

REVIEW ARTICLE

INTEGRATED CARE PATHWAY (ICP) ON MANAGEMENT OF OCCUPATIONAL RELATED CHRONIC LOW BACK PAIN (OCLBP) IN MALAYSIA: A CRITICAL REVIEW

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ABSTRACT

Occupational Related Chronic Low Back Pain (OCLBP) is a globally recognized illness that causes reduction in productivity and substantial economic burden to the countries. It requires a multidisciplinary approach involving employer, healthcare provider, compensatory and enforcement agencies. However there is no specific guideline or pathway that has integrated the roles of each responsible agency. The objective of this article is to highlight the need and to propose a coordinated approach through the concept of Integrated Care Pathway (ICP). Therefore, we reviewed international and local guidelines as well as published articles on chronic low back pain and care pathway. We believed that development of a pathway will be able to organize the role of management at every level, reducing the variations in the management, addressing issues of communicating the findings between the responsible stakeholders, fulfilling the requirements as the laws, allows effective and feasible approaches to take place in terms of cost and practicality, and increase the awareness on occupational diseases. Expected challenges such as limitation of resources, unawareness and lack of understanding on OCLBP from every level are issue that we agreed can be bridged through ICP.

Keywords: Occupational related chronic low back pain, integrated care pathway, Activity Based Costing.

INTRODUCTION

Occupation related chronic low back pain (OCLBP) is not a newly discovered illness. In the study on Global Burden of Disease, 37% of back pain was deemed attributable to occupational risk factor¹. However there are always uncertainties on describing the temporal relationship due to multiple risk factors, characterization of ergonomic assessment, definition of the case as well as epidemiologic designs in each analysis². Despite those issues, one has to understand that the concept of management in any occupational related illness especially on chronic low back pain requires contribution and perspective from industrial laws, healthcare provider, ergonomist, employer and relevant authorities³⁻⁶. Within developed countries, the economic burden cause by chronic low back pain is a major occupational health issue⁷⁻⁹. Huge efforts were made by international organization on developing such guideline that combines overall perspective, on which has allowed a better understanding on the management of OCLBP¹⁰⁻¹³. Malaysia is currently facing a similar situation. From 2009 to 2013, the numbers of back injuries are escalating and currently it is the highest reported cases of occupational related disease in Malaysia¹⁴. The disease was also reported in few local studies which were done among various occupations¹⁵⁻¹⁷. The majority of cases involved manual handling workers, who had significant occupational risk factors and profound disability. As a response to this issue, efforts were made by industrial related agencies to reduce the incidence and to promote ergonomic work environment in the

workplace. However, the efforts between the responsible stakeholders were seemed isolated from one to another and therefore, the authors feel that further action is needed to integrate the management.

To address the issue, developing an Integrated Care Pathway (ICP) would be one of the highly recommended method. It allows an integration of management between different disciplines or organizations, combining the most practical and evidence-based approach, developing a common and shared understanding and allowing better decision making process. It provides a direction to achieved certain goals, facilitating communication and coordinating roles from each discipline¹⁸. ICP has proven to reduce the economic load while sustaining the best quality of effort or service to be delivered¹⁹⁻²¹. On top of that, ICP can be used as a basis in costing analysis through Activity Based Costing (ABC) approach in economic evaluation process. The approach reflects the details on consumption of resources that was used in each level of activity along the developed pathway²².

The use of integrated care pathway however is not something new in Malaysia. Local studies on care pathway has proven beneficial to healthcare provider and patient²³⁻²⁶. In Malaysia, ICP has not yet being used for managing occupational diseases. To date, there is no published study on developing such pathway on addressing OCLBP yet.

METHODOLOGY

With this idea in mind, the authors will try to raise certain issues on management of OCLBP, to highlight the benefits as well as the expected challenges, and how it could be addressed through ICP. Reviews were made from local and international industrial laws, the published articles related to the topic as well as established guidelines.

RESULTS

The results of this literature review will begin by discussing the essential point in integrated care pathway, which includes the definition, the history, the needs on such pathway to address certain issues related to occupational related musculoskeletal disorders such as chronic low back pain, as well as discussion on related issues.

1) Definition of Integrated Care Pathway

Care pathway is also known as clinical pathway, care map or integrated management plans²⁷. However the authors prefer the term “Integrated Care Pathway” (ICP); as in OCLBP, the approach not only involve the clinician, but requiring employers, ergonomist and compensatory and enforcement agencies to be part of the management team. It is defined as comprehensive patient care pathway which conforms to best treatment and evidence-based medicine. It comprises complete activities and process in treating a specific disease agreed by multidisciplinary team involved in giving treatment to patient within a stipulated time frame²⁸. ICP is an excellent tool for categorization from the symptoms, diagnosis, complications, and management. It will help to ensure that no important findings and variables are missed²⁹. ICP itself has been used as part of economic evaluation on any healthcare interventions.

