2) to identify means or manners to improve efficiency; and
- 3) to introduce small changes or 'evolution' to culminate in big changes.

In the immediate terms, administrative measures can be introduced aiming at reducing time to claim settlement and streamlining the settlement process. Some examples are:

- 1) Increase the capacity of MAB by means such as hiring retired doctors;
- 2) Revise the list of injuries under the ECO to include newly emerged common injuries with evidence-based percentages of loss of earning capacity;
- 3) Further promote employment subsidy programmes and streamline the administrative process to encourage uptake;

- 4) Develop standard policy and guidelines for injury management which incorporate RTW – a parallel but not competing measure to compensation;
- 5) Actively communicate to the workers about the role of RTW in recovery from a neutral and convincing government body and also healthcare providers; and
- 6) Introduce new indices to monitor the trajectory of workers' recovery from injury, e.g., number of injured employees absent from work for 4 weeks and 6 months after injury.

Conclusion

Facing an ageing workforce in the near future, the society is expected to face increasing burdens on various fronts including EC, healthcare, legal, and businesses. Nonetheless, with better safety management to prevent injuries as the primary goal, and joint efforts from all stakeholders to provide early and effective intervention to help employees return to work safely and promptly when accidents unfortunately happen, the magnitude of burden could be mitigated. By aligning prevention, compensation, and rehabilitation, such as that observed in other developed regions like Victoria, Australia, Hong Kong will continue to prosper with healthier workers. Notably, readers should pay attention to the limitations of the project as listed in Section 8.1.

Chapter 1 Introduction

Work disability is a worldwide problem that shows no sign of decreasing (Feuerstein, 2005). The latest estimates, released by the International Labour Organization (ILO) in 2014, showed that annually, occupational accidents and work-related diseases cause over 2.3 million fatalities, out of which over 350,000 are caused by occupational accidents. There were also over 313 million non-fatal occupational accidents that resulted in at least four days of absence from work in 2010 (International Labour Organization, 2014).

Fatalities, work injuries, and work-related diseases cause enormous economic and social burdens to society including productivity loss from absenteeism and costs involved in the process of settling compensation claims, not to mention the physical and psychological pain suffered by the injured employees and their families. It is estimated that around 4% of the world's gross domestic product (GDP) is lost due to various direct and indirect costs arise from occupational accidents and work-related diseases, including compensation, medical expenses, property damage, lost earnings, and replacement training (International Labour Organization, 2003, 2012, 2014).

According to the Labour Department (LD) annual report (Labour Department, 2014a), there were about 200 fatalities and between 55,000 and 60,000 non-fatal cases resulted from occupational accidents and work-related diseases each year in Hong Kong during the period of 2008-2012. These cases on average amounted to approximately HKD 2.3-3.0 billion in claim costs each year in the same period. Total claim costs in recent years has been steadily increasing and the employee's compensation insurance business in Hong Kong has been facing the challenge of seeing minimal or negative underwriting profits (Deloitte, 2015). These occupational accidents and illnesses also have enormous psychosocial impact on employees including low return-to-work (RTW) rates, poor self-judgement, effects on family well-being, and decreased participation in activities of daily living (Cacciaccaro & Kirsh, 2006). Long-term disability at work are associated with suffering chronic pain and negative effects on workers, their families, and society. Psychosocial factors act as significant barriers to an injured employee's rehabilitation and RTW (Accident Compensation Corporation, 2004).

1.1. Compensation and Rehabilitation

In managing work disabilities, developed countries and many countries in the developing world have an employees' compensation (EC) system to provide financial and medical support to employees who are injured on the job and survivors benefits to the dependents of employees whose deaths result from work-related incidents. The system in the modern day has undergone vast transformation in the past century since the introduction of first modern EC laws in the late 19th century (Guyton, 1999). Today, the role of the system no longer stops at providing monetary compensation to the employees and families affected by occupational accidents and work-related diseases. It extends to a much wider context owing to its inseparable ties to the field of occupational safety and health, which includes rehabilitation and prevention. The performance of the system in recent decades is not only measured by its appropriateness in provision of compensation and the wait time of receiving compensation, but also by its effectiveness in facilitating sustainable cost control on compensation, medical care, social security, and loss of productivity, and in advocating for the physical and psychosocial wellness of the employees affected (Bernacki & Tsai, 2003; Clayton, 2004; McCluskey, 2012).

Abundant evidence supports timely and safe rehabilitation of employees affected by occupational accidents and work-related diseases back into the workforce as a more sustainable and practical outcome in the long run for the injured employees, employers, and the community as a whole (Clayton, 2004; Loisel et al., 2005; Shrey & Hursh, 1999). Work is a critical determinant of health for employees. RTW can minimise long-term dependence on the social system and keep costs at bay (Burton, 2010) and is central to the work disability prevention paradigm (Clayton, 2004; Loisel et al., 2001; Szeto, Cheng, Lee, Schonstein, & Gross, 2011). Compensation plays a complementary role to efforts in occupational rehabilitation in this paradigm.

1.2. The From Compensation to Rehabilitation Project

1.2.1. Terms of engagement

The Department of Social Work and Social Administration at the University of Hong Kong (HKU) has undertaken a consultancy project with the Employees' Compensation Insurance Residual Scheme Bureau (ECIRSB) in 2014 to provide a social review of work-related injuries and deaths from occupational accidents covered by the Employees' Compensation Ordinance (ECO) in Hong Kong.

1.2.2. Objective and scope

The project aims to examine the role of the EC system in protecting injured workers' physical and psychosocial well-being, in particular, how it is functioning in facilitating occupational rehabilitation post injuries, so that decision makers and other stakeholders in the system can have a thorough understanding of the characteristics of work-related injuries and the barriers for rehabilitation in Hong Kong. Recommendations are formulated and prioritised to drive improvements that will increase the value of the system to the people it serves.

The project comprises of three elements in achieving its aim. Using data of compensation claims for occupational accidents collected from various sources, the project profiles the prevalence and trend of local work-related accidents, injuries, and deaths in the last decade. The project also identified and engaged with a wide range of stakeholders of the local EC system to study its impact on injured workers, with the emphasis on the pathways and barriers of returning to work. The last element of the project is to evaluate the effectiveness of a local rehabilitation programme.

It is important to note that the project does *not* include illnesses or deaths arising from occupational diseases covered by the ECO, or incapacities and deaths resulting from pneumoconiosis and/or mesothelioma, or noise-induced deafness, by reason of employment. There are reasons for placing the focus of the project on *nonfatal injuries* from occupational accidents. Nonfatal injuries constitutes the biggest proportion in EC claims, in terms of number and amount of compensation payable. In addition, the process of determining and compensating for permanent disability arising from nonfatal

injuries is complicated, and the part in the current system that is known to be the most controversial.

1.3. Purpose and Structure of the Current Report

To date, the project submitted two interim reports to the ECIRSB. The first report presented preliminary findings on the evaluation of the Multidisciplinary Orthopedics Rehabilitation Empowerment (MORE) programme, which represented local efforts in supporting rehabilitation and RTW for injured employees. The second showed a case study on WorkSafe, the EC system in Victoria, Australia. In this report, the research team presented lessons learnt in the development of WorkSafe, which included using incentives to promote occupational rehabilitation and safety in addition to providing compensations to injured employees, and discussed the changes the Hong Kong system can consider making based on these lessons.

As the project nears its end, the current report aims to combine and draw on findings from all components of the social review and present main messages on how the system is functioning in supporting the well-being of injured employees and the Hong Kong society as a whole, and to set priorities in areas of improvement to steer the system in the direction of maximising its potential in promoting social wellness.

This report starts with a detailed description of the components as well as the methodology used in this project in Chapter 2. Chapter 3 then gives a brief summary on the legislations and processes related to compensation claims under the current EC system in Hong Kong. Chapter 4 presents results of analysis on the current EC claims including the prevalence and trend observed in the period of 2007 and 2013. This is followed by Chapter 5 outlining examples of current international and local models of good practices supporting RTW. In view of the characteristics of occupational injuries in Hong Kong described in Chapter 4 and RTW being the desirable outcome in workplace disability management, barriers to facilitating RTW are examined in a biopsychosocial framework in Chapter 6. Chapter 7 then presents recommendations to address the barriers outlined to advance the system in the direction of reaching its goal. This report concludes in Chapter 8 with a discussion on limitations observed for the project and a summary of findings.

1.4. Previous Reviews of the Hong Kong Employees' Compensation System

Since its establishment, the Hong Kong EC system has been well studied. In addition to the wealth of knowledge accumulated in occupational rehabilitation and safety in the community of local academia (Chong & Cheng, 2009; Kwok, Szeto, Cheng, Siu, & Chan, 2011; Li & Poon, 2009), the Hong Kong Federation of Insurers (HKFI) performs reviews on the system regularly on the rating structure of compensation (Deloitte, 2015), as well as how the system functions as a whole. The last comprehensive review on the system as a whole by the HKFI is from the year 2000 (Trowbridge Consulting & Deacons, 2000). In this review, Townbridge Consulting and Deacons conducted extensive discussions with insurers, along with its own investigations and analyses. The review evaluated the system on 11 criteria and put forward recommendations on areas that showed room for improvement relative to each of the objectives identified.

Other notable work relevant to the reviews of EC system include the latest review by the Audit Commission (Audit) on the work of the LD and the Employees' Compensation Assistance Fund Board (ECAFB) in protecting workers in cases of sustaining work injuries, fatalities or suffering from prescribed occupational diseases. The final report of this review was released in spring 2015, and contained audits emphasised on the processing of EC claims by the LD, administration of the Employees' Compensation Assistance Fund, and the effectiveness of LD and ECAFB in ensuring employees be covered by EC insurance.

Building on existing knowledge and addressing the limitation of being an insurance-sector-focused investigation in the report by Townbridge Consulting and Deacons, the project engaged with a wide range of key players of the EC system who are in leadership roles, including those in the regulatory bodies, legislation, healthcare, RTW service providers, advocacy groups for workers' rights, employers, and insurers, as well as with injured workers, to gain a holistic understanding on the psychosocial challenges in facilitating RTW.

Chapter 2 Methodology

This section details the methodology used in the project. It encompasses the data collection method, the study population, and data analysis of the whole study. The research team adopted a mixed methods research, combining both qualitative and quantitative research techniques, to assess the effects of Hong Kong EC legislation and administrative process on the psychosocial well-being of injured workers. In the qualitative component, data were collected through key informant interviews with major stakeholders within the EC system and semi-structured interviews with employees suffering from occupational injuries. On the other hand, the quantitative component included summary statistics from the Employees' Compensation Division (ECD) of the LD, claim data from an insurance company, secondary data from patients participating in the MORE programme from Department of Orthopaedics & Traumatology of the Chinese University of Hong Kong (CUHK), and a survey targeting psychosocial well-being of injured workers.

2.1. Mixed Methods Research

Mixed methods research, a combination of both qualitative and quantitative approaches, has been recommended by researchers from social sciences and behavioural sciences to study social phenomena since the 1960s, and the number of mixed methods studies has proliferated over the past two decades (Collins, Onwuegbuzie, & Jiao, 2007). Onwuegbuzie and Collins (2007) proposed a useful framework for identifying sampling process and developing sampling design in mixed methods research. In view of current research objectives, the purpose of mixing the qualitative and quantitative analyses was complementarity, meaning that both approaches were required to investigate different but overlapping aspects of the phenomenon. According to the two-dimensional mixed methods sampling model suggested by Onwuegbuzie and Collins (2007), the project was a concurrent (time orientation) design utilising multilevel samples (relationship between qualitative samples and quantitative samples). The qualitative and quantitative phases were carried

out independently and simultaneously (concurrent), and the data involved the sampling from different levels of study subjects, such as employees, government representatives and insurers (multilevel). In addition, the qualitative and quantitative components were of equal importance.

2.2. Quantitative Component

2.2.1. Data collection

The research team collected four sets of quantitative data, covering different extents of study population and offering diverse information of EC claims.

Secondary data

The first set of data is the summary statistics collected from LD. Under the ECO (Chapter 282 of the Laws of Hong Kong), an employer is obliged to notify the Commissioner for Labour of any accident leading to incapacity or death of an employee, irrespective of whether the injury gives rise to any liability to pay compensation (Labour Department, 2015a). Information collected by LD is expected to build the most complete and reliable source of data of this kind in Hong Kong. As the provision of individual data from LD was forbidden, the ECD computed and provided the research team a set of summary statistics of EC claims reported to LD, covering the period from 2007 to 2013. This part of data allowed the research team to identify the prevalence and the trend of EC claims, and the profile of injured workers in recent years.

The second set of data is provided by a large insurance company in Hong Kong, which has a significant share in the market of employee's compensation insurance (hereafter denoted by Company Z). The data contains individual information of claimants with EC insurance covered by Company Z. To protect the confidentiality of claimants, any personal information such as name and direct personal identifier (i.e., HKID) was removed by Company Z in preparation of the data set. The research team does not have access to any identifiable information about the claimants. This data set provided detailed information for the research team to examine the profile of injured workers, and the payment pattern over the course of a claim.

The third set of data is provided by the CUHK research team on patients participating in the MORE programme. One of the scopes covered by the project is to evaluate the effectiveness of the MORE programme as an independent researcher.

Primary data collected by HKU

The final and the fourth set of data was collected primarily by our research team using a 4-page self-administered questionnaire to capture the psychosocial well-being of injured employees. The secondary data from the CUHK research team focuses on the occupation outcomes and frequency of usage of public resources. Although a “yellow-flag” questionnaire OMPQ was used to capture psychosocial risk factors in patients with back pain, it was primarily used in initial assessment as a screening tool. Our research team designed a short self-administered questionnaire, which consists of two parts. The first part contains four simple questions concerning patients’ current psychology and social intercourse. The second part is composed of three validated scales measuring patients’ emotional states, social support and hopelessness, namely Depression Anxiety Stress Scale-21 (DASS21) (Taouk, Lovibond, & Laube, 2001), Multidimensional Scale of Perceived Social Support (MSPSS) (Zimet, Dahlem, Zimet, & Farley, 1988) and 4-item version of Beck Hopelessness Scale (BHS) (Yip & Cheung, 2006), respectively.

A longitudinal setting was employed to track the change in workers’ psychosocial well-being after injury over the course of rehabilitation. The collection of data was conducted in PWH with assistance from the CUHK research team. Starting from 15th of January, 2015, injured workers who are newly recruited to the MORE group or identified from PWH OSOC, were asked to fill in the questionnaire while waiting for medical assessment. Follow-up assessment was planned to be conducted on a regular basis every half-year, or at the time when a patient rehabilitates as determined by the treating physician.

2.2.2. Study population

Labour Department

Summary statistics provided by the ECD of LD cover the whole target population of interest reported to LD during a 7-year period from 2007 to 2013. LD received 55 to 62 thousand cases of EC every year in the period.

The ECD of LD provided the following summary statistics by year of reporting:

- 1) Number of reported claims involving incapacity for not more than 3 days with no permanent incapacity. These cases are called minor cases by LD;
- 2) Number of reported claims involving incapacity for more than 3 days (or fatal), by a) gender, b) age group, c) outcome (fatal and non-fatal), and d) industry;
- 3) Number of settled claims involving incapacity for more than 3 days with non-fatal outcome, by a) number of working days lost, and b) percentage of loss of earning capacity;
- 4) Amount of compensation payable for settled claims involving incapacity for more than 3 days with non-fatal outcome, by percentage of loss of earning capacity
- 5) Amount of compensation payable for settled claims with fatal outcome;
- 6) Number of confirmed occupation diseases under ECO.

The summary statistics mainly focus on EC cases involving incapacity of employees for more than 3 days. A work-related injury causing a duration of sick leave of less than or equal to 3 days and with no permanent incapacity requires no assessment on the compensation payable by LD under ECO. Detailed breakdown of these cases is not available. It should also be noted that the summary statistics compiled by the ECD are based on the date of reporting, instead of the date of injury. This basis is believed to have very limited impact on the subsequent analyses which would be primarily presented by year. In addition, employers are obliged to report any EC case to the Commissioner for Labour within 14 days after injury, or 7 days in case of fatality (Labour Department, 2015a).

Company Z

Secondary data collected from Company Z mainly cover the period from 2008 to 2014. These data constitute a sample population which can be viewed as a subset of LD data, regardless of the data period. The data contain claimants' individual information, including gender, age at injury, occupation, and industry of the company. Claim-base variables include date of injury, nature of injury, status of a claim (e.g., active and closed), date of RTW, total paid amount, and total amount of outstanding payment. In addition, a detailed breakdown of payment transaction for each claim, with information on single paid amount, type of payment, and date of transaction (month and year), was also provided by Company Z.

The size of the original sample is 19,459. A data cleansing was done before proceeding. Four types of claims were excluded from subsequent analyses. The first two types are occupational diseases (N=34) and fatal cases (N=64), which are not the main interests of the project. The third one concerns claims with year of injury in or before 2008 (N=2,327). The annual number of these claims is much smaller than those between 2009 and 2014 (ranging from 2,041 to 3,349), and more importantly, personal information is all missing from these records. The final exclusion is those with status coded as closed or pending but no paid amount (N=2,826). Overlaps exist among the four types of excluded claims. The final sample size for analyses is 14,441.

Industry in the data is classified based on Hong Kong Standard Industrial Classification version 1.1 (HSIC v1.1). The research team re-allocated the industry category, using the detailed sub-industry level code (4-digit code) of HSIC v1.1 provided from the data, to Hong Kong Standard Industrial Classification version 2.0 (HSIC v2.0). The conversion was based on a document, named *Concordances between HSIC v2.0 and HKSIC v1.1*, disseminated by C&SD (2009). The purpose of the conversion was to make the claim data more comparable to the summary statistics from LD. The industry code used in the project is shown in Table 2.1.

Table 2.1

Industry code used in the project

Code	Industry
1	Agriculture, forestry and fishing
2	Mine and quarrying
3	Manufacturing
4	Electricity and gas supply; water supply; sewerage, waste management and remediation activities
5	Construction
5a&b	Special trades and construction (on wages)
5c	Construction (on contract value)
6a	Import/export, wholesale and retail trades
6b	Food and beverage services
6c	Accommodation services
7	Transportation, storage, postal and courier services, information and communications
8	Financing and insurance, real estate, professional and business services
9	Public administration, social and personal services

MORE programme

An interim report on evaluating the effectiveness of the MORE programme has been submitted in April 2015. That report was based on 245 patients recruited up to November 2013 and followed up to 1st August, 2014.

The CUHK research team provided our team with an updated version of the data in July 2015. The sample size increased to 332. Patients were recruited up to July 2014 and followed up to mid-May 2015. Among these 332 workers, 182 (54.8%) were allocated to the intervention group while 150 (45.2%) were allocated to the control group. Patients in the control group received conventional care and referrals in the public healthcare system.

Socio-demographic variables in the data include age, gender, and occupation. Some variables are only available from patients participating in the intervention group, including level of education attainment and body mass index (BMI). An initial assessment was conducted on each worker joining the intervention group. The psychosocial and physical factors were captured using three questionnaires, namely the

Chinese version of the Orebro Musculoskeletal Pain Questionnaire (OMPQ) (Law et al., 2013), the Numeric Pain Rating Scale (NPRS) (Childs, Piva, & Fritz, 2005) and the Hong Kong version of the Roland-Morris Disability Questionnaire (RMDQ) (Tsang, 2004). OMPQ is a “yellow flag” self-administered screening tool that predicts risk of developing persistent back pain problem and failure of RTW (21 items; range 0-210) (Law et al., 2013; Linton & Boersma, 2003). The NPRS is an 11-point unidimensional scale of pain intensity, ranging from 0 (no pain) to 10 (pain as worst as it could be) (Childs et al., 2005). RMDQ, originally developed by Roland and Morris (1983), consists of 24 yes/no items measuring physical disability due to low back pain (1 score if yes for each item; range 0-24).

The outcome measures used to evaluate the effectiveness of the programme include:

- 1) Time-lag between injury on duty (IOD) and successful RTW for at least one month;
- 2) Total days of sick leave issued by HA;
- 3) Number of public physiotherapy sessions attended by patients;
- 4) Number of occupational therapy sessions;
- 5) Number of consultations;
- 6) Time-lag between IOD and medical assessment board (MAB) referral;
- 7) Time-lag between IOD and MAB completion; and
- 8) Time-lag between IOD and direct settlement.

The primary outcomes for measuring effectiveness of the programme are time-lag between IOD and successful RTW for at least one month, and the total days of sick leave issued by physicians from HA.

Questionnaires

Up to the preparation of the final report, the research team has collected data of baseline assessments from 45 individuals. Thirty-three were recruited from participants of the MORE programme, while 12 were from PWH OSOC. The five measurements in the questionnaire are as follows:

4 simple questions. Participants were asked how the work-related injury affected their mood, concern about future work ability, and relationship with family and friends in the past week. They could choose among a 5-point Likert scale from 0 (no impact / concern) to 4 (very high impact / concern).

DASS21. Negative emotional symptoms were measured using the Chinese version of the short Depression Anxiety Stress Scale. It has already been validated in a Hong Kong Chinese-speaking sample (Taouk et al., 2001), and was found to be promising to measure patients with spinal cord injuries (Mitchell, Burns, & Dorstyn, 2008). The scale measures emotional symptoms for the past one week from 3 dimensions: depression, anxiety, and stress, as suggested by its name. Each subscale contains 7 self-report items, with each rated on a 4-point Likert scale (0: did not apply to them at all to 3: applied to them very much, or most of the time). Higher scores indicate more severe negative emotional symptoms.

MSPSS. The Chinese version of MSPSS, as validated by Chou (2000), was applied to assess the adequacy of social support perceived subjectively by a participant. The scale is composed of 12 items on a 7-point scale from 1 (strongly disagree) to 7 (strongly agree). It can be split into three subscales, with one measuring the support from family, one measuring support from significant other, and the remaining one from friends (4 items each). Higher scores indicate higher level of perceived social support.

BHS. Measures of hopelessness give an indication of negative attitudes concerning future life. The 4-item Chinese version of BHS has been validated through a community-based survey of Hong Kong population by Yip and Cheung (2006), providing a quick assessment of hopelessness. Each question is rated on a 6-point Likert scale, from 1 indicating strongly disagree to 6 indicating strongly agree. Higher scores reflect higher level of hopelessness.

2.2.3. Statistical analysis

Labour Department

Based on the summary statistics, annual claim rates were calculated by dividing the number of claim cases by the corresponding number of labour force. Labour force,

as defined by C&SD, “refers to the land-based non-institutional population aged 15 and over who satisfy the criteria for being classified as employed population or unemployed population” (Census and Statistics Department, 2014, p. 15). Data of the labour force in Hong Kong used in this report was extracted from C&SD publications or tables which can be freely accessed on the website of C&SD, including Annual Digest of Statistics, General Household Survey, and Quarterly Survey of Employment and Vacancies. If statistics of the labour force was available in quarterly basis but not in annual basis, the average of four quarterly numbers in a year would be used to estimate the annual claim rate.

Company Z

Analysis on the secondary data collected from Company Z primarily focused on factors that affected the cost of settling claims. A log-linear regression, with the sum of paid amount and amount of outstanding payment (hereafter denoted by settlement cost) as dependent variable, was performed to examine the factors contributing to the increase of claim cost. Claims of 2014 were excluded from analysis, as majority of these claims had not yet been settled at data retrieval. Independent variables included gender, age, nature of injury, time between date of injury and date of RTW, industry of the company, year of injury, and whether case proceeded to the common law. Settlement cost was first adjusted by inflation, using consumer price index (CPI; October 2009 – September 2010 as the base year) reported by Consumer Price Index Section of C&SD.

Subgroup analyses, emphasising on different types of cost, were then performed. Only closed claims, which could reveal the complete pattern of cost, were used in subgroup analyses. Five types of cost were selected, namely statutory claim (medical expense not included), medical expense, common law award (award directly received by claimants), claimants’ legal cost, and legal expense of the company. The log-linear regression model was then repeated separately on each selected type of cost.

MORE programme

The analysis here aimed at evaluating the effectiveness of the MORE programme. The eight outcome measures, from secondary data collected from CUHK, could be

classified into two types of data: count data (e.g., total number of sick leaves; outcome measures 1-4 as stated in Section 2.2.2) and time-to-event data (i.e., time-lag between critical events; outcome measures 5-8). For count data, negative binomial regression was used to estimate the unadjusted and adjusted incidence rate ratios (IRRs) of the independent variables. IRR of a factor could be interpreted as the multiplicative effect of the corresponding factor on the baseline risk. It measured the effect of an independent variable on the outcome measure.

For time-to-event data, survival analysis was employed. For each case, date of IOD was considered as time 0, while MAB completion or direct settlement was viewed as the end of follow-up. The probability of “surviving” an event [$S(t)$], or the probability of “happening” an event [$F(t) = 1 - S(t)$], would be first estimated using Kaplan-Meier method (Kaplan & Meier, 1958) for each of the 4 outcome events (RTW, MAB referral, MAB completion and direct settlement). It is referred to as the univariate method (Guo, 2010) and it provides a straightforward statistics on the cumulative probability of an event within a certain period of time. The non-parametric maximum likelihood estimate of the survival function $S(t)$ is given by:

$$\hat{S}(t) = \prod_{t_i \leq t} \left(1 - \frac{d_i}{n_i}\right)$$

where t_i is the observed event time, n_i is the number of person-at-risk just prior to t_i and d_i is the number of events at t_i . The asymptotic variance of $\hat{S}(t)$ is computed by the Greenwood’s formula (Greenwood, 1926):

$$\widehat{var}(\hat{S}(t)) = \hat{S}^2(t) \sum_{t_i \leq t} \frac{d_i}{n_i(n_i - d_i)}$$

Kaplan-Meier curves would then be plotted, stratified by group (intervention vs. control). Log-rank test would be used to test the statistical difference between the two curves. This gave a direct statistical test on the effectiveness of the MORE programme.

A Cox-type regression model (Wei, Lin, & Weissfeld, 1989) was then used to investigate the factors associated with the four events simultaneously, by considering the four events as recurrent events data and assuming proportional hazards. It attempted to provide more evidence on the independent effect of intervention on the outcome measures, after adjusting for socio-demographic covariates. As the four events were of

different nature and did not necessarily occur in order, the WLW marginal model, which assumes that each patient is at risk of all potential events, was computed. This approach fits a proportional hazards model to each of the marginal distribution of event time. The hazard function of this model is given by:

$$\lambda_k(t) = \lambda_{0k}(t) \exp\{\beta_k^T X\} \quad \text{for } k = 1, 2, 3 \text{ or } 4$$

where $\lambda_{0k}(t)$ is the arbitrary event-specific baseline hazard function for the k th event, X is the covariate vector and β_k is the vector of event-specific regression coefficient. The results were reported as adjusted hazard ratios (HRs).

Questionnaires

The sample size of questionnaire, collected by our research team until the submission of this final report, was far from sufficient for statistical analysis with enough statistical power. More importantly, no follow-up assessment has yet been done in order to evaluate any improvements in the psychosocial well-being of participants. Therefore, only descriptive statistics, based on the 45 participants collected by mid-June, would be summarised in this report. This part of study will continue after the end of the project.

2.3. Qualitative Component

2.3.1. Data collection

The collection of qualitative data was mainly separated into two parts. In the first part, the research team aimed at understanding the complicated pathways of injured workers returning to work after suffering from work-related injuries. **Key informant interviews** (Gilchrist, 1992) were performed to collect information from major stakeholders of the EC System in Hong Kong.

Key informant interviews are a type of qualitative in-depth interviews with a group of selected people who possess first-hand and specialized knowledge about a subject matter (Kumar, 1989; UCLA Cener for Health Policy Research, n.d.). Interviews are usually loosely structured, favouring a free flow of information and opinions. With pre-

set interview guides covering the topics of interest, questions are actually framed during interviews, and informants are probed to elicit more information (Kumar, 1989). Key informant interviews were considered as an appropriate approach to collect data in this phase of study, because:

- 1) information were gathered from people and/or parties with various backgrounds and holding diverse opinions (UCLA Cener for Health Policy Research, n.d.) on the issue of EC system;
- 2) the underlying motivations, perspectives and behaviours of different stakeholders could be better understood; and
- 3) the ultimate objective of the project was to generate recommendations (Kumar, 1989).

All interviews were conducted face-to-face in Cantonese or English. Each interview was audio-taped, or notes were taken, depending on the willingness of interviewee(s).

The most important stakeholders in cases on EC are undoubtedly the injured workers themselves. One of the core considerations in the project is the well-being of injured workers. The primary concerns are whether they would be able to recover from the injury, how long it would take for them to do so, what their major concerns are, and identification of any potential barriers and difficulties on the road of recovery. The second part of qualitative data collection, therefore, aimed to better collate injured workers' direct experiences of work-related injuries and the associated emotions at various stages of their injuries through *semi-structured interviews* (Cohen & Crabtree, 2006).

Semi-structured interviews are a kind of in-depth interviews, consisting of open-ended questions that facilitate the collection of rich data by providing participants with the opportunity to describe their experiences fully (Soklaridis, Tang, Cartmill, Cassidy, & Andersen, 2011). The research team designed an interview guide with script and a list of thematic questions. All questions were covered during the interviews with the aim of understanding the psycho-social-occupational challenges faced by injured workers. Depending on the responses of interviewees, questions were subjected to modification and questions straying from the interview guide could also be generated

spontaneously (Cohen & Crabtree, 2006).

The inclusion-exclusion criteria of recruiting injured workers were set as follows:

Inclusion criteria

- 1) Chinese adults aged between 18 and 65;
- 2) Employees who suffered from work-related injuries;
- 3) Injured for at least 3 months.

Exclusion criteria

- 1) Diagnosed with paraplegia, tetraplegia, or head injury;
- 2) Demonstrated severe communication barrier;
- 3) Females in pregnancy;
- 4) Recovered from injuries for more than 6 months after rehabilitation.

All semi-structured interviews were conducted face-to-face in Cantonese. All were audio-taped and transcribed. The personal information of each participant was recorded on an anonymous basis using indirect identifiers (i.e. pseudo code) over the course of transcription and analysis.

2.3.2. Study population

For the key informant interviews, the research team identified a number of major stakeholders who directly or indirectly involved in the processes and administration of Hong Kong EC system. They include:

- 1) Employers of the injured employees;
- 2) Employees' Compensation Division of Labour Department;
- 3) Hospital Authority;
- 4) Rehabilitation and medical service providers;
- 5) Insurers;
- 6) Legislators;
- 7) Non-governmental organisations (NGOs);
- 8) Legal professionals;
- 9) District Courts;
- 10) Legal Aid Department;

11) Recovery agents.

In total, 19 interviews were conducted with key-informants from majority of the stakeholders listed above, including government departments, employers, legislators, NGOs, insurance companies, rehabilitation service providers, medical and para-medical professionals, and legal professionals.

For the semi-structured interviews, study subjects (i.e. injured workers) were recruited on a convenience sample basis, from referrals by an orthopaedic doctor at Prince of Wales Hospital (PWH), the PWH Orthopedic Specialist Out-patient Clinics (OSOC), and an NGO, The Association for the Rights of Industrial Accident Victims (ARIAV). Interviewees recruited from the first two sources were all interviewed at PWH, while those recruited from the NGO were interviewed at the headquarters of ARIAV or the homes of interviewees. In total, 24 injured workers were interviewed.

2.3.3. Data analysis

Thematic analysis (Guest, MacQueen, & Namey, 2012) was conducted on the qualitative data collected from key-informant interviews and semi-structured interviews. Data were coded and reoccurring patterns associated with our research questions were searched. These patterns were called themes and the overarching themes became the categories for subsequent analysis. For instance, the semi-structured interviews aimed to illustrate the impact of the injury on the psychosocial well-being and occupational challenges of injured workers, as well as feedback on the MORE programme. Analysis proceeded according to different categories identified from the process of thematic analysis, such as feeling after injury, family relationships, and social life.

2.4. Ethical Approval

The project has been approved by the Human Research Ethics Committee for Non-Clinical Faculties of HKU (Reference number: EA1501101).

