

Manual Tasks Risk Management: How the Construction Industry is PErforMing

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Hazardous manual tasks continue to be a significant issue for the Queensland construction industry and one that needs to be managed. In addition, the construction industry is facing challenges such as an aging workforce, skills shortages, and competitive market conditions.

Workplace Health and Safety Queensland (WHSQ) conducted a pilot program at one large commercial construction site in Brisbane. The aim of the pilot was to trial the implementation of the Participative Ergonomics for Manual Tasks (PErforM) program in the construction industry. The PErforM program was developed by WHSQ, the University of Queensland and the Curtin University of Technology.

The pilot participants were very positive about the program and a number of learnings were identified including highlighting the role of the principal contractor, builder and sub contractors in managing manual tasks risks, the need to consider build ability at the design phase and the benefits of involving workers in manual tasks risk management.

WHSQ has a range of resources which will assist the construction industry to implement the PErforM program.

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1. Background

In March 2008, the Queensland Government, Department of Employment and Industrial Relations, Workplace Health and Safety Queensland (WHSQ) established a Musculoskeletal Injury Taskforce (now known as the Ergonomics Unit) to tackle the problem of increasing work related musculoskeletal disorders (MSDs) in industry. Ergonomics Advisors were allocated to strategic industry groups to manage specific MSD projects. Workplace Health and Safety Queensland is the government regulator for the Work Health and Safety Act 2011.

Over the last five years (2006/2007-2010/2011), MSDs accounted for almost half (46.8 per cent) of all non fatal workers' compensation claims in the Queensland construction industry. Of the MSD claims, over half (54per cent) were due to the performance of hazardous manual tasks.

The Queensland workers' compensation data indicated that in the construction industry muscular stress while handling, lifting, carrying, or putting down objects was the most common mechanism of injury. Falls were also a common cause of injury.

The parts of the body commonly injured were the lower back, knee, shoulder, elbow and wrist. Workers most frequently injured were labourers and tradespeople.

Building capacity to manage manual tasks risks in the construction industry is a WHSQ priority. One MSD initiative involved a pilot of the Participative Ergonomics for Manual Tasks (PErforM) Program. The construction work environment is unique in that it is constantly changing. Identifying the hazardous manual tasks and risk controls required is best achieved by following a systematic risk management process including worker consultation and participation. As PErforM has been successfully implemented in other industries, WHSQ decided to pilot the program in the construction industry in order to determine if it could be implemented within the construction environment.

The PErforM pilot program was supported by Abigroup at the Queensland Children's Hospital project. It was implemented with four sub contractors including form workers, steel fixers, concreters and block layers. Their work is labour intensive and involves a range of high risk manual tasks.

2. The PErforM Program

The PErforM Program is a simplified manual task risk management program which involves workplace-based teams devising manual tasks solutions for their high risk manual tasks. It is based on a participative ergonomics approach, an internationally recommended approach for reducing musculoskeletal disorders.

Participative ergonomics relies on good communication between all levels of staff and can contribute to improved worker morale and productivity.

The PErforM program was originally developed by WHSQ, the University of Queensland and the Curtin University of Technology as part of the manual tasks research project "Assisting High Risk Industries Implement the Manual Tasks Advisory Standard". This research demonstrated that PErforM has a positive effect on decreasing manual tasks risk. A significant reduction in manual task injury risks, as assessed by WHSQ Inspectors, was reported for workplaces receiving the PErforM intervention.

PErforM has been used in industries including mining, civil construction, aged care, food processing and timber and was successfully piloted in the manufacturing industry during 2010.

3. The PErforM Resource Package includes:

1. PowerPoint presentations for managers and organisations, trainers and work teams.
2. PErforM Resource Manual for workplace trainers.
3. PErforM Handbooks.
4. PErforM Frequently Asked Questions Fact Sheet.
5. Program evaluation tools.
6. Case studies.
7. No Sprains, Big Gains DVD.

This resource package is available on the WHSQ website at <http://www.worksafe.qld.gov.au>.