In non health care organization, it is known as critical path method (CPM). It has been used since middle of 1950s by contractors and even the U.S Navy. The method was used to manage and analyze task sequence in large projects, through identification of starting dates, duration of completion, coordination on simultaneous activities, sequencing and flowcharts. Business Process Redesign (BPR) has similar concept to ICP, with the purpose to improve quality of service, improvement in job satisfaction and to ensure cost effectiveness in the business³⁰.

2) The need of integrated care pathway on Occupational Related Chronic Low Back Pain (OCLBP) in Malaysia

There is sound justification for a care pathway addressing occupational related diseases in Malaysia especially chronic low back pain. The justifications are discussed below:

- a) To integrate the role and standardized the practice by relevant stakeholders in the management of OCLBP

As mentioned earlier, the perspective of management were seemed isolated from one stakeholder to another. There is no study yet in Malaysia which looks into issues between relevant stakeholders on communicating their findings and coordinating their approach in occupational health. Even during the introduction of occupational health laws in Malaysia, there is still minimal communication being done between stakeholders. Without integration, the understanding on the matter will be difficult to be achieved. For example, clinical experts who work in the hospital may have little understanding on occupational diseases compared to private practitioners who are engaged as occupational health advisors in various industries. However, the number is relatively small, and therefore it is not surprising that the level of knowledge on occupational safety and health among healthcare professionals in Malaysia are poor³¹. It will not be easy to communicate with a person who does not have the basic knowledge on complex occupational illnesses, such chronic low back pain.

Establishing a diagnosis is an important goal among the clinician as it will allow a definite direction to clinical management and identification of the “flag signs”³². The limitation on clinical management however is the assessment on functional capacity of the patient as a whole, which includes activity of daily living and working. These lead to issues such as prolonged sick leave and “light duty letter” without further explanation on, again the functional capacity of the affected worker. It is important for the clinicians to accurately define the functional limitations of the worker and to communicate with the employers on the physical job restrictions. Most of the time, the communications is often authoritative and unidirectional, leaving workers and employers in a passive role³³. Problems in communication will lead to a poor disability outcome³⁴.

An ICP will be able to pinpoint specific role on each stakeholders so that a comprehensive management can be delivered. On top of clinical management, clinician should refer the suspected case to occupational health physician (OHP) for further management. OHP will then provide the necessary services (such as advice on chronic disability management, return to work program, etc) as well as communicating the findings with relevant stakeholders such as the employer and ergonomist. A joint and collective understanding on the management

can be achieved without being biased to each other and at the same time enhancing the occupational health services in this country.

To ascertain a workplace exposure as major risk factors in chronic low back pain, the ergonomist will need to perform workplace health risk assessment. The concern is due to non standardized exposure assessment performed by ergonomist. Some studies have reported that the detail and quantitative methods applied by the ergonomist were seemed impractical to be utilized³⁵. On the other hand, direct observation was seen as the best as it provides a visualize evidence (either with photograph or video recording), but had been criticized as they are often measured single occasion for a brief period, and it does not estimate the past exposure². Misclassification of the exposure may occur as a result. Through ICP, the standardized way of assessment can be developed in the most practical and meaningful manner where the results can be utilized by the relevant authorities to ascertain the association, and to be used by employer as a guide on establishing ergonomic workplace setting.

Employers on the other hand, will be dealing with human resource issues such as allocating the affected workers to suitable jobs. As part of the industry, it is crucial for them to maintain the efficiency by maximizing the productivity with minimal cost, which most of the time, justify the decision to work in the most ergonomic way. Employers will not be able to understand the impact of illness through the clinical severity, in the context of work productivity. Without proper channel of communication, and with limited number of occupational health professionals, it will be a huge task for the thousands of registered companies in Malaysia to understand the essential need of workers with chronic low back pain³⁶.

By having the ICP, the employer can anticipate what is need to be done for the affected worker, and will be able to have some idea on the role on each stakeholder involved in the ICP. At the same time, the ICP will be able to increase the awareness of the problem, subconsciously ensuring the regulations made by the lawmaker to be fulfilled. Thus, it will allow reduction on the severity and chronicity of the injury, and ensure work productivity is maintained.

- b) Integrating evidence based practice in the management

The Department of Occupational Safety and Health has produced certain guidelines that address specific type of occupation and

musculoskeletal risk factors. Specific guidelines or code of conducts were developed for the industries to address chronic low back pain in the workplace such as “standing and sitting at workplace”, “working with video display unit (VDU)” and “occupational vibration”³⁷⁻⁴⁰. However, guidelines which integrate management from overall perspectives (clinical management, management by industrial ergonomist, involvement of the employers, enforcement and compensatory agencies) is not available in Malaysia. Theoretically, it will be ideal way by incorporating international guidelines from established organizations. However it has to take into account on the country’s industrial and occupational laws, culture of practice and epidemiology of the illness within local scenario.

