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Article *in* Journal of Occupational Rehabilitation · February 2011

DOI: 10.1007/s10926-011-9289-1 · Source: PubMed

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J Occup Rehabil (2011) 21:S69–S76
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Occupational Rehabilitation in Singapore and Malaysia

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Published online: 17 February 2011

Abstract *Introduction:* Asia is the new and favored magnet of economic attention and foreign investments after it made an almost uneventful rebound from the depths of financial crisis of 2008/2009. Not many Western observers fully understand the diversity that is Asia other than perhaps its 2 growing economic giants of China and India. Indeed many smaller countries like Singapore and Malaysia in South East Asia along with Australia and Hong Kong (a Special Administrative Region within China) look to symbiotic relationships with these two economic giants. The purpose of this discussion paper is to examine the current issues related to the development and provision of occupational rehabilitation services in Singapore and Malaysia with a forward-looking view of how Asia's different developing societies could potentially benefit from better alignment of occupational rehabilitation practices and sharing of expertise through international collaboration and dialogue platforms. *Methods:* Seven therapists and one physician who are frequently involved in occupational rehabilitation services in their home countries critically reviewed the current issues in Singapore and Malaysia which included analysis of the prevalence and cost of occupational injury; overview of workers' compensation system; current practices, obstacles, and challenges in providing occupational rehabilitation and return to work practices. They also offered opinions about how to improve the occupational rehabilitation programs of their two home countries. *Conclusion:* Even though Malaysia and Singapore are two different countries, in many ways their current provision of occupational rehabilitation services and the problems they face with are very similar. There is a lot of room for systemic improvements that require government support and action. Most prominently, the training of more healthcare professionals in the assessment and rehabilitation of the injured worker should be encouraged. There could be better liaison between the many stakeholders and more funding made available to develop resources and to jump start strategic programs. As these two countries are witnessing rapid economic growth, more resources should be allocated to establish holistic care of the injured workers emphasizing early interventions and prevention of chronic disabilities.

Keywords Occupational rehabilitation · Singapore and Malaysia · Workers' compensation system · Obstacles and challenges

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Introduction

Malaysia and Singapore are two neighbouring countries with many similarities and differences in cultures and lifestyles. Comparatively Malaysia is a much bigger country in terms of geographical area and population; consisting of 13 states and 3 federal territories and the population stands at over 28 million. Singapore, on the other hand, is much smaller in size and population, yet it is currently the fastest growing economy in the world, where economic growth for the first half of year 2010 reached 17.9% [1].

Malaysia, as a developing country in South East Asia, has nearly 10.5 million Malaysians engaged in a wide range of work from traditional agriculture activities to high technology industry [2]. Similar to other Southeast Asian countries, there has been a gradual shift from traditional agricultural and fishing industries, to construction and manufacturing industries in the past decades, alongside a general move towards globalization [3, 4]. The Malaysian government has actually set a target called "Vision 2020", that is, it aims to become a *developed* country by the year 2020. As a result, workplaces in the country are subjected to the introduction of new technologies, modern work organizations and work processes, although Malaysia still has a large proportion of workers working in small enterprises and cottage industries with less than 10 workers [5]. High proportion of manpower in both the large industries and small enterprises has altered the epidemiology of occupational injuries in Malaysia where there is a shift in the prevalence of communicable disease to non-communicable disease [5]. The enactment of the Occupational Safety and Health Act in 1994 has been an important landmark in Malaysia's development of industrialization, and has had a major impact on encouraging safety practices and reducing injury rates of the country [6].

Singapore, on the other hand, is an island city state of 700 square km and a population of about 5 million residents comprising of a wide mixture of people from different races and nationalities. Singapore has pursued a growth policy of attracting multinational companies (MNC) manufacturing industries since the early 1970s and recently has pursued a higher value chain manufacturing in pharmaceuticals, water industries and investing in life sciences research even as globalization creates a relocation of stalwart traditional industries like electronics to cheaper countries. However it maintains its business competitiveness in the global world stage as being of the one of the friendliest places to do business in the world.

