Ergonomic Program Implementation Continuum (EPIC): Integration of Health and Safety A Process Evaluation

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Public Service Health and Safety Association (PSHSA) and the
Ontario Neurotrauma Foundation (ONF)
Ergonomic Program Implementation Continuum (EPIC):
Integration of Health and Safety - A Process Evaluation

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INTRODUCTION

The Public Service Health and Safety Association (PSHSA), formerly the Ontario Safety Association for Community & Healthcare (OSACH), recently developed a unique approach to the prevention of musculoskeletal disorders (MSD) and slips, trips and falls (STF) for staff, clients and the public.[1] The *Ergonomic Program Implementation Continuum (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, n.d., p.2). The program is the first of its kind in Ontario and provides vital information and guidance to employers and employees. It was designed using the WellAware program developed by BJC HealthCare, a multi-site system in Missouri (Volpe & Lewko, 2008).

The Ontario Neurotrauma Foundation (ONF) and PSHSA conducted a pilot project to evaluate EPIC as a "best practice in the health and community care sector" (OSACH, n.d., p. 2). It is hoped that findings from the process evaluation will enhance program implementation, as well as strengthen the ONF's support of best practice interventions that will reduce the incidence of MSD and STF province wide. The outcome of the evaluation is to improve employee comfort and enhance the overall culture of safety (COS) and wellness in health and community organizations.

EPIC was piloted in six sites across Ontario and evaluated over a 12-month period by investigators from McMaster University. The process evaluation examined the effectiveness of the program, which uses a participatory ergonomic (PE) framework. The program includes three components: PE, MSD prevention and STF prevention. Wilson (1995) 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 outcomes." 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).

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[1] 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 (OSACH, 2009a; University of Wisconsin Stevens Point, n.d.)

The PE framework focuses on employees and engages them in the development of interventions that address ergonomic and psychosocial risk factors in the workplace. Figure 1.0 illustrates the model which depicts the integrated nature of the program. The model has an education program component that utilizes expert coaching from PSHSA consultants who are HSMS and EPIC experts. Consultants work with organizations to assess their health and safety needs and recommend workshop and educational sessions. A key 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 existing joint health and safety committees (JH&SC). Assessment tools include an organizational profile, consultant logs, pertinent safety checklists, progress evaluation guides and interviews. Additional tools maybe used depending on the special needs of the organization. Key conditions for success of a health and safety intervention model include exemplary leadership supported by a stable workforce, strong communication systems, provision of policies and procedures and continuous monitoring and evaluation. There are key concepts that connect the activities and foundations of this health and safety intervention: a participatory approach (across the organization), accountability, an internal responsibility system, knowledge transfer, fostering a COS and utilizing evidence-based approaches to health and safety.