At this stage, ICP will be one of the recommended approaches. Upon developing such pathway, the experts have to sit down and discuss together their role within the current situation, the economic burden from every perspective, recommended approaches and mitigation measures, practicality of the current regulation as well as enforcement, and health promotion. The experts will also need to review the current local and international guidelines, as well as current evidence-based management. A series of meeting as well as pilot study has to be carried out to ensure the effectiveness of the ICP and compare it with the traditional practices. This will require a huge effort from each stakeholder but the authors believed it will provide greater benefit to everyone. International organization such as European Agency for Safety and Health at Work had made this effort, which comprises clinical experts, occupational safety and health authorities, legislative bodies (such as Ministry of Labor, Department of Work and Pension, Disability Right Commission, Department of Justice, etc) as well as social affair department⁵. Similar efforts were made by agencies such as Health and Safety UK and NIOSH USA^{10,13}.

Clinicians will need to review evidence-based management of chronic low back pain and integrate their clinical understanding of the disease together with the functional requirement. The OHP and ergonomist have to established their importance especially among healthcare providers and employers that do not aware the existence of occupational health experts in this country. They need to provide updated and evidence based approach in the management. With regards to workplace assessment, OHP and ergonomist have to ensure and to list down what can be consider as a safe working environment, the risk stratification and recommended practical ergonomic solution in the workplace^{41,42}.

Employers on the other hand need to review the current organizational health management in the workplace with regards to occupational diseases such as chronic low back pain. Through risk assessment, a list of technical issues at workplace such as work-rest schedule arrangement, analysis on sickness absence on chronic low back pain, and administrative support for workers to complete their treatment and rehabilitation process can be very helpful. All of these efforts from all parties need to be done without delay, as research has shown that one month is a crucial point for intervention to be done to prevent long term work absence⁴³. Previous research had suggested that temporary provision of lighter or modified duty will be able to facilitate return to work⁴⁴. This finding was supported by European Agency for Safety and Health at Work, with exception that the provision has to be embedded in good occupational health management¹². British Occupational Health Guideline had suggested pre-placement assessment to be done as it can be a predictor of future low back pain and work loss¹¹. Health and Safety UK has listed the guidance to certain industries on reducing risk of low back pain which is available online¹⁰. NIOSH USA on the other hand had provides a direct and quantitative measurement of job physical risk factors, as well as study on work organization factors¹³. All these references can be used by the employer to be put into daily practice, and can be implement as part of the ICP.

Enforcement agencies may be able to list down the requirement by the law with regards to OCLBP management in the workplace. Through this, it will made known to everyone and at the same time allows an open discussion to be made. From here, a practical solution can be achieved and at the same time fulfilling the requirement by the law maker. The ICP may also be able to enhance the country's Occupational Safety and Health Master Plan 2015 to ensure the compliance of the industries to the requirements of the relevant regulations in Malaysia⁴⁵.

Compensatory agency such as SOCSO has to be included as part of the ICP. This is because under Employee Social Security Act 1969, occupational related diseases are compensable condition, and this includes OCLBP. Therefore, it is important for SOCSO to list down the requirements for a compensation to be made. On top of that, SOCSO also need to establish its function in prevention of occupational related diseases under its social security scheme. For example, SOCSO's Return To Work (RTW) Program which was initialized in 2007 has successfully reduces the disability related diseases and injuries including OCLBP, and ensuring the maximum productivity of workers to be achieved⁴⁶. Currently, the service was included in both of SOCSO's schemes (Employment Injury Insurance Scheme and Invalidity Scheme)

c) As a evidence to legislate OCLBP in occupational health related laws in Malaysia

Occupational Safety and Health Act 1994, Factory and Machinery Act 1967, and Employee Social Security Act 1969 are three important laws that were meant to serve and to ensure the safety, health and welfare of the workers in the workplace⁴⁷⁻⁴⁹. However, occupational related chronic low back pain was not specifically mentioned in those laws. The emphasis was only being placed in certain guidelines or code of practice developed by Department of Occupational Safety and Health (DOSH).

In some studies, development of ICP can be a powerful tool in implementation of new health policies. For example, Liverpool Care Pathway was launched in 2012 as part of National Health Service policy in UK to improve care of dying patients. It comprises a care pathway on palliative management. Though it was controversial, many healthcare providers agreed that the care pathway has made the "dying person" to die as comfortable as possible⁵⁰. Within Malaysia, both studies done by Ezat et al (2010) and Natrah et al (2012) were used as a reference in the implementation on HPV vaccination policy among school children and monoclonal antibody as part of treatment in colorectal cancer respectively^{24, 51}.