Chapter 3 A Brief Outline of the Current System

3.1. The Employees' Compensation Ordinance

The current EC system in Hong Kong operates mainly on the basis of three statutes: the Employees' Compensation Ordinance (ECO), the Pneumoconiosis and Mesothelioma (Compensation) Ordinance (PMCO), and the Occupational Deafness (Compensation) Ordinance (ODCO). The ECO provides for the payment of compensation to employees who are injured in the course of or arising out of their employment or suffer incapacity as a result of the occupational diseases prescribed in the Ordinance. On the other hand, the PMCO provides for the payment of compensation to persons incapacitated by pneumoconiosis and/or mesothelioma, a common occupational diseases associated with employment in quarries and on construction sites. The ODCO provides coverage for those who suffer from noise-induced deafness by reason of employment in the specified noisy occupations (Labour Department, 2015b). There is also the Employee Compensation Residual Scheme Bureau, which offers assistance to industries having difficulties taking out compensation insurance.

The ECO covers all full-time and part-time workers who are employed under contracts of service or apprenticeship. It also applies to workers employed by local employers in Hong Kong injured while working outside the city. The current EC system is established as a no-fault, no-contributory system under the ECO. In an event of injury or death as a result of occupational accident or diseases, the employer is, in general, liable to pay compensation under the ECO even if the employee or fellow employees might have committed acts of faults or negligence. Compensation includes medical expenses, compensation for permanent or temporary incapacity suffered by the worker.

In addition to the ECO, injured employees also have full access to common law. Common law was put in place with the objective to provide further legal protection for parties involved in occupational accidents, illnesses, and deaths.

3.2. Claim Procedure for Work Injuries

The employer must notify the LD of any work injury case within 14 days of the work accident. During the sick leave period, employee should be able to receive periodical payments (4/5 of the salary). If the worker's sick leave is no more than 7 days, the employer should compensate the worker directly and report the injury to LD by filling out incidence forms and submitting support documents such as receipt of payments to workers. However, if the sick leave is more than 7 days, the worker must visit the Occupational Medicine Unit (OMU) of LD for sick leave clearance upon expiry of the sick leave period. For workers with suspected permanent incapacity, OMU will arrange further medical assessments. Both the employer and the employee can appeal should they find the assessment result unjust. In the case of no objection from both sides, the employer must pay compensation to the employee.

If an accident causes death(s) of employee(s) at workplace, there will be a different procedure. The employer must inform the Commissioner for Labour for record within 7 days of the accident. The employer must also submit any documents requested, such as details of the accident, copy of employment contract of the deceased, payroll records of the deceased, and death certificate.

For more details, please refer to the diagram of claim procedures in Appendix (Figure A1), or "*A Concise Guide to the Employees' Compensation Ordinance*" issued by LD (2015a).

3.3. Current Return-to-Work Programmes in Hong Kong

Under the Hong Kong ECO, there is no legal obligation for employers to provide rehabilitation and RTW assistance to injured employees. Similarly there is no legal responsibility for injured employees to return to appropriate duties if capable in doing so.

The purpose of early rehabilitation and RTW is to return an injured employee to the workplace safely as soon as possible. Delays in receiving appropriate medical

treatment, not knowing the cause of pain, and being isolated from the workplace can directly contribute to occurrence of psycho-social risk factors (Yellow Flags) that affect and complicate the process of injury recovery and success of sustainable RTW.

In March 2003, the LD introduced the Voluntary Rehabilitation Programme (VRP) for employees injured at work and encouraged all employers, employees, and insurers to participate. According to the LD, there are 16 insurers participating in this programme that have designated injury management coordinators to support the process of rehabilitation of injured employees.

The VRP is an excellent initiative established by the LD aiming at better co-ordination of injury management and RTW. However the programme is being delivered on a voluntary basis. There is no legislative obligation for either employers or employees to participate. From the start of the programme to June 2014, about 13,700 employees had participated (Labour and Welfare Bureau, 2015b). However, the research team has no access to the overall data on the outcomes of RTW for these injured employees, the costs incurred in the programme, or the efficiency in the administration of the programme.

Chapter 4 Profile of Occupational Accidents

4.1. Current Prevalence and Trends

This subsection presents a summary of the prevalence and trend of EC cases and the profile of injured workers in recent years, mainly using summary statistics obtained from LD. It would be explicitly stated if data provided by Company Z were used. Although the project primarily focuses on occupational injuries resulting in non-fatal outcomes, statistics on fatal accidents and occupational diseases are also briefly summarised.

Overall trend

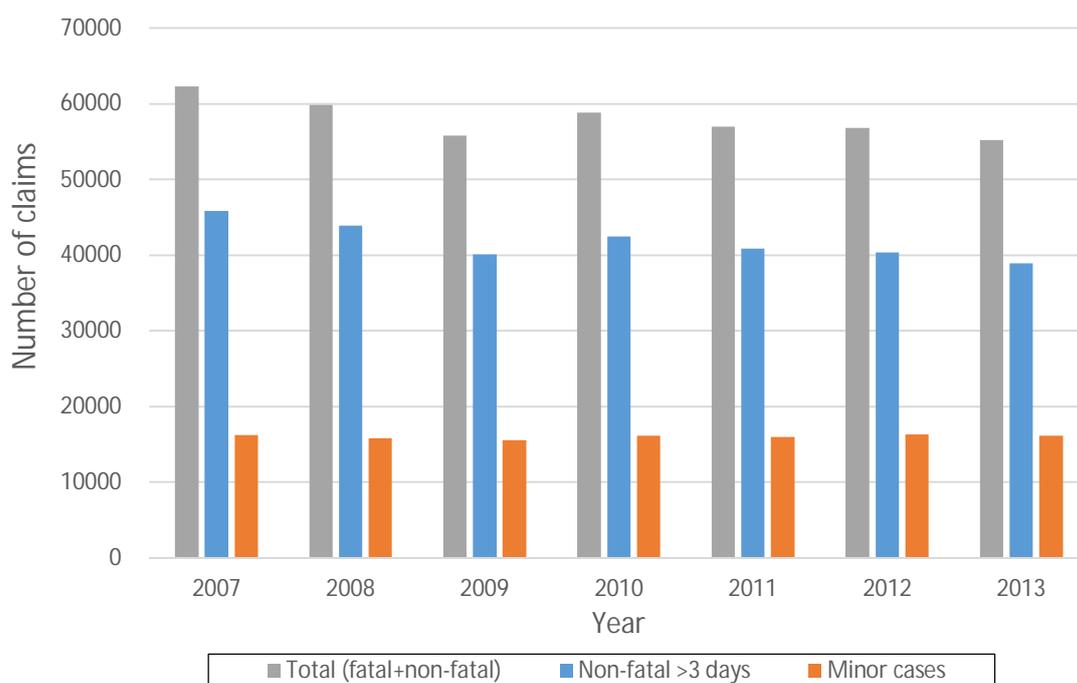


Figure 4.1. Annual number of EC claims, 2007-2013

In 2007, there were 62,241 EC claims reported to LD (Figure 4.1). In brief, the number of EC claims followed a downward trend in recent years, except a slight rebound in 2010. The total number of reported claims decreased to 55,168 in 2013, which was an 11.4% reduction from 2007 (annual average: 2.0%).

The number of minor cases (defined as claims resulting in sick leave for not more

than 3 days with no permanent incapacity) remained at around 16,000 throughout the 7-year period (ranging from 15,503 to 16,266), while those involving incapacity of employees for more than 3 days and non-fatal outcome reduced by 15.2% from 45,816 to 38,868, an average of 2.7% reduction per annum. On the contrary, the number of claims involving fatality increased 9.7% from 186 in 2007 to 204 in 2013 (Figure 4.2). The number of confirmed occupational diseases, either fatal or non-fatal, accounted for less than 0.2% of total claims per year (Table 4.1).

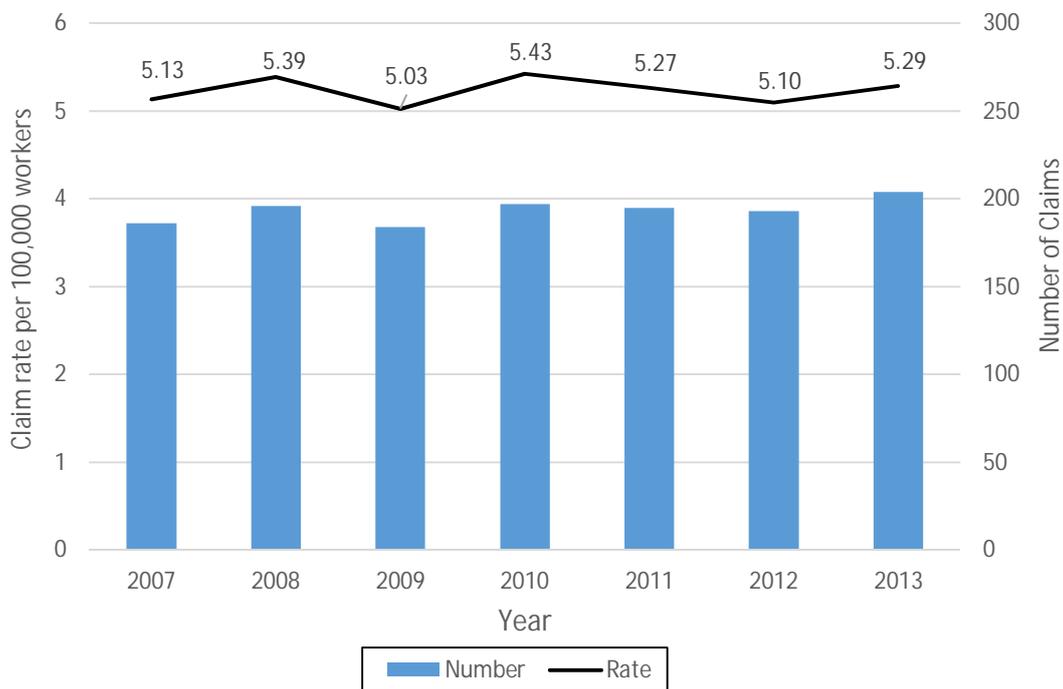


Figure 4.2. Annual number of fatal claims and corresponding claim rate per 100,000 workers, 2007-2013

Table 4.1

Annual number of confirmed occupational diseases under ECO and percentage of total claims, 2007-2013

Year	2007	2008	2009	2010	2011	2012	2013
Number	60	71	68	68	100	108	58
%	0.10%	0.12%	0.12%	0.12%	0.18%	0.19%	0.11%

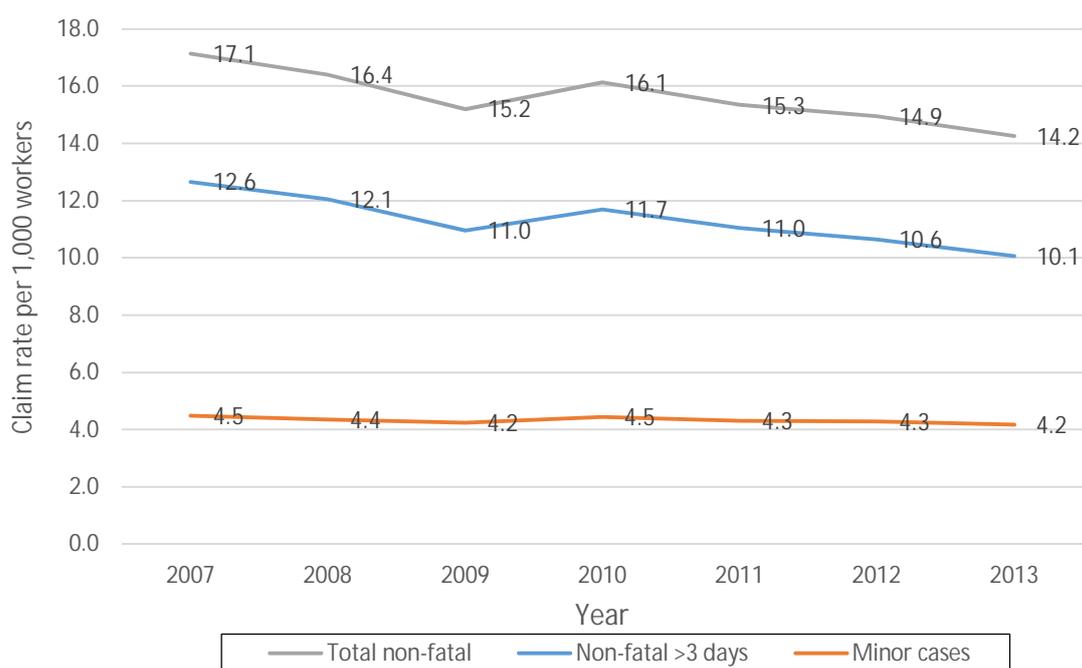


Figure 4.3. Annual claim rate per 1,000 workers for non-fatal claims, 2007-2013

The reduction in claims would be shown more prominent in terms of claim rate, as Hong Kong has experienced an increasing number of labour force during the study period (from 3.62 to 3.86 million). Figure 4.3 shows the annual claim rate per 1,000 workers for reported EC claims which did not result in death. The total claim rate decreased from 17.1 in 2007 to 14.2 in 2013, with a slight rebound in 2010 (16.1 per 1,000). A 16.9% reduction over the 7-year period, or an average of 3.0% reduction per annum, was recorded. Every year, it remained stable at about 4 minor cases for every 1,000 employees. The improvement solely came from non-fatal claims involving incapacity for more than 3 days. The annual claim rate for such cases decreased by 20.4%, or 3.7% per annum on average. For reported claims resulting in fatal outcomes, the annual claim rate remained similar at 5.03 to 5.43 per 100,000 workers (Figure 4.2).

Overall, Hong Kong has experienced an improved performance in EC insurance in recent years, as evidenced by the reduction in claim rate.

Gender

The following of this subsection presented the profile of injured workers. Unless otherwise specified, minor cases (claims resulting in sick leave for not more than 3 days with no permanent incapacity) were not included as such information was not available.

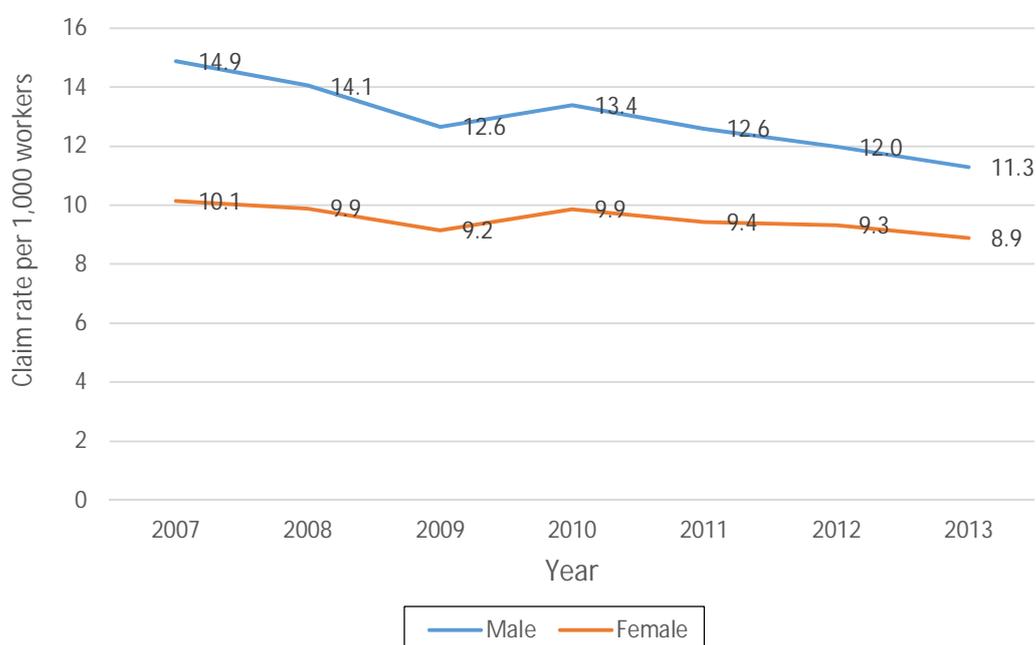


Figure 4.4. Gender-specific annual claim rate per 1,000 workers for claims involving incapacity for more than 3 days, 2007-2013

For every year from 2007 to 2013, there were consistently more number of claims by male injured workers than female ones. The male-female ratio was near 60-40. Figure 4.4 depicts the gender-specific annual claim rate for claims involving incapacity of employees for more than 3 days. The higher claim rate among males was probably driven by the gender difference in occupation. Males are more likely to engage in jobs with higher risks of occupational injuries. The improvement in claim rate was more conspicuous among males, which decreased by 24.2% between 2007 and 2013, from 14.9 to 11.3 per 1,000 workers. The corresponding rate among females only decreased

by 12.4%, from 10.1 to 8.9 per 1,000 workers.

Age at injury

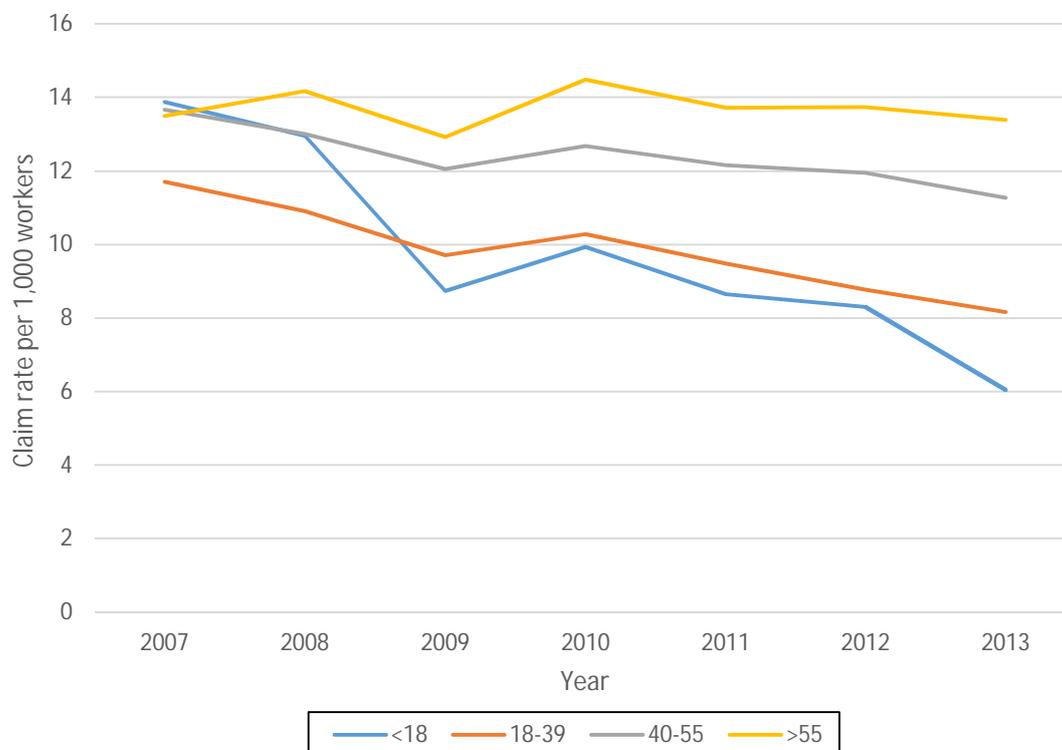


Figure 4.5. Age-specific annual claim rate per 1,000 workers for claims involving incapacity for more than 3 days, 2007-2013

The ECD of LD provided summary statistics of reported EC claims stratified by 4 board age groups: less than 18, 18-39, 40-55, and above 55. Figure 4.5 shows the age-specific annual claim rate per 1,000 workers. Claims were consistently the most frequent among employees aged above 55 since 2008. The corresponding annual rate maintained at around 13 to 14 claims per 1,000 people. Improvements in claim rate were recorded in other age groups. Claim rate among workers aged 40-55 dropped 17.5% from 13.7 to 11.3 per 1,000 within 7 years. The rate of reduction was much greater in the younger age groups: 30.3% in ages 18-39 and 56.4% in those younger than 18.

As no detailed age information is made available from LD, a detailed examination of age distribution was continued using claim data provided by Company Z.

Information of claimants' age at injury was missing in 55% of cases. The distribution of age in the data was first compared with LD using 4 board groupings of age. The result is presented in Table 4.2. Comparing the proportions during the overlapping years 2009-2013, the difference in age distribution between the two data sources was statistically significant (Chi-square test: $\chi^2=172.73$, $d.f.=3$, $p<0.01$). Data from company Z contained relatively more claims in which claimants were older than 55 at injury, but fewer claimants aged 18-39 and very few less than 18. A weight adjustment was therefore applied in producing the histogram as shown in Figure 4.6. Nonetheless, the gender distribution was similar between two sets of data, both with male-female ratio near 60-40, and no statistical difference was detected ($\chi^2=1.37$, $d.f.=1$, $p=0.24$).

Table 4.2

Comparison of age distribution of EC claimants between Company Z and Labour Department (%)

Data Source	<u>Company Z</u>		<u>LD</u>
	2009-2014	2009-2013	2009-2013
Age group			
<18	0.05%	0.00%	0.54%
18-39	34.59%	33.63%	39.29%
40-55	43.15%	45.16%	45.02%
>55	22.22%	21.22%	15.15%

The histogram in Figure 4.6 shows the distribution of age of claimants at injury. The blue shaded area indicates the average size of labour force by 5-year age group (and open age group 65 and above) between 2009 and 2014. The number of EC claim was fairly stable with minor fluctuation before age 47 and started increasing afterwards. It reached the highest between ages 53 to 55. The number followed a decreasing trend after age 55, due to the shrinking size of population remaining in workforce. This suggests that the risk of occupational injuries starts to inflate in one's late 40s and maintains at a very high level even after age 55.

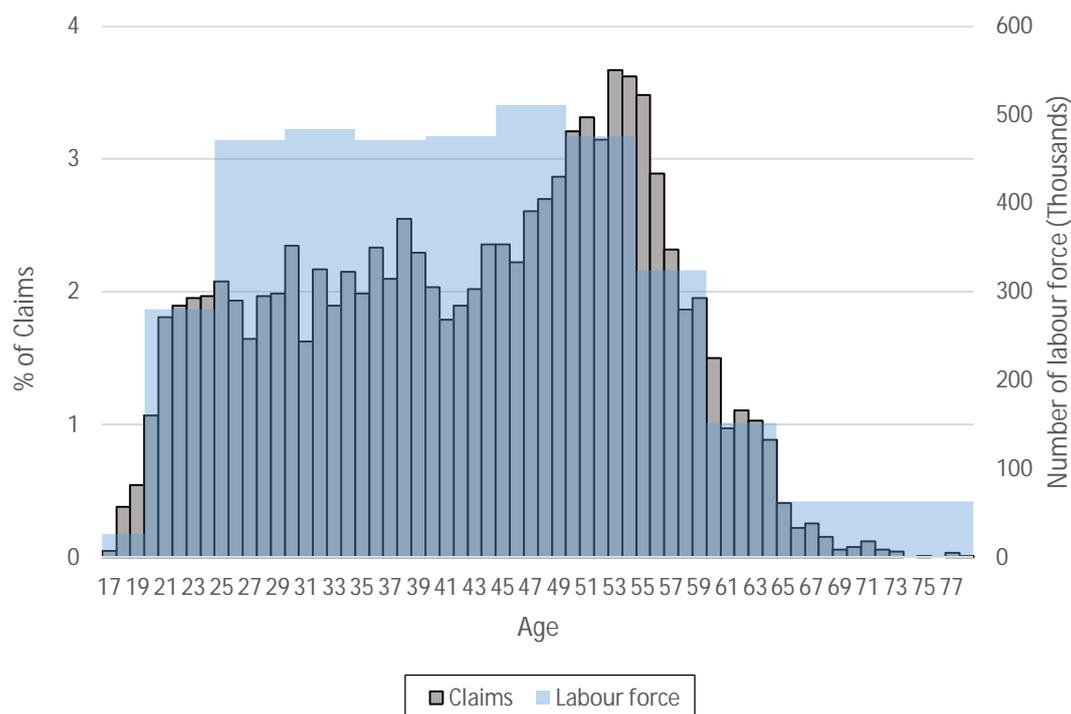


Figure 4.6. Histogram of age at injury

Due to the ageing population in Hong Kong, the workforce is also getting older. In 2014 second quarter, 31.9% of labour force were aged 50 and above (Census and Statistics Department, 2015c). This proportion was projected to 34.9% in 2021, and further to 36.9% in 2041 (Census and Statistics Department, 2013). With a higher incidence rate of occupational injury in older ages, the number of EC claims may rebound in the near future if this high rate persists.

Industry

The classification of industry in summary statistics provided by LD followed the Hong Kong Standard Industrial Classification (HSIC). LD has adopted the new version 2.0 of HSIC since 2010 in compilation. EC claims classified by industry was therefore different between 2007-2009 and 2010-2013. Only statistics from 2010 onwards was reported here.

Table 4.3 shows the proportion of claims involving incapacities lasting more than 3 days by industry. The largest number of claims was found in public administration, social and personal service, which accounted for 20% of all cases every year. The

distribution of claims across industries did not alter much between 2010 and 2013, except for construction, and food and beverage services. In terms of number, claims in food and beverage services greatly reduced by 22.5%, while those in construction industry increased by 12.8%.

As the categorisation of industries, the coverage of labour force, and the industry subdivision vary across different C&SD reports, the research team adopted different data sources to estimate the annual claim rates by industry. In particular, the number of persons engaged in the industries of food and beverage services (industry code: 6b), and import/export, wholesale and retail trades, accommodation services (industry code: 6a&c) were extracted from the Quarterly Report of Employment and Vacancies, while the number of employed persons in the industry of “Others” was extracted from the Quarterly Report on General Household Survey. It is noted that the Quarterly Report of Employment and Vacancies does not cover some economic activities, and does not include civil servants.

Table 4.3

Proportion of reported claims involving incapacity for more than 3 days by industry, 2010-2013

Industry	Code	2010	2011	2012	2013
Public administration, social and personal services	9	20.8%	20.2%	20.5%	20.6%
Food and beverage services	6b	19.5%	19.0%	17.1%	16.5%
Financing and insurance, real estate, professional and business services	8	16.2%	16.7%	17.9%	17.6%
Import/export, wholesale and retail trades, accommodation services	6a&c	14.2%	14.2%	14.4%	14.9%
Transportation, storage, postal and courier services, information and communications	7	13.1%	13.3%	12.7%	12.8%
Construction	5	7.0%	7.7%	8.1%	8.6%
Manufacturing	3	6.8%	6.7%	6.8%	6.4%
Others		2.4%	2.4%	2.4%	2.6%

The annual claim rate per 1,000 employed persons was shown the most

outstanding in the industry group, Others (Figure 4.7), probably due to the inclusion of several industries having very high risk of occupational injuries, such as mining and quarrying, and electricity and gas supply. The second highest claim rate was found in food and beverage services (industry code: 6b), but it followed a largely decreasing trend in recent years, from 38.2 per 1,000 in 2010 to 27.1 per 1,000 in 2013. The third highest industry was manufacturing (code 3), accounting for about 20 claims per 1,000 employed persons every year. The lowest claim rate was observed in import/export, wholesale and retail trades, accommodation services (code 6a&c), ranging from 6.8 to 7.2 per 1,000 in the four-year period. The reduction in claim rates between 2010 and 2013 was quite consistent across industries.

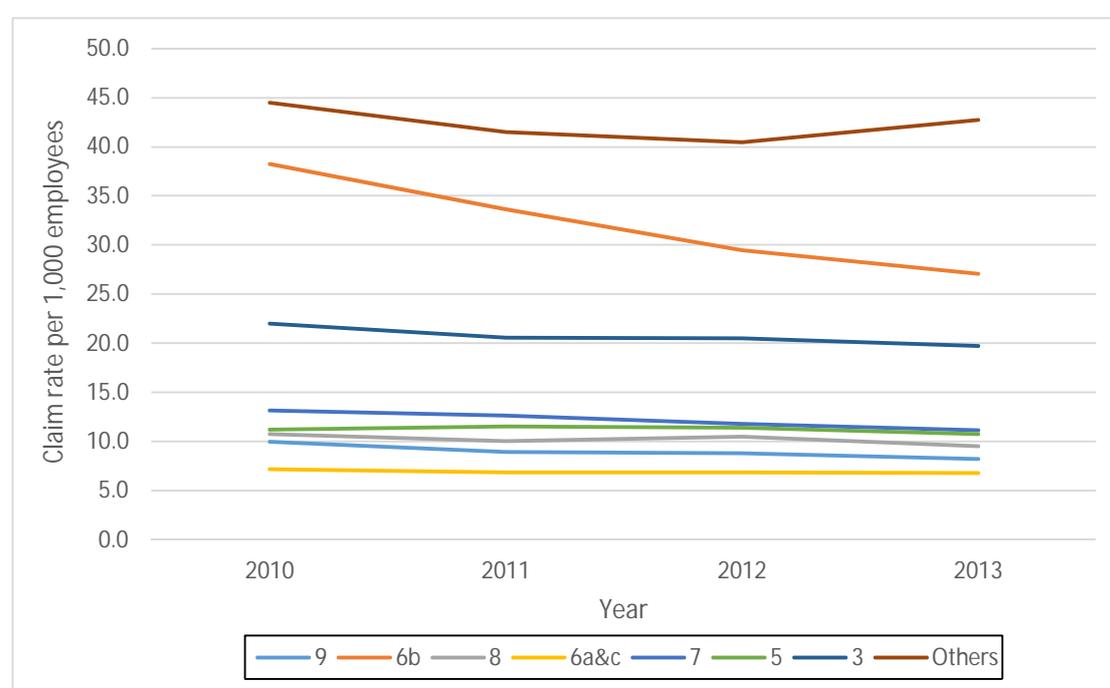


Figure 4.7. Annual claim rate per 1,000 employed persons by industry for claims involving incapacity for more than 3 days, 2010-2013

Annual claim rates in the industry of construction maintained stable at 11 per 1,000 employed persons from 2010 to 2013. Apparently, this result is different from the general belief that construction industry has the highest industrial accident rates among all. It should be noted that the current data were categorised by workers' industry, instead of occupation. For example, during the 4th quarter of 2013, it was estimated that there were 310,900 employees engaged in the construction industry. Among them,

about half of them were craft and related workers or engaged in plant and machine operating and assembling (Census and Statistics Department, 2015a), and only 86,343 were construction site manual workers (Census and Statistics Department, 2015b). The reported industrial accident rate in construction industry was 40.8 per 1,000 workers in 2013. For further information, please refer to the bulletin prepared by the Occupational Safety and Health Branch of LD (Labour Department, 2014b).

Nature of injuries

Using claim data from Company Z, workers' nature of injuries caused by non-fatal occupational accidents was summarised in Figure 4.8. Information on the nature of injuries was missing in 48% of claim records. Sprain and strain was the most common type of injuries, accounting for one-third of eligible records. This was followed by contusion and bruise (24.0%), laceration and cut (10.0%), and fracture (9.8%). Other was a category in the data with undefined nature of injury. The category, minor injury, included several kinds of injuries having relatively small numbers and resulting in minor outcomes, such as bites or stings, nausea and puncture wounds. In total, they accounted for 2.9% of claims. Severe injury, involving severe medical outcomes such as amputation, concussion and mental disorders, shared 0.8% of cases.