In this paper, we aim to provide an overview of the prevalence rates and characteristics of occupational injury in Singapore and Malaysia, which are two very important countries in the South East Asian region. The workers' compensation system and provision of rehabilitation programs of the two countries are compared and suggestions for improvement to the system are discussed.

Prevalence and Costs of Occupational Injury

Malaysia

The Social Security Organization (SOCSO) is the Malaysian government department responsible for administering the employment injury insurance scheme as well as enforcing the disability benefit programs and rehabilitation programs that the injured workers are entitled to receive prior to returning to work [7]. In terms of total accidents reported per 10,000 employees, there has been a progressive decrease in the total cases reported from 167 cases in 2003 to 103 in 2007 [7].

In year 2007, the manufacturing industry was featured as having the highest prevalence of work accidents in which there were 19,607 injuries reported in this sector (Fig. 1). This is followed by trading, public services and service industries. From the perspective of injury causation, the majority of the reported cases in 2007 were typical of manual handling accidents such as stepping on, striking against or struck by object (Table 1). Falling from height or falling at the same level is also a major source of injuries. Out of a total of 56,339 reported cases, only about 1,000 cases involved other body systems while the rest were all musculoskeletal injuries or disorders, and injury to the skin. This reflects the high costs of musculoskeletal trauma or injuries which are consistent with the world trend [8, 9]. Nonetheless, there is a significant decline in the cases of accident causing more than 3 days of absence totaling from over 1.2 million days in 2003 to just over 920,000 in 2007. Statistics indicated that 80–90% of the accidents reported to SOCSO involved small and medium size industries (Sims) [4, 10].

Singapore

In Singapore the Ministry of Manpower (MOM) is responsible for the monitoring and promoting of work site safety and health [11]. The work site fatality rate is now at 2.8 deaths per 100,000 workers while the accident frequency rate is 1.9 incidents per million man hours worked in 2008, unchanged since 2006 (MOM's Annual Report [11]). In 2008, the rate of work-related injuries was 469 per 100,000 employed workers with permanent disablement at 5.6 and temporary disablement at 460 per 100,000 workers. In 2009, there were 126 persons sustaining permanent injuries due to incidents at work, down from 132 the year

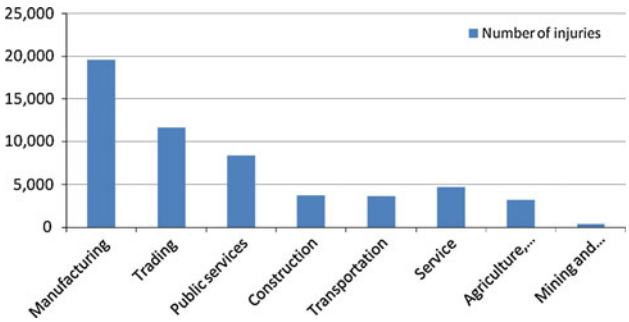

Fig. 1 Number of reported work injuries in Malaysia among the major industries (figures Obtained from SOCSO report [7])

Table 1 Profile of reported work injuries in Malaysia in 2007

Cause of injury	Number of cases	Body part injured	Number of cases	Diagnosis/pathology	Number of cases
Stepping on/struck by object	24,706	Head	5,777	Fractures	12,607
Falling from height or same level	13,417	Neck	160	Sprains and strains	3,748
Caught in between objects	5,421	Trunk	3503	Dislocations	1,669
Struck by falling objects	4,930	Shoulders	2086	Superficial injuries	2,847
Over-exertion or strenuous movements	3,380	Upper arm, elbow and forearm	991	Contusions and crushing	1,669
Exposed to/contact with extreme temperature	921	Wrist and hand	7,717	Burns	1,086
Exposed to/contact with electrical current	68	Fingers	12,077	Amputations	643
Exposed to/contact with harmful substance	239	Hip and thigh	969	Concussions and internal injuries	1,743
Others	3,257	Knee	1,855	Multiple injuries of different natures	1,802
		Leg and ankle	5,639	Other wounds	26,336
		Feet and toes	4,843	Others	2,189
		Upper limb—multiple areas	518		
		Lower limb—multiple areas	508		
		Other body systems	1,075		
Total number of cases					56,339