4. The PErforM Pilot in Construction Project

A pilot program was undertaken by WHSQ at the Abigroup Queensland Children's Hospital project from 2010 to 2012. The aim of the pilot was to trial the implementation of the PErforM program in the construction industry.

4.1 Project's Objectives

1. Determine if the PErforM program could be implemented at construction worksites.
2. Identify the barriers and enablers for successful implementation in the construction industry.

4.2 Methods

A number of construction organisations were approached about the PErforM pilot. Abigroup recognised its potential and agreed to participate.

4.3 Introductory stage

WHSQ initially introduced the PErforM Program to the project manager and safety team. Once management commitment was secured, the Abigroup project manager identified the trades to be approached for participation in the pilot and appointed the safety advisor as the PErforM site champion. His role was to work with WHSQ and facilitate the introduction and ongoing use of PErforM on the project.

4.4 PErforM for trainers workshop

Initially WHSQ delivered PErforM for trainers to key Abigroup staff including the project manager, engineers and safety team and also representatives from each of the participating sub contractors. It involved training the group in manual tasks risk management and also the critical requirements for successful implementation. This training took five hours.

4.5 PErforM for work teams workshops

Work teams were identified to participate in the PErforM for work teams training sessions. Suitable work teams were identified for a variety of reasons, for example:

1. The work they perform involves high risk manual tasks.
2. The team has experienced a number of manual tasks related injuries or incidents.
3. And/or their willingness to participate in the program.

Appropriate high risk manual tasks for assessment in the workshops were then identified and video footage obtained.

The pilot program included four sub contractors: block layers, steel fixers, form workers and concreters. It involved separate training of the work teams in manual tasks risk management and their participation in facilitated workshops to generate control ideas. The advantages to this method include:

1. Developing effective controls that will target the key risk factors and be designed for the work requirements to suit the workers.
2. Giving workers a greater sense of ownership and commitment to use the controls once they are implemented.

The training was delivered in three, one hour toolbox style sessions, as this amount of time was workable within the daily construction schedule.

The mix of people attending the work teams training varied depending on the trade but generally it included a leading hand, supervisor, 3-4 workers and the principal contractor safety advisor. The workshops were conducted in a training room which allowed for the use of video footage and a short PowerPoint presentation in each session. There were significant benefits gained from using a formal training environment on site such as the creation of a comfortable, quiet environment with minimal distraction so that participants could focus on the PEforM manual tasks risk assessment process.

Topics covered in the work teams training included:

1. Mechanism of injury associated with manual tasks.
2. Manual tasks risk factors.
3. Hazard identification.
4. Use of the PEforM risk assessment tool.
5. Hierarchy of controls.
6. Strategies for eliminating and controlling manual tasks risks.

The workshop included performing a risk assessment on one of the identified high risk manual tasks by analysing video footage of the task and using the PEforM risk assessment tool. The work team then developed risk control ideas for consideration and implementation by the subcontractor, the project safety team and the project manager.

5. Findings

The pilot participants were very positive about the program and a number of learnings were identified. These included the following:

5.1 Critical role of the principal contractor

1. Commitment and support from all involved, especially the principal contractor, was critical to the implementation of the program.

2. The program needs to be driven by the principal contractor. The sub contractors had difficulty progressing a number of the risk control ideas as many of the issues impacting on the hazardous manual tasks were outside their control, for example, time pressures, scheduling, design issues and procurement.
3. Build ability needs to be considered at the design phase in order to eliminate or minimise many of the hazardous manual tasks. It was difficult to implement higher level controls during the later stages of construction. The design team plays a critical role in this process.
4. The program needs to be embedded in existing occupational health and safety systems to ensure its sustainability within the organisation.

5.2 Worker involvement

1. The program gets workers involved in the risk assessment process and as a result there was greater ownership and input into initiatives that reduce risks. Overall, there was great participation and engagement at all levels including workers, subcontractors and principal contractor.
2. Some excellent risk control ideas were proposed. However, some ideas were complex so they were not progressed or were slow to be implemented.
3. A “tool box” style of training (40 minutes to one hour each session) worked well as it fitted in with work scheduling.
4. Workers were able to use the risk assessment tool following training.
5. The program served as a great training tool for educating all involved about the hazardous manual tasks risk factors, for example, due to an increased awareness, the principal contractor designers identified a greater number of hazardous manual tasks issues. They subsequently made contact with the WHSQ advisor to discuss their control options.