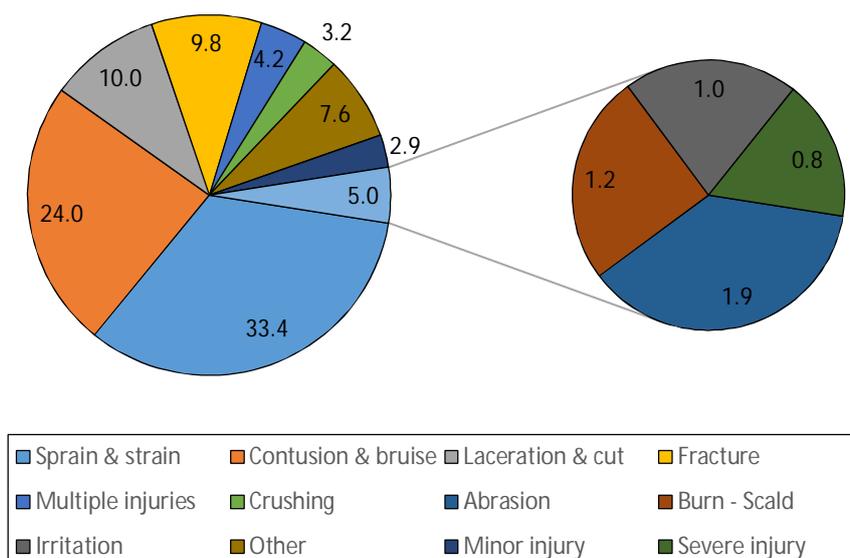


Figure 4.8. Proportion of non-fatal claims by nature of injury

Some occupational injuries may result in permanent incapacity of workers, either total or partial. Upon completion of medical clearance at the Occupational Medicine Unit (OMU) of LD, if an injured worker is likely to have been suffering from permanent incapacity, he / she will be referred to the Employees' Compensation (Ordinary Assessment) Board (ECOAB) for medical assessments on the percentage of loss of earning capacity caused by the injury. This percentage will then be used to calculate the amount of compensation payable to the worker.

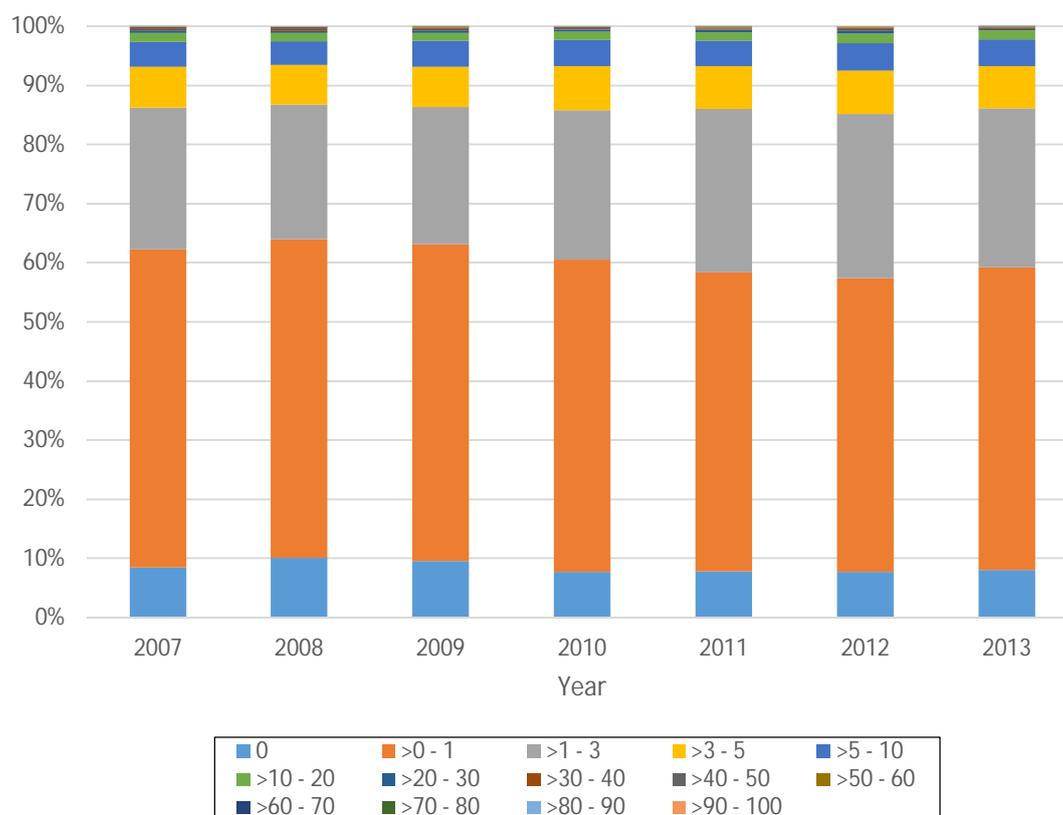


Figure 4.9. Proportion of settled claims involving total or partial permanent incapacity by percentage of loss of earning capacity, 2007-2013

Every year, between 56% and 61% of settled claims required no such assessment. These claims involved only temporary but no permanent incapacity, or might have been directly settled between employers and employees prior to medical assessment. Among the referred cases, 0% of loss of earning capacity was found in 8.5% of claims, indicating that the injuries were eventually identified as no permanent incapacity. Majority (52.2%) was found to have percentage of loss of earning capacity greater than 0% but not more than 1% (>0-1%). Injuries resulting in less than or equal to 5% of loss

accounted for 93.1% of all eligible cases. Under ECO, examples of 5% loss of earning capacity includes loss of ring finger—one phalange, apparent deformity of nose, and loss of spleen. Only 2.5% of claims involved more severe injuries causing 10% of loss or more. Over the period 2007-2013 (Figure 4.9), injuries resulting in >0-1% loss of earning capacity slightly decreased from 53.7% to 51.2%. This reduction was fully compensated by the increase in those resulting in >1-3% loss, from 24.0% to 26.8%.

4.2. Impact on Society

4.2.1. Working days lost

The number of working days lost due to incapacity is a measurement of productivity loss. The reported number from LD included two parts: the number of sick leaves granted and taken, and the period of absence from duty certified to be necessary by assessment boards. Annual report of LD (Labour Department, 2014a) stated that at the end of 2012, the total number of working days lost were 1,173,163 days among 37,559 settled cases involving incapacity for more than 3 days. The average length per injured employee was about one month (31.2 days).

The ECD of LD provided the research team with the aggregated statistics of working days lost among settled claims as shown in Figure 4.10. Each year, 10-12% of claims reported to LD were classified as others, including but not limited to cases eventually verified to be non-EC cases, and those in which the injured workers withdrew the claims. Among the remaining claims, the majority (30%) involved working days lost of less than a week, 57% less than two weeks, and 80% less than 2 months. The distribution did not alter much over 2007-2013. A slightly decreasing proportion was observed in claims having short working days lost between 7 and 10 days (17.6% in 2007 to 14.5% in 2013), while an increasing trend was found in those between half-year and 2 years (6.3% to 9.6%). Although the number of claims reduced in recent years, claimants were more likely to be on sick leaves for longer.

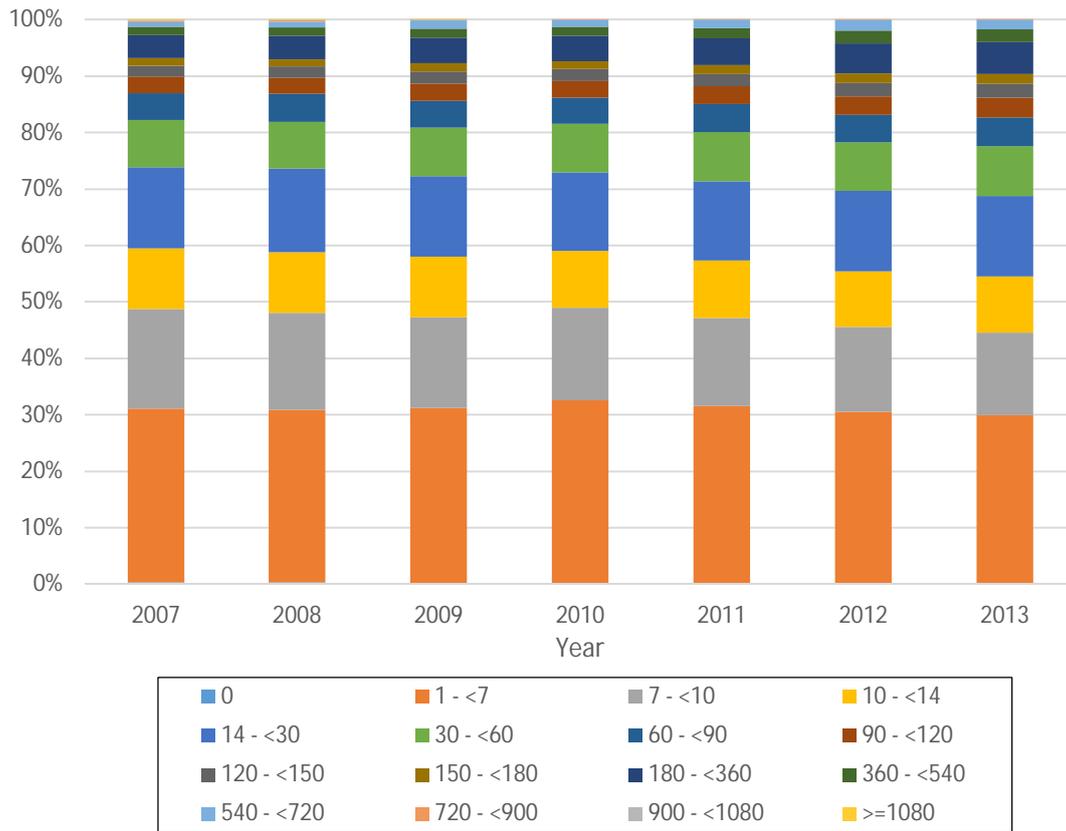


Figure 4.10. Proportion of settled claims involving incapacity for more than 3 days and non-fatal outcome by number of working days lost, 2007-2013

4.2.2. Statutory benefit

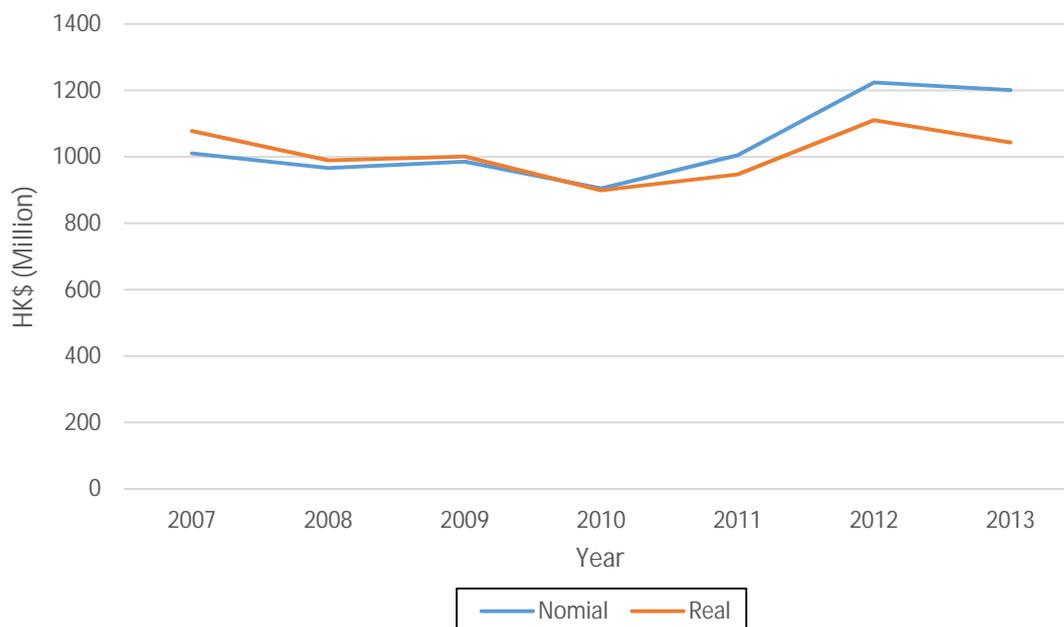


Figure 4.11. Total amount of statutory benefit for non-fatal claims involving incapacity for more than 3 days, 2007-2013

Based on the summary statistics provided by the ECD of LD, Figure 4.11 shows the trend of total amount of compensation payable for non-fatal claims from 2007 to 2013. It represents the statutory benefit directly received by injured workers having sick leaves longer than 3 days under the ECO. Common law award and other associated costs are **not** included. The nominal amount (i.e. before adjusting for inflation) follows a decreasing trend before 2010. It sharply increased afterwards, from HK\$905.5 million to HK\$1,201.8 million in 2013, despite the reduction in the number of EC claims during the same period (Figure 4.1). After adjusting for price inflation using CPI index (100 as at Oct, 2009-Sept, 2010), the real value of total statutory benefit in 2013 (HK\$1.04 billion) was similar to that in 2007 (HK\$1.08 billion). However, the statistics was compiled based on claims that had been already settled. Undoubtedly, there would be more unsettled claims in the reporting year 2013 than 2007. It would be better to look at the average amount per claim.

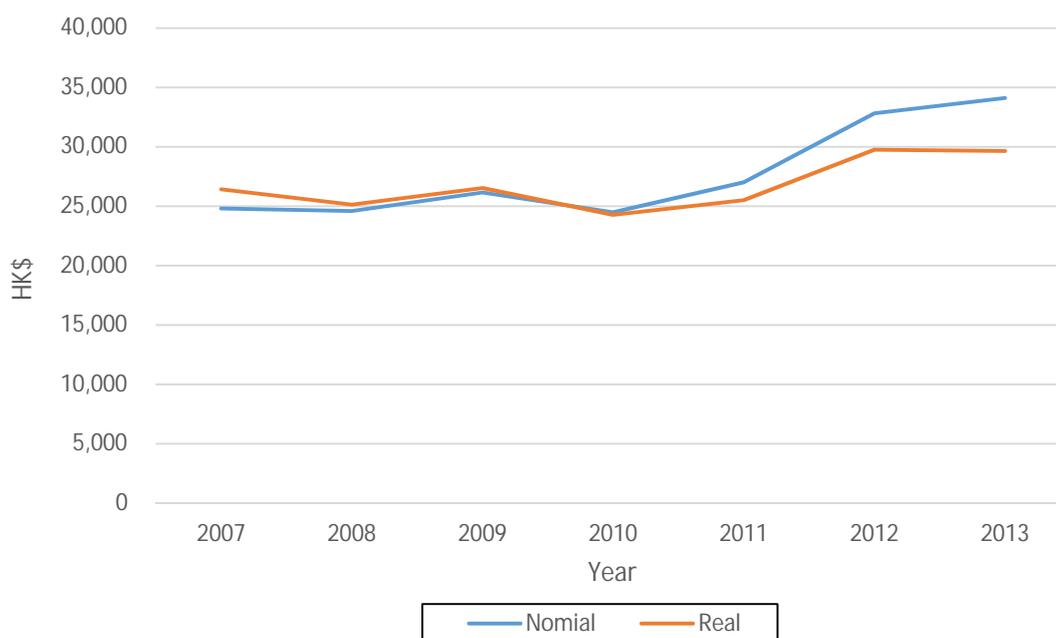


Figure 4.12. Average amount of statutory benefit for non-fatal claims involving incapacity for more than 3 days, 2007-2013

In terms of average statutory benefit payable to injured workers (Figure 4.12), the nominal amount per settled claim (excluding claims eventually verified to be non-EC cases, and those in which the injured workers withdrew) remained stable around HK\$25,000 per claim between 2007 and 2010, and then sharply increased by 39.5% to HK\$34,100 per claim in 2013. The largest change was found from 2011 to 2012, in which the average claim size increased by 21.5% in one year. After adjusting for inflation, the average statutory benefit per claim slightly decreased by 8.1% from HK\$26,430 in 2007 to HK\$24,283 in 2010, and then increased by 22.0% to HK\$29,627 in 2013. Apart from inflation, some other factors were responsible for the rise in average statutory benefit.

The research team also acquired information on the amount of statutory benefit stratified by the percentage of loss of earning capacity. The result by year is depicted in Figure 4.13. After adjusting for price inflation, the amount of statutory benefit was consistently the largest among injuries resulting in >1-3% permanent loss of earning capacity. A prominent increase (36%) was also observed in this category between 2010 and 2013. Statutory benefit concentrated in claims involving >0-5% loss of earning capacity, accounting for 58.6% in 2007 and 63.9% in 2013, due to the relatively larger

number of such claims (35%).

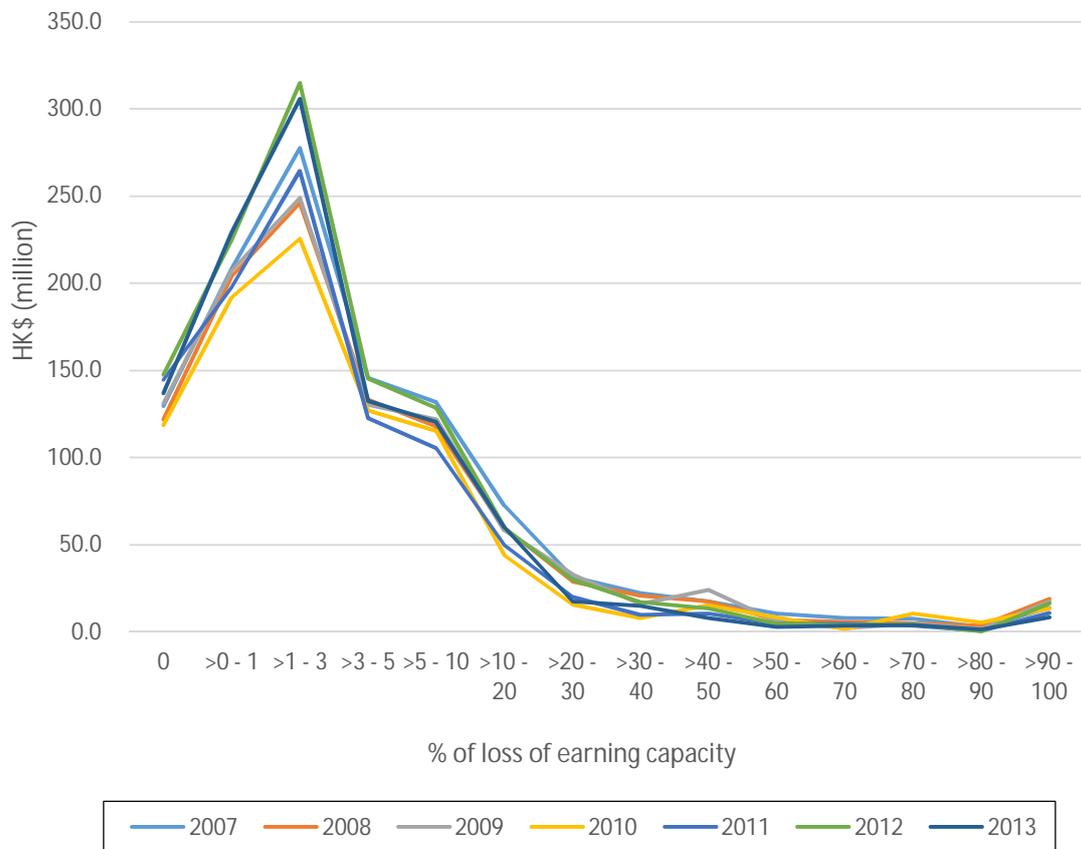
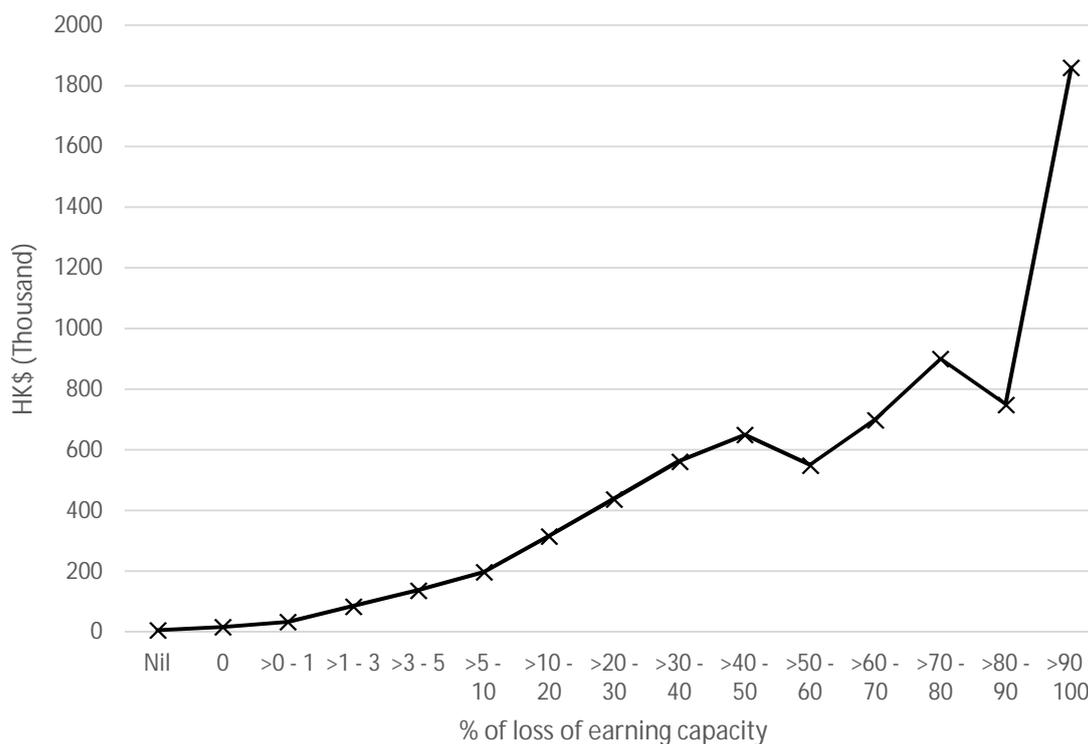


Figure 4.13. Total amount of statutory benefit (after adjusting for inflation) for non-fatal claims involving incapacity for more than 3 days, stratified by percentage of loss of earning capacity, 2007-2013

The average amount of statutory benefit per claim must increase with increasing loss of earning capacity. In 2013, an employer had to pay HK\$6,858 (nominal value) of statutory benefit (Figure 4.14), on average, to an injured employee who did not require medical assessment on permanent incapacity (nil). For those who required medical assessments, this amount increased to HK\$16,828 for those eventually deemed no permanent incapacity resulted (0%), to HK\$33,558 for >0-1%, and to HK\$1.86 million for >90-100%.



Note: nil = medical assessment not required

Figure 4.14. Average amount of statutory benefit for non-fatal claims involving incapacity for not more than 3 days, stratified by percentage of loss of earning capacity, 2013

Table 4.4 shows the average amount of statutory benefit per claim stratified by percentage of the loss of earning capacity for 3 selected years, 2007, 2010, and 2013, after adjusting for inflation. The increase of average claim benefit between 2010 and 2013 was not homogenous across percentage of the loss of earning capacity categories. The largest increase was observed in extremely serious injuries resulting in >90-100% loss of earning capacity (45.7%), while the largest decrease was found in the next severity (-52.3%). Annual estimates of these categories were subject to large variations due to the few number of claim cases. Increase in statutory benefit were mainly observed in claims without medical assessment (nil; 30.5%), very light partial incapacity (>0-1%: 16.0% and >1-3%: 19.7%), and medium cases (>10-20%: 23.6% and >20-30%: 31.3%).

Table 4.4

Average amount of statutory benefit (after adjusting for inflation) for non-fatal claims involving incapacity for not more than 3 days, stratified by percentage of loss of earning capacity, 2007, 2010 and 2013

% of loss	<u>2007</u>	<u>2010</u>		<u>2013</u>	
	HK\$	HK\$	% change from 2007	HK\$	% change from 2010
Nil	4,508	4,567	1.3	5,959	30.5
0	14,275	13,765	-3.6	14,620	6.2
>0 - 1	23,524	25,142	6.9	29,156	16.0
>1 - 3	70,148	62,038	-11.6	74,246	19.7
>3 - 5	128,534	118,295	-8.0	119,963	1.4
>5 - 10	191,125	178,872	-6.4	172,270	-3.7
>10 - 20	288,399	222,929	-22.7	275,457	23.6
>20 - 30	395,401	290,559	-26.5	381,521	31.3
>30 - 40	599,320	455,634	-24.0	489,429	7.4
>40 - 50	719,616	637,206	-11.5	564,726	-11.4
>50 - 60	949,796	641,662	-32.4	477,845	-25.5
>60 - 70	598,655	422,046	-29.5	608,167	44.1
>70 - 80	932,836	1,052,632	12.8	781,929	-25.7
>80 - 90	1,332,623	1,365,442	2.5	651,607	-52.3
>90 - 100	1,137,171	1,108,904	-2.5	1,615,986	45.7
Overall	26,430	24,283	-8.1	29,627	22.0

According to an actuarial review by Deloitte (2015), the total estimated claim cost of EC insurance reached HK\$4.37 billion (nominal value), and the cost per claim averaged around HK\$110,000 in 2013. There was an enormous difference (about HK\$3.1 billion for total and HK\$75,000 for average) between that actuarial report and above summary statistics from LD. This gap was composed of direct payment for claims involving incapacity for not more than 3 days, claimants' award from common law and other costs not directly paid to claimants such as legal expenses. A large proportion of the gap was resulted from common law. In 2013, the total estimated cost due to common law claims, including other associated costs such as defendant legal expense, was around HK 2.7 billion. It was notable that the cost of common law claims increased disproportionately with statutory benefit payable to workers over 2007-2013.

The total estimated cost of common law claims to the total statutory benefit was only 1.2:1 in 2007, but it sharply increased to almost 1.5:1 in 2013. Every year from 2007 to 2012, about 5% of EC claims proceeded to common law. This proportion increased to 6.2% in 2013, which was the highest level since 2002. Comparison between the summary statistics from LD and that actuarial review also suggested that costs other than statutory benefit and common law claims increased significantly over the study period. Although reduction of the claim rates in recent years showed some signs of improvement, the ultimate cost to settle claims actually increased in every aspect.

4.3. Factors Affecting Costs of Settlements

Using claim data retrieved from Company Z, the factors contributing to the variation of settlement cost was investigated. Settlement cost refers to the ultimate cost to settle an EC claim, including statutory benefit, common law claims, and other relevant expenses. Among the 14,441 eligible records between 2009 and 2014 under analysis, the average settlement cost per claim was HK\$89,900, with a standard deviation (SD) 375,263. This cost sharply increased from HK\$53,200 in 2009 to HK\$115,200 in 2013. This increasing trend was similar to the estimates in the actuarial review by Deloitte (2015). This amount suddenly dropped to HK\$70,100 in 2014, which was caused by the high proportion of claims that had not yet been settled (68%). Claim records from year 2014 were therefore excluded from current analyses. A summary of average settlement costs between 2009 and 2013, after adjusting for inflation (money value as at Oct, 2009-Sept, 2010), is presented in Table 4.5.

Issue of missing data existed in the data. 62% of claim records had at least one variable missing. More importantly, missing was not at random and greatly varied by industry. Some industries, such as construction on contract value (industry code: 5c) and public administration, social and personal services (9), had relatively higher completeness of variables. On the contrary, missing rates in agriculture, forestry and fishing (1), import/export, wholesale and retail trades (6a), and food and beverage services (6b) exceeded 99%. A weighted least squares fit was therefore applied in the regression model. Furthermore, industries with missing variables exceeding 99% were further excluded from analysis.

A multivariate log-linear regression model was applied to investigate the independent effect of each variable on settlement cost. Table 4.6 shows the estimated coefficients from the regression model. The model could explain 67.9% of variation (R-square) in settlement cost. Statistical significance ($p < 0.05$) could be found in all variables. As shown in Table 4.5, claims by male injured workers, on average, required 42% higher settlement cost than female (HK\$115,600 vs. HK\$81,300). After adjusting for other variables, the effect of gender was still statistically significant ($p = 0.007$) but was greatly attenuated [$\exp(\hat{\beta}) = 1.128$, 95% CI=1.034-1.231]. This means that the independent effect of male gender only increased settlement cost by 12.8% when compared with females, indicating that a large proportion of higher settlement cost for male claims could actually be explained by other factors. For instance, males were more likely to engage in high risk industries resulting in more severe injuries in case of occupational accidents. Settlement cost also increased with increasing age group, but reduced after reaching age 55. Claims involving workers aged 50-54 required 45.6% [$\exp(\hat{\beta}) = 1.456$, 95% CI=1.260-1.682, $p < 0.001$] more cost to settle than those aged 18-29 (base group), after controlling for the effects of other factors.

A large proportion of variation in settlement cost could be explained by nature of injury and industry. Settlement costs significantly varied across nature of injury, with the strongest effect found in fracture [$\exp(\hat{\beta}) = 1.740$, 95% CI=1.520-1.993, $p < 0.001$]. Although the highest average cost was observed in severe injuries such as amputation, concussion and mental disorders (Table 4.5: HK\$570,500), its independent effect after adjusting for other factors was less (1.433, 95% CI=0.994-2.065, $p = 0.054$), as majority of these claims went to common law (50%). Severe injury, fracture and multiple injuries, which ranked the top three in terms of average settlement cost, in total accounted for 14.6% of eligible records under analysis. On the contrary, claimants suffering from sprain and strain solely contributed 34.6%. Its large patient base, accompanied with the fourth highest settlement cost, warrants attention.

Table 4.5

Average settlement cost, after adjusting for inflation, 2009-2013

	N	Mean ('000)	SD ('000)
Total	9,895	98.4	411.4
Gender			
Female	2,208	81.3	280.1
Male	3,338	115.6	362.5
Age			
18-29	720	72.8	369.3
30-39	848	117.4	333.1
40-49	1,109	145.4	401.2
50-54	829	134.1	402.0
55-59	762	94.8	266.3
>=60	400	91.3	247.9
Nature of injury			
Sprain and strain	1,887	96.0	307.0
Contusion and bruise	1,350	69.3	277.9
Laceration and cut	504	63.9	286.0
Fracture	552	253.1	440.4
Multiple injuries	196	214.7	698.2
Crushing	173	50.7	156.0
Abrasion	91	51.4	209.0
Burn - Scald	62	13.4	57.1
Irritation	59	19.4	118.6
Other	373	58.8	204.5
Minor injury	156	23.0	111.5
Severe injury	46	570.5	748.2
Industry¹			
1	5	110.8	153.7
3	619	42.8	155.0
4	925	43.9	159.4
5a & b	859	244.4	495.1
5c	872	357.1	1048.1
6a	681	44.5	155.3
6b	1,467	29.1	132.1
6c	492	29.6	136.9
7	1,348	80.0	334.8
8	2,132	49.9	190.4
9	2,643	58.9	228.9

¹ Please refer to Table 2.1 for industry code

Table 4.6

Estimated coefficients from log-linear regression on settlement cost

	Estimate β	$\exp(\beta)$	95% CI	p value
Intercept	6.103	447.202	363.521-550.146	<.001
Gender				
Female	Base	1		
Male	.121	1.128	1.034-1.231	.007
Age				
18-29	Base	1		
30-39	.311	1.365	1.184-1.574	<.001
40-49	.375	1.455	1.271-1.667	<.001
50-54	.376	1.456	1.260-1.682	<.001
55-59	.291	1.338	1.151-1.556	<.001
>=60	.171	1.186	0.990-1.420	.064
Nature of injury				
Sprain and strain	Base	1		
Contusion and bruise	-.251	.778	0.703-0.862	<.001
Laceration and cut	-.280	.756	0.649-0.880	<.001
Fracture	.554	1.740	1.520-1.993	<.001
Multiple injuries	-.132	.877	0.709-1.084	.224
Crushing	-.096	.908	0.719-1.147	.418
Abrasion	-.484	.616	0.448-0.847	.003
Burn - Scald	-.654	.520	0.340-0.795	.003
Irritation	-.709	.492	0.324-0.747	.001
Other	-.787	.455	0.375-0.553	<.001
Minor injury	-.656	.519	0.402-0.670	<.001
Severe injury	.360	1.433	0.994-2.065	.054
Industry¹				
3	-.030	.971	0.796-1.183	.768
4	-.380	.684	0.586-0.797	<.001
5a & b	.649	1.914	1.583-2.315	<.001
5c	.316	1.371	1.159-1.623	<.001
6c	-.379	.684	0.564-0.830	<.001
7	.451	1.569	1.361-1.809	<.001
8	-.612	.542	0.474-0.620	<.001
9	Base	1		
log(day)	.596	1.815	1.753-1.878	<.001
Year of injury	.080	1.084	1.040-1.129	<.001
Proceeded to common law	3.047	21.050	18.561-23.872	<.001

¹ Please refer to Table 2.1 for industry code; industries with missing variables exceeding 99% were excluded.

