



# The Ergonomic Program Implementation Continuum (EPIC): Integration of health and safety - A process evaluation in the healthcare sector

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## ABSTRACT

**Introduction:** This article presents a health and safety intervention model and the use of process evaluation to assess a participatory ergonomic intervention. **Method:** The effectiveness of the Ergonomic Program Implementation Continuum (EPIC) was assessed at six healthcare pilot sites in Ontario, Canada. The model provided a framework to demonstrate evaluation findings. **Results:** Participants reported that EPIC was thorough and identified improvements related to its use. Participants believed the program contributed to advancing an organizational culture of safety (COS). Main barriers to program uptake included resistance to change and need for adequate funding and resources. The dedication of organizational leaders and consultant coaches was identified as essential to the program's success. **Impact on Industry:** In terms of impact on industry, findings contribute to the evidence-based knowledge of health and safety interventions and support use of the framework for creating a robust infrastructure to advance organizational COS and link staff safety and wellness with patient safety in healthcare.

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## 1. Introduction

In the past decade, the healthcare and social assistance industry has had the highest rates of days lost per worker in Canada. There were 13.0 days lost per worker (dl/w) in 2003 and 14.0 dl/w in 2011 (Statistics Canada, 2011). The most days lost in 2011 were for full-time employees in health occupations (14.1 dl/w); the next highest rate (10.8 dl/w) was for occupations unique to production (Statistics Canada, 2011). In Canada's most populous province, Ontario (population 13,069,200), the number of days lost due to illness or disability has steadily increased from 7.1 dl/w in 2000 to 8.2 dl/w in 2010 (Statistics Canada, 2010).

Between 2000 and 2010, lost-time claims in the health care industry rose (Ontario Workplace Safety and Insurance Board [WSIB], 2010a). Second only to manufacturing, health and social services have the highest number of claims, which has been increasing steadily since 2001 (WSIB, 2010a). According to WSIB, musculoskeletal disorders (MSD) "account for 40% of all lost-time claims in Ontario workplaces" (WSIB, 2012). Slips, trips and falls (STF) account for 16% of lost-time

injuries and are the most prevalent classification of workplace injuries in Ontario's health and community care sector (WSIB, 2010b).<sup>1</sup>

Rates of workplace injury among healthcare workers are equal to or higher than those reported for workers in heavy industry and other occupations traditionally considered dangerous (Dawson et al., 2007; Evanoff, Wolf, Aton, Canos, & Collins, 2003). Compared to other professions, healthcare personnel are particularly at risk for musculoskeletal injuries (deCastro, 2006). A study by Pompeii, Lipscomb, and Dement (2008) found that musculoskeletal injuries resulted equally (30% each) from lift/push/pull equipment, patient handling and STF. There is a definite need for health and safety management systems to prevent workplace injuries in Ontario.

This article introduces a health and safety intervention model that provides vital information and guidance to employers and employees—it is the first of its kind in Ontario and Canada. The model was used to guide the evaluation of the Ergonomic Program Implementation Continuum (EPIC), which was piloted in six sites across Ontario and assessed over a 12-month period in 2009–2010. EPIC included three elements: participatory ergonomics (PE), MSD prevention, and STF prevention. The goal of EPIC was to affect and sustain a reduction of

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<sup>1</sup> Musculoskeletal disorders – Result from chronic exposure to activities that exceed the ability of musculoskeletal structures (i.e., bones, cartilage, muscles, ligaments, and tendons). Slip – Loss of balance resulting from insufficient friction between the shoe and walking surface. Trip – Loss of balance resulting from a collision of the foot and/or leg with an object. Fall – Free descent resulting from gravity, can occur at ground level or from a height (Ontario Safety Association for Community & Healthcare, 2009a).

these types of injuries (Ontario Safety Association for Community & Healthcare [OSACH], 2009b). Some of the sites had experience using a Health and Safety Management System (HSMS), and we look at the relationship, if any, to the implementation success of EPIC at these sites.

In recent years, the use of process evaluation to determine the success of interventions in public health and research has increased (Cowan & Devine, 2012). According to Linnan and Steckler (2002), process evaluations are particularly helpful for the following:

- Ensuring that planned interventions are carried out equally across all sites;
- Understanding which components of the intervention contributed to success or failures;
- Providing a link to theoretical constructs thought to be essential for intervention success and final outcomes;
- Improving intervention effectiveness;
- Clarifying the relationship between intervention components; and
- Assessing quality and accuracy of the intervention delivered.

The purpose of this evaluation study was to examine the effectiveness of EPIC to reduce hazards and incidences of MSD and STF in the pilot sites. The objectives were focused on: (a) effectiveness of the PE framework; (b) effectiveness of the EPIC assessment and implementation tools, education/training sessions and consultant coaching; (c) EPIC process, design, and knowledge transfer (KT); and (d) contribution of EPIC to advancing the overall organizational culture of safety (COS). Findings from the process evaluation demonstrate the importance of PE, COS, and KT to the success of EPIC and its alignment with the health and safety intervention model.