Other than that, studies on developing ICP can be used as a template in health economic evaluation. Therefore, through ICP, the burden of the disease can be addressed through economic terms in which can give more impact to the lawmaker. With the many international studies and guidelines to support our local findings, it can be presented to the parliament so that the legal implementation can be taken by the ministry. The guideline or code of conduct with regards to OCLBP can be further enforced in any workplace once it is legally bound.

d) To be used as tool in economic evaluation in health related interventions.

ICP is a method that was used as part of health economic evaluation. Each activity is considered in terms of consumption of human resource and service provided. This method was also known as Activity Based Costing (ABC) approach²³⁻²⁵. On top of this method, cost identified from step down approach can be calculated together to get the total cost of management of the disease studied. Similar approach can be applied on evaluating the cost related in the management of OCLBP. But what is interesting is that, the cost calculated will take into account the management from clinical, occupational setting, activities by compensatory as well as enforcement agencies. Therefore, the fundamental cost can be made and the information will be made known to every

stakeholder on the economic burden posed by OCLBP. Through that, it will be valuable information for any stakeholders to perform a cost effectiveness analysis on any specific interventions related to the management of OCLBP, at any level. This approach so far has not been done in any study yet.

- e) Standardize variations and reduce the error in the management

In every health care system, variation is a critical element in health care systems, which determines different components of health care services. However, these variations may lead to the scarce use of medical evidence, on which was known as “professional uncertainties”^{52,53}. These are the key elements as they have a possible links with medical and management error. Furthermore, many variations may cause confusion in the practice which most of the time had little evidence of benefit. It may consume more resources and increase the operating cost.

Through ICP, the practice of management can be standardized, ensuring a better understanding, reducing miscommunication and uncertainties⁵⁴. This will reduce the variations that exist, allowing a better resource management and effectively reduce the cost in the long run. Different industries have different level of risk on developing OCLBP. But as long as the stakeholders stay on track with the objectives and approaches made in the ICP, the outcome will still be favorable.

DISCUSSION

Expected challenges within Malaysian perspective

Traditional clinical or care pathway usually requires involvement of multidisciplinary team in clinical management alone (for example: developing ICP for spinal surgery will require spinal surgeon, anesthetist, nurse, physiotherapist, etc). However, developing ICP on occupational diseases such as OCLBP is difficult as it requires contribution and participation from both healthcare and non healthcare organizations (ergonomist, employers, compensatory and enforcement agencies, workers union, etc).

In this matter, the employer is considered the main gate keeper. The challenge is to merge the expectation of the employer with what is required by all stakeholders, especially the lawmakers. Unlike other occupational diseases that has a clear cut definition (such as noise induce hearing loss and asbestosis), OCLBP is seem to be indefinite. Most of the time, the employer does not have a clear guidance on what is need to be done or fulfilled. Therefore, each stakeholder needs to establish its role clearly on the pathway of management corresponding to

the capacity and nature of the industry itself. A conflict of interest is inevitable but the impact from such pathway will be beneficial in the long run.

Issue on differences in standard of ergonomic health risk assessment has to be addressed.

In many cases seen in SOCSO, the application of rapid assessment tool done by independent ergonomist has been an issue as it merely assessing the strain involving entire body, without focusing to the respective location of injury. In this case, the lower back area. A focus and relevant ergonomic assessment is required by the agency to determine the association between occupational exposure and the specific illness.

The industries on the other hand have their own standard of procedures or approaches. Multinational or international companies usually will follow an international guideline and comply with the law in the countries where they operate. However the question is how serious is the industries on tackling the issues related to ergonomics, especially on musculoskeletal disorders such as chronic low back pain in this country? As a result from cheap labor cost, lack of regulations and poor enforcement, technology transfer from developed countries had sometime neglected the safety and health issue within the operating countries⁵⁵. On top of that, previous local study done in 2004 had shown that the level of awareness on OSHA 1994 among employers and employees are poor⁵⁶. To make things worse, a survey on 150 small and medium industries (SMEs) in Malaysia shows 92.7% of them are not complying with the basic requirements of OSHA 1994. Only 3.1% of management personnel can be considered as competent in terms of knowledge, skills and ability to carry out occupational safety and health provision in their respective organizations⁵⁷.

CONCLUSION

The application of ICP in the management of OCLBP in Malaysia is a new paradigm and can be considered as a stepping stone in recognizing the economic burden of occupational diseases in Malaysia. By bringing different perspective of experts, the ICP can be used as a standardized guideline or reference by every stakeholder to implement a good standard of practice in recognizing and preventing the problem, fulfilling the requirements by the law, reducing the variations in management, and allowing effective and beneficial approaches in terms of cost and feasibility to take place.

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