High settlement cost was expected in construction industry, including both special trades and construction on wages (industry code: 5a & b) and construction on contract value (5c). The independent effect on settlement cost was the highest in workers engaging in special trades and construction on wages [$\exp(\hat{\beta})=1.914$, 95% CI=1.583-2.315, $p<0.001$], instead of those in construction on contract value (1.371, 95% CI=1.159-1.623, $p<0.001$). This suggests that the higher observed settlement cost in construction on contract value was induced by other factors, such as more cases proceeding to common law and suffering from more severe nature of injury. Besides, a strong effect was found in those engaging in transportation, storage, postal and courier services, information and communications (1.569, 95% CI=1.361-1.809, $p<0.001$).

The inclusion of other independent variables in the multivariate model could not fully explain the increase in settlement cost over the study period 2009-2013. The estimate of the parameter year of injury indicates that the cost, after inflation adjusted, statistically significantly ($p<0.001$) increased by 8.4% per annum (95% CI=4.0%-12.9%). Common law, as expected, was the strongest risk factor of settlement cost. About 9.5% of claims in the data (2009-2013) turned into common law claims. Once a claim proceeded to common law, the settlement cost would increase by 21 times [$\exp(\hat{\beta})=21.050$, 95% CI=18.561-23.872, $p<0.001$].

A longer delayed time to claim settlement, which somehow reflects the severity of an injury, is obviously associated with increased cost. The analysis showed that even after controlling for all other factors, length of days between injury and settlement still had a significant effect on settlement cost. The logarithm of the number of days [$\log(\text{day})$] was included in the regression model instead of the direct number, as the residual plots indicated a better fit using $\log(\text{day})$. This log-log relationship with $\hat{\beta}=0.596$ suggests that settlement cost increased with length of delay at a diminishing rate.

The above statistical analysis was conducted to investigate the factors contributing to settlement costs. A trend analyses is then performed to explore what variables contributed to differences in the increasing trends, i.e. what factors had more outstanding increases over time. Specifically, an interaction model was performed by including six interaction terms (year of injury with gender, age, nature of injury,

industry, log(day), and whether proceeded to common law) in the above log-linear regression model. A stepwise selection with adjusted R-square as selection criteria was applied to identify significant interaction effects. In the final model, interaction term for gender was removed, indicating that the increasing trend of settlement cost did not significantly differ between males and females. The final model could explain 69.8% of variation in settlement costs.

Table 4.7

Estimated interaction effects from log-linear regression on settlement cost

Interaction with year	Estimate β	95% CI	p value
Age			
18-29	Base		
30-39	-0.144	-0.269, -0.019	0.024
Nature of injury			
Sprain and strain	Base		
Contusion and bruise	0.104	0.020, 0.187	0.015
Fracture	0.159	0.048, 0.270	0.005
Laceration and cut	0.216	0.080, 0.352	0.002
Other	0.314	0.181, 0.447	<.001
Minor injury	0.375	0.152, 0.598	0.001
Industry			
5c	0.289	0.141, 0.437	<.001
7	0.248	0.128, 0.367	<.001
8	0.208	0.039, 0.377	0.016
9	Base		
log(day)	0.157	0.131, 0.182	<.001

¹ Please refer to Table 2.1 for industry code

Table 4.7 presents the estimated coefficients of interaction terms. Only statistically significant results ($p < 0.05$) are shown. For a categorical variable, the interpretation of estimates depends on the trend of the base group. A set of additional subgroup regression analyses on base groups suggested that after adjusting for other factors, the increase of settlement cost over time was not significant in age group 18-29 ($\hat{\beta} = -0.008$, 95% CI = [-0.115, 0.099], $p = 0.880$), for cases of sprain and strain ($\hat{\beta} = -0.050$, 95% CI = [-0.118, 0.019], $p = 0.158$), and in the industry of public administration, social and personal services ($\hat{\beta} = -0.029$, 95% CI = [-0.094, 0.036], $p = 0.378$). Therefore, a positive estimate in Table 4.7 indicates a significantly increasing trend in the category, while a negative one indicates a decreasing trend over years.

After controlling for other variables, the increase in settlement costs over time could be mainly found from claims involving fracture and some other minor injuries, including laceration and cut, and contusion and bruise. The industry, construction work experienced the most outstanding increase in settlement costs ($\hat{\beta} = 0.289$, 95% CI=0.141-0.437, $p < 0.001$), followed by transportation, storage, postal and courier services, information and communications ($\hat{\beta} = 0.248$, 95% CI=0.128-0.367, $p < 0.001$). A slight increase was also spotted among injured workers engaging in electricity/gas/water/sewerage, waste management and remediation industry ($\hat{\beta} = 0.111$, 95% CI=[-0.013, 0.234]), but the statistical significance was marginal ($p = 0.079$). The statistical significance in log(day) also suggested that the escalated cost due to longer duration between injury and settlement also increased over time. Increase in settlement cost did not differ much across age groups, except a decreasing trend in claims involving injured workers aged 30-39 ($\hat{\beta} = -0.144$, 95% CI=[-0.269, -0.019], $p = 0.024$).

Unexpectedly, a statistically significant but negative estimate was found in whether proceeded to common law (not shown in Table 4.7). The result suggests that claims proceeding to common law has a lower increasing trend in total settlement cost than those not, which apparently contradicts to some existing knowledge (Hong Kong Federation of Insurers, 2015). A detailed investigation on the raw data was done, and it was identified that over half of common law claims under analysis had not yet settled at the time of data retrieval. The proportions of unsettled cases were higher in most recent years, as settlement of common law claims would delay 4.18 years on average (Hong Kong Federation of Insurers, 2015). As cost of an open claim was still accumulating when data was retrieved, this leads to a lower total observed payment.

To examine the independent risk factors on different types of costs, subgroup analyses were then performed separately on five selected cost types, namely statutory claims (medical expense not included), medical expenses, common law awards (award directly received by claimants), claimants' legal costs, and legal expenses of the company. Only closed claims, which could reveal the complete pattern of cost, were used in subgroup analyses. Besides, year of settlement / last payment, instead of year of injury, was used in the regression models to better examine the changes of cost over time. The five selected types of cost have covered 98.3% of observed payout. Tables of

the estimated coefficients from regression models are shown in Table B1-B5 in Appendix.

Results from subgroup analysis are summarised as follows:

- 1) The higher settlement cost among male claims mainly contributed by statutory claims [$\exp(\hat{\beta}) = 1.081$, 95% CI=0.994-1.175, $p=0.069$]. However, males generally had lower medical expenses than females (0.552, 95% CI=0.452-0.674, $p<0.001$).
- 2) Among workers aged between 30 and 59, the effect of age on variation of statutory claims was minimal (1.567-1.672). However, those aged 40-49 received significantly higher award from common law (1.498, 95% CI=1.200-1.872, $p<0.001$) than other age groups, after controlling for other factors. Medical expenses, which accounted for about 1.6% of total payout, was the highest in the age group 60 and above (1.714, 95% CI=1.128-2.605, $p=0.012$), followed by 50-54 (1.706, 95% CI=1.224-2.378, $p=0.002$).
- 3) Claims in construction on contract value had the largest size of statutory claims, common law awards and associated legal costs. Its independent effects (Statutory claims: 1.608, 95% CI=1.306-1.981, $p<0.001$; common law award: 2.845, 95% CI=2.158-3.750, $p<0.001$) were still the strongest after adjustment using log-linear regression models.
- 4) Severe injury was the only significant risk factor among all natures of injury that caused an enormous increase in common law awards and associated legal expenses.
- 5) All types of costs to settle a claim significantly increased over the years observed. The largest rate of increase was observed in medical expenses (1.679, 95% CI=1.538-1.832, $p<0,001$), followed by common law awards (1.442, 95% CI=1.356-1.534, $p<0,001$) and claimants' legal costs (1.392, 95% CI=1.321-1.467, $p<0.001$).
- 6) Whether proceeded to common law was also independently associated with the amount of statutory claims (5.594, 95% CI=4.781-6.545, $p<0,001$) and medical expenses (9.470, 95% CI=6.524-13.747, $p<0.001$). In addition, claimants' legal

costs and legal expenses of the company were highly related to common law. Legal expenses existed in only a few claims without turning to common law. The financial burden of legal costs was heavy. For every dollar spent on common law award, there was an additional 0.65 dollar spent on legal expenses of claimants and the company.

4.4. Summary

In summary, Hong Kong has experienced some improvement in occupational accidents in recent years, as evidenced by the decreasing frequency of EC claims. The decrease was more obvious among males, employees aged less than 40, and those engaged in food and beverage services. However, Hong Kong, as a highly developed city, requires better performance. According to the database from ILO (International Labour Organization, 2015), Hong Kong ranked in the middle in terms of frequency of non-fatal occupational injury. Besides, the high rate of fatal cases in Hong Kong (around 5.2 per 100,000 workers each year) was striking. This mortality rate was similar to Lithuania and Macau, and was higher than a lot of developed countries. In addition, the number of EC claims is expected to rebound in the near future, due to the ageing labour force in Hong Kong.

Despite the improvement in terms of claim numbers and claim rates, the cost to settle EC claims increased in every aspect, including statutory benefits, common law awards, medical expenses, and legal costs. The increase was more outstanding, after adjustment using regression model, in fractures and some minor injuries, such as lacerations and cuts. Larger increase was also observed in industries: construction on contract value (industry code: 5c), transportation, storage, postal and courier services, information and communications (7), and financing and insurance, real estate, professional and business services for industry (8).

Construction industry accounted for about 7-9% of claims each year. Nonetheless, its average settlement cost per claim was much higher than other industries, due to its large size of statutory claims, common law awards and associated legal costs. Although relatively small number, claims from the construction industry constituted a large burden on the current system. Based on the claim data from Company Z, the

construction industry accounted for approximately half of total claim costs, and construction on contract value solely accounted for around one-third of the costs, which is in line with the estimation by a recent actuarial review (Deloitte, 2015).

Severe cases of EC deserve attention and better management, but the large number of injured workers suffering from relatively less severe cases should not be ignored. Each year, about 80% of claims reported to LD had a temporary incapacity less than 2 months. Around 60% of settled claims did not require any assessment on partial permanent incapacity. Among more severe injuries for which such assessments were required, 60% resulted in less than 1% loss of earning capacity. Due to the large number, the minor claims and relatively less severe cases actually shared a significant portion of total statutory benefit payable to injured workers, and possibly generated a substantial amount of administrative cost (which could not be fully covered in this project).

Sprains and strains, as two major types of musculoskeletal disorders, accounted for one-third of EC claims in the claim data. In workplace, sprains and strains “are caused by excessive reaching, bending, lifting, gripping, squatting, or twisting of hands, shoulders or body” (Bonitz, 2015). These types of injuries require a long time to rehabilitate, and will easily turn into chronic conditions. This leads to a great loss in productivity, and more importantly, can greatly influence the psychosocial well-being of workers. The ILO also stated musculoskeletal disorders as one of the new challenges given its rise in many countries in recent years (International Labour Organization, 2014).

Chapter 5 Models of Good practices

5.1. Current Workers Compensation System in Victoria,

Australia

The workers' compensation system in Victoria, Australia has undergone tremendous transformation since 1914. Currently, all current Australian workers' compensation legislation (Schemes) requires employers to provide suitable rehabilitation and RTW services to injured employees. Employers are required by law to retain the position of the injured employee, who is off work due to injury, for a certain period of time (6 to 12 months).

In all Australian schemes, it is a practice that when an employee is injured, rehabilitation, including medical assessment and treatment, will be provided on the day of accident. When an employee is certified by the doctor as having a capacity to work, services specialised in RTW management, will be involved to assist the employee in accordance with medical advice. Then, the employee will be assisted to either perform the same duty or different duties during the recovery period.

Large companies in Australia are required to have a RTW coordinator in the company to manage RTW. Some companies have a policy of injury early intervention programme to manage workplace injuries. Some employers have a designated medical service to provide medical treatment to its employees once an injury occurs – regardless if an injury is arising from or related to employment. The designated medical service is familiar with the employer's work environment and various job tasks. They will work closely with the employer and injured employees to achieve positive RTW outcomes.

5.1.1. Current worker's compensation scheme - WorkSafe

The current workers' compensation scheme in Victoria is named WorkSafe. This scheme is managed by the Victorian WorkCover Authority. The main stakeholders of WorkSafe are:

- Employers and Return-to-Work coordinators
- Employees
- Medical Practitioners (family doctor) and para-medical Services
- Authorised Agents (Insurers) and Case Managers
- Independent Medical Specialists
- Rehabilitation/Return to Work Providers
- Conciliation Service
- District Court

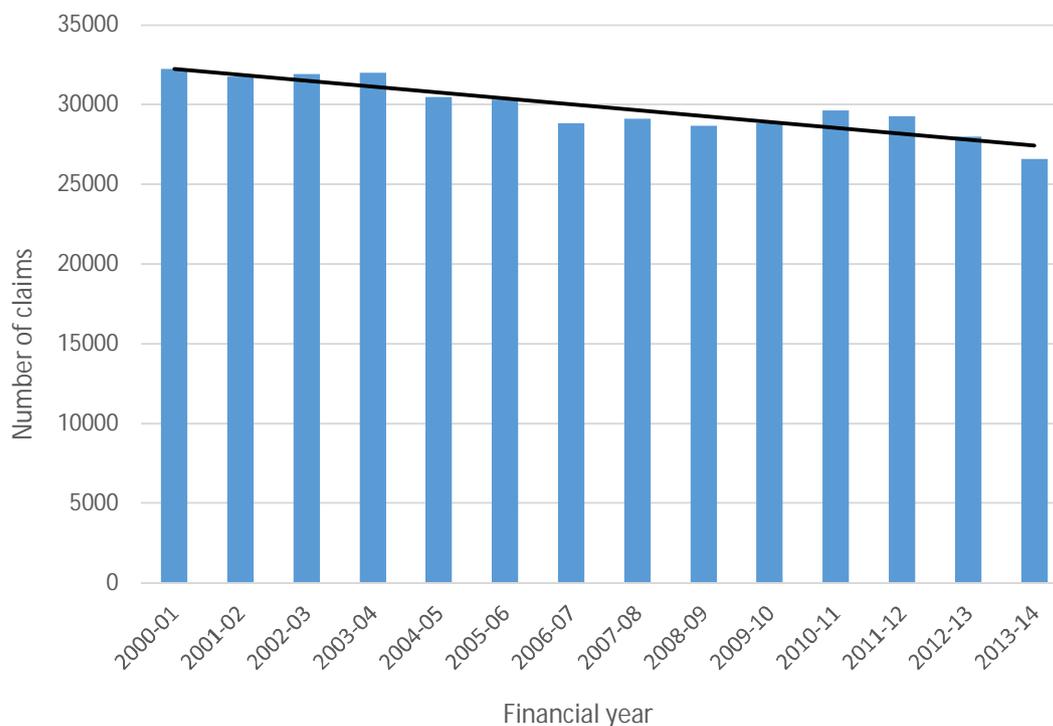
Statistics published by the WorkSafe Victoria in their Annual Reports from 2000-01 onwards demonstrated the positive outcomes in safety, rehabilitation, and claims management in the State of Victoria. The progressive success had been achieved over a number of financial years in the reduction of:

1) *the number of claims*

The number of claims submitted per financial year followed a decreasing trend since 2000-01, from over 32,000 claims to around 26,500 claims.

Figure 5.1. Number of reported claims per financial year in Victoria, Australia

Data sources: WorkSafe Victoria Annual Report 2005-2014



2) *the number of claims per 1,000 workers / million hours works*

From 2000-01 to 2010-11, the number of claims per 1,000 workers reduced by 27.3%, from 14.23 to 10.34. Since then, another measure, namely the number of claims per million hours worked, was used instead number of claims per 1,000 workers, as it provides a better measurement of performance by taking into account workers' exposure to risk (WorkSafe Victoria, 2013). From 2011-12 to 2012-13, this measure also reduced from 8.06 to 7.53.

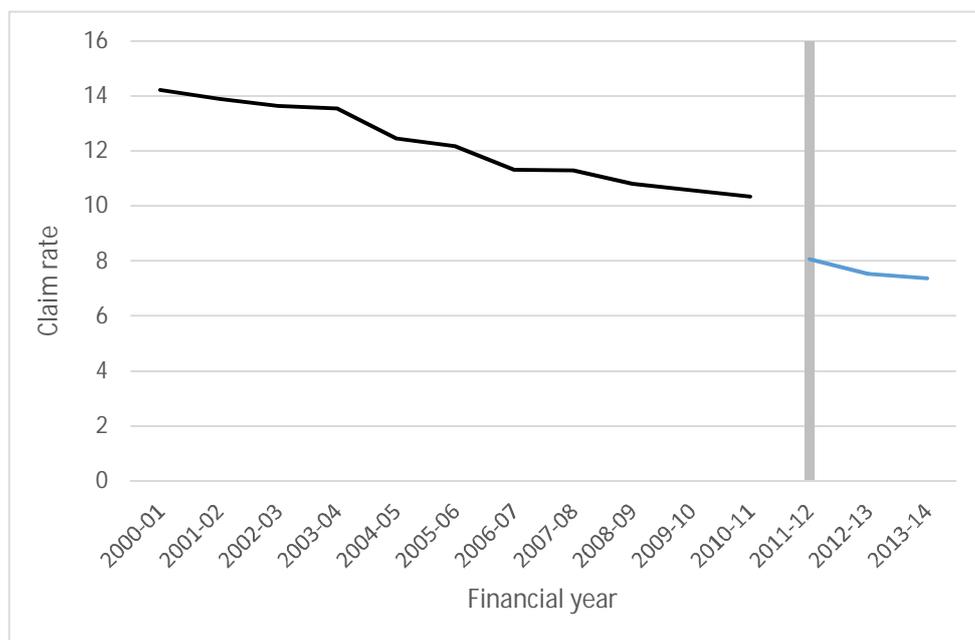


Figure 5.2. Number of claims per 1,000 workers / million hours worked in Victoria, Australia

Data sources: WorkSafe Victoria Annual Report 2005-2014

3) *the number of fatalities*

From 2000-01 to 2013-14, the number of fatalities greatly decreased from 31 to 20, despite an increase in the number of workforce during the same period (Australia Bureau of Statistics, 2015).

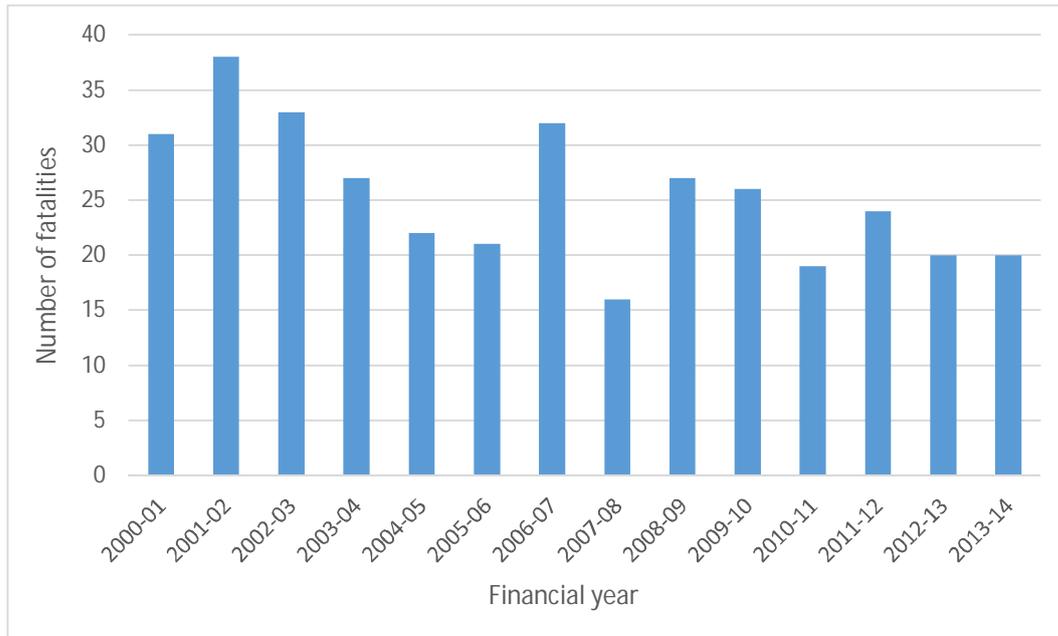


Figure 5.3. Number of reported fatalities per financial year in Victoria, Australia
 Data sources: WorkSafe Victoria Annual Report 2005-2014 (traffic incidents on public roads included)

4) *workers not yet at work 6 months after injury*

Longer time of an injured worker being out-of-work is associated with a lesser chance of RTW and more suffering of secondary issues (WorkSafe Victoria, 2013). WorkSafe is highly aware of the problem, and therefore introduced an index, namely “workers not yet at work six months after injury”, for surveillance. From June 2011 to June 2014, the proportion of workers being out-of-work for more than 6 months reduced from about 22% to 20%.



Figure 5.4. Proportion of workers not yet at work six months after injury in Victoria, Australia

Figure from WorkSafe Victoria Annual Report 2014

5.1.2. How can Hong Kong learn from Australia?

After an injury occurs, the highest priority is the restoration of an injured employee's normality of life as soon as possible. Firstly, medical services should be available with the focus on early injury intervention and prevention of deterioration of injury conditions. Other service providers, such as those in rehabilitation services and injury management, supporting the recovery of injured employees, should concentrate on providing the earliest possible intervention in the restoration of work capacity. This is to ensure that injured employees will RTW safely and quickly, under the guidance from all relevant disciplines in the process.

A simple and integrated workers' compensation administrative system ensures efficient handling of relevant compensation entitlements and reduces excessive waiting time for employees to receive their benefits, so to avoid unnecessary psychological and financial burden to injured employees and their families in the process. It could also enhance the chance of early RTW.

With better safety management, early injury intervention and effective healthcare services, an injured employee is able to return to work safely and in a durable manner. This will subsequently reduce the number of common law claims, the workload on the

judicial system and the financial burdens to the injured employees and their families.

WorkSafe, Victoria, Australia has demonstrated much success in shifting its focus from compensation to safety at work and return to work through a process of continuous improvement in legislation and management of workers' compensation system. This change took 30 years to happen. The lessons learnt in the process could give the local EC system pointers on making effective changes in shorter time.

5.2. Occupational Health Centres

There is two intervention management centres in Hong Kong which can meet the needs of injured employees in Hong Kong (Civil Service Bureau, 2012).

The Government established two Occupational Health Centres (OHC) under the Hospital Authority (HA) management, to provide early intervention for Government employees and staff from the HA Hong Kong East Cluster, who suffer from injuries on duty (IOD) or occupational diseases. The two OHCs locate at Pamela Youde Nethersole Eastern Hospital (PYNEH) and Queen Elizabeth Hospital (QEH). The research team had a site visit at the PYNEH OHC. The OHC aims to help the injured workers RTW safely and promptly. The waiting time for an initial appointment is usually within the first three days of injury with a maximum 1-week waiting time. Each case will have a case manager to follow-up on the rehabilitation and RTW process. Beside the case manager, OHC has a professional team to take care of patients. The team is composed of nurses, physicians of occupational medicine, orthopaedic specialists, pain specialists, physiotherapists and occupational therapists. OHC is a well-equipped environment for functional capacity assessments and occupational rehabilitation programmes. The OHC team also aims to maintain and enhance the health and well-being of patients. The team has daily meetings to discuss RTW plans of patients. Nurses at the Centre act as case-managers, who provide psychological support, counselling, and education to patients, and also negotiate with workers' employers on RTW arrangement. After a worker returns to work, the case-manager will follow-up with the worker for a period of time, including evaluation of the worker's work capacity, health and safety, hazard in the workplace, and communication with the employers.

The OHC did a lot of promotion and education on occupational health and hazard control to prevent IOD. The service is completely free of charge. However, this service is only available to government employees (and HA Hong Kong East Cluster's staffs for the centre at PYNEH). The OHC provides an excellent model of early injury intervention management, and early but safe and prompt RTW. This service delivery model should be made available to all injured employees in Hong Kong.

5.3. MORE Programme

The MORE programme, which was initiated by the Department of Orthopaedics and Traumatology of CUHK, is a research project carried out at the Prince of Wales Hospital (PWH).

In general, injured workers suffering from work-related low back pain receive treatment and rehabilitation service in current public healthcare system in the same queue as other patients. This approach leads to:

- 1) Lack of coordination among healthcare professionals, also known as service fragmentation;
- 2) Failure of prompt referral to appropriate service; and
- 3) Lack of communication among stakeholders.

Many injured workers, therefore, miss the “golden time” of appropriate treatment, resulting in prolonged duration of sick leave, reduced chance of RTW, or even development of chronic disability.

The MORE programme, which aims to promote early RTW of injured workers suffering from low back pain, was established in 2011. The underlying philosophy of the programme is early intervention and improvement of management by developing an integrated and coordinated rehabilitation platform through a case management approach, such that patients do not miss the “golden time” of treatment. There are mainly three elements that differentiate the programme from conventional public healthcare:

- 1) The involvement of a case manager whose role is to monitor the progress of every case and act as a liaison person among stakeholders, including

healthcare providers, employers, employees and insurers;

- 2) Early intervention including early magnetic resonance imaging (MRI) scanning for patients, funded by Employees' Compensation Fund, for prompt biological clearance and reduction of clinical uncertainty. This enables orthopaedic doctors to make decisions about treatments that are most appropriate to patients at the early phase of injuries; and
- 3) The alignment of public systems and unutilised private resources.

For more detailed information about the MORE programme, such as the flow of study design, the role and duty of the case manager, and the inclusion / exclusion criteria of case recruitment, please refer to the programme website (more.ort.cuhk.edu.hk/MORE/index.html) and Law et al. (in press).

One of the scopes covered by the project is to evaluate the effectiveness of the programme as an independent researcher. An interim report, based on 245 patients recruited up to November 2013, was submitted in April 2015. Since then, the CUHK research team had provided our team with an updated version of the data set in July 2015, which contained an increased sample size of 332. The analyses conducted for preparation of the interim report were completed again on the updated sample and yielded the same conclusions from the last round. The following section presents the same findings in the interim report with updated figures and numbers using the latest data set.

5.3.1. Patient characteristics

Table 5.1

Characteristics of injured employees participating in the MORE programme

	<u>Intervention</u> (N=182)	<u>Control</u> (N=150)
<u>N (% of column total)</u>		
Gender		
Male	127 (69.8)	101 (67.3)
Female	55 (30.2)	49 (32.7)
Occupation¹		
Professionals / Technicians and Associate professionals / Clerical support	20 (11.0)	13 (8.7)
Service and sales	50 (27.5)	35 (23.3)
Agricultural / Craft / Plant and machine	79 (43.4)	61 (40.7)
Elementary	33 (18.1)	37 (24.7)
Level of education attainment		
Primary	27 (14.8)	
Secondary	145 (79.7)	
Tertiary	6 (3.3)	
<u>Mean (SD)</u>		
Age at injury	41.7 (10.7)	41.7 (10.9)
BMI	24.0 (3.9)	
OMPQ at initial assessment	126.7 (23.0)	
NPRS at initial assessment	6.0 (2.0)	
RMDQ at initial assessment	13.9 (4.7)	

Table 5.1 summarised the socio-demographic, psychosocial, and physical characteristics of injured workers joining the programme. Among 332 participants, 228 (68.7%) were males and 104 (31.3%) were females. The average age at injury was 41.7, with a SD of 10.7. The intervention group and the control group had similar gender (Chi-square test: $\chi^2=0.229$, $df=1$, $p=0.632$) and age distribution (two sample t-test: $t=0.04$, $df=330$, $p=0.965$), with no statistically significant difference detected. There were slightly less proportion of patients working as elementary workers in the MORE group (N=33; 18.1%) than the control group (N=37; 24.7%), but the overall occupation distribution showed no significant between-group variation ($\chi^2=2.757$, $df=3$, $p=0.431$).

Table 5.2 summarised the descriptive statistics of the 8 outcome measures used to evaluate the effectiveness of the MORE programme. For count data, in brief, better outcomes could be observed in all measures, with shorter duration of sick leave and

lower number of attendees to different therapy and consultation sessions. Duration of sick leave was, on average, reduced by 8 to 9 months, from 507.7 days (SD=302.0) in the control group to 257.4 days (SD=209.4) in the intervention group. The mean number of physiotherapy sessions under public sector reduced by almost 40% (from 25.0 to 15.6), but this reduction of sessions in public sector is fully compensated by the increasing number of sessions under private sector (mean=10.6), which is one of the most important interventions of the MORE programme and therefore is only applicable to patients allocated to the MORE group. Prominent reduction could also be found in the utilisation of occupational therapy and consultation session.

For time-to-event data, patients participating in the MORE group also achieved better outcomes in terms of a greater number of successful events and shorter waiting periods. 63.2% (N=115) of injured workers in the intervention group successfully returned to work for at least a month, while the corresponding figure in the control group is only 31.3% (N=47). The average time between injury and all critical events were also halved in the MORE group. Under the conventional care of current public healthcare system, injured patients spent over a year on average until RTW (16.1 months) and around a year until MAB referral (11.5 months), and 1.8 years until MAB completion (21.9 months) or direct settlement (21.6 months). These events occurred much earlier in the intervention group. However, as the MORE programme is still ongoing and patients are actively under treatment and care, data can be viewed as incomplete with non-informative censoring. A survival model is required to analyse the data for better understanding of the phenomena.

Table 5.2

Summary of outcome measures of the MORE programme [mean (SD)]

	<u>Intervention</u> (N=182)	<u>Control</u> (N=150)
<u>Count data</u>		
Sick leaves (days)	257.4 (209.4)	507.7 (302.0)
Physiotherapy		
- Public	15.6 (17.2)	25.0 (17.3)
- Private	10.6 (8.3)	-
Occupational therapy	5.6 (12.0)	13.7 (19.3)
Consultation	6.6 (2.9)	8.9 (5.2)
<u>Time-to-event data (month)</u>		
Return-to-work		
- Number (% of column total)	115 (63.2)	47 (31.3)
- Mean time	8.9 (6.7)	16.1 (11.2)
MAB referral		
- Number (% of column total)	180 (98.9)	128 (85.3)
- Mean time	5.4 (2.6)	11.5 (5.6)
MAB completion		
- Number (% of column total)	111 (61.0)	69 (46.0)
- Mean time	11.5 (5.0)	21.7 (9.0)
Direct settlement		
- Number (% of column total)	33 (18.1)	12 (8.0)
- Mean time	13.1 (5.5)	21.6 (12.4)

5.3.2. Effectiveness of the MORE programme

Count data

Table 5.3 shows the resulted IRRs of four count outcomes, total days of sick leave, number of public physiotherapy sessions, number of occupational therapy sessions and number of consultations, from negative binomial regression. For duration of sick leave, the unadjusted IRR for the intervention group was 0.503 (95% CI=0.427-0.591; $p<0.001$), indicating that duration of sick leave in the intervention group, on average, were 49.7% (95% CI=40.9%-57.3%) shorter than the control group. Statistical significance could also be observed in occupation. Workers engaging in agricultural / craft / plant and machine, and elementary occupation had a longer duration of sick leave

than those working as professionals / technicians and associate professionals / clerical support. After adjusting for age, gender and occupation, the intervention effect was still significant ($p < 0.001$). IRR for the intervention group became 0.498 (95% CI=0.423-0.586), indicating that the intervention could reduce duration of sick leave by 50.2% after adjusting the effect of socio-demographic covariates. Significant reduction could also be identified in number of attendees to public physiotherapy, occupational therapy and consultation in the MORE group. After adjusting for covariates, the number of public physiotherapy sessions reduced by 40.1% (adjusted IRR=0.599; 95% CI=0.477-0.752; $p < 0.001$), the number of occupational therapy sessions by 64.7% (0.353; 95% CI=0.206-0.607; $p < 0.001$), and the number of consultations by 25.4% (0.746; 95% CI=0.667-0.835; $p < 0.001$).