Figure 1.0: Health and Safety Intervention Model
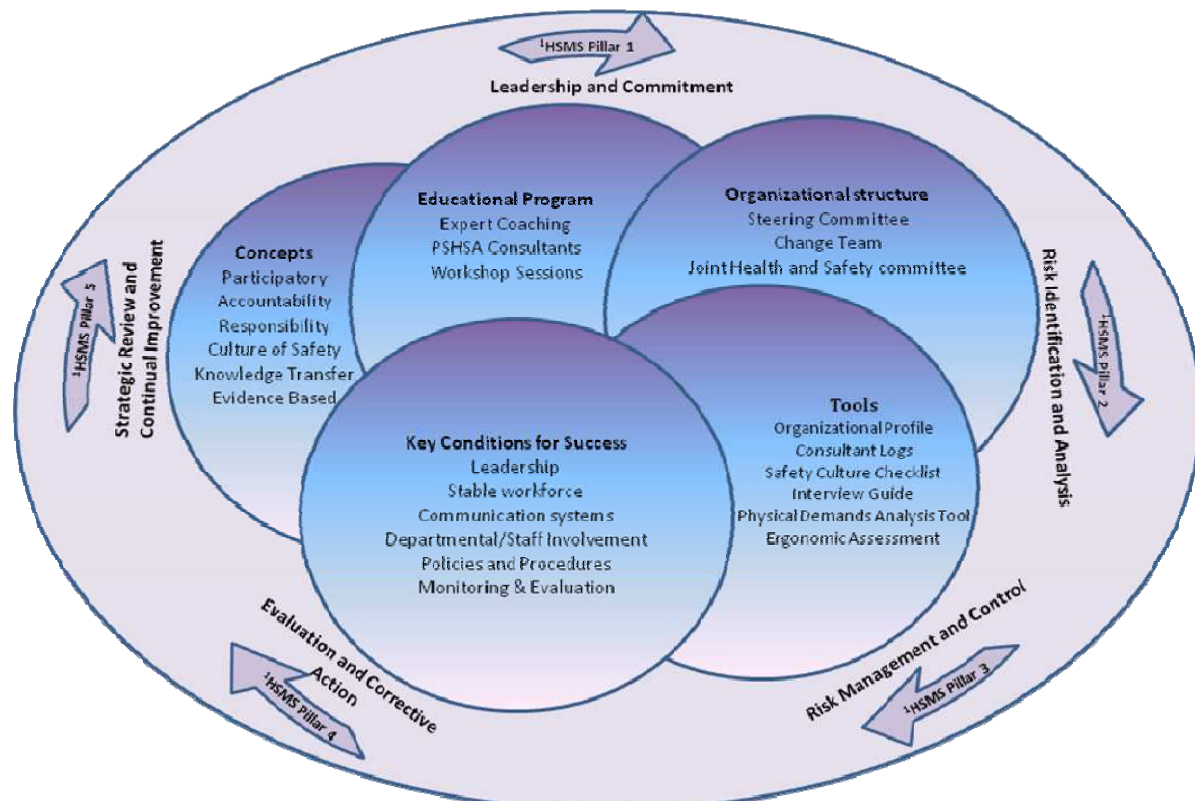
The goal of EPIC is to affect and sustain a reduction of MSD and STF injuries (OSACH, 2009b). This is critical, given that they comprise over 70% of lost-time injuries reported in the health and community care sector in Ontario. In 2007, 54% of the lost-time injuries were MSD-related, which accounted for 60% of the total lost-time injury costs in healthcare (OSACH, 2008).

EPIC uses expert PSHSA consultants as educators and facilitators. The consultants provide an implementation framework and a series of educational workshops. The program structure includes the creation of a multidisciplinary Steering Committee (SC) and a Change Team (CT). The SC includes senior management/leadership, risk management, union representatives, health and safety human resources, Joint Health and Safety Committee (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 pilot, JH&SC members, supervisors, specialists and an external PSHSA consultant (OSACH, 2009b). 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.

In the pre implementation phase, consultants present the organizations with historical data regarding staff incidents and injuries and conduct hazard-specific assessments. They confer with the SC at each organization to help determine the focus of the project and the units/departments that should be involved. PSHSA recommends that the program be piloted in only one or two units/departments to keep the project manageable. In addition, educational workshops are held at each organization. All organizations receive Module One: Participatory Ergonomics. Depending on the focus of the project, they may also receive one or more of the following workshops: Musculoskeletal Disorder (MSD) Prevention; Slips, Trips and Falls Prevention: Employee and Public; and Slips, Trips and Falls Prevention: Client (OSACH, 2009b).

In the implementation phase, members of the CT use various tools and processes to identify hazards and devise solutions to reduce and eliminate them. Their efforts are facilitated by the PSHSA consultants and supported by the SC, which also monitors the outcomes.

LITERATURE REVIEW

Culture of Safety (COS)

In healthcare facilities, COS is essential to improve the welfare of frontline staff and the patients they care for. Contemporary literature defines COS as a set of values, beliefs and norms concerning

important topics, suitable behaviours and appropriate attitudes in relation to safety (Emory Centre, 2004; Flin, Burns, Mearns, Yule, & Robertson, 2006; Thomas, Sexton, Neilands, Frankel, & Helmreich, 2005).

During the past 20 years, safety culture and safety climate have emerged as important concepts in social science and organizational literature (Guldenmund, 2000). Although the concepts are aligned and the terms are often used interchangeably, they have different meanings. Based on their review of the literature, Wiegmann, Zhang, von Thaden, Sharma and Mitchell (2002) define safety culture as "the enduring value and priority placed on worker and public safety by everyone in every group at every level of an organization" (p. 8). Safety climate is "the temporal state measure of safety culture, subject to commonalities among individual perceptions of the organization" (p. 10). Guldenmund (2000, p. 221) observes that "climate follows naturally from culture . . . [and] organizational culture expresses itself through organizational climate."