before. An average of 5.2 workers out of every 100,000 employed persons was permanently injured, down from 5.6 in 2008. Ninety-six percent of the permanent disablements involved the complete loss or partial loss of the use of the hands (including fingers). The remaining 4.0% were localized to the lower limb and injuries in multiple locations. Manufacturing, construction and marine industries are the main sectors in which injuries resulting in permanent disability occur [12]. See Fig. 2a, b, c.

Singapore relies heavily on foreign workers (those who are work permit holders) for filling positions in low skill and labor intensive industries such as the construction industry [13]. It has been reported that foreign workers sustained higher rates of injury, required more hospitalizations and longer sick leaves, compared to local workers [13, 14].

Comparing the occupational injuries in Malaysia and Singapore it is likely to reveal that Malaysia may have an even balance of cases between rural and urban sectors, and there may be more injuries in Malaysia associated with traditional agricultural and non-industrial causes. In contrast, Singapore is a commercial city with greater focus on developments in "hi-tech" industries. Choi [9] reviewed the occupational injury statistics of women workers in Asian countries such as Malaysia, Singapore, Philippines, and Thailand and commented that beside the common types of musculoskeletal injuries such as strains and sprains, and occupational skin diseases, serious injuries such as fractures, burns, effects of electrical currents, noise-induced hearing loss, silicosis, lead poisoning, and effects of vibration are also major causes of workplace injuries in developing countries in Asia. The high prevalence of these types of injuries reflect the need for improving occupational health and safety—especially in the small enterprises and cottage industries, as well as in the rural areas.

Overview of Workers' Compensation System

Malaysia

In Malaysia, there are several government organizations that are responsible for occupational injury and disease issues. The Social Security Organization (SOCSO) is involved in providing compensation for injured workers, introducing certified training for disability assessment such as a Certified Medical Impairment Assessment (CMIA), and developing guidelines for the assessment of traumatic injuries and occupational diseases [7]. SOCSO also works in collaboration with a private institution to provide rehabilitation for work related injuries. The Department of Occupational Safety and Health (DOSH) under the Ministry of Human Resources is the agency responsible for enforcing the occupational safety and health law [6]. The Occupational Health Unit of the Ministry of Health has