Table 5.3

Incidence rate ratios (IRRs) from negative binomial regression

Variables	Unadjusted IRR	Adjusted IRR
<u>Sick leave</u>		
Group¹		
Intervention	0.503 (0.427-0.591)*	0.498 (0.423-0.586)*
Age	1.005 (0.996-1.014)	1.001 (0.993-1.009)
Gender²		
Male	1.101 (0.911-1.330)	1.250 (1.009-1.548)*
Occupation³		
Service and sales	1.302 (0.942-1.800)	1.161 (0.857-1.573)
Agricultural / Craft / Plant and machine	1.448 (1.067-1.966)*	1.515 (1.131-2.028)*
Elementary	1.449 (1.039-2.022)*	1.228 (0.901-1.673)
<u>Public physiotherapy</u>		
Group¹		
Intervention	0.625 (0.499-0.783)*	0.599 (0.477-0.752)*
Age	1.015 (1.003-1.026)*	1.016 (1.004-1.027)*
Gender²		
Male	1.114 (0.870-1.428)	1.138 (0.852-1.520)
Occupation³		
Service and sales	0.979 (0.639-1.500)	0.851 (0.559-1.295)
Agricultural / Craft / Plant and machine	1.051 (0.703-1.572)	1.043 (0.699-1.555)
Elementary	1.036 (0.668-1.608)	0.870 (0.566-1.337)
<u>Occupational therapy</u>		
Group¹		
Intervention	0.411 (0.258-0.656)*	0.353 (0.206-0.607)*
Age	1.009 (0.984-1.035)	1.018 (0.991-1.045)
Gender²		
Male	1.193 (0.713-1.994)	1.139 (0.610-2.124)
Occupation³		
Service and sales	1.665 (0.686-4.039)	1.325 (0.540-3.251)
Agricultural / Craft / Plant and machine	1.679 (0.727-3.876)	1.543 (0.666-3.573)
Elementary	2.019 (0.811-5.024)	1.075 (0.415-2.785)
<u>Consultation</u>		
Group¹		
Intervention	0.744 (0.666-0.832)*	0.746 (0.667-0.835)*
Age	1.002 (0.996-1.007)	1.001 (0.996-1.007)
Gender²		
Male	1.051 (0.928-1.189)	1.044 (0.902-1.207)
Occupation³		
Service and sales	1.055 (0.850-1.309)	1.034 (0.836-1.278)
Agricultural / Craft / Plant and machine	1.045 (0.852-1.282)	1.046 (0.851-1.285)
Elementary	1.092 (0.875-1.363)	1.041 (0.839-1.292)

* $p < 0.05$

¹ Control group as base

² Female as base

³ Professionals / Technicians and Associate professionals / clerical support as base

Time-to-event data

Figure 5.5 depicts 4 plots of survival functions, using Kaplan-Meier estimator, of four outcome events, RTW, MAB referral, MAB completion, and direct settlement, within the first 24 months following the date of IOD. The average follow-up period of patients was 20.4 months (SD=13.1). It is noteworthy that the two survival curves, intervention group (blue line) vs. control group (red line), are different in each of the four outcome. Log-rank tests (df=1) also showed very strong statistical significance (all $p < 0.001$) in all outcome events (RTW: $\chi^2 = 61.715$; MAB referral: $\chi^2 = 165.374$; MAB completion: $\chi^2 = 68.436$; direct settlement: $\chi^2 = 32.886$).

Taking Figure 5.5a, which shows the cumulative probability of “surviving” from RTW in the first 2 years following injury, as an example, there were 115 events (i.e. successful RTW) observed from the intervention group and 47 events from the control group. For the MORE group, the estimated survival function at month 12 $[\hat{S}(12)]$ was 0.493 (95% CI=0.415-0.566). This indicates that the cumulative probability of successful RTW among patients participating in the intervention group within 1 year following IOD $[\hat{F}(12) = 1 - \hat{S}(12)]$ was 50.7% (95% CI=43.4%-58.5%). The corresponding probability in the control group was only 12.5% (95% CI=7.9%-19.3%). Injured workers who suffered from low back pain and were treated under the public healthcare system only had a 28.2% chance (95% CI=21.0%-37.2%) of RTW within 2 years after injury. It is also worth noting the shapes of the two curves. The red curve (control group) shows quite a linear decreasing trend, suggesting that the likelihood of RTW was stably uniform across the 2-year period. On the contrary, the concave shape of the blue curve (intervention group) indicates that the probability of RTW was higher in the beginning, especially the sharp decline between 3-month and 8-month of follow-up which reflected a very high chance of RTW. The curve was flattened afterwards, suggesting reduced likelihood of event.

Times to MAB referral and completion were greatly reduced in the MORE group. 50% of cases (median) could be referred within 5.3 months (95% CI=4.6-5.7). The probability of referral to MAB was 0.626 (95% CI=0.557-0.696) within the first half-year after IOD and almost all patients (0.977; 95% CI=0.946-0.992) could be referred within 1 year. The corresponding figures among patients allocated to the control group

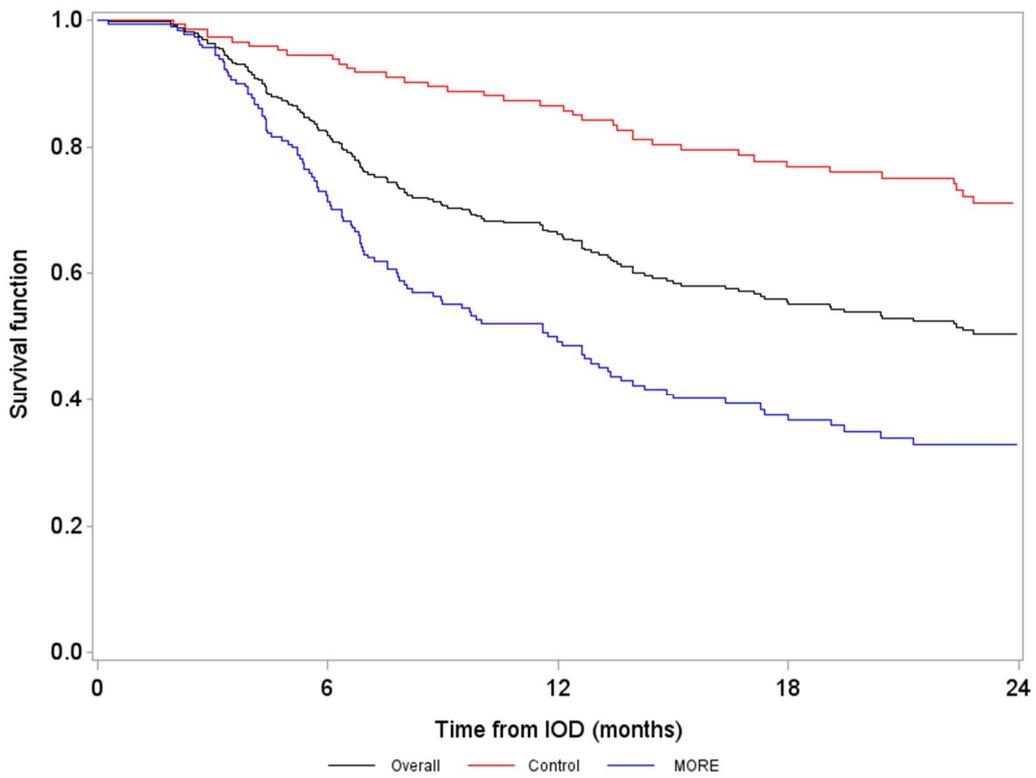
were only 0.126 (95% CI=0.081-0.192) and 0.509 (95% CI=0.429-0.595), respectively. The median time to MAB referral extended to 11.9 months (95% CI=10.0-13.0). The completion of MAB started usually at least after half-year following injury. Patients in the MORE group has a 46.6% chance (95% CI= 39.1%-54.8%) of completing MAB within a year and a 75.6% chance (95% CI= 67.3%-83.2%) within 2 years of follow-up. The median time to MAB completion was 12.3 months (95% CI=11.6-14.7). These greatly outperformed patients in the control group, with corresponding figures 6.3% (95% CI=3.2%-12.2%), 37.1% (95% CI=28.8%-46.8%), and 29.4 months (95% CI=24.6-35.5; not shown in the graph). Patients treated under the MORE programme also had a much higher chance of accepting direct settlement. Their probability of accepting direct settlement was 16.3% (95% CI=10.6%-24.6%) within 1 year after injury, when compared with 3.9 (95% CI=1.7%-9.2%) in the control group. The estimated probabilities of four outcome events, within 6 months, 1 year and 2 years following IOD, are summarised in Table 5.4.

Table 5.4

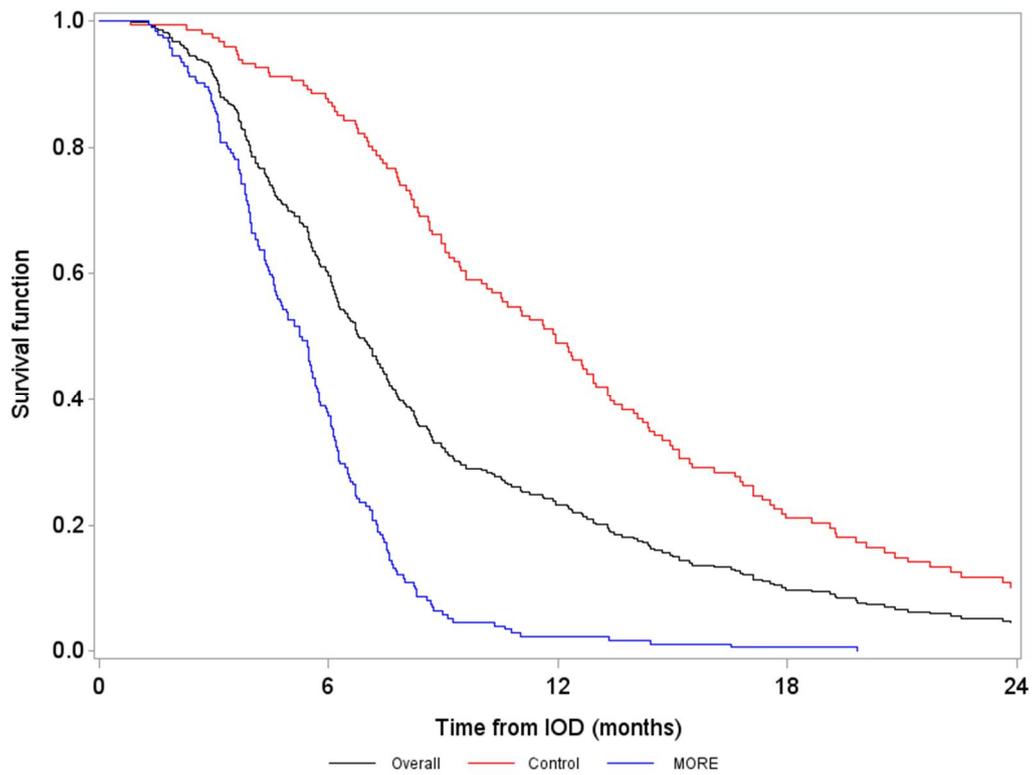
Estimated probability of RTW, MAB referral, MAB completion, and direct settlement, within 6 months, 12 months, and 24 months [% (95% CI)]

Outcome	6 months	12 months	24 months
<u>Return-to-work</u>			
Intervention	28.8 (22.7-36.1)	50.7 (43.4-58.5)	67.2 (59.4-74.8)
Control	4.2 (1.9-9.1)	12.5 (7.9-19.3)	28.2 (21.0-37.2)
<u>MAB referral</u>			
Intervention	62.6 (55.7-69.6)	97.7 (94.6-99.2)	1
Control	12.6 (8.1-19.2)	50.9 (42.9-59.5)	90.3 (84.5-94.6)
<u>MAB completion</u>			
Intervention	4.6 (2.3-8.9)	46.6 (39.1-54.8)	75.6 (67.3-83.2)
Control	0.7 (0.1-5.1)	6.3 (3.2-12.2)	37.1 (28.8-46.8)
<u>Direct settlement</u>			
Intervention	0.6 (0.1-4.3)	16.3 (10.6-24.6)	45.2 (31.9-61.0)
Control	0	3.9 (1.7-9.2)	6.6 (3.1-13.7)

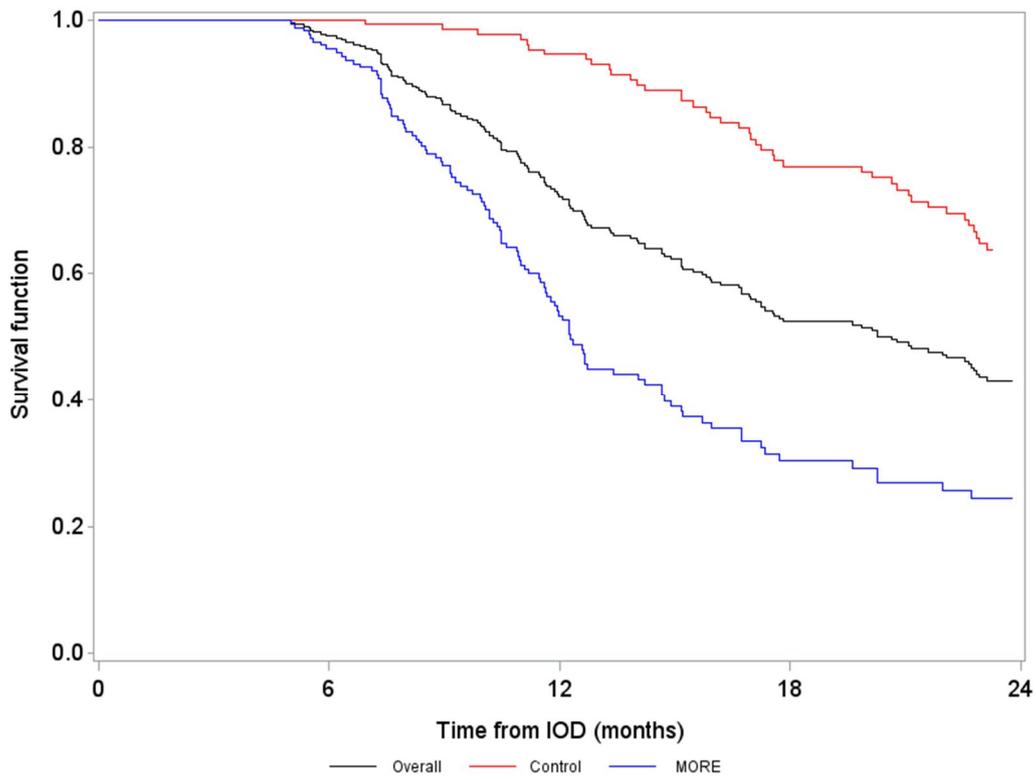
a)



b)



c)



d)

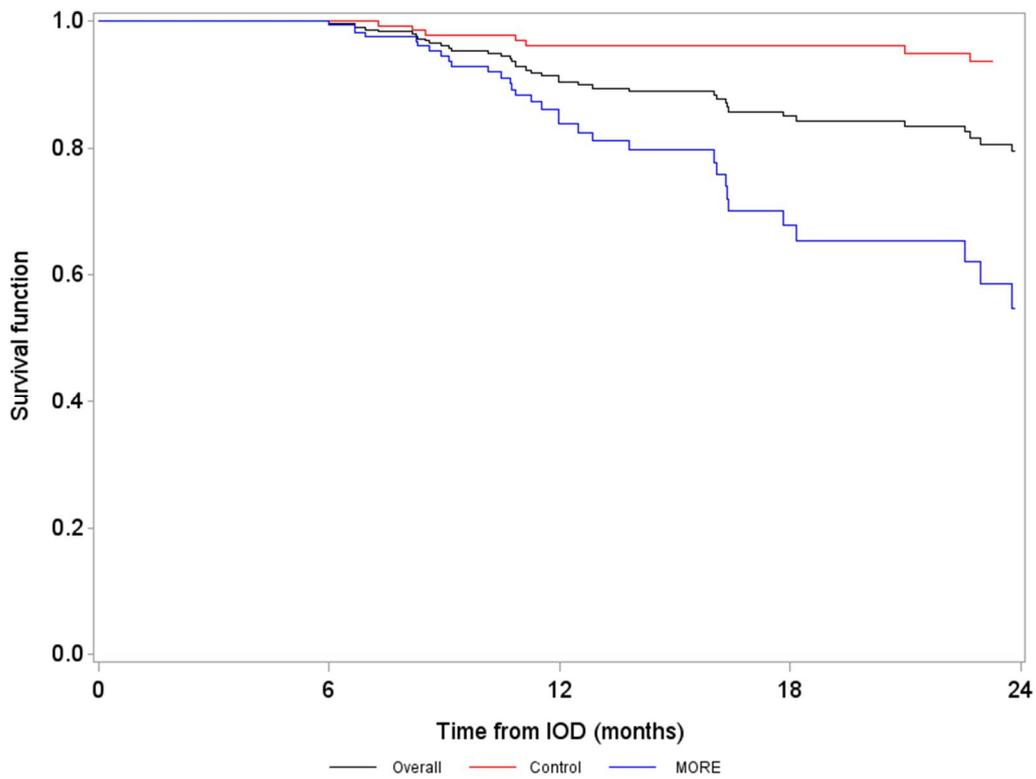


Figure 5.5. Estimated Kaplan-Meier survival function of a) RTW, b) MAB referral, c) MAB completion, and d) direct settlement

A WLW marginal approach of Cox-type regression was then performed to examine the factors associated to the four outcome events. The resulted adjusted HRs are summarised in Table 5.5. The variable intervention group of all four outcomes, after adjusting for other socio-demographic variables, remained strongly significant ($p<0.01$). This provides more solid evidence on the independent effect of the intervention. The adjusted HR for RTW was 4.06 (95% CI=2.82-5.85), indicating that patients in the MORE group had 4.06 times higher “hazard” of RTW compared to their control counterparts. The chance of MAB referral, MAB completion and direct settlement greatly inflated 5.80 (95% CI=4.29-7.83), 4.04 (95% CI=2.90-5.63) and 7.80 (95% CI=3.35-18.17) times, respectively. In addition, it was shown that the likelihood of MAB referral and MAB completion was significantly affected by age. Increasing age was associated with decreasing likelihood of MAB referral (HR=0.99; 95% CI=0.97-1.00, $p=0.01$) and MAB completion (0.98; 95% CI=0.97-1.00, $p=0.04$). However, patients who engaged in agricultural / craft / plant and machine had a lower chance of RTW (HR=0.53; 95% CI=0.33-0.84, $p=0.01$) than those working as professionals / technicians and associate professionals / clerical support.

Table 5.5

Adjusted hazard ratios (HRs) for RTW, MAB referral, MAB completion, and direct settlement, from WLW marginal model (95% CI)

Variables	Return -to-work	MAB referral	MAB completion	Direct settlement
Group¹				
Intervention	4.06 (2.82-5.85)*	5.80 (4.29-7.83)*	4.04 (2.90-5.63)*	7.80 (3.35-18.17)*
Age	0.99 (0.97-1.01)	0.99 (0.97-1.00)*	0.98 (0.97-1.00)*	1.02 (0.99-1.05)
Gender²				
Male	0.74 (0.49-1.14)	1.19 (0.90-1.56)	1.08 (0.73-1.61)	0.62 (0.26-1.48)
Occupation³				
Professionals / Technicians and AP / clerical support	1.24 (0.78-1.98)	1.30 (0.89-1.88)	1.41 (0.83-2.39)	0.38 (0.09-1.62)
Agricultural / Craft / Plant and machine	0.53 (0.33-0.84)*	0.93 (0.66-1.33)	1.08 (0.69-1.68)	0.56 (0.24-1.31)
Elementary	0.66 (0.39-1.12)	1.21 (0.85-1.73)	1.33 (0.81-2.19)	0.86 (0.32-2.28)

* $p<0.05$

¹ Control group as base

² Female as base

³ Service and sales as base

⁴ No event occurred

Mediation effect

The previous two sessions have illustrated the strong intervention effect of the MORE programme through examination of 8 different outcome measures. However, strong correlations existed between some of the outcomes. Therefore, the effect of intervention on some of the outcomes may be mediated through other measures, reflecting an indirect (mediation) instead of a direct effect. For example, the number of attendees to public physiotherapy sessions is positively associated with the total duration of sick leave (Pearson correlation=0.388; $p<0.01$), as one can expect that a patient will receive more sessions of physiotherapy treatment if he / she suffers from a longer exposure of disability. Thus, the intervention effect of the MORE programme on reduced number of physiotherapy sessions may be mediated through the reduced duration of sick leave, instead of a direct effect from intervention. Figure 5.6 visualises this relationship.

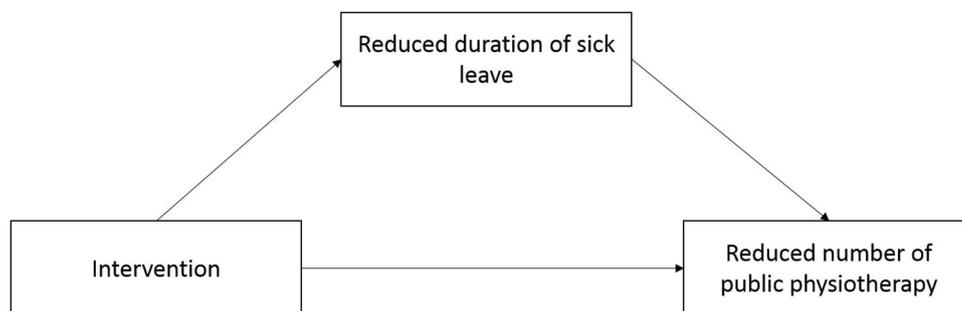


Figure 5.6. Intervention effect on number of attendees to public physiotherapy sessions, mediated through duration of sick leave

To better understand the effectiveness of the MORE programme, the following four possible mediation effects would be examined in this session:

- i. The effect of intervention to the number of public physiotherapy session was mediated through duration of sick leave, which was considered as a proxy of the duration of exposure in disability;
 - ii. Number of occupational therapy sessions was mediated through duration of sick leave;
 - iii. Number of consultation sessions was mediated through duration of sick leave;
- and

- iv. Time between MAB completion and injury was mediated through the waiting time of MAB referral.

The above subsections have demonstrated significant effects of the MORE programme on two possible mediators, namely, duration of sick leave and time to MAB referral. An additional regression model for each of the 4 considered outcomes, by including the mediator into the regression equation as independent variable, was compiled to test the mediation effect. Results of the 4 regression models are summarised in Table 5.6. Only adjusted IRRs / HRs of interest were reported. Point estimates of mediation effects were calculated. A bootstrapping method (Preacher & Hayes, 2008), with 500 resamples, was then applied to evaluate their statistical significance. A bootstrap 95% confidence interval not containing 0 indicates a statistically significant indirect effect at 5% level of significance.

For public physiotherapy sessions, bootstrapping method suggested significant mediation effect through duration of sick leave (-0.836×10^{-3} ; 95% CI=[-1.165, -0.531]). The direct effect of intervention, as indicated by adjusted IRR, had also reduced from 0.498 (Table 5.3) to 0.744 (95% CI=0.592-0.935), but it remained statistically significant ($p=0.011$). This suggests that the effect of MORE intervention on reducing number of public physiotherapy sessions was partly mediated through shortened sick leave, while it had some direct influence on the outcome, probably due to the emergence of the private physiotherapy sessions. Significant mediation effects could also be found in number of occupational therapy sessions (-2.280×10^{-3} ; 95% CI=[-3.258, -1.672]) and number of consultations (-0.719×10^{-3} ; 95% CI=[-0.968, -0.509]). However, the insignificant IRRs suggested no direct effect from the intervention, reflecting that the intervention effects on reduced number of both occupational therapy sessions and consultations were completely mediated through shorter period of sick leave. The MORE programme has no direct intervention effect on their reductions. For MAB completion, again, the mediation effect of waiting time to MAB referral was significant, as indicated by the bootstrap confidence interval. The reduced but remained significant HR for intervention group (2.278; 95% CI=1.537-3.378; $p<0.001$) suggested that the intervention could directly and effectively reduce the waiting time between MAB referral and MAB completion.

Table 5.6

Regression results for testing mediation effect (95% CI)

Variables	<u>Regression</u>		<u>Mediation effect [$\times 10^{-3}$]</u>	
	Adjusted IRR/HR	<i>p</i>	Estimate	Bootstrap 95% CI
<u>Public physiotherapy</u> ^a			-0.836	-1.165, -0.531
Group¹				
Intervention	0.744 (0.592-0.935)	0.011*		
<u>Occupational therapy</u> ^a			-2.280	-3.258, -1.672
Group¹				
Intervention	0.758 (0.435-1.322)	0.329		
<u>Consultation</u> ^a			-0.719	-0.968, -0.509
Group¹				
Intervention	1.008 (0.904-1.124)	0.888		
<u>MAB completion</u> ^b			-152.74	-260.54, -99.78
Group¹				
Intervention	2.278 (1.537-3.378)	<0.001*		

* $p < 0.05$

Note: only adjusted IRRs / HRs of interest were reported.

¹ Control group as base

^a Negative binomial regression

^b Cox proportional hazards model

How do the MORE programme help?

The MORE programme provides an early referral to doctors and assessment. Participants of the semi-structured interviews, recruited from the MORE group, agreed that the programme have helped them a lot after injury, in terms of time saving, money, and psychological well-being. One man said:

I would like to thank this programme. Before joining this programme, I spent a lot of money to visit different doctors for medical consultation. Now I only visit the doctor at PWH. He understands and cares about my pain.

Some injured workers mentioned that they might have had to wait for 2 years until meeting the orthopaedic doctor at the public hospital if not for the MORE programme. Some spent a huge amount on seeing private clinic doctors, orthopaedics on bone setting (跌打), and multiple scans before joining the programme. A man from the out-

patient clinic said:

After the injury, the nurse told me that I have to wait for up to 2 years to see the orthopaedic doctor at the public hospital. I was shocked. The MORE programme officer approached me and introduced the programme. I joined immediately because I want to have early medical consultation from the orthopaedic doctor. I can't imagine what it would be like if I had to follow the 2-year waiting period.

Some participants expressed that they felt less stressed after meeting the professional orthopaedic doctor. One mentioned:

I feel better after meeting the orthopaedic doctor. He provides professional support and encourages me to do physical therapy.

No prominent difference could be identified between the 16 cases with a case manager and the 4 cases recruited directly from PWH OSPC. However, lower status of psychosocial well-being was observed from the 4 cases recruited from the ARIAV, who lacked both early intervention and case management approach. This suggests that early referral and assessment was more important to the workers' psychosocial well-being. The involvement of a case manager in the MORE programme can act as a catalyst for initiating the early intervention and as a liaison among different stakeholders, but its role on patients' psychosocial well-being was not evident at this stage.

Injured employees in the current public healthcare system

The sample of patients from the control group offered valuable information to examine the service performance of the system for injured employees - although it is a biased sample which might not be able to represent either the full spectrum of work-related injuries or low back pain alone. Given the limited access to relevant data at present, it is believed that this sample provided some good empirical information with which to examine the average experience of injured employees requiring long-term care and those receiving treatment in the current public healthcare system of Hong Kong.

Based on the analyses above, their experience in the public healthcare system was

summarised as follows. On average,

- 1) They were on sick leave for 1 year and 5 months;
- 2) They attended about 25 sessions of public physiotherapy, 14 sessions of occupational therapy and 9 sessions of consultation;
- 3) They had a 4.2% likelihood of RTW within half year and a 12.5% chance within a year;
- 4) The median time to MAB referral and completion was 11.9 and 29.4 months respectively; and
- 5) They had a 6.6% chance of receiving direct settlement within 2 years.

5.4. Summary

To help workers suffering from work-related injuries, early intervention, which facilitates early rehabilitation, is critical. It is not only about productivity and human resources, but also about restoring and enhancing psychosocial well-being of the workers and their families. Through statistical analyses, early intervention, with an integrated and coordinated rehabilitation platform through case management approach, was shown to effectively increase the chance of RTW of injured workers and reduce their duration of sick leave. Qualitative interviews on the participants of the MORE programme also showed that patients' psychological well-being improved, due to time saving, ease of financial burden, and the feeling of being cared for. In addition, due to shortened exposure to disability as evidenced by reduced duration of sick leaves, injured workers participating in the programme required fewer sessions of occupational therapy and consultation in public hospitals, even though no direct effect could be drawn about the programme on the reduction in the number of sessions required. This finding implies substantial saving of public healthcare resources.

Successful and effective models of occupational rehabilitation do exist in Hong Kong. However, their coverage are limited due to a lack of resources. To meet the current needs in Hong Kong, their success and knowledge should be promoted in different settings.

Chapter 6 Where is the Gap in the System?

Findings on the patterns observed in EC claims between 2007 and 2013 described in Chapter 4 offered insights into factors associated with the increasing trend in settlement costs. The largest costs incurred in claims that involved litigation processes, especially those proceeded to common law, and from the lengthy settlement process in general. In addition to the financial burdens across various sectors in the society, litigation action and lengthy settlement process also bring negative impact on the well-being of injured workers, such as posing social and psychological barriers in the process of occupational rehabilitation.

In managing workplace injuries, mounting evidence in research supports active occupational rehabilitation in recognition of the sustainable benefits it brings to injured workers in restoring quality-of-life and to the EC system in reduction of costs. (Chan & Zhuo, 2011; Law et al., in press). The project's evaluation on the MORE Programme detailed in chapter 5 also illustrated the effectiveness of such program in shortening time in various processes in the settlement period, such as those in healthcare and MAB. The approach to facilitating RTW has transformed in recent decades from stringently biomedical to one considering the interactive nature of variables, such as those in legislative and regulatory contexts that are likely to impact the success of recovery and RTW. To date, there are a few notable models, which try to conceptualise injury management issues within a broader context of health and disability. Waddell and colleagues studied extensively on the psychological and social factors in the biopsychosocial model that affect RTW as outlined in Figure 6.1 (Waddell, 1992; Waddell & Burton, 2005). Loisel and colleagues (2005; 2001) developed the person-environment model, that conceptualises various elements and their different levels, from the person affected, the workplace, the compensation system, as well as provision of care, which may influence disability.

Despite extensive research on the effectiveness of RTW both locally and internationally, and that the concept has long been introduced to local EC system players, the implementation of it is far from being successful in Hong Kong. Local experts in occupational rehabilitation attributed the unsatisfactory outcome to the obstacles observed commonly in the region of Asia Pacific and those arise as a result

of local legislatures. For example, Chan and Zhuo (2011) noted the clear disconnect observed between the current theoretical and service models in occupational rehabilitation and the provision of such in the EC system locally. Kwok and colleagues (2011) pointed out that full access to common law in addition to statutory benefits reduces the incentives of RTW among injured workers. The paradigm shift of focusing system efforts in disability prevention has not taken root firmly in Hong Kong.

Dimensions of Disability	Obstacles to RTW	Elements of intervention	Interaction/ Communication
Bio-	Health condition (and health care) Capacity and activity level versus job demands	Effective and timely health care Increasing activity levels and restoring function Modified work	All players onside
Psycho-	Personal/psychological factors Psychosocial aspects of work	Shift perceptions, attitudes & beliefs Change behaviour	
Social	Organisational and system obstacles Attitudes to health and disability	Involvement of employer (critical) Social support Organisational policy, process and attitudes	

Figure 6.1. The Biopsychosocial Obstacles to RTW

Figure from Waddell and Burton (2005)

The project engaged with a wide range of stakeholders of the Hong Kong EC system, including those from sectors of *legal, policy, business, insurance, RTW services, as well as NGOs in advocacy for workers' rights*, to collect their reflections on the system's role in facilitating RTW among injured workers and in supporting injury prevention. The goal of this exercise is to gain a holistic view on the reasons behind the lack of uptake for RTW in the system including low receptiveness by injured workers. In addition, this exercise lays the foundation for recommendations that will drive changes in the system in the right directions.