## 2. Health and Safety Intervention Model

Fig. 1 shows the health and safety intervention model. The model has an education component that utilizes expert coaching from Public Services Health & Safety Association (PSHSA)<sup>2</sup> consultants who are HSMS and EPIC experts. Consultants work with organizations to assess their health and safety needs and recommend workshops and education/training sessions. A critical element to the success of a health and safety intervention model is the existence of an organizational structure led by a steering committee (SC). The SC is supported and monitored by a change team (CT) and, when possible, is further supported by an existing joint health and safety committee (JH&SC). Assessment tools include an organizational profile, consultant logs, safety checklists, progress evaluation guides, and interviews. Additional tools may be used depending on the special needs of the organization.

Conditions for success of a health and safety intervention model include exemplary leadership supported by a stable workforce, strong communication systems, policies and procedures, and continuous monitoring and evaluation. Several concepts connect the activities and foundations of the health and safety intervention: a participatory approach (across the organization), accountability, an internal responsibility system, KT, fostering a COS, and using evidence-based approaches to health and safety.

## 3. Study Background

### 3.1. Public Services Health and Safety Association: HSMS

The PSHSA helps public sector organizations in Ontario "achieve safer and healthier work environments" (PSHSA, n.d.). The PSHSA developed an HSMS in 2007 that assists health and community care employers in attaining health and wellness by integrating safety into an organization's core business (OSACH, 2007). It also motivates

organizations to achieve employee health, safety, and wellness to provide quality care and enhance public safety.

For an HSMS to be successful, the system must be continually evaluated and improved. There are five pillars in the HSMS: (1) Leadership and Commitment, (2) Risk Identification and Analysis, (3) Risk Management and Control, (4) Evaluation and Corrective Action, and (5) Strategic Review and Continual Improvement. The HSMS includes a comprehensive assessment of compliance relating to each of the five pillars. This includes development of action plans to achieve full compliance, education/training sessions to support needs identified through the assessment process, and implementation of improvement processes relative to employee safety, which contribute to the advancement of an overall COS.

### 3.2. Public Services Health and Safety Association: EPIC

The PSHSA developed a unique approach to the prevention of MSD and STF for staff, clients, and the public. EPIC "encourages the transfer of knowledge in injury prevention and provides the necessary skill and ability [for organizations] to systematically assess and control MSD and STF hazards" (OSACH, 2008, p. 2). It was adapted from the WellAware program developed by BJC HealthCare, a multi-site system in Missouri (Volpe & Lewko, 2008).

EPIC uses expert PSHSA consultants as educators and coaches. The consultants provide an implementation framework and a series of targeted workshops. Inherent in the program is the organizational structure, which includes the creation of a multidisciplinary SC and a CT. The SC includes senior management/leadership, risk management, union representatives, health and safety human resources, JH&SC members, specialists within the organization (e.g., ergonomists, physiotherapists and occupational therapists), and an external PSHSA consultant. The CT includes frontline staff from the specific unit/department involved in the intervention implementation, JH&SC members, supervisors, specialists, and an external PSHSA consultant (OSACH, 2009a). One member of the CT acts as the liaison between the CT and the SC. Up to two days per month for the initial year of the program, the PSHSA consultant provides guidance to the SC and CT. The same consultant works with both the SC and CT.

### 3.3. Participatory Ergonomics

Wilson (1995, p. 1071) defines PE as "the involvement of people in planning and controlling a significant amount of their own work activities, with sufficient knowledge and power to influence both processes and outcomes in order to achieve desirable goals." It is a targeted approach to injury prevention in which the knowledge and experience of those directly affected is used to reduce or eliminate workplace hazards (Volpe & Lewko, 2008). Using PE can help transform the culture of an organization into one that values collaboration, thereby reinforcing a sense of community in the workplace (Zalk, 2001).

When frontline staff take ownership of COS in their workplace and are in control of their safety and that of their colleagues, a participatory model of change takes effect. In their study, Cann, MacEachen, and Vandervoort (2008) showed that compared to trained experts such as ergonomists, frontline workers are able to provide more detailed information about social, organizational, and physical hazards and how they relate. The literature reveals that the success of an ergonomic intervention often relies on the level of worker involvement (Rivlis et al., 2006). To this end, PE is needed to advance a COS in long-term and acute care settings (Haslam, 2002).

Participatory ergonomics uses the premise that higher levels of worker involvement in the identification, assessment, and control of risks will increase the efficacy of ergonomic interventions (Morgan, 2009). This "bottom-up" method empowers staff to make decisions and influence processes. As a result, it can save up to 10 times the cost

<sup>2</sup> The Public Services Health & Safety Association is formerly OSACH.

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