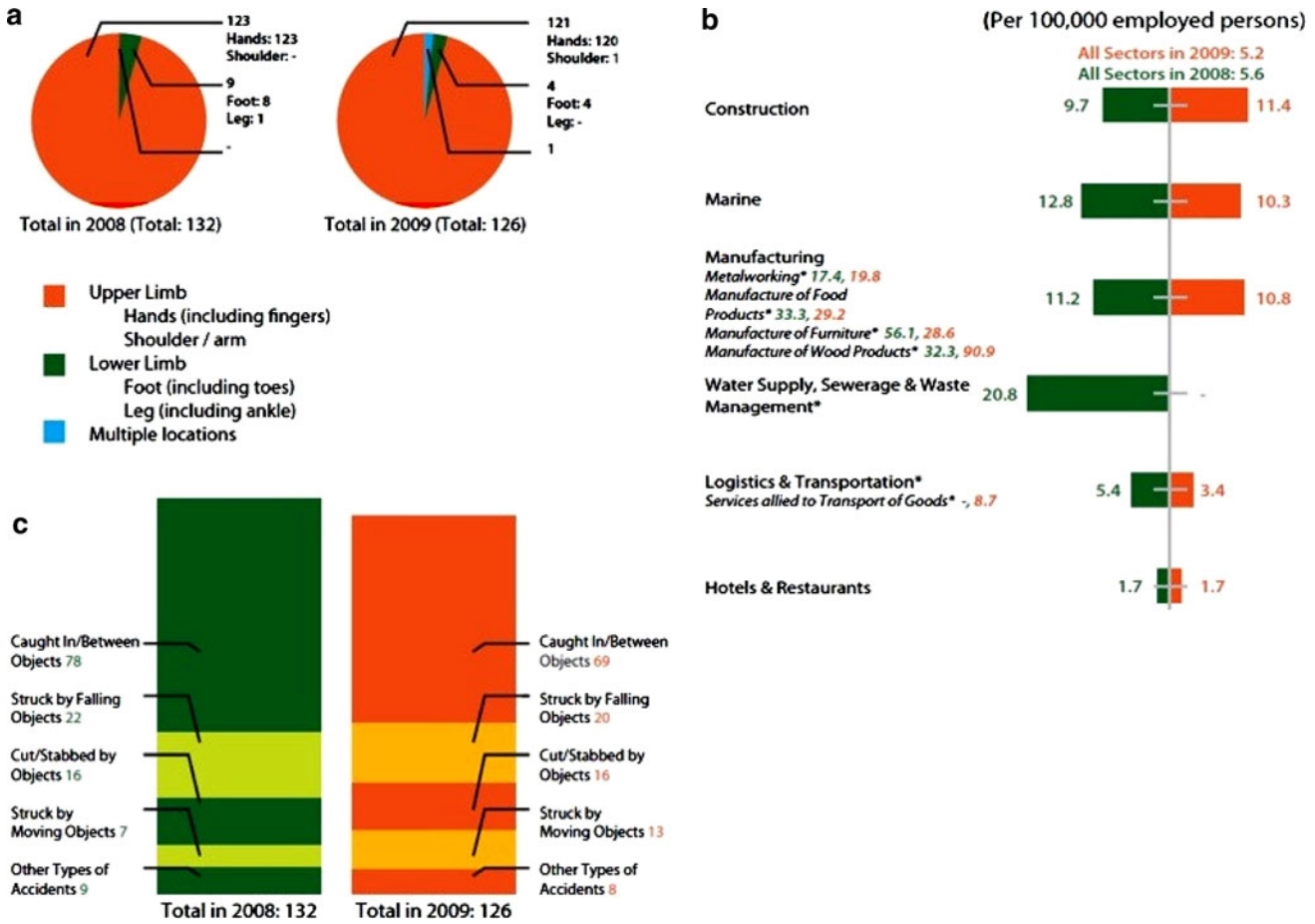

Fig. 2 **a** number of permanent disablements by body part injured, 2008 and 2009 (Source: Ministry of Manpower, Singapore). **b** permanent disablement rates by industry, 2008 and 2009 (Source: Ministry of Manpower, Singapore). **c** number of permanent disablements by type of incident, 2008 and 2009 (Source: Ministry of Manpower, Singapore)

been instrumental in conducting surveillance activities for the country. Most of the notification of occupational poisoning, injuries and diseases are provided by hospitals and health clinics under the Ministry of Health. Apart from that, it conducts regular occupational safety and health training for its employees [2].

The workers' compensation system in Malaysia is generally divided into Government and private compensatory methods and it is bound to legislation of Malaysia Law under various acts and regulations. The Persons with Disabilities Act 2008 is another recently launched act and regulation replacing the older version under Department of Welfare; this Act has an important role to assist and empower persons with disabilities (PWD) in gaining accessibility in all aspects of life, including the right to public facilities, education, employment, and rehabilitation [15]. Occupational rehabilitation professionals are expected to take appropriate measures to enable the PWD to attain and maintain maximum independence, and to achieve their full physical, mental, social, and vocational potentials. However, to achieve this aim, there needs to be close collaborations between different departments including the Department of Social Welfare, Ministry of Human Resources and Ministry of Health. The PWD Act has produced significant effects in promoting the importance of occupational and vocational rehabilitation programs in Malaysia, as a large number of disability cases that are registered as "PWD" are work injury related. Vocational programs and projects are embarked by Malaysia Labor Department in recent years for employment of PWD in various states in Malaysia but the involvement of medical rehabilitation professionals in these programs and projects are very minimal. It is likely that the expertise in rehabilitation tends to reside more in the medical system, whereas the social welfare and labor departments are responsible for administering the