Overall, through a thematic analysis approach, the themes emerged from the project interviews resonated with the repeated conclusions drawn by local academic community, in that the current system does not perform well in supporting the process of recovery for injured workers or prevention of injuries. The project observed a passive attitude towards managing occupational injuries across the compensation system. The

system focuses its effort on administering compensation benefits rather than building a conducive environment for active prevention and management of injuries, due partially to limitations imposed by current legislatures, organisational policies, processes and practices. This in turn influences negatively the beliefs and values about RTW among injured workers.

This chapter reports the feedback collected around the social and personal psychological obstacles for RTW as observed in the current system. In addition to injury management, feedback around prevention of injuries is also discussed.

6.1. Injury Management – Social Obstacles to Return-To-Work

Obstacles to RTW observed in current organisational policies, processes, and practices, contribute to a compensation-focused culture in the management of occupational injuries.

1) Local policy and legislative framework only speak to compensation

This observation makes repeated occurrence in academic articles published by local experts in the field of occupational rehabilitation and in reports of previous reviews of the system (Kwok et al., 2011; Szeto et al., 2011). The ECO was originally designed as a mechanism to ensure compensation was paid to injured workers and the families of workers who died from occupational accidents. Occupational rehabilitation was not described in the ECO because the concept of it had just emerged locally back when the ECO was enacted in the early 1950s (Jenks, 1988).

In spite of the growing body of evidence pointing to the importance of rehabilitation for injured workers and the lack of it in the local system (Chong & Cheng, 2009; Kwok et al., 2011; Szeto et al., 2011) in the past decades, no change has been successfully made to address the issue in the Ordinance. Many current processes outlined in the Ordinance, such as direct settlement, assessment of loss of earning power, still revolve around decisions on monetary compensation. Returning-to-work is not the primary goal.

Although rehabilitation programmes were finally introduced into the system in 2003, the provision was not written into the Ordinance. There were also no policies or guidelines in place about returning employees to work. Not all injured employees would get offered the rehabilitation programme. Insurance companies and employers hold the decision on offering such programmes to injured employees, partly depending on their insurance coverage. Some stakeholders interviewed stated that the consideration by insurers also includes whether occupational rehabilitation is the most cost-effective option for them. This is further discussed in a later section when the project looks at the way the system functions around the current Ordinance, and how it affects the employees' perception of rehabilitation. From the start of the programme to June 2014, about 13,700 employees, or an average of 1,250 cases per annum, had participated in the programme (Labour and Welfare Bureau, 2015b). This is much lower than the annual number of claims reported to LD.

The absence of rehabilitation in the ECO was again highlighted by stakeholders interviewed in the current project. Legislators from two different labour unions in Hong Kong were interviewed in the project. Both of them shared a common view about the need to integrate rehabilitation into the existing EC system with the priority in promotion of workers' health. The *legislators* made note of the lack of provision in the Ordinance to assist injured workers to RTW, such as outlining the rights and responsibilities of the employers, as well as those of the employees in such process. The *legislators* also pointed out that the current system focuses on compensation but not safety measures, RTW facilitation, or early injury intervention, all of which are critical in preventing chronicity of injury and minimising negative impacts on the individual, organisational, as well as societal levels.

In addition to the ECO, injured employees also have full access to common law. Common law was put in place with the objective to provide further legal protection for parties involved in occupational accidents, illnesses, and deaths, but this good intention may incentivise injured employees to pursue the option of litigation and hamper rehabilitation, especially when the relationship between compensation and rehabilitation are not properly understood. A stakeholder from the *insurance* sector commented that common law is an attraction to injured employees. Cases, in which the court awarded an amount of \$6-7 million for compensation in pursuit of common law,

encourage injured employees to seek the common law option despite it means a much lengthier process and higher cost. Furthermore, *legislators*, *RTW service providers*, and *insurers* coincidentally raised the perceived conflict that lies in the concurrent presence of the no-fault system and common-law access. While the ECO ensures that benefits are provided to injured employees regardless of fault, common law rules for compensation for damages to employees due to negligence by the employer or a third party. When not understood properly, pursuit of common law could be seen as a way to receive potential additional reward on top of what the ECO provides.

2) Stakeholders feed into the culture of compensation

When the Ordinance stops at compensation, the system apparatus developed around it also revolves around compensation over active RTW. *Legislators* in interviews pointed out that the sole role of insurers appears to be reimbursing payments and costs to the employers without any active management of the claims. This view was shared by stakeholders from the *insurance* sector, who felt that their administrative function was reactive instead of taking a proactive claim-management approach. A *RTW service provider* commented that not many insurers are interested in providing rehabilitation because of their insurance approach and their lack in the knowledge of RTW management. In some cases, it is the lack of success in integrating knowledge into practices. On one hand, the *insurers* interviewed recognised the benefits of timely rehabilitation for the injured employees, as well as for the EC system. On the other hand, a *RTW service provider* spoke about the delays in accepting referrals for rehabilitation services by insurers due to requests for further assessment reports, and saw this as a major drawback in provision of timely RTW management.

Members of an *advocacy group for workers' rights* felt that the LD only focuses its efforts on workers compensation, such as incapacity assessments, and neglects other aspects of the system such as safety compliance, insurers' performance, and resources for injured employees. They also noted the lack of follow-up by the LD on the progress of RTW of injured employees.

The project did not see any surveillance data being collected systematically and comprehensively as to whether injured employees have been able to secure employment

or function in the community again after injury. Follow-up of cases usually stops when monetary settlements are done. A few interviewees provided anecdotal evidence that workers with history of claims generally face more difficulties in finding employment again. There are numbers released by government reports indicating unemployment rates of persons with disabilities is 2-3 times as high as those without. The estimates by rehabilitation sector are higher (Labour and Welfare Bureau, 2015a).

3) Healthcare system lacks focus on work rehabilitation

Medical services in Hong Kong are provided in two tiers: the public and private systems. Hospitals and clinics managed by the Hospital Authority (HA) deliver medical services to the general public at a standard price with subsidies from the government. Although affordable, wait time for consultations with specialists and medical tests in the public system is notoriously long due in part to heavy caseloads and also the fragmentation and compartmentalisation in provision of services.

The current healthcare system fails to recognise the urgency in treating injured employees to facilitate RTW over other groups that are outside the labour force. Injured employees invariably have to wait for a long time to receive medical attention. *RTW service providers* gave an estimate of two years for the wait time for an appointment with an orthopaedic surgeon at a public hospital. *Members from an advocacy group for workers' rights* added that routine wait time for an MRI scan at a public hospital is 1.5 to 2 years. Although insurance often provides some coverage for medical services received under the statutory law, the amount is only HK\$ 200-280. This amount is not helpful for employees in receiving medical services outside the public system as the price in the private system is considered to be astronomic to injured employees. A *RTW service provider* commented that employees are discouraged to seek treatment in the private sector to facilitate recovery as they will need to pay the difference in costs for medical services. *Insurers* in the interviews raised the concern over the deterioration of the compensable injury due to uncertain diagnosis and delayed treatment caused by the long wait for medical attention from HA. This leads to predicament for all parties involved in the management of occupational injuries.

Early occupational rehabilitation intervention is critical in the success of returning injured employees to work (Chong & Cheng, 2009; Isernhagen, 1999; Shrey & Hursh, 1999; Williams, Westmorland, Lin, Schmuck, & Creen, 2007). When injury happens, medical practitioners are often the first in contact with injured employees. Aside from clinical interventions, this is also the time to instil correct concepts about health and work in employees - work is important to one's well-being, and staying in work, when condition permits and given the right support, is an effective way to restore one's quality-of-life after injury (Waddell & Aylward, 2010). However, this golden opportunity is often missed due to the fact that medical professionals may not have the training in providing occupational interventions and perceive health and work from a strict biomedical point of view. They may see work as a risk to re-injury, and medical certificates are natural therapeutic interventions, yet these interventions could have potentially serious consequences.

Stakeholders from various sectors including *employers, insurers*, as well as *RTW service providers* raised their ***concern for the lack of control over provision of medical certificates in the current system***. Stakeholders explained that doctors in contacts with employees during early stages post injury can have very different trainings, such as general medicine, emergency medicine, or traditional Chinese medicine. A *RTW service provider* noted that these doctors do not necessarily understand the principles of occupational injuries management or the roles of RTW, as well as the impact of psychosocial well-being of the employees at play. This lack of knowledge coupled with the constraint on time posed by heavy workloads of a medical professional, bring challenges to doctors in performing assessments in the context of occupational injury during initial interviews. The judgment on duration of sick leaves is heavily reliant on the information provided and the suggestion by the injured employees.

The durations of sick leaves granted by a single medical certificate that the stakeholders had come across ranged from weeks to a year. This lack of control could lead to unnecessary absence from work, which in turn could deprive timely active intervention to manage the physical and mental challenges arise from occupational injuries, as noted by an *insurer*. Further, an *employer* observed reduced productivity due to long or frequent absence from work stemming partially from this lack of control.

Long wait for medical professionals also lengthens the process of assessment of permanent incapacities and poses tremendous amount of stress on employees and burden on society. Currently, when permanent incapacity is suspected as a result of injury, the injured employee will need to undergo an assessment with the Employees' Compensation (Ordinary Assessment) Board to confirm the permanent nature of incapacity as well as to determine the percentage of incapacity, by which the amount of compensation is decided under the ECO. This process is notorious for its length of wait. *Employers, insurers, and RTW service providers* interviewed mentioned the process of assessment could easily take months or a year due to the long wait for available doctors to sit on the assessment board. Audit report from Audit Committee (2015) also stated that the wait time varied across hospitals and the average time ranged from 6 to 17 weeks.

The long wait for assessments incurs substantial costs across different sectors of the system. *Insurers* shared the frustration for large administrative costs accumulated for following claims in the process of waiting. *Employers* pointed out that court hearings are also delayed as a result of the lengthy wait for decisions from assessments.

The assessment of permanent incapacity is also a hotbed for litigation. The lengthy process amplifies the fear and anxiety experienced by employees after injury. Some regard litigation as a more proactive approach in getting closure for a seemingly never-ending process, while others succumb to the manipulation by recovery agents and individual lawyers who encourage litigation for their own financial interests. The results of assessments also cause disputes for various reasons. There is no clear guidance available for assessing incapacity due to emerging common health problems seen in insurance claims. *Insurers* and *employers* noted the variation in decisions of assessments due to ambiguity in determining the level of incapacity on musculoskeletal problems, such as low-back pains, which are becoming more common as a result of an ageing workforce, as well as psychological problems.

Although the wait for an assessment is long, the actual process of assessment is fairly quick. Probably owing to the heavy caseloads to be processed at the LD, the process of assessment takes about 4-6 minutes per person on average according the Audit report (Audit Commission, 2015). This is not problematic when cases are

straightforward, but in cases where decisions were seen as rash due to inexperience of doctors on the assessment board as noted by a *RTW service provider*, or as arbitrary on the levels of incapacity due to the absence of objective guidelines, disputes are very likely to happen. Dissatisfaction on the assessment results leads to requests for reviews and maybe litigation if disputes persist, which further lengthens the process of getting a decision on the level of permanent incapacity. An *employer* estimated that about 10% of all occupational injury cases in the company that undergo assessment would file for a review.

4) Workplaces lack capacity to support RTW

Employers are critical in the success of occupational rehabilitation. Unfortunately accommodation for RTW, such as modified-duty programmes, known as “work trials” under the Hong Kong Voluntary Rehabilitation Programmes (VRPs), are not always available to injured employees. This is especially common for enterprises of smaller sizes, according to members of *a workers’ advocacy group* and *RTW service providers*. A *RTW service provider* further commented that some employers hesitate in returning injured employees to work at the original workplace due to the fear of re-injury or new injuries to the returning employees.

There is also little incentive for employers to assist in the process of RTW. A *RTW service provider* noted that the lack of motivation has to do with the fact that insurance covers the loss of wages and employers can find a replacement quickly. A few stakeholders also mentioned the ineffectiveness of some government initiatives, like the Job Training Programme for People with Disabilities initiated in 2005 with the objective to assist people with disabilities in securing employment. The programme offers new or original employers \$4,000 per month for 3 months to employ a worker with mental or general disability. However, it didn’t gain much traction in the last 10 years since its commencement mainly because of the cumbersome process of administration. Even some employers employ workers suffering from work-related disability, they opted to do this without the programme. One *employer* participated in the key informant interview was not aware of the programme.

Accommodation of RTW at original workplaces is sometimes further limited by

tense relationships between employers and the injured employees arising from liability disputes, and peer rejection from fellow employees, as noted by various stakeholders in the interviews. According to the stakeholders, tension between employers and employees may be due to the lack of knowledge of workers' compensation as well as that of a transparent and neutral decision-making process of liabilities at the workplace.

5) The system lacks occupational health support

Occupational health support, with a multidisciplinary case-management approach, has proven to be effective in facilitating injured employees back to work. According to a *RTW service provider*, currently there are 7 or 8 organisations that work with insurers and employers to provide RTW services, and that it is not uncommon for them to see referred cases that have been out of work for 6-9 months. Access to multiple relevant expertise is certainly important in addressing the wide range of needs of injured workers, yet the coordination of access and communication between these service providers are just as critical. The EC system is one involves numerous players in the society including those from legal, business, and medical sectors. The process of filing for compensation as well as participation of rehabilitation could be overwhelming for someone who is physically well, let alone someone who is experiencing physical and emotional sufferings from an injury. *Members of workers' advocacy group* spoke about the difficulties injured employees face in navigating through the system and the need of a coordinating role. Stakeholders agreed that injured employees need a case-manager to assist them in the process of filing for compensation, arranging for rehabilitation, liaising with other government bodies to provide additional support as needed for recovery, as well as monitoring the trajectory of recovery.

In addition to early identification of the worker's needs, and planning and arranging for RTW services, the project sees that the role of a case manager can potentially improve communication between stakeholders. Previous research by local experts of occupational rehabilitation saw the fragmentation of services provided as a major barrier in effective facilitation of RTW (Kwok et al., 2011; Szeto et al., 2011). Players involved in the process each provide services in their own jurisdiction with little effort made to facilitate communication and coordination amongst each other to support

cohesion in the array of services provided for injured employees. An *insurer* interviewed said they had little communication with healthcare service providers about the injured employees. An *employer* said that their company does not discuss with RTW service providers about the psycho-social factors which may have effects on the injured employees' rehabilitation process. There is poor coordination between stakeholders to facilitate integrated service for workers. There is also no leadership role in the system that sets directions for the system, formulates strategies in service deliveries, monitors performances of the system, or provides standardisation of services.

Currently only workers participating in the VRPs could potentially have access to a case-manager in managing their injuries. Various NGOs, like advocacy groups for workers' rights, have been filling in the roles of case managers to support injured employees generally. They offer a variety of supports such as peer support, emotional and informational support, individual claims advocacy, and lobbying for the rights of injured workers. They also provide information of work injury rules and regulations, education on work safety, assistance on submission of work accident report, guidance on rehabilitation progress, and so on. These supports are important in the recovery of injuries, but limited in availability as there are very few NGOs working for injured employees in Hong Kong. Further, there is no standardisation in their service delivery.

6.2. Injury Management – Psychological Obstacles to Return-To-Work

A few stakeholders mentioned that one of the biggest obstacles to successful RTW is the unwillingness of the injured employees to participate. The individual's decision is associated with his/her thoughts, beliefs, and attitudes towards RTW, and many of which are shaped in the context of current practices and policies. System stakeholders shared their views on employees' psychological barriers to RTW in relation to the way the current system functions. In addition, the project also surveyed injured employees using structured and semi-structured formats to collect quantitative and qualitative data regarding their psychosocial well-being after injury. This section reports the findings from these interviews.

1) Fear and anxiety affect emotional readiness for RTW

Occupational injuries bring a tremendous amount of stress to employees and tension to their social circles. Evidence has shown the association between work-related injuries and numerous negative consequences including low RTW rates, poor self-judgement, effects on family well-being, and decreased participation in activities of daily living (Cacciacarro & Kirsh, 2006). Findings of this project resonate with their conclusion.

Forty-five injured employees were recruited into the project before their entries into the MORE programme. They were asked to fill out a standardised questionnaire which measured their psychosocial well-being after injury, including presence of negative emotional symptoms, perceived adequacy of social support, feelings of hopelessness, as well as the perceived impact of injury on mood, work ability, and personal relationships. Details on the scales used in the questionnaire are described in Section 2.2.2.

This subsection provides brief summary statistics for the outcome measures described above at baseline assessment. Twenty-eight participants (62.2%) were males and 17 (37.8%) were females. The gender distribution was similar to that observed in the overall claims in Hong Kong. The average age at injury was 46.1 years with a SD 10.5. The majority of participants (N=18; 40%) were bus or taxi drivers along with 5 supermarket workers and 4 construction site workers.

Table 6.1 summarises the psychosocial well-being of 45 participants at baseline assessment. Work-related injuries greatly affected participants in terms of mood (Mean=2.82 [great impact]) and concern for future work ability (Mean=2.78 [great concern]). Comparatively, influences on relationships with family and friends were relatively less, averaging at 1.89-1.96 [some impact]. The mean scores of depression, anxiety and stress subscales in DASS21 were 7.19 (SD=4.43), 6.41 (4.44), and 9.05 (4.85) respectively, indicating moderate symptoms of depression and anxiety, and mild symptoms of stress (Black Dog Institute, 2015). Among participating employees, four, ten, and five suffered from extremely severe symptoms of depression, anxiety, and stress respectively. Two employees scored extremely severe in all three subscales. Injured employees generally had high levels of perceived social support (MSPSS), with

the highest from family (mean=22.91; SD=6.22), followed by significant other (21.34; 6.31) and then friends (20.12; 6.19). The mean score of BHS was 10.71 (SD=4.25), which was marginally below the cut-off 11 determined by Yip and Cheung (2006). Half of respondents (53.3%) scored above the cut-off criterion, indicating some risks of suicide ideation and suicide attempt.

Table 6.1

Summary of psychosocial well-being of injured employees at baseline assessment

Outcomes	Range	Mean	SD
Self-report impact of injury			
Mood	0-4	2.82	0.89
Work ability	0-4	2.78	1.11
Relationship with family	0-4	1.89	1.07
Relationship with friends	0-4	1.96	1.15
Negative emotional symptoms¹			
Depression	0-21	7.19	4.43
Anxiety	0-21	6.41	4.44
Stress	0-21	9.05	4.85
Perceived adequacy of social support²			
Family	4-28	22.91	6.22
Significant other	4-28	21.34	6.31
Friends	4-28	20.12	6.19
Feeling of hopelessness³	4-24	10.71	4.25

¹ Measured using DASS21; ² Measured using MSPSS; ³ Measured using BHS

Findings of the qualitative component support the results of the quantitative data above. Twenty-four individuals in total were surveyed in a semi-structured format to collect qualitative feedback: 16 (66%) from the MORE programme, four (17%) from the PWH OSOC and four (17%) from ARIAV. The difference between the participants referred from PWH OSOC and ARIAV was that, those from OSOC all received early referral and medical consultation due to the efforts of the orthopaedic doctor at PWH. The four participants from ARIAV did not receive any early medical intervention. All participants (19 males and 5 females) were full-time workers. Seventeen (70.8%) had work-related injuries to their low back (low back pain), three (12.5%) to the neck, three

(12.5%) to the leg and one (4.2%) to the shoulder. Details on the sample participated in qualitative interviews are given in Table C1 in Appendix.

The majority of participants in the qualitative interviews expressed anxiety and fear over the uncertainty of future brought by injuries, especially in the first 3 to 4 months. Employees were much more concerned about the impact of work injury on those close to them than that on themselves, which was consistent with evidence in the literature (Cacciaccaro & Kirsh, 2006). When asked about the reasons for the worries experienced, many mentioned family finances, and their own physical and psychological well-being, in particular its effect on personal relationships. The project team coded the reasons of worries expressed and tabulated the data as shown in Figure 6.2.

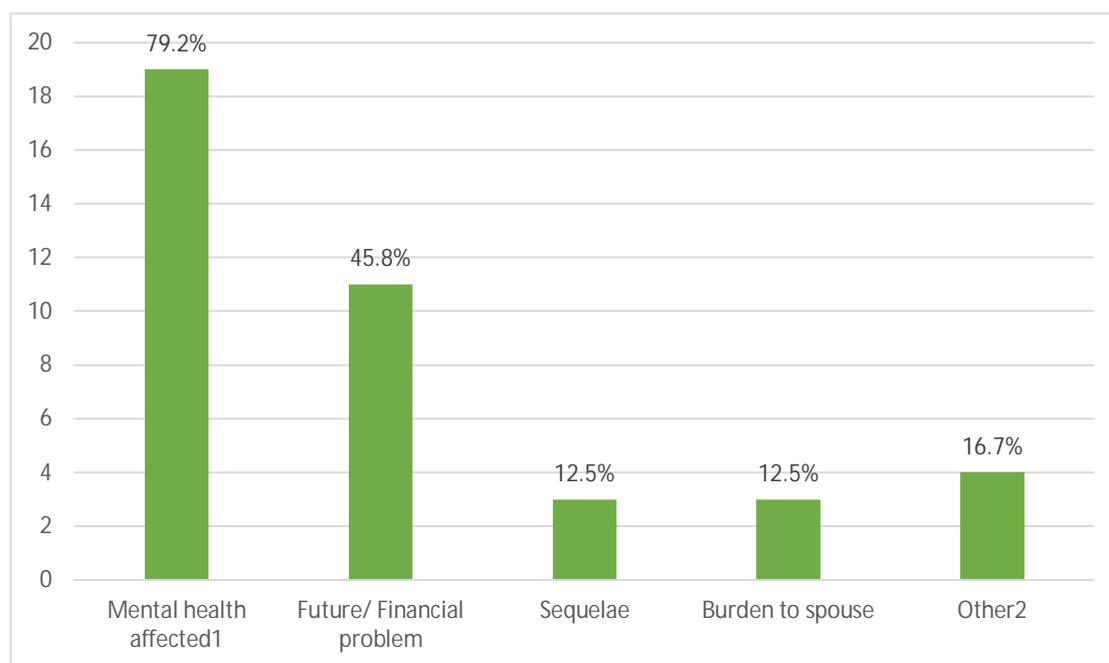


Figure 6.2. Reasons of worries reported by injured employees

Note: Multiple reasons are allowed

Mental health affected: e.g., emotional, bad temper, lost, anxious

Others: e.g., litigation, being discriminate, sexual life

Along with anxiety, some also presented low self-efficacy and critical self-judgement. Male subjects were easier to get angry about the injury than female, and older males tended to dislike the feeling of being taken care of by their spouse and being a burden on the family.

“I’m the breadwinner in the family. I feel so useless. I even have difficulties with taking care of myself. I feel so hopeless about not being able to take care of my family, especially my child.”

~ An OSOC client

“I’m the breadwinner in the family. I’m living with my wife and my father who has already retired. My wife is going to give birth to our first baby this year. I’m so worried about the financial situation after my first baby is born. I am afraid that if I cannot return to my original work position, my income will reduce.”

~ An OSOC client

Two participants in the younger age group (age \leq 25), both with lower educational background, saw little hope in the future and planned on changing their field of work. For the older age group (age 56-65), both males and females worried most about losing financial support to the family and about suffering from sequelae after injury. Among the five participants aged over 55, three of them mentioned their worries about sequelae with low back pain. Most cases of low back pain may become chronic (\geq 3 months), resulting in periods of intense pain, significant physical limitations, and activity impairment (Coste, Delecoeuillerie, Cohen de Lara, Le Parc, & Paolaggi, 1994). Common sequelae of chronic pain include depression, anxiety, and sleep disorders (Gore, Sadosky, Stacey, Tai, & Leslie, 2012). Older employees tend to worry about degeneration as a result of ageing, and their retirement. Although the older participants were close to the retirement age, all were still hoping to work.

“The doctor told me I have a symptoms of degeneration. I worry that I can’t fully recover and have sequela..... I wish I can continue to work, I don’t have much to do after retirement.”

~ A client from MORE Programme

“I wish I can continue to work but I worry that I have sequela and become vestigial after recovery. I do not want to become a burden to my child. I wish my family could have better financial support.”

~ A client from MORE Programme

Stress and anxiety significantly affected the participants' moods and put tension on family relationships. A few participants from the MORE programme mentioned downturns in family relationships because of worsened temper since their injuries.

“After injury, I am afraid to go to crowded places. One day, I went to the market with my wife. The market was so crowded and noisy, that I wanted to fight with people around me. The feeling of being taken care of by my wife was very bad too.”

~ A client from MORE Programme

“I can feel the care from my family but I can't control my emotions. It's affecting my children. I scold my son more often since the injury. I feel I'm useless because I can't play football with him and I can't even help him to take his school bag.”

~ A client from MORE Programme

Workers are in need of empathy, trust, and care after injuries (Lysaght & Larmour-Trode, 2008). Family support can provide workers with the strength to handle financial concerns, unemployment, recovery, and compensation system (Cacciaccaro & Kirsh, 2006). Most participants mentioned that support from family meant the most to them, and family relationships had improved since the injury. However, some mentioned unemployment from prolonged disability put family's patience to test, and this reinforced the injured employee's perception of not being cared for and their low self-esteem. A young man from the ARIAV who had been out of work for more than half a year due to work-related injury and living in a 9-person household family said:

“When the injury just happened, my mother cared about me more. She always asked how my recovery was, but after a while, she started to put pressure by asking the reason of long treatment time and recovery etc. She can't see my pain and complain. I do want to work if I have the ability.”

~ A client from ARIAV

Injuries can also significantly affect workers' social life (Cacciaccaro & Kirsh, 2006). A retrospective study on workers with low back or upper extremity injuries by Pransky and colleagues (2000) showed that over half of the injured workers

experienced decreased participation in activities of daily living. Studies have also shown that lack of social support is connected to depression and can be a protective factor for depression (Marroquin, 2011; Pjanic et al., 2014). All 24 participants in the survey expressed that their social life had been affected by their injuries. Reduction of social activities was due to various reasons including limitations of mobility, worse financial situation as a result of unemployment, and avoidance of talking about injury in their social circles.

“I feel pain even when I change my clothes. I meet up less with my friends. I don’t want to explain how I got injured at my workplace to my relatives and friends.”

~ A client from MORE Programme

“How can I hang out with friends? I don’t have any income. A meal costs around HKD50, it’s weird for me to just sit there or order some food that costs HKD20. Better not to hang out with anyone.”

~ An OSOC client

“I didn’t meet any friends since the injury. I don’t want to go out. I am afraid of people asking me about my injury.”

~ A client from ARIAV

“I love sports. I used to play basketball or go ice-skating with my friends every week. The injury significantly affected my social life. I cannot do sports now so I stop meeting with my friends and other social activities.”

~ A client from MORE Programme

2) Personal perception of wellness influences self-confidence in RTW

There is no doubt that the personal aftermath of injuries can be debilitating, and give rise to psychological barriers to recovery and hinder the RTW process. One of the major barriers is one’s subjective feeling of being unwell. Workers genuinely believe that they would like to go back to work but the persistent pain from their injuries is stopping them from returning. This observation is especially common among those who

have been out of work for some time (Magnussen, Nilsen, & Raheim, 2007; Waddell & Aylward, 2010).

All participants in the qualitative interviews reported that they were willing to return to work with a few of them have already returned. Most workers mentioned that RTW would enhance their feelings of being productive, but their confidence in their capabilities to work appeared to be significantly affected by their perception of pain. This in turn reinforced their feeling of a bleak future with limited ability to support themselves and their families. A man told the interviewer how he needed to change his sleeping positions every hour at night. He said his thoughts were occupied by the constant need to change positions in order to feel more comfortable.

“The pain affects my sleep quality. I have to change my sleeping position every hour at night. I always think about how to reduce the pain, what position can make me feel more comfortable, so I can sleep for longer. I hope to recover as soon as possible.”

~ A client from MORE Programme

In addition, two third of the participants expressed their abilities to maintain a certain level of concentration declined after injury (Figure 6.3). This was due in part to their constant fight to manage pain and in part to their heightened anxiety over losing future directions after the injury.

“I have to visit the Chinese doctor frequently to do acupuncture (針灸) to reduce my pain. I’m a day labourer and have been receiving a reduced income, calculated from the four-fifths of my average daily wages before injury. I feel so hopeless. I lost my direction to the future. My mind is totally occupied with how to maintain my life expenditure.”

~ An OSOC client

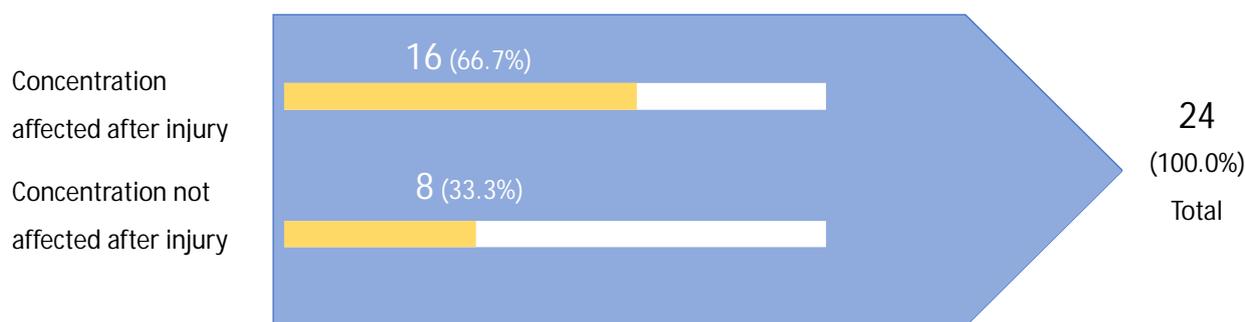


Figure 6.3. Percentage of participants reported reduced level of concentration

3) Lack of an accommodating environment for RTW

An accommodating and supportive work environment is critical in the process of RTW. As discussed in sections above, employees could be experiencing a lot of complex emotions related to the injury, such as confusion, hopelessness, and frustrations, on top of the physical pain, all of which contribute to low confidence in RTW. In order for them to overcome some of these personal challenges to achieve RTW, they need to feel safe and supported in the process.

In addition to improving safety measures to help employees overcome the fear of getting re-injured and modifying duties to accommodate their limitations resulted from the injury, positive relationships with employers and co-workers are also critical. Social support in the workplace is shown to be an important factor for job satisfaction (Waddell & Burton, 2005). Dewa (2014) also stated that supervisors and co-workers are the two groups that critically contribute to workers' mental health. Tense relationships with these two groups could significantly hamper the success of RTW. Some project participants had reported experiences or perceptions of peer rejection.

“I have already returned to work. Due to my low back pain, I changed my position to one that is less physically demanding. I overheard my co-workers discussing about me and my injury. I felt that they were discriminating against me when they were looking at me.”

~ A client from MORE Programme

“I’m still on sick leave, but I already hear that some colleagues have complained about my absence bringing others heavier workloads. I’m so

worried about having to face my colleagues and the work environment when I return and am afraid of getting injured again.”

~ A client from MORE Programme

On the other hand, some participants reported that poor relationships with employers, due to liability issues of accidents resulting in injuries, made going back to the original workplace impossible. Some employers did not admit liabilities, while some are bitter about workers reporting an injury.

“After I got injured at work, my boss did not care about my health. He complained that I went to the hospital and submitted to LD for a small injury. Our relationship turned sour. I worked in this field for many years, and I don’t know what else I can do.”

~ A client from ARIAV

Even some workers made it back to work, they were worried about the eventuality of losing it.

“Besides worries for my recovery progress, I also worry about losing my job. I don’t know how my boss and colleagues see me as a recovered injured worker.”

~ A client from MORE Programme

4) Distrust due to conflict of interests perceived in current practices

There has not been an active approach in the current system to communicate the role of occupational rehabilitation, and the potential positive and sustainable impact it could have on employees. The benefits are well known to professionals and researchers in the field of occupational rehabilitation, but not to the general public including employees. A *legislator* interviewed pointed out that the current official information booklet distributed to injured employees by the LD, “A Concise Guide to the Employee’s Compensation Ordinance”, focuses on the amount of compensation paid due to incapacity and the process to resolve disputes around incapacity payments. There is no explanation of rehabilitation and RTW management in the booklet.