Empirical research on safety culture and climate has increased considerably, but safety culture theory has not experienced the same rigorous development. Guldenmund (2000) argues that additional research should focus on the operationalization of safety culture and climate. He suggests developing the means to assess an organization's basic assumptions about its safety culture and climate to get a much deeper understanding of how the organization functions. However, assessing safety culture or climate with the intent to change it is time-consuming and may not be feasible for many organizations.

A review of the health and safety literature shows growing demands and strain on healthcare support staff such as housekeepers, food service employees, laundry services, administrative support and maintenance workers (Flin et al., 2006). 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).

The literature also reports that the risks of injury are high for housekeepers and orderlies (Peled, 2005). A study by Pompeii, Lipscomb and Dement (2008) found that musculoskeletal injuries resulted equally (30% each) from lift/push/pull of equipment, patient handling and STF. Injury rates and their mechanisms varied substantially by occupational group, gender and race. Male and female housekeepers, nurses' aides and radiology technicians had among the highest rates of injury. Rates for

lost workdays were highest for male and female nurses' aides, female housekeepers and male patient transporters.

Actualizing a reliable and preventative COS is a multifaceted process. It includes commitment from management to discuss errors and learn from them, appropriate documentation to increase staff and patient safety, identification of potential hazards, use of effective systems to report and examine adverse events and promotion of teamwork (Pronovost, et al., 2003; Thomas et al., 2005). The results are recognizable safety-related actions and behaviours that lead to increased positive outcomes for the organization and its employees (see Table 1).

Participatory Ergonomics

Using PE can help transform the culture of an organization into one that values collaboration, thus reinforcing a sense of community in the workplace (Zalk, 2001). When frontline staff ensure their safety and that of their colleagues and take ownership of COS in their workplace, a participatory model of change takes effect. Studies show 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 (Cann, MacEachen, & Vandervoort, 2008). The literature reveals that the success of an ergonomic intervention often relies on the level of worker involvement (Rivilis et al., 2006). To this end, PE is an important facilitator of safety culture advancement in long-term and acute care settings (Haslam, 2002).

Table 1. Observable Characteristics of an Organization With a Robust Safety Culture

Activity	Positive Outcome
Employees observe and correct hazards	Once a hazard is identified, a change is made and reported through appropriate documentation.
Correct personal protective equipment is worn	Employees know appropriate personal protective equipment to use for different tasks, how to use and maintain the equipment and when and how to safely dispose of the equipment.
The JH&SC committee is respected	An active JH&SC meets regularly with a high attendance rate. They have clear agenda, goals and annual performance expectations. The committee is given training on basic safety methods and provides in-service training to departments or programs.
Buy-in from bottom to top	Management should see the value of a safety culture in reducing the costs of insurance. Employees should feel safer and less prone to injuries. Employees should be valued for their contributions in identifying and correcting hazards.

Source: Nonprofit Risk Management Center, 2008.

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 of dealing with issues once they have caused injury (Driessen, Anema, Proper, Bongers, & van der Beek, 2008; Occupational Health & Safety Agency for Healthcare, 2006). Reactive ergonomics involve an *ex post facto* approach, whereas proactive ergonomics take immediate action to prevent possible future problems.

Seminal work compiled by Volpe and Lewko (2008) summarizes recent statistics and initiatives in Canadian and American healthcare organizations and spotlights the success of the WellAware program. The program was implemented in all 13 BJC healthcare institutions in 1997. It includes PE strategies targeting infection control, employee wellness and worker's compensation. Continued results monitoring showed sustainable improvements and outcomes over the subsequent nine years. To date, there is a paucity of research exploring the use of PE within healthcare settings in North America and elsewhere. In addition, there are few longitudinal studies assessing outcomes in North America (Volpe & Lewko, 2008). Completed studies have been largely international, which may jeopardize generalizability of the findings due to differing healthcare system structures and funding.

Knowledge Transfer

A crucial component of PE is the ability to learn from previous mistakes and use this new understanding to create solutions (Leiter, Day, Harvie, & Shaughnessy, 2007). In order to do so effectively, it is essential that knowledge be actively "passed on" to colleagues. Thompson, Estabrooks and Degner (2006) suggest that the passive diffusion of knowledge may not be adequate to spur people to action. The WellAware program has demonstrated that workplace safety increases dramatically when knowledge transfer is an integral component of PE (Volpe & Lewko, 2008). The pilot project being conducted in Ontario will further test the effectiveness of this strategy.