rehabilitation or re-integration of disabled persons into the workplace or the community. Hence, how successful the overall process of the injured workers' journey from acute care to full re-integration into community and workplace is still needs close scrutiny and critical evaluation.

Singapore

In Singapore, the Occupational Safety and Health Division of the Ministry of Manpower oversees the policy and administration of the legislature which covers workplace safety, health and workmen's compensation. Two pieces of legislature was recently introduced and revised to broaden the workplace safety and health (WSH) frameworks. The Workplace Safety and Health (WSH) Act was enacted in March 2006 and replaces the Factory Act. The following are 3 key features of the WSH Act:

(1) The Act assigns legal responsibility to those who create and have control in the management of safety and health care risks in the workplace. It enshrines both a prescriptive and performance based system.
(2) The Act mandates the employer or principal to conduct regular risk assessments and to take steps to manage that risk.
(3) It also enhances penalties to reflect cost of accidents and for poor safety management. The Work Injury Compensation Act (WICA) which came into effect in 2008 has also significantly increased the coverage to approximately 2.1 million workers in Singapore (which is equated to a 70% increase from previous numbers covered). The injured workers can now have easier access to settle compensation claims arising from permanent incapacity and higher compensation limits. Compensation is calculated based on formulae and employers' liabilities are capped. Injured employees have recourse to WICA or common law but not to both. It is the employers' responsibility to report any accidents resulting in injury of any of their workers to the Ministry of Manpower.

It is mandatory for employers to purchase work injury compensation insurance for all manual workers and non-manual workers earning S$1,600 (USD 1,200) and below. For non-manual workers earning above S$1,600 (USD 1,200), though it is not mandatory, employers are still liable to pay compensation in the event of a valid claim [11]. Lee et al. [16] commented on the legal pitfalls in the WICA system, which have resulted in a large number of cases pursuing civil litigation in Singapore. The same authors also urged the doctors in family medicine to actively seek training in occupational medicine, since they are often the first contact practitioners for workers presenting with work injuries [17].

Current Occupational Rehabilitation and Return to Work Practices

Malaysia

In Malaysia, there is no formal "occupational" rehabilitation program for the injured worker. The only related program has been designed and launched in 2007 to address the concerns of the Ministry of Human Resources and SOCSO on the health and well being of the Malaysian workforce. This program attempts to integrate components such as physical and vocational rehabilitation that can help these workers return to their normal life and continue to be a productive worker. Similar to other countries in Asia, injured workers may receive medical management of their injuries, and those with severe injuries may develop disabilities that become eligible for disability or invalidity benefits. There are serious "gaps" in the continuous process from clinical care of injured workers to rehabilitation in preparation for return-to-work.

In the research literature, this is reflected by the lack of publications about rehabilitation of injured workers in Malaysia, in sharp contrast to a significant amount of published research papers on the implementation of occupational safety and health practices for various occupational groups such as office workers, medical personnel, drivers, and industrial workers [2, 5, 18–20]. The SOCSO report [7] also reflected the emphasis of the government, which focused on analyzing the prevalence and characteristics of occupational injuries, whereas there is very little detail about the outcomes of the injured workers. There is a need to look after both ends of the spectrum, from encouraging occupational health practices, to ensuring that once injured workers can be guided effectively to return to their full work capacity, and that employers are willing to accept them back.

