Economic Evaluation of a Participatory Ergonomics Intervention in an Auto Parts Manufacturer

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Submission to the *Health & Safety Canada 2007 IAPA Conference & Trade Show*

Background and Objective: Workplaces in the manufacturing sector are associated with many occupational health and safety risks and hazards. An effective way to assess and address such work health risks, evaluate the safety needs of a workplace, and develop successful strategies to prevent industrial accidents is often by means of an intervention that is participatory in nature. Participatory ergonomics interventions generally involve the development of ergonomics teams consisting of participants from both the management and worker groups within an organization, which are given the task of seeking out ways to reduce workplace health risk exposures through redesign of processes, tools, and equipment. Following the education and training provided to the management and workers, such programs are expected to become self-sufficient.

Of note is the fact that there are very few studies that undertake an economic evaluation of participatory ergonomics interventions.

This study is based on a workplace intervention that is a research initiative of the Centre for Research Expertise on Musculoskeletal Injuries, headed by Dr. Richard Wells (University of Waterloo). The objective of the intervention was to implement and evaluate a participatory ergonomics program at a car parts manufacturer in Ontario. The participatory ergonomics intervention was introduced to the worksite to improve the musculoskeletal health of workers. A multidisciplinary team of researchers set out to evaluate the effectiveness and the sustainability of this program across several dimensions.

The aim of our particular study is to assess the costs and consequences of the participatory ergonomics intervention from the perspective of the firm. This component of research should inform workplaces regarding the financial merits of implementing a prevention strategy aiming to reduce risks for industrial accidents and disease.

Methods and Results: Regression modelling was used and results were translated into monetary units using data collected from the firm. Costs of the intervention were based on data collected during the intervention period. The costs considered included not only the explicitly incurred financial costs associated with purchase of equipment, tools and parts, but also resource costs (such as time costs) in an effort to arrive at the true opportunity cost of the program. A wide range of outcomes was considered in the analysis, including not only the chief health outcomes such as workers' compensation claims, modified duty and first aid incidents, but also secondary health outcomes such as weekly indemnity claims and casual absenteeism among the workforce. Results of the cost-effectiveness analysis on a health outcome significantly influenced by the intervention are discussed first. Next, the full cost-benefit analysis is presented. The results from the sensitivity analysis that allows variation in cost estimates and underlying assumptions are also included.