RTW is now offered conditional on employees' insurance coverage and the process is administered through insurers. This arrangement is not well received by injured employees because of the conflict of interest perceived. Stakeholders from an *advocacy group for workers' rights* revealed that employees often think insurers' main interest in RTW is to shorten the time injured employee's away from work to reduce costs of compensation. *Insurers* interviewed explained that they have a process in place to identify suitable employees to be offered RTW services. The determination of suitability, however, is perceived to be entirely dependent on cost. Stakeholders from an *advocacy group for workers' rights*, as well as from *RTW service providers* alluded to the tendency observed among insurers in which injured employees with high wages are often provided with adequate medical services and assistance in RTW because there is an apparent advantage in this option over paying compensations for salaries.

Government bodies, such as the LD and its statutory body, the Occupational Safety & Health Council (OSHC), do provide information on rehabilitation on their websites and in some of their promotional materials. However, the approach to the distribution of such information are much more passive than that for compensation, so employees often learn about compensation but not rehabilitation from these government bodies that are perceived to be neutral. Instead, many employees learn about rehabilitation from their employers or insurers depending on their insurance coverage and their suitability determined by insurance companies. Those do get offered the option may get various amount of information as it is completely dependent on the practices of individual insurance companies. As a result, rehabilitation does not get proper consideration from its potential beneficiaries when they believe that such option could undermine their potential financial protection compensatory to their injuries.

5) Frustration towards the current healthcare system

Participants expressed strong dissatisfaction over the long wait time for medical services in the HA system. One of the main problems is the long wait time for specialists, such as orthopaedics doctors, which usually has a 2 years or longer wait time. Participants felt discouraged about gaining physical recovery because of the delay in treatment; and this in turn reinforced their poor confidence in the prospect of RTW. Out

of frustration, some of them sought help from Chinese medicine, for example, acupuncture (針灸) and bonesetter (跌打), or go to private clinics to do MRIs and Computed Tomography (CT) scans. All these assessments and treatments cost employees a lot of money.

“The appointment is in 2017. I can’t wait that long, I’m the breadwinner in my family. If I wait until 2017, I would pass the golden time for my treatment and recovery. When I went into the A&E department, the doctor said I did not need surgery and asked me to queue up for medical consultation with an orthopaedics doctor, which would take 2 years. He said I could get a physiotherapy evaluation first. However, the physiotherapist did not know how to treat me without an assessment report from the orthopaedics doctor.”

~ An OSOC client

“The A&E doctor transferred my case to the orthopaedics doctor, but it would take 2 years and 9 months to see the orthopaedics doctor. What will I be after 2 years? I will try anything to get an earlier appointment with the orthopaedics doctor or to reduce my pain. While waiting, I tried acupuncture (針灸), but this could only reduce my pain for a short period of time. I had to do it regularly and it cost me a lot.”

~An OSOC client

Some participants mentioned that they felt angry about the quality of the doctors and frustrated about the lack of continuity of care in the current system.

“When I met the doctor, he didn’t ask me to do any scans. He just asked me some questions and gave me 4 days of sick leave. He didn’t reserve me another medical consultation. I had to call the hospital myself. That made me so angry and stressed.”

~ A client from MORE Programme

“There would be a different doctor for every consultation and each gave me different opinions. I didn’t know whom I should believe.”

~ A client from ARIAV

6) Rights vs. responsibilities and the perception of injustice

Stakeholders who are *employers* or *insurers* shared the opinion that some workers refused assistance for RTW and consciously opted for litigation. When asked about the reason behind refusal, *legislators*, *employers* and *RTW service providers* attributed to the potential reward expected through the provision of common law. A local *RTW service provider* took a step further and reflected that the motivation behind legal action could be the perception of injustice experienced by some injured employees.

Perception of injustice may emerge due to the physical and emotional suffering as a result of injuries, especially if employers are believed to be negligent in the incident and losses are permanent (Sullivan, Yakobov, Scott, & Tait, 2014). Accumulating research evidence is drawing associations between perceived injustice and adverse recovery outcomes among employees post injuries, such as poor rehabilitation outcomes and prolonged work disability (McParland & Eccleston, 2013; Sullivan, Scott, & Trost, 2012; Sullivan et al., 2014). When discussing the link between perceived injustice and mental health outcomes, Sullivan and colleagues (2014) made reference to the ‘compensation neurosis’ that might be expressed among injured employees in the context of a compensation system, that is characterised by the exaggeration of symptoms, assumed to be driven by internal motives and the anticipation of secondary gain. Although the relation between perceived injustice and compensation neurosis have not been empirically examined (Sullivan et al., 2014), research has investigated on the different types of responses to perceived injustice, such as anger, entitlement, blame, and retribution, which could reinforce the perception (McParland & Eccleston, 2013).

In their research, McParland and Eccleston (2013) also discussed the efficacy of financial compensation for injury in addressing perceived injustice. Although past research had shown that the award of financial compensation for injury could bring a sense of justice among employees in the award received and in the process of making the decision to award (Frache et al., 2009), monetary gain alone might be insufficient to address psychological injustice and engaging with this process might actually be compounding more suffering (Darley & Pittman, 2003). Appropriate interventions addressing the negative emotional responses are needed to ease the perception of

injustice. Although mentioned by stakeholders, the project did not encounter any injured employees directly expressing perception of injustice, so the project is not to comment further as to the depth as well as the breadth of the problem.

The current EC system in Hong Kong, from its legislation to local practices, focuses on monetary compensation. This gives rise to situations in which recovery agents and some lawyers taking advantage of the vulnerability of injured employees, such as their anxiety over finances and other complex emotions stemming partially from the perceived injustice they may be experiencing. These agents and lawyers often amplify the compensation amount to an unrealistic level and manipulate employees into pursuing litigation, for their own commercial interests. Members of an *advocacy group for workers' rights* revealed that some lawyers would discourage employees to participate in RTW in order to maintain the severity of injury to facilitate negotiation of settlement of claims. Stakeholders in *insurance, advocacy for workers' rights, and RTW services* made references to recovery agents approaching injured employees at a very early stage of injury, such as during initial hospital visits, to persuade employees to go through litigation processes. Stakeholders stated that the agents would often offer temporary monetary relief for urgent expenses at a high interest rate to lure employees into following the litigation path. Stakeholders also said that once this course of action is chosen, it is hard to change, and ultimately hinders timely rehabilitation to facilitate RTW and significantly delays the settlement of claims. *RTW providers* also noted that often employees with lower socioeconomic status would fall prey to these situations. This observation is consistent with findings from researches about people of lower socioeconomic status are likely to become victims of injustice and have fewer resources to cope with injustice (Hafer & Gosse, 2010; McParland & Eccleston, 2013).

The current system ensures employees' rights in receiving social protection by means of compensation. Employees these days are well aware of their rights and when to exercise them. What the system lacks, however, is educating employees on the responsibilities while exercising these rights. That is such rights should be exercised with great care because being sick is undesirable, and that it would be for the employees' own benefit to get well as soon as possible, and that they need to seek intervention and to cooperate in the process of getting well (Waddell & Aylward, 2010). Education on the rights and responsibilities for citizens can be a protective factor in deterring misuse

of rights when the role of responsibility is obscured by reasons like perceived injustice, or in circumstances where rights is a convenient choice. For example, some stakeholders noted that there were cases in which employees, who are close to retirement age, took advantage of the fact that compensation of salary continues past retirement age and extended their sick leaves into retirement as a way to achieve “early retirement” and gain additional financial reward towards pension.

6.3. Injury Prevention

Prevention of injuries is a more active approach to ensuring health and well-being of employees and controlling costs incurred in occupational accidents, and it has been the focus in preventing workplace disability internationally in the recent decades (International Labour Organization, 2014; Shrey & Hursh, 1999; Szeto et al., 2011). In Hong Kong, there has been systematic efforts in promoting prevention of injuries and illnesses at workplace led by various governmental bodies such as the OSHC, but poor awareness of workplace safety in local communities undermines these efforts according to the stakeholders interviewed.

Hong Kong is a metropolitan city where the speed of completing projects sometimes takes priority over the safety of workers. Stakeholders from the *advocacy group for workers’ rights* reflected that employers tend to emphasise on the speed of work and think following safety procedures would increase the time required to completion of projects. Participants in semi-structured interviews had the same reflection.

“I understand work safety and my company provide training for us. However, when we have a tight work schedule, we usually ignore safety rules and wish to finish as soon as possible. I hope the construction company can provide more safety equipment for the workers to prevent accidents.”

~ A client from ARIAV

The same stakeholders added that the value of safety also does not get proper recognition in the community in general. This consequently leads to poor personal safety behaviours at work.

Employers are also not proactive about improving safety measures, even after warning signs are shown. An *employer* interviewed described an Accident Assessment Team in the company that is responsible for investigating accidents by identifying the causes as well as reporting results from the accidents data analysis. Although well-intentioned, there is usually no follow-up after the investigation to ensure appropriate changes have been implemented to lower the risks of recurrence of similar work-related accidents. As described above, employers are not enthusiastic about accommodating injured employees at workplace in fear of re-injuries. At the same time, they are not active in improving safety measures to prevent further injuries in view of warning signs. This forms a vicious cycle of workplace injuries.

Legislators interviewed spoke of the obstacles encountered in fostering a safety culture at work from a policy point of view. There is no stringent safety certification for employers or effective prosecutions on safety negligence against employers. Grey areas around the coverage of migrant workers and subcontractors under the current ECO also relate to the lack of clear understanding of legal requirements in safety. Collaborations between employers and employees in the management of health and safety at workplace to minimise occupational injuries and diseases are observed to be insufficient. Stakeholders from *advocacy group for workers' rights* noted that safety training and standards are lacking particularly in businesses of smaller sizes, such as smaller-scale factories and construction labourer of interior decoration, where resources for enforcing safety compliance are inadequate.

6.4. Summary

A thematic analysis was conducted to analyse the qualitative data collected from key-informant interviews and semi-structured interviews. Through the framework of biopsychosocial obstacles to RTW by Waddell and Burton (2005), five themes of social obstacles and six themes of psychological obstacles of injured employees were identified from the project data. Outside this framework, the research team also saw the importance of occupational safety, which is a more active approach to prevent work-related accidents from happening in the first place. The project sees the need to further cultivate a culture of safe practices at work.

In this summary, the research team revisited the 12 themes and summarised them into seven big areas of gaps, namely policy/legislative framework, organisational policies, processes and practices, healthcare system, workplace support, occupational health/RTW support, personal/psychological factors, and safety issues. Table 6.2 presents the summary of the problems identified, the stakeholders involved, as well as the associated implications on the society and on the psychological status of the employees in each area of gaps.

The problems summarised in this chapter give rise to the unsatisfactory outcomes of the current EC system in Hong Kong as discussed in previous chapters, which include the long time to claim settlement, the compensation-oriented culture, higher claim costs, and higher costs across various sectors in society. The well-being of injured employees is also substantially affected resulting in lower chances of successful RTW and poorer psychological functioning.

Table 6.2

Overview of gaps in the EC system

Areas	Problems in the area	Stakeholders Involved	Social implications	Psychological Implications for employees
Personal / Psychological Factors	<ul style="list-style-type: none"> ÿ Injuries have negative impacts on employees' physical health, moods, workability and personal relationships ÿ Poor personal perception of wellness (e.g. feelings of pain, declined concentration levels) ÿ Fear of re-injury 	Employees	<ul style="list-style-type: none"> ÿ Unsuccessful RTW and lost productivity ÿ Increased costs on society on use of health and social services 	<ul style="list-style-type: none"> ÿ Low confidence for RTW ÿ Susceptible to depression, anxiety, and stress, and risks for suicide
Policy / Legislative framework	<ul style="list-style-type: none"> ÿ Development of legislations is stagnant around compensation ÿ No central policy outlining rehabilitation / RTW as the common goal ÿ Co-existence of ECO and common law 	LD / Legislation	<ul style="list-style-type: none"> ÿ Stakeholders feed into a compensation-oriented culture 	<ul style="list-style-type: none"> ÿ Without the right understanding of work and health and rights and responsibilities, this encourages pursuit of litigation, esp. common law
Organisational policies, processes and practices	<ul style="list-style-type: none"> ÿ Poor concept and knowledge of occupational rehabilitation (RTW) across all stakeholders ÿ Revolve around compensation, such as processing injury claims and incapacity assessment ÿ Mis-alignment in the roles of stakeholders in the system ÿ No systematic monitoring of the trajectory of workers' recovery 	All stakeholders	<ul style="list-style-type: none"> ÿ Enforcement of the compensation-oriented culture ÿ Create opportunities for recovery agents and some lawyers to take advantage of the workers' vulnerability to encourage litigation action and incur high costs in the system 	<ul style="list-style-type: none"> ÿ Distrust the system and see rehabilitation merely as a way by which insurers avoid paying higher compensation and not give RTW the deserved consideration due to the perceived conflict of interest ÿ Misunderstand the rights and responsibilities when using the compensation system
Healthcare system	<ul style="list-style-type: none"> ÿ Fails to recognise the urgency in 	HA / Medical	<ul style="list-style-type: none"> ÿ Long wait for medical assessments 	<ul style="list-style-type: none"> ÿ Frustration / dissatisfaction

	<p>treating injured workers over those who are not part of the labour force</p> <ul style="list-style-type: none"> ÿ Inefficiency in service delivery due to fragmentation and compartmentalisation in provision of services ÿ Lack of control over provision of medical certificates due to inconsistencies in training and insufficient knowledge in occupational rehabilitation 	services providers	<p>and treatments lead to chronicity of injuries</p> <ul style="list-style-type: none"> ÿ Hampered RTW because of missed golden opportunities of instilling correct concept of work and health in injured employees ÿ Long wait for assessment of permanent incapacity breeds litigation actions and incurs costs across society 	<p>towards the long wait for medical investigation and treatment in the current system</p> <ul style="list-style-type: none"> ÿ Chronicity of injuries leads to low confidence for RTW
Workplace support	<ul style="list-style-type: none"> ÿ Employers lack capacity and incentives to accommodate modified duties ÿ Lack of social acceptance and support from workplaces 	Employers / Fellow-employees / Government departments	<ul style="list-style-type: none"> ÿ Unsuccessful RTW and lost productivity ÿ Increased costs on society from dependence on social subsidies 	ÿ Low motivation to RTW
Occupational health / RTW support	ÿ Insufficient availability of occupational rehabilitation resources to assist in RTW process	RTW service providers / Insurers / Government departments	ÿ Poor communication and coordination to support cohesion in the array of services provided to injured employees	ÿ Overwhelming process worsens the emotional sufferings
Safety issues	<ul style="list-style-type: none"> ÿ No stringent safety certification or effective prosecutions on safety negligence ÿ Efficiency is sometimes achieved at the expense of workers' safety ÿ Improper community awareness ÿ Employers are not proactive in improving safety 	Employers / Employees / Government departments, e.g. OSHC	<ul style="list-style-type: none"> ÿ Poor safety practice at work and causes injuries ÿ Impose costs on society 	ÿ Accidents bring substantial negative impacts to employees' psychological well-being

Chapter 7 Building a Workers-Centred System

7.1. Workers' Health Affects Businesses and the Community

Hong Kong has a 3.9-million working population (as of 2015). Its productivity is key to the health of businesses and prosperity of the city. In the latest World Health Organization (WHO) Healthy Workplace Framework and Model, Burton (2010) explained why we should care about employees and strive to develop a healthy workplace. In addition to ethical and legal considerations, caring for employees is also the smart thing to do. Burton presented a business case, in which she demonstrated businesses rely on their workers to carry out their visions and thrive. An unhealthy and unsafe workplace breeds work-related stress, which consequently leads to illnesses, accidents and injuries, and job dissatisfaction. The implications from these results span from loss of productivity to high costs in compensation and insurance. The ultimate outcome of this is business failure (Figure 7.1). Burton (2010) also presented various evidence supporting that poor employees' health put strains on the society by inducing societal costs for social services and healthcare.

Work is an important determinant of health for people in general. Burton (2010) explained that "employment is usually the main means of obtaining adequate economic resources for material well-being and full participation in society, and is often central to individual identity and social status" (p. 90). Waddell and Burton (2005) think that work can be therapeutic and reverse the adverse health effects of unemployment, and that is true for healthy people of working age, for many disabled people, for most people with common health problems, and for social security beneficiaries. Therefore, to safeguard the physical and mental well-being of employees, the project sees the importance of keeping work in employees' lives. This is achieved by building a healthy workplace that puts safety of the employees as top priority, and a system that supports the process of returning employees back to work in a safe and accommodating environment in case of injuries and illnesses.

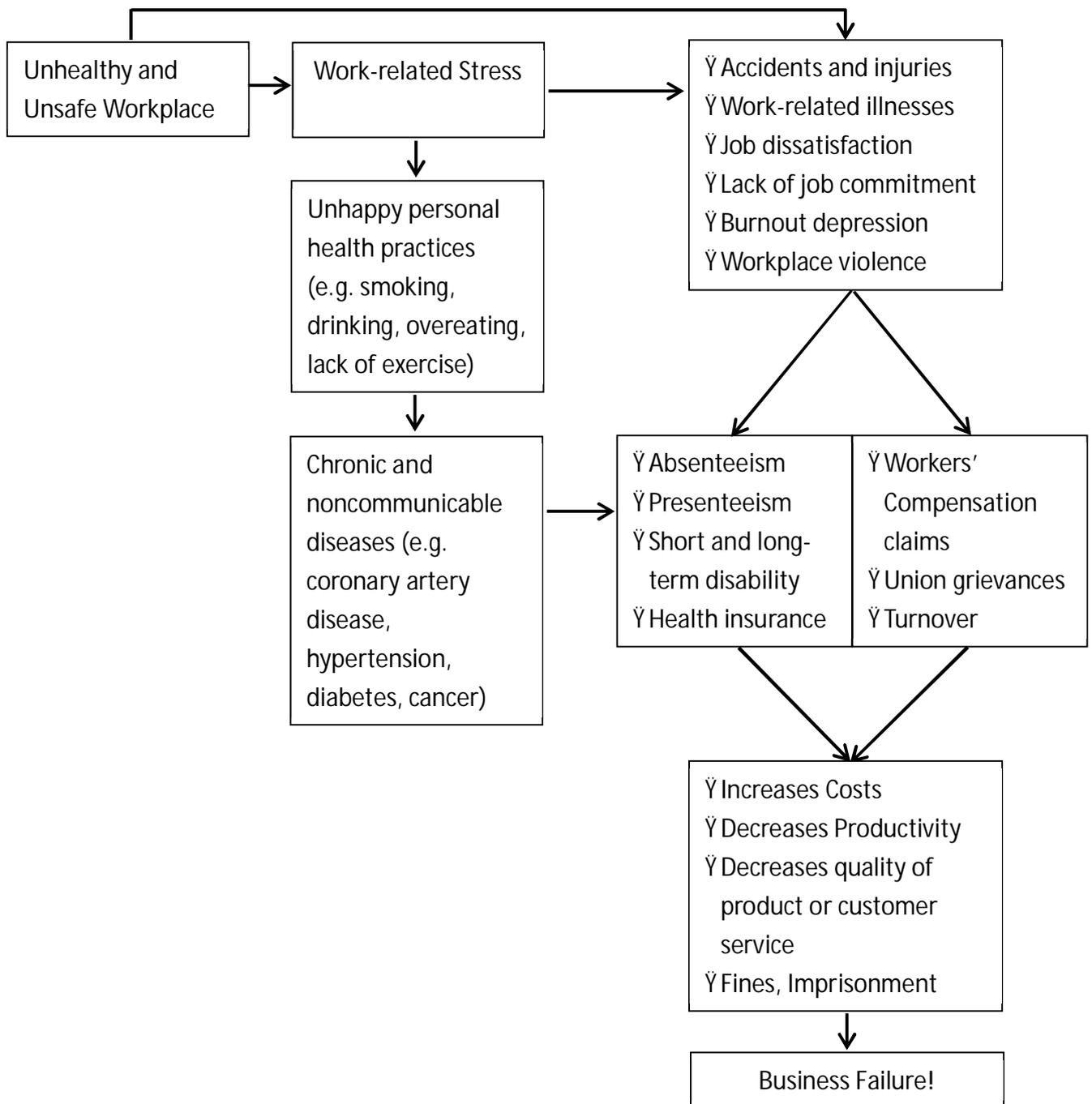


Figure 7.1. The business case in a nutshell

Figure from Burton (2010)

7.2. Recommendations for Managing Workplace Injuries

The project sees an EC system that safeguards the well-being of employees should:

- i. Have a strong focus on prevention of injuries;**
- ii. Not only provide social protection to injured employees, but also facilitate social integration.**

A summary of the recommendations is presented in Table 7.2 (p.120).

7.2.1. Strong focus on injury prevention

The best way to mitigate negative impacts of occupational injuries on employees and the system as a whole is to prevent injuries from happening in the first place. Therefore promoting safety culture and behaviour in workplaces and communities is critical. Good safety management at the workplace and stringent law enforcement will reduce the number of accidents, frequency of claims, and severity of injuries. It will eventually contribute to good relationships between employers and employees. Furthermore safety can minimise unexpected costs incurred on human resources due to absenteeism and prevent the loss of skills and experiences due to long term injuries. Data consistently show the high correlation between safety and competitiveness of enterprises (Hämäläinen, Takala, & Saarela, 2006). Research has shown workplace injuries cost American businesses US\$150 billion in both direct and indirect costs, which exceeded the combined profits of the 16 largest Fortune 500 companies (Shaw, Armstrong, & Rae, 2007). In addition, it is important to create an environment that does not cause recurrences of an injury or illness, whether work-related or not.

In Hong Kong, various statutory bodies, especially the OSHC, designed a variety of services relating to health and safety at work. The OSHC was established in 1988 with focus on promoting occupational safety and health in the community; education and training, consultancy services, research and strategies development, information dissemination, and facilitating communication between major stakeholders in the system (Occupational Safety & Health Council, 2015). Despite tireless efforts by the

OSHC in the past three decades, the safety culture at work in Hong Kong has yet to mature. The project sees the need of continuing efforts in the following areas in order to strengthen the safety culture at work.

1) Enhance safety education

As the first step, the project sees the need to continue and further improve education on workplace safety among the general public. Workplace safety is not only good for businesses and the community as a whole, but most important to the workers as well as their loved ones. Education will also help employers and employees gain a clearer understanding about their legal requirements of safety responsibilities. Good knowledge exchange (KE) strategies such as the involvement of media are proven to be effective in strengthening safety culture and behaviour at work (World Health Organization, 2007).

Education should target at migrant workers, self-employed persons, and sub-contractors, for whom claims are often filed due to misconceptions about one's identities and/or rights and responsibilities. The nature of working relationships should be carefully examined when entering into a contract. This is because, contrary to usual misconceptions that self-declared status of relationship is the sole determinant for the scope of rights and responsibilities outlined in legislatures, actual arrangements of work flow may override the declared status. In addition to safety, clear understanding of rights and responsibilities for compensation for occupational illnesses and accidents is also important.

Education should also target at groups with the highest claim rates and largest increases in settlement costs. Findings from this project identified the following industry groups under this category: (a) manufacturing, (b) food and beverage, (c) construction, and (d) transport, storage, postal and courier services, information and communications. Workers aged 40 and above is also one of the target groups. It is important to stress to the older age groups that experience does not prevent injuries. It is essential to make safe practice a habit.

In addition to education, regular training on good safety practices at work and

certification processes for management and employees are also important, especially in high-risk industries. Training and certification processes should be made more stringent.

2) Stringent safety inspection

Safety inspection ensures safety compliance and is the best deterring effort for preventing accidents from happening, especially in offering timely warnings to rectify any negligence or risks at the workplace. Negligence in safety compliance plays a role in the potential perceived injustice experienced by workers and could encourage the consideration of litigation action. Inspections should be a meaningful engagement, which actually adds value to the safety of employees, and not merely administrative procedures.

3) Establish effective mechanisms at the workplace for reporting risks of injuries

Prompt communication between employees and employers about workplace health is instrumental in identifying risks at work and taking action to mitigate risks for workers. This would show the employees that their workplaces do care about their well-being beyond project deliveries. Research has shown evidence of showing care has a positive impact on the relationship between employers and employees (Burton, 2010; Waddell & Aylward, 2010), which is critical to foster a collaborative and conducive environment for safety behaviour.

The project found that about one third of the claims in the investigation period were resulted from sprain and strain alone and the associated settlement costs ranked the fourth highest, just after those with severe injuries like amputations and concussions. Active and effective communication of potential causes of these musculoskeletal injuries, such as repetitive motions, awkward or static positions, and poorly designed tools, gives the opportunity to improve work conditions for workers. This will in turn prevent the incidents of these work-related injuries that are frequently reported, costly, and require long recovery time.

In case of accidents, employers and employees are recommended to conduct thorough investigations; and most importantly to introduce risks controls after the

investigation.

4) Introduce proper incentives to discourage unsafe practice at work

In view of the project finding of high fatality rates in Hong Kong, the project recommends higher penalty for violation of law, negligence at the workplace causing injuries and illnesses, and deaths from work-related accidents. Penalties should also be exercised for any violation of safety standards during regular inspections.

7.2.2. Injury management combining social protection and integration

It is impossible for accidents to be eliminated, so when they do happen, society has a social responsibility to care and support those affected in the process of recovery. The aim of recovery, as discussed above, is returning injured employees to work in a safe and supported environment. The question then is what is the right support for workers back into work?

When Waddell and Aylward (2010) talked about support into work in the context of a biopsychosocial model applied to common health problems at work, they made note of the two broad policy goals for social security outlined by the Organisation for Economic Co-operation and Development (OECD):

Social support: to provide adequate income support for people whose capacity for work is limited by sickness or disability (benefit transfer programmes – passive policies) (p. 42)

Social integration: to provide realistic opportunities and support for sick and disabled people who are able to work, to enable sick and disabled people to participate as fully as possible in society (employment and integration measures – active policy) (p. 43)

In recognition of the complementary relationship and inevitable tension that exist between the two types of policies made note by Reno and Colleagues (1997), Waddell and Aylward (2010) saw the two should be integrated, so that financial support is balanced with more active support into work. There has been radical

shifts in policies for managing employees affected by work-related health problems from passive provision of benefits to more active efforts supporting RTW process, such as those took place in the United Kingdom, Australia, and New Zealand. There is also evidence supporting positive changes with the application of a biopsychosocial model as a result of such shifts.

The project concludes, after its social review, that the current employee's compensation system takes on a passive approach in managing workplace injuries. Changes in policies to provide more active support for injured employees to return to work are warranted. The biopsychosocial model can be applied to facilitate more comprehensive and integrated support for injured employees. Key advocates of injury management basing on the biopsychosocial model are Australia and New Zealand. The current project completed a case study with WorkSafe, Australia and submitted the findings in an interim report to demonstrate their success in implementing such system.

The Heads of Workers' Compensation Authorities, a group comprising the Chief Executives (or their representatives) of the peak bodies responsible for the regulation of workers compensation in Australia and New Zealand, outlined the principles in biopsychosocial injury management (Heads of Workers' Compensation Authorities, n.d.):

- 1) Early intervention and tailored programmes;
- 2) A focus on increasing activity and RTW;
- 3) Active management of injured employee and working towards a common goal; and
- 4) Regular review of progress and management of risk factors.

The project sees high value of these principles in designing strategies for injury management in Hong Kong. Coupled with research in future direction of the system (Kwok et al., 2011), the project makes the following recommendations in order for the system to be operating in accordance with the principles:

1) RTW as the common goal - System-wide education about work and health

Work plays a crucial role in a person's well-being. Therefore after an injury, returning to work gradually in a safe and supported environment should be the ultimate goal of the compensation system.

Corresponding to the project findings of a lack of knowledge in RTW among the key stakeholders, such as employers, insurers, and healthcare professionals, the project sees the need to actively engage the community to promote the correct understanding of work and health and set RTW as the common goal in case of injuries. This should be reflected in organisational policies as well as practices in handling workplace injuries to ensure timely occupational rehabilitation.

Most importantly, there is a need to communicate formal and consistent messages to employees affected by injuries, as well as their families, about RTW and its related processes alongside the information about compensation. For example, such messages should be included in information materials like the "Concise Guide to the Employee's Compensation Ordinance", explaining that RTW is a parallel and complementary measure to compensation in supporting the process of recovery, and that the two are not in contradiction of each other. Currently there are separate publications with very specific emphasis on either compensation or RTW by individual government bodies, namely the LD and the OSHC. Although both bodies made references to compensation and RTW on their websites and publications, the presentation of the information does not explain the integrative relationship between the two concepts.

Some effective channels can be considered to educate various groups in the community about RTW including the media (Burton, 2010), community education programmes, and publications disseminated by NGOs, unions, and community health centres. The project saw existing local efforts in promoting RTW by some NGOs; however, standardisation of contents needs to be introduced to facilitate consistency in message delivery.

2) Realign roles of stakeholders and introduce a management body

Roles of stakeholders in current practices should be realigned to avoid giving the impression of conflict-of-interest to employees, and to enable stakeholders to focus on their intended responsibilities, so efficacy of the EC system can improve. The decision of offering rehabilitation should not be borne by insurers. When disputes in liability of accidents arise, a third party (e.g., a regulatory body) with the expertise to make an objective decision on whether an injury is work-related should also be authorised to enforce the liability determined. Right now employers reserve the right to deny liability even after LD made the decision that an injury is work-related after investigation. The court then has to be involved to re-investigate the accident, make a decision and enforce liability. Re-investigations by the court is often a repeated process of that completed by LD. This arrangement makes the whole process cumbersome and stressful for all involved parties.

Services for occupational rehabilitation are mostly provided by companies specialised in injury management or by some NGOs at the moment, yet the standardisation of services are underdeveloped. The OSHC has been educating and training about occupational rehabilitation as part of their agenda in developing safe and healthy work environment in Hong Kong. Its role may be extended to include developing standards for rehabilitation services, and monitoring and auditing services.

Consideration should also be given to introducing a new authoritative body that oversees the operation of the EC system. This body should consist of representations from all major stakeholders of the system. Its responsibilities may include formulating regulatory strategies and policies around workplace health and safety, determining and enforcing liabilities of work-related accidents, as well as measuring performance of the system by systematic data collection on outcome. Its neutral representation can also serve as a gate-keeper for necessary litigation action in the process of settlement. This body will also be instrumental in facilitating communication between major stakeholders of the system.

Contrary to the misconception about the passive role of charging employers premiums, insurers has a much more integral role to play in protecting the well-being of workers. McCluskey (2012) explained that insurance regulation should focus on how

insurance affects incentives for injury reporting, claims processing, safety, and RTW, all of which can produce substantial variation in the costs of a given set of statutory benefit rights. He further commented “insurance systems can go much further to protect the interests and dignity of workers in both financing and controlling benefit costs, making meaningful protection from harm and meaningful rehabilitation the primary goal, in place of claims reduction.” (p. 548)

The project proposes realigning roles as shown in Table 7.1 to achieve a simple and efficient administrative structure in workers’ compensation. It is worth noting that the division of responsibilities outlined in the table is only a suggestion. The project fully appreciates the complexity of the EC system and recommends comprehensive consultations with all relevant stakeholders involved in planning for an efficient and effective system.

3) Formulate a policy around management of workplace injuries combining compensation and social integration

The project sees the need of a central policy outlining the intended outcomes, and the methods and principles to adhere to achieve such outcomes, in the event of workplace injuries. RTW should be the ultimate goal across all stakeholders in supporting recovery from injuries, and efforts should be directed toward early intervention addressing the biopsychosocial needs of employees to achieve this goal. Best practices for managing injuries in a multi- or trans-disciplinary approach should also be in place in accordance with the policy. The project sees a central policy as a precursor to any legislation required to support the implementation of the policy.