Singapore

In Singapore, formal rehabilitation programs to facilitate return to work of injured workers as standard good care is still in its infancy. The first point of contact for injured workers is usually within an acute hospital. Depending on the primary (i.e. first contact) physician's level of knowledge and awareness of occupational rehabilitation, occupational rehabilitation may or may not be part of the continuum of care after medical stabilization and/or surgical treatments. If referred, the service provision is usually led by occupational therapists that have training and exposure to return-to-work process. The scope of services may not encompass the full range of occupational rehabilitation interventions due to limitations in resources in acute hospitals. Common services provided include work

conditioning, functional capacity evaluation, recommendations for suitable work duties, work site visits, and ergonomic interventions. On the preventive aspect, educational talks on prevention of work-related injury to corporations and safety officers in ergonomics are provided by occupational therapists and physicians.

When injured workers are not able to return to work with their original organization, they may be referred to various community resources for alternative job placements. An example is the Community Development Council (CDC) for Employment Services. For workers with more severe disabilities from the injury, they may be referred to community rehabilitation agencies for vocational rehabilitation. Examples are the Society for the Physically Disabled (SPD) and Bizlink Centre Singapore Limited which provide vocational assessment, counseling, training and placements. Both of these agencies also run "sheltered" workshops to cater to clients who require new work skills and work behavior training.

As seen from the above, there is currently no designated person with roles to co-ordinate the whole range of occupational rehabilitation services for injured workers. At the present time, the case management model of care with emphasis of liaison between stakeholders is still in its infancy in Singapore. A comprehensive study has been commissioned by the Ministry of Manpower to compare cost-efficiencies and other benefits of this model of care in Singapore and is expected to be completed by 2012.

Obstacles and Challenges in Occupational Rehabilitation

Based on the review of the workers' compensation system and work rehabilitation practices in Malaysia and Singapore, there are many obstacles and challenges that exist in both countries, that prevent a more holistic management of injured workers. The following is a summary of the major obstacles and challenges identified by medical and rehabilitation professionals in these two countries:

Malaysia

1. In Malaysia, RTW programs for injured worker are not directed by the Ministry of Health or its related agencies as there is no allocation of budget to implement the service, even though the MOH has the most manpower resources for medical rehabilitation expertise. Instead the Ministry of Human Resources takes responsibility in directing the RTW program which would require more experienced practitioners in view of complex interventions necessary for RTW.
2. Clinical skills, knowledge and techniques of the Malaysian healthcare professionals and other stakeholder are in need of more exposure and training to the most updated model of care for occupational rehabilitation.
3. More funding for operational budgets, manpower and facilities issues needs to be realized for both government and private healthcare sectors to implement occupational rehabilitation services.
4. A large proportion of reported injuries occur in small and medium size enterprises and industries. There is a need to establish communication channels and improve awareness of employers in these businesses, about occupational rehabilitation and appropriate return-to-work process.
5. The policies, legislation act and regulations from different ministry and department create confusion and complication in the execution of work rehabilitation services and programs.

Singapore

1. Return-to-work is very resource intensive in terms of time, capital allocation and expertise. There is a need for major funding allocation to facilitate the multidisciplinary healthcare team to develop comprehensive work rehabilitation processes for the injured workers as part of standard good care.
2. There is currently not enough awareness among different stakeholders about the RTW process and the extrinsic and intrinsic benefits.
3. Currently, there are no specialized occupational rehabilitation centers available in Singapore. There is also insufficient training in occupational rehabilitation, for medical doctors as well as allied health professionals such as occupational therapists and physical therapists in their undergraduate curriculum. Many therapists generally acquire relevant skills and knowledge on the job.
4. Roles and responsibilities of each stakeholder are defined poorly and circumscribed at best, resulting in lack of ownership of the return to work process.
5. Due to a lack of coordination for occupational rehabilitation services, the injured worker and stakeholders may be "lost" in the system, not knowing the availability of expertise and how to access them. The case management model may address some of the gaps.
6. Findings of a local survey done through telephone, interviewee's responses highlighted ongoing pain (56%) and chronic physical deficits (37%) as the top 2 factors which limit their return to work prospects. In

the research literature, the importance of early interventions has been demonstrated to be critical for preventing chronic pain and disability, and these issues need to be addressed in the current healthcare system [21, 22].