5.3 Barriers

5.3.1 Limited resources

The program implementation relied heavily on the WHSQ advisor as the principal contractor and contractors did not have the time due to other work pressures to facilitate the program. Provision of resources such as a dedicated site champion with the necessary attributes, that is, good communication skills and knowledge of ergonomics principles are critical for the program's success. It is recommended that more than one champion is trained as staff leave or move to different positions within an organisation.

5.3.2 Limited skills and knowledge

All of those involved required coaching as they did not have the ergonomics knowledge and facilitation skills required to implement the program. Assistance was also required for action planning and preparing business cases to obtain approval for the implementation of controls.

5.3.3 Limited organisational learning

It was identified that learnings may not be captured resulting in things that worked or didn't work, not being shared or integrated into new projects.

5.3.4 Lack of systematic approach to hazardous manual tasks risk management

The principal contractor, contractors and workers considered the PErforM training a "one off" training program rather than as part of an ongoing systematic risk management process which is the aim.

6. Discussion

Based on observations and discussions with managers, occupational health and safety staff, sub contractors and workers on a large number of construction sites, the following general construction industry observations were noted:

1. Hazardous manual tasks are everywhere and accepted as "part of the job".
2. Hazardous manual tasks are not a priority hazard in the construction industry.
3. Manual tasks risk assessments are poorly done, possibly due to lack of knowledge, skills and time to perform this task.
4. Manual tasks' control measures in relation to elimination or design are given a low priority and not systematically managed.
5. There is a focus on attributing the injury to the worker, not the task.
6. Training is still seen as delivering back care "talks" or teaching outdated techniques such as "bend your knees/keep your back straight".
7. Stretching programs, back care or core stability programs are often relied on as the main manual task risk management strategy.
8. Male workers are seen as the most suitable for "heavy lifting" tasks.

Research has demonstrated that the PErforM Program has a positive effect on decreasing risk. A significant reduction in manual task injury risk as assessed by WHSQ inspectors was reported for workplaces receiving the PErforM intervention. In this research Burgess-

Limerick (2004), (p10) claimed that the program provides the best evidence available for the effectiveness of a participatory ergonomics program in reducing the risk of injury associated with manual tasks.

PERforM is based on the basic premise that the workplace is the best place to solve ergonomics problems and workers are an integral part of the process. A “train-the-trainer” program was developed to train suitable industry people to train up work teams in the principles of participative ergonomics and manual tasks risk management using the PERforM program. The principle of the program is that work groups or teams identify problem manual tasks in their work and go through a risk assessment process which requires them to develop control suggestions. Management then discusses and supports the implementation of key controls. Once controls are implemented, evaluation is required to ensure that the risk has been controlled and no new risks have been introduced.

7. Limitations of the PERforM Program

PERforM is a simplified manual tasks risk management approach and, as such, there are some compromises with the use of PERforM.

For example, complex tasks may require the use of other ergonomic assessment tools, or the engagement of an expert to assist with the assessment and development of controls. The need for greater expertise may also be identified when prioritising control options.

The risk assessment tool does not take into account the cumulative effect of the range of manual tasks a worker may perform during their shift. As a result, work teams will need to make some judgements about:

1. Which tasks are the hazardous tasks.
2. The priority order for their assessment.
3. Whether the worker is being exposed to similar risk factors throughout the shift despite performing different tasks.

8. Conclusion

This PERforM pilot project represents a preliminary trial of the use of an evidence based approach to manual tasks risk management in the construction industry. Implementation of the program can succeed provided organisations make manual tasks a priority. It requires executive commitment and leadership, the right people and the time and resources to make it happen.

The construction work environment is dynamic and constantly changing. An integrated, holistic approach to health and safety risk management with robust systems and processes which include manual tasks risk management will foster and improve safety culture and productivity and help the organisation’s long term sustainability and growth.

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