Table 7.1

Realignment of roles of stakeholders

Stakeholders	Realignment of roles	
Labour Department	Regulatory roles, e.g., law enforcement	Active engagement and communication among all stakeholders
Employers	Workplace health and safety, human resources management	
Employees	Workplace health and safety, return-to-work	
Occupational Safety & Health Council	Education and training on workplace health and safety, including rehabilitation, informing relevant strategies, policies and legislations, overseeing the provision of rehabilitation services	
New management body	Formulating relevant strategies and policies, determining and enforcing liabilities, overseeing operation of EC system, performance measurement, etc.	
Rehabilitation/RTW service providers	Active RTW management	
Medical and para-medical professionals	Medical services and injury intervention	
Insurers	Study rating structure and insurance regulation to provide a better-incentivised system for RTW	
Legal system	Last resort for litigious solution	

4) Promote and increase capacity of existing local models of good practices for occupational rehabilitation services

Multidisciplinary case-management models have gained much support from research, and traction from practices in workplace disabilities management internationally in recent decades because of its effectiveness in improving successes of

RTW and reducing compensation costs (Chong & Cheng, 2009; Costa-Black, Cheng, Li, & Loisel, 2011; Lai & Chan, 2007; Loisel et al., 1994). Such models offer comprehensive services to address workers' psychosocial obstacles to RTW alongside the physiological challenges after an injury. Services usually include expertise in medical, physiotherapy, occupational therapy, and claims and RTW service coordination. It is a holistic approach to managing workplace injuries.

Existing local programmes that are designed using a multi-disciplinary and case-management model, like MORE and OHCs, should be made available to more suitable injured employees via various treatment centres and hospitals to provide prompt medical assistance and RTW services. More formal training programmes such as those in occupational medicine, safety management, claims management, and RTW management should be offered to ensure availability of qualified multidisciplinary professionals to support the workers' compensation system. In addition, existing resources can be mobilised to establish more specialised centres that offer early intervention programmes for occupational injuries.

All major stakeholders, such as healthcare professionals, insurers, and employers, should be trained on the basic concepts and principles for RTW and have access to expertise in occupational health to facilitate RTW process. This ensures that proper RTW intervention is delivered in a timely manner, preferably from Day 1 of injury. Medical and para-medical professionals should develop with employees treatment plans that are well-integrated into their related RTW plans. Provision of medical certificates should be regulated so they are issued in consistent formats by recognised professionals who are trained in RTW and should be subject to renewal after a set time-frame.

Workplace-based RTW services are proven to be effective (Cheng & Hung, 2007; Shrey & Hursh, 1999). Structured workplace-based RTW plans, designed by multidisciplinary RTW service providers, should be made available to workers, especially in high-risk industries and organisations of bigger employee sizes, as early as possible after an injury occurs. Employers should increase their capacity in accommodating RTW, such as providing job-modification programmes and job-retraining or transferrable skills development programmes to keep employees connected

to work and gradually return them back to their pre-injury state in a safe and supported environment.

Moreover, occupational health support using a multi-disciplinary approach could incorporate appraisals of injustice perceived by employees and offer appropriate counselling interventions for the negative emotional responses associated with the perception.

5) Reduce excessively long wait time for medical services

Employees' compensation on medical payments should be revised (e.g., amount and structure) to broaden the accessibility of medical services. Different sections in the healthcare system should work closely together to avoid fragmented and compartmentalised services, which play a role in prolonged sick leaves, unnecessary medical expenses, and confusion in workers. Prompt biological clearance and reduction of clinical uncertainty are critical in preventing chronicity of injuries.

To reduce wait time for the assessment of permanent incapacity, there is a need to increase the capacity of MAB. In addition, in order to improve the quality of assessment, only experts who are knowledgeable in workplace injury management principles should sit on the panel. A certification system for medical assessors overseen by a regulatory body can be introduced to ensure that board members have the right expertise.

6) Introduce incentives to facilitate RTW

The project recommends better utilisation of employment subsidy programmes as an incentive (e.g., programme sponsored by the Social Welfare Department) for employers to employ injured workers. Administrative process of programme applications should be simple to facilitate uptake. Furthermore, other incentives for workplaces to accommodate RTW should be introduced, which can also discourage access to common law.

7.3. How Should the Recommendations be Implemented?

Continuous improvement process, known as ‘Kaizen’ (‘kai’ means change and ‘zen’ means good), came from the book *Kaizen: The Key to Japan’s Competitive Success* (Imai, 1986). The basic principles of continuous improvement process are:

- 1) To establish a feedback process;
- 2) To identify means or manners to improve efficiency; and
- 3) To introduce small changes or ‘evolution’ to culminate to big changes.



Figure 7.2. Continuous improvement framework

According to the American Society for Quality (2015), continuous improvement is an ongoing effort to improve products, services, or processes. Among the most commonly used tools for continuous improvement is a four-step model, also known as Deming Cycle or Shewhart Cycle:

Plan – Identify an opportunity and plan for change.

Do – Implement the change in small scale.

Check – Use the data to analyse the result of the change and determine whether it made a difference.

Act – If the change is successful, implement it on a wider scale and continuously assess the results. If the change did not work, begin the cycle again.

The ultimate goal of continuous improvement is to determine how to increase the value of delivering services to the customers (i.e., injured employees) and how much flexibility in the delivery process is required to meet the changing needs. It is a process which, in the long term, achieves customer focus, enhances quality of service delivery, simplifies processes and procedures, and brings about attitudinal change.

Table 7.2 lists the recommendations by the project to improve the current EC system in Hong Kong. They are summarised in actionable items, which could also serve as goals for each potential area of improvement identified. The project encourages cross-sectorial efforts in planning and outlining specific goals and processes in the implementation of the recommendations.

It is critical in the planning stage of the continuous improvement framework to determine what small changes should and can take place in the immediate future. In response to the main findings identified in the previous chapters, the project presents a few examples of administrative measures that can be introduced in the immediate terms, with the aim at reducing time to claim settlement and streamlining the administrative processes.

For instance, MAB could increase its capacity by hiring retired doctors to reduce the long wait time of assessment of permanent capacity. The efficiency and objectiveness of the assessment can improve with an updated list of injuries that includes the newly emerged common injuries, such as the different types of musculoskeletal problems, along with the related evidence-based percentages of loss of earning capacity based on the levels of severity. The employment subsidy programme sponsored by the Social Welfare Department could be better promoted and its administrative processes should be streamlined to encourage uptake. Actions should also be taken as soon as possible to promote the culture of occupational health and rehabilitation through education. Examples include dissemination of standard guidelines and messages with the emphases on RTW as a parallel but not competing measure to compensation by a neutral and convincing government body. Specifically, LD and OSHC would be the two most appropriate stakeholders for the dissemination

of such information. In addition, healthcare service providers would also be a good place to educate workers on the concept of occupational rehabilitation. Standard guidelines and messages on RTW and compensation can also be distributed to injured workers and their families upon the first few visits with healthcare service providers after injury. In addition, there is a need to monitor the trajectory of workers' recovery from injury in order to check the performance of any remedial measure to culminate in further and wider implementation under the phase of Act. At the macro level, other than the commonly used statistics, such as claim rates and loss of working days, LD may also introduce some new indices, such as number of injured employees absent from work for 4 weeks and 6 months after injury, to be reported on a regular basis (monthly or quarterly) as a performance check of the system.

Table 7.2

Overview of recommendations

A) Strong focus on injury prevention	
1) Enhance safety education	<p><u>Continue and improve</u> education* on</p> <ol style="list-style-type: none"> 1) Clearer understanding of safety responsibility 2) Clear understanding of rights and responsibilities for compensation for occupational illnesses and accidents <p>*<u>Target groups</u>:</p> <ol style="list-style-type: none"> 1) Migrant workers, self-employed persons and sub-contractors 2) Construction, industry of transport, storage, postal and courier services, information and communications 3) Workers aged 40 and above
2) Stringent safety inspection	1) <u>Enforce</u> strict safety compliance
3) Establish effective mechanisms at the workplace for reporting risks of injuries	<ol style="list-style-type: none"> 1) <u>Identify</u> potential risks for injuries and <u>introduce</u> mitigation measures for prevention 2) <u>Investigate</u> thoroughly and <u>introduce</u> risks controls after investigation in case of accidents
4) Introduce proper incentives to discourage unsafe practice at work	<ol style="list-style-type: none"> 1) <u>Introduce</u> higher penalty for violation of law, negligence at workplace causing injuries and illnesses, and deaths 2) <u>Exercise</u> penalties for any violation of safety standards
B) Injury management combining social protection and integration	
1) RTW as the common goal - System-wide education about work and health	<ol style="list-style-type: none"> 1) <u>Promote</u> the correct understanding of work and health in the community and <u>set</u> RTW as the common goal in case of injuries 2) <u>Disseminate</u> standard information about RTW as parallel measure to compensation from a neutral government body
2) Realign roles of stakeholders and introduce a management body	<ol style="list-style-type: none"> 1) <u>Re-align</u> roles of stakeholders to allow focus on intended responsibilities (See Table 7.1) 2) <u>Introduce</u> a management body to oversee the operation of the EC system
3) Formulate a policy around management of workplace injuries combining compensation and social integration	<ol style="list-style-type: none"> 1) <u>Formulate</u> a central policy outlining the intended outcomes (e.g., RTW), and the methods and principles to adhere to achieve such outcomes, in the event of workplace injuries 2) <u>Establish</u> best practices with a multi- or transdisciplinary approach for managing injuries
4) Promote and increase capacity of	1) <u>Produce</u> qualified multi-disciplinary professionals for injury management through offering

<p>existing local models of good practices for occupational rehabilitation services</p>	<p>formal training in occupational medicine, safety management, claims management and RTW management</p> <p>2) <u>Establish</u> more specialised centres for occupational rehabilitation by mobilising existing resources</p> <p>3) <u>Train</u> system stakeholders on basic concepts and principles for RTW and ensure their access to expertise in occupational health to facilitate RTW process</p> <p>4) <u>Build</u> capacity for workplace-based RTW services</p> <p>5) <u>Incorporate</u> appraisals of injustice in multi-disciplinary occupational rehabilitation</p>
<p>5) Reduce excessively long wait time for medical services</p>	<p>1) <u>Review and revise</u> employees' compensation on medical payments</p> <p>2) <u>Improve</u> cohesiveness in service delivery in the healthcare system</p> <p>3) <u>Introduce</u> certification system for medical assessors sitting on the MAB</p>
<p>6) Introduce incentives to facilitate RTW</p>	<p>1) <u>Simplify</u> the administrative process of existing employment subsidy programmes to increase uptake</p> <p>2) <u>Introduce</u> other incentives for accommodating RTW and discouraging pursuit of litigation.</p>

Chapter 8 Limitations and Conclusion

8.1. *Limitations*

This subsection presents the limitation of the project. Readers should pay attention to these limitations as they may affect the interpretation of the results.

- 1) Key informant interviews used in the project may lead to bias to findings, depending on selection of the informants (Kumar, 1989). To minimise this bias, a maximum variation sampling method was adopted in choosing informants with the aim to maximise the range of perspectives. The key-informant interviews involved a wide range of major stakeholders in the system. Injured employees, who were not included in key-informant interviews, have also been engaged through semi-structured interviews. In addition, findings from key informant interviews may be susceptible to interviewer biases (Kumar, 1989). Our investigators were aware of this limitation during interviews in order to minimise them.
- 2) The convenience sampling in semi-structured interviews introduced selection bias. The MORE programme referred majority of the participants. These participants were generally suffering from injuries relating to vertebral column, and were more able to RTW. The research team was able to engage only a few employees who had been out of work for over a year, and not able to engage any of those who did not seek help at all. In the planning stage of the project, the research team would like to investigate the influence of early intervention and case management approach on the psychosocial well-being of injured employees. However, throughout the project, few participants serving as a complete control group could be identified. Although better psychosocial well-being were seen in those who received early referral and assessment, the number of control group was still too small to draw any solid conclusion.
- 3) The use of thematic analysis in current project converged some major themes under the biopsychosocial framework, but this approach potentially missed some nuanced data (Guest et al., 2012).

- 4) LD provided the research team only summary statistics of EC claims but no individual data. Detailed analysis could not be performed.
- 5) Company Z, a company with relatively large share in the EC insurance business, provided the research team with a sample of its EC claim data as a complement to summary statistics from LD. The claim data were found to be representative of the overall statistics from LD in terms of gender distribution, but contain relatively more claims from employees aged 55 and above when compared to the summary statistics from LD. The data also over-represented claims from the construction industry, but under-represented those from food and beverage services. Issue of external validity existed in the data, limiting the scope of generalisation of the result to the general population.

The issue of missing data also existed, with 62% of claim records having missing data for at least one variable. In addition, missing was not at random. A few industry categories had a very large amount of missing data. Effect of these industries on settlement cost could not be examined as they were completely removed from regression analysis. Although analytical adjustments had been made by introducing weight adjustments to the remaining industries, the regression result should still be interpreted with great caution.

- 6) The evaluation study of the MORE programme was not designed as a randomised controlled trial (RCT), in which patients were supposed to be recruited and then randomly allocated to the intervention or control group and thereby reducing spurious causality and bias. Instead, a quasi-experimental design was used. Injured employees suffering from low back pain were recruited to join the MORE programme directly, while the control group, also suffering from low back pain due to work-related injuries and with similar socio-demographic background, was identified from existing medical records in orthopaedics department of HA. The elimination of spurious causality and bias of this approach might not be as complete as a RCT design due to the existence of other possible confounding variables.

Two other issues also limited the generalizability of the evaluation results. First of all, the patients selected to participate in the MORE programme were mostly

referred by insurance companies. This probably led to selection bias, which could affect internal validity. Secondly, variables captured in the control group were limited. The statistical analyses in this report could only focus on adjusting three socio-demographic variables (i.e., age, gender, and occupation category). Other confounding variables that might influence the outcome measures could not be controlled.

There are three important factors that differentiate services offered by the MORE programme from conventional treatment from the public healthcare system. However, the data did not allow analysis that could evaluate the three factors individually. It was therefore not feasible to single out the effective part(s) of the intervention (i.e., services by the MORE programme). In other words, current results suggest strong efficacy of early intervention and case management approach as a whole, but do not discern which parts of this approach contributed to the effectiveness. Further research is required to evaluate the programme in detail by individually examining each element to provide more evidence and knowledge of the intervention in Hong Kong.

- 7) Due to the timeframe of the project, follow-up data on the psychosocial well-being of injured employees measured in the project questionnaire were not collected yet. This part of study will remain active after the end of this project.
- 8) The project had come across a number of comments on the problem of current EC system relating to specific wordings in legislation, prolonged administrative process of claims, actuarial issues, and legal issues such as the existence of recovery agent and nomination of lawyers by legally aided workers. As this is not the focus of the current social review and the comments were sparse, the research team did not discuss these comments in this report. Additionally, the research team did not see itself being in the right position to propose any recommendations addressing these comments. Further research with joint efforts of experts and stakeholders from different disciplines is required.

8.2. Conclusion

In the current EC system in Hong Kong, a combination of compensation mentality, availability of common law litigation path as well as a lack of adequate medical services to provide early intervention in managing workplace injuries, leads to poor psycho-social well-being of injured employees, delays in receiving appropriate compensable benefits, poor RTW outcomes, and high costs in workers' compensation administration. These subsequently lead to high insurance premiums for employers and a heavy burden on the judicial system.

Modern day EC management (using Australian experience as an example) shifts its focus from compensation to safety at work and RTW (normality of life-work routine). Effective safety management system and safety culture will reduce the number of incidents and injury which in turn will reduce the number of workers' compensation claims and workload.

Facing an ageing workforce in the near future, the society is expected to encounter increasing burdens on various fronts including EC, healthcare, legal, and business. Nonetheless, with better safety management to prevent injuries in the first place, and joint efforts from all stakeholders to provide early and effective injury intervention to help employees to RTW safely and promptly when accidents unfortunately happen, the impact could be mitigated.

In conclusion, the project calls for collaborative efforts across the EC system to start making meaningful changes for workers' health and the social well-being in Hong Kong. Looking at the findings about the EC system emerged in the last review by Townbridge Consulting and Deacons in 2000, the current project has drawn similar conclusions. For instance, the report noted the lack of emphasis on rehabilitation and early RTW results in prolonged sick leaves among some workers. The lack of incentives for RTW in the EC system encourages long-time dependence on social security systems. There has hardly been any effective changes in addressing these findings in the past 15 years. The consequence of this stagnancy reflects in the worsening of existing problems in the system. Comparing to the statistics provided in the response by the Legislative Council Panel on Manpower (2001) to that review, there

was a 5% increase in the proportion of sick leaves of 6-month or longer in 2013, while the proportion of costs resulted from common law claims in total claim costs increased from 35% to around 60%.

The project urges for immediate action to improve the current EC system to prevent further deterioration of existing problems and to protect the well-being of the workers and the society of Hong Kong. By aligning prevention, compensation, and rehabilitation through continuous improvement, such as that observed in Victoria, Australia, Hong Kong will continue to prosper with healthier workers.

Appendix

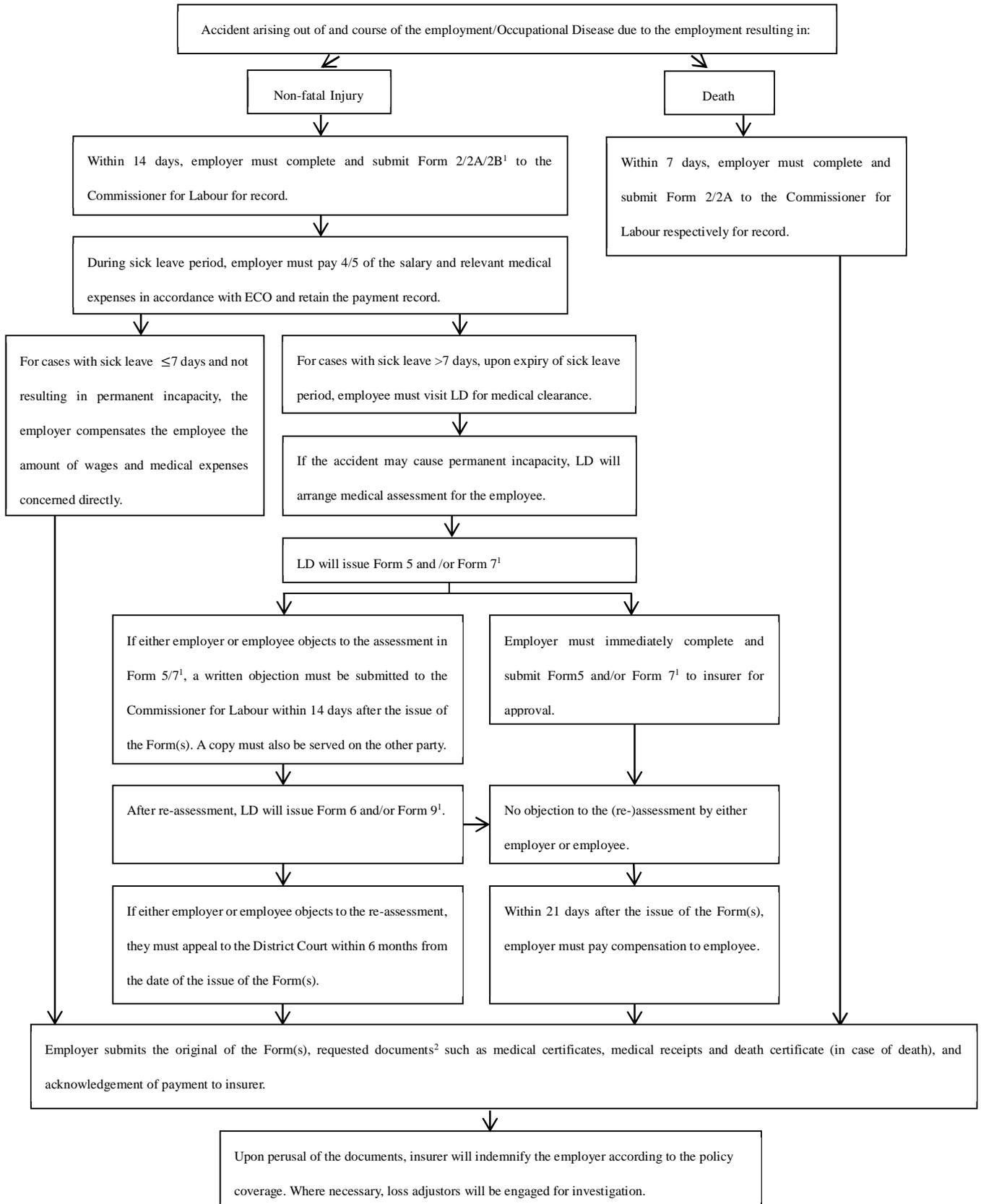


Figure A1. Claim procedures of Employees' Compensation

Modified from figure by ECIRSB, retrieved from http://www.ecirsb.com.hk/pdf/e_ClaimsProcedure.pdf

For detailed information of claim procedures and the content of the Form¹, please refer to “*A Concise Guide to the Employees’ Compensation Ordinance*” issued by LD (2015a).

For information of Form(s) and documents requested to be submitted to insurers², please refer to the claim procedure by ECIRSB (the above link).

Table B1

Estimated coefficients from log-linear regression on statutory claim

	Estimate	exp()	95% CI	p value
Intercept	5.646	283.037	228.447-350.673	<.001
Gender				
Female	Base	1		
Male	0.078	1.081	0.994-1.175	0.069
Age				
18-29	Base	1		
30-39	0.514	1.672	1.453-1.924	<.001
40-49	0.466	1.594	1.395-1.822	<.001
50-54	0.449	1.567	1.360-1.805	<.001
55-59	0.485	1.624	1.401-1.884	<.001
>=60	0.339	1.403	1.174-1.677	<.001
Nature of injury				
Sprain and strain	Base	1		
Contusion and bruise	-0.285	0.752	0.681-0.830	<.001
Laceration and cut	-0.168	0.846	0.727-0.984	0.030
Fracture	0.815	2.260	1.970-2.593	<.001
Multiple injuries	-0.265	0.767	0.617-0.954	0.017
Crushing	-0.015	0.985	0.790-1.228	0.894
Abrasion	-0.344	0.709	0.524-0.958	0.025
Burn - Scald	-0.583	0.558	0.378-0.823	0.003
Irritation	-0.567	0.567	0.370-0.869	0.009
Other	-0.893	0.410	0.335-0.501	<.001
Minor injury	-0.291	0.748	0.577-0.968	0.027
Severe injury	0.531	1.700	1.072-2.698	0.024
Industry¹				
3	0.039	1.039	0.873-1.238	0.665
4	-0.458	0.632	0.549-0.729	<.001
5a & b	0.436	1.546	1.246-1.918	<.001
5c	0.475	1.608	1.306-1.981	<.001
6c	-0.389	0.678	0.565-0.812	<.001
7	0.084	1.087	0.945-1.250	0.241
8	-0.849	0.428	0.379-0.483	<.001
9	Base	1		
log(day)	0.570	1.768	1.707-1.831	<.001
Year of settlement	0.167	1.181	1.137-1.227	<.001
Proceeded to common law	1.722	5.594	4.781-6.545	<.001

¹ Please refer to Table 2.1 for industry code; industries with missing variables exceeding 99% were excluded.

Table B2

Estimated coefficients from log-linear regression on medical expense

	Estimate	exp()	95% CI	p value
Intercept	-1.005	0.366	0.225-0.596	<.001
Gender				
Female	Base	1		
Male	-0.594	0.552	0.452-0.674	<.001
Age				
18-29	Base	1		
30-39	-0.166	0.847	0.610-1.175	0.320
40-49	0.295	1.343	0.983-1.837	0.064
50-54	0.534	1.706	1.224-2.378	0.002
55-59	0.332	1.394	0.985-1.972	0.061
>=60	0.539	1.714	1.128-2.605	0.012
Nature of injury				
Sprain and strain	Base	1		
Contusion and bruise	-0.426	0.653	0.516-0.825	<.001
Laceration and cut	-0.535	0.586	0.411-0.833	0.003
Fracture	-0.142	0.868	0.625-1.204	0.396
Multiple injuries	-0.112	0.894	0.534-1.498	0.671
Crushing	-0.084	0.919	0.547-1.544	0.751
Abrasion	0.230	1.258	0.626-2.532	0.519
Burn - Scald	-0.315	0.730	0.287-1.857	0.509
Irritation	-0.607	0.545	0.216-1.377	0.199
Other	-1.859	0.156	0.098-0.247	<.001
Minor injury	-0.318	0.727	0.413-1.281	0.270
Severe injury	0.994	2.702	0.894-8.167	0.078
Industry¹				
3	1.131	3.099	2.040-4.707	<.001
4	2.039	7.684	5.471-10.791	<.001
5a & b	2.530	12.555	7.569-20.828	<.001
5c	1.400	4.056	2.735-6.015	<.001
6c	0.804	2.235	1.458-3.427	<.001
7	2.656	14.234	10.205-19.852	<.001
8	1.528	4.607	3.459-6.137	<.001
9	Base	1		
log(day)	0.441	1.554	1.435-1.683	<.001
Year of settlement	0.518	1.679	1.538-1.832	<.001
Proceeded to common law	2.248	9.470	6.524-13.747	<.001

¹ Please refer to Table 2.1 for industry code; industries with missing variables exceeding 99% were excluded.

Table B3

Estimated coefficients from log-linear regression on common law award

	Estimate	exp()	95% CI	p value
Intercept	-1.938	0.144	0.102-0.203	<.001
Gender				
Female	Base	1		
Male	-0.052	0.949	0.824-1.093	0.469
Age				
18-29	Base	1		
30-39	0.137	1.147	0.908-1.448	0.249
40-49	0.404	1.498	1.200-1.872	<.001
50-54	0.189	1.208	0.954-1.530	0.117
55-59	0.084	1.088	0.850-1.392	0.505
>=60	-0.034	0.966	0.718-1.301	0.822
Nature of injury				
Sprain and strain	Base	1		
Contusion and bruise	-0.078	0.925	0.783-1.093	0.360
Laceration and cut	-0.262	0.769	0.599-0.988	0.040
Fracture	-0.044	0.957	0.758-1.208	0.711
Multiple injuries	-0.251	0.778	0.539-1.123	0.180
Crushing	-0.146	0.864	0.598-1.249	0.436
Abrasion	0.155	1.168	0.710-1.920	0.541
Burn - Scald	-0.298	0.742	0.382-1.442	0.379
Irritation	0.121	1.128	0.584-2.182	0.720
Other	-0.167	0.847	0.610-1.175	0.319
Minor injury	-0.035	0.965	0.646-1.444	0.864
Severe injury	1.283	3.607	1.643-7.920	0.001
Industry¹				
3	-1.122	0.326	0.242-0.438	<.001
4	0.041	1.042	0.819-1.327	0.738
5a & b	-0.616	0.540	0.377-0.774	0.001
5c	1.046	2.845	2.158-3.750	<.001
6c	0.013	1.013	0.747-1.372	0.936
7	-0.294	0.745	0.588-0.944	0.015
8	-0.368	0.692	0.564-0.848	<.001
9	Base	1		
log(day)	0.328	1.388	1.314-1.467	<.001
Year of settlement	0.366	1.442	1.356-1.534	<.001

¹ Please refer to Table 2.1 for industry code; industries with missing variables exceeding 99% were excluded.

Table B4

Estimated coefficients from log-linear regression on claimants' legal cost

	Estimate	exp()	95% CI	p value
Intercept	-1.499	0.223	0.167-0.299	<.001
Gender				
Female	Base	1		
Male	-0.052	0.949	0.842-1.070	0.392
Age				
18-29	Base	1		
30-39	0.201	1.223	1.003-1.490	0.047
40-49	0.311	1.365	1.130-1.649	0.001
50-54	0.184	1.202	0.984-1.469	0.072
55-59	0.019	1.019	0.826-1.257	0.858
>=60	0.046	1.047	0.813-1.348	0.724
Nature of injury				
Sprain and strain	Base	1		
Contusion and bruise	-0.040	0.961	0.834-1.107	0.581
Laceration and cut	-0.222	0.801	0.647-0.991	0.041
Fracture	-0.115	0.891	0.731-1.086	0.254
Multiple injuries	-0.037	0.964	0.706-1.316	0.816
Crushing	-0.241	0.786	0.575-1.075	0.132
Abrasion	0.181	1.198	0.785-1.827	0.402
Burn - Scald	-0.292	0.746	0.425-1.312	0.310
Irritation	0.012	1.012	0.578-1.772	0.967
Other	-0.214	0.807	0.611-1.066	0.131
Minor injury	-0.107	0.899	0.639-1.265	0.541
Severe injury	0.662	1.938	0.994-3.779	0.052
Industry¹				
3	-1.035	0.355	0.276-0.457	<.001
4	0.052	1.054	0.858-1.294	0.617
5a & b	-1.041	0.353	0.260-0.479	<.001
5c	0.739	2.094	1.656-2.648	<.001
6c	-0.056	0.945	0.730-1.224	0.670
7	-0.418	0.658	0.539-0.805	<.001
8	-0.491	0.612	0.515-0.727	<.001
9	Base	1		
log(day)	0.231	1.260	1.203-1.320	<.001
Year of settlement	0.331	1.392	1.321-1.467	<.001

¹ Please refer to Table 2.1 for industry code; industries with missing variables exceeding 99% were excluded.

Table B5

Estimated coefficients from log-linear regression on legal expense of company

	Estimate	exp()	95% CI	p value
Intercept	-1.452	0.234	0.176-0.311	<.001
Gender				
Female	Base	1		
Male	-0.038	0.963	0.857-1.082	0.524
Age				
18-29	Base	1		
30-39	0.192	1.211	0.999-1.468	0.051
40-49	0.290	1.336	1.112-1.605	0.002
50-54	0.222	1.249	1.027-1.518	0.026
55-59	0.024	1.024	0.835-1.256	0.820
>=60	0.063	1.065	0.833-1.362	0.617
Nature of injury				
Sprain and strain	Base	1		
Contusion and bruise	-0.058	0.943	0.822-1.082	0.406
Laceration and cut	-0.197	0.821	0.668-1.010	0.063
Fracture	-0.155	0.856	0.706-1.038	0.114
Multiple injuries	-0.107	0.899	0.664-1.217	0.491
Crushing	-0.239	0.787	0.581-1.068	0.124
Abrasion	0.166	1.181	0.783-1.781	0.429
Burn - Scald	-0.286	0.751	0.434-1.301	0.308
Irritation	0.001	1.001	0.580-1.727	0.997
Other	-0.202	0.817	0.623-1.071	0.144
Minor injury	-0.120	0.887	0.636-1.237	0.481
Severe injury	0.904	2.469	1.289-4.730	0.007
Industry¹				
3	-0.999	0.368	0.288-0.471	<.001
4	-0.021	0.980	0.802-1.196	0.839
5a & b	-1.013	0.363	0.270-0.489	<.001
5c	0.733	2.082	1.657-2.616	<.001
6c	-0.073	0.930	0.723-1.195	0.569
7	-0.413	0.662	0.544-0.805	<.001
8	-0.486	0.615	0.520-0.728	<.001
9	Base	1		
log(day)	0.231	1.259	1.203-1.318	<.001
Year of settlement	0.316	1.372	1.304-1.443	<.001

¹ Please refer to Table 2.1 for industry code; industries with missing variables exceeding 99% were excluded.

Table C1

Description of patients participating in personal interviews

	MORE programme (n=16)	OSOC (n=4)	NGO – ARIAV (n=4)	Total (n=24)
Gender				
Male	12	4	3	19
Female	4	0	1	5
Age group				
<=25	2	0	0	2
26-35	3	0	2	5
36-45	3	3	1	7
46-55	3	1	1	5
56-65	5	0	0	5
Nature of injury				
Low back pain	12	4	1	17
Neck	3	0	0	3
Shoulder	1	0	0	1
Leg	0	0	3	3
Injured duration				
3 months	3	2	1	6
4 months	2	0	0	2
5 months	3	2	0	5
6 months	2	0	0	2
7 months	1	0	1	2
8 months	0	0	0	0
9 months	1	0	1	2
10 months	0	0	0	0
11 months	1	0	1	2
12 months	0	0	0	0
> 1 year	3	0	0	3

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