The Way Ahead

Even though Malaysia and Singapore are two different countries, in many ways their problems in occupational rehabilitation are very similar, and these problems may also apply to other developing countries in the same region. If there can be more communication and exchange of knowledge and ideas among healthcare professionals and various stakeholders of the nearby countries, it will be beneficial for all concerned. Indeed the standard of medical care is very high in both Malaysia and Singapore, which are comparable to many western countries like the United States and the United Kingdom. It will be a further improvement of the current systems, to develop more comprehensive services reaching into the community and the business sector, to enhance the cost-effectiveness of occupational rehabilitation and a successful return-to-work process.

Although the overall injury statistics show a declining trend in Malaysia, there are still a large number of injuries involving the musculoskeletal system that reflect an urgent need to enhance the delivery of occupational health and occupational rehabilitation services at the country and company level. In addition, rehabilitation medicine specialists need to develop and coordinate comprehensive occupational rehabilitation programs that incorporate both hospital based and community based facilities. This will require close collaboration of different departments including the Ministry of Health, SOCSO, Ministry of Labor, and Social Welfare. The government agencies would also need to establish communication with insurance companies and employers. A network of stakeholders (e.g., government, employers, employees and their families, insurance company, healthcare providers) can be established to proactively identify gaps of care in the RTW continuum, in order to come up with holistic solutions in the national interest.

Singapore should start a national database tracking injured workers including demographics, injury types, healthcare resource utilization, RTW outcomes, and costs. Both Singapore and Malaysia could study models of care in other countries that have demonstrated benefits and cost-effectiveness for their RTW programs. More resources to train relevant healthcare professionals in this field should be allocated urgently. More training of workers and supervisors as well as close surveillance of occupational safety and health practices is needed among the high-risk industries, especially targeting the foreign workers, which have been found to have significantly higher rates of serious injuries [13]. Strong advocacy directed at and between professional governing bodies to raise public and governmental awareness will result in incorporation of RTW education and training as part of core curricula for frontline practitioners. At this present moment, occupational rehabilitation is still very much a post-qualification specialty interest which only affords "opportunistic" and "needs-based" impartation of skills at the clinics.

We who work in Asia need to bear in mind the impact of societal and cultural values of our patients who may underutilize rehabilitation services however well they are set up [23]. Rehabilitation services which are offered should be even "contextual" to better target the injured worker subpopulations they serve. Many of our present services in Malaysia and Singapore are driven by governmental agencies that would need to give accountability in use of public funds. Cost efficiencies demonstrated through pilot trials before national system roll-outs or collaboration between governmental agencies and private entities or civic groups (and non-governmental organizations or NGO's) should be further encouraged because innovative healthcare systems may be birthed as a result.

It is our humble view that the coming decade will herald more efforts in international collaboration for training of healthcare professionals, joint research and sharing of expertise through regular dialogue between current clinical leaders, academia and governments of concerned Asian nations. The recently concluded International Symposium in Work Injury and Rehabilitation 2010 in China is one such showpiece platform.

Conclusions

As could be seen with this review of two countries' patterns of workplace injuries and systems of providing occupational rehabilitation, there is a lot of room for systemic improvements that require government support and action. Most prominently, the training of more healthcare professionals in the assessment and rehabilitation of the injured worker should be encouraged. There could be better liaison between the many stakeholders and more funding made available to develop resources and to jump-start strategic programs. As these two countries are witnessing rapid economic growth, more resources should be allocated to establish holistic care of the injured workers emphasizing early interventions and prevention of chronic disabilities. We are looking forward to a decade of increasing collaboration and dialogue between Asian countries to

come up with localized solutions which meet the return-to-work needs of our injured workers.

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