EVALUATION OF THE ERGONOMIC PROGRAM IMPLEMENTATION CONTINUUM (EPIC)

A process evaluation describes how a program is implemented and how it operates. It identifies the procedures undertaken by the organization and the decisions made in developing the program (Bureau of Justice Assistance, 2010). As stated earlier, a process evaluation was used to examine the effectiveness of EPIC to reduce hazards and incidence of MSD and STF in pilot sites across Ontario, using a PE framework. Specific areas of interest included the following:

- Effectiveness of the participatory ergonomics framework

- Effectiveness of the EPIC assessment and implementation tools, education and training sessions and consultant coaching

- EPIC process, design and knowledge transfer

- EPIC contribution to advancing an overall organizational culture of safety

- The relationship, if any, of the PSHSA Health and Safety Management System to the outcomes of the EPIC program

Methods and Sample

The process evaluation of the EPIC program was implemented at six sites, using mixed methods with both a qualitative and quantitative approach. It included a pre and post intervention evaluation, completion of a Safety Culture Assessment tool, observational site visits by the research team to gain an understanding of the EPIC processes and educational workshops and an optional post implementation online survey. Data were collected before (pre) and after (post) the system was implemented in the organizations. Due to the short time frame, the post implementation evaluation consisted of a progress report outlining changes since the start of the project. Together with the research team, PSHSA utilized a decision matrix (see Appendix A) to facilitate selection of the pilot organizations, which included the following:

- Alexandra Hospital

- Grenadier Retirement Residence

- Halton Services for Seniors Division

- St. Paul's L'Amoreaux Centre

- Tillsonburg District Memorial Hospital

- West Park Healthcare Centre

All organizations used the data provided by the PSHSA consultant regarding staff incidents and lost-time injuries to define the focus for EPIC. Appendix B provides a profile summary for each organization. Four organizations chose MSD - other as their area of focus and two chose STF - staff, public and clients. Four of the six organizations previously participated in the Health and Safety Management System (HSMS),[2] which was developed by PSHSA in 2007. Two organizations did not: St. Paul's L'Amoreaux Centre and Tillsonburg District Memorial Hospital. It was assumed that the four organizations with PSHSA experience would have less difficulty implementing EPIC.

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[2] The HSMS is a "blueprint for building a single, integrated culture of safety that will result in safe work systems and workplaces for clients, employees, and the public" (Boucher, Sikorski & Nichol, n.d., p. 15).

A two-tier evaluation methodology was used. All sites provided baseline data regarding their organization. Outlined below are the first-tier data collected by the PSHSA consultants:

- Existing safety, health and wellness profiles for each pilot organization, including organizational integration indicators (generic and organization-specific quantitative and qualitative data) and baseline data of key qualitative and quantitative indicators of employees and patient health, safety and wellness (see Appendix C)

- A pre implementation assessment, which identified hazards and existing systems for incident reporting (see Appendix D)

The second tier involved a more intensive approach by the research team. Stakeholder input was obtained pre and post implementation using a standardized data collection tool (see Appendix E). Stakeholders included members of the SC and the CT. The research team analyzed notes taken during site visits, as well as assessment reports and consultant feedback logs (see Appendix F). The latter included supporting documents collected throughout the implementation process.

Originally, it was anticipated that the baseline quantitative data would be updated at the conclusion of the pilot. However, this was not possible as the pilot spanned one year and most organizations report data elements annually. Therefore, only baseline data was collected.

On-Site Visits

There were a minimum of three visits for each site. During the first visit, the research team accompanied the PSHSA consultant to discuss the EPIC program and clarify any aspects of the research project. The second and third visits involved only the research team. The second visit (pre implementation) occurred prior to the delivery of the education/training modules by the PSHSA consultant. The third visit (post implementation) was to occur at the end of the project implementation phase. However, because of a delayed start by all sites, these visits occurred while implementation was still in progress. The delayed start is attributed to staff vacation and inability to schedule the education sessions.

Interviews

During the pre and post implementation visits, data was collected through structured interviews with the SC and the CT, using a standardized data collection tool.

Safety Culture Checklist

One of the objectives was to determine if EPIC contributed to the overall COS of the organization. A culture survey provides an assessment of an organizations' working culture and its efforts to support health and safety. According to Guldenmund (2000), a reliable tool to measure organizational health and

safety has not been found to date. A safety culture checklist was created based on characteristics observed in an organization perceived to have a robust COS (Non- Profit Risk Management Center, 2008). During the pre and post implementation visit, team members completed the checklist to see if there had been a change in their organizations' COS during the pilot project (see Appendix G). The research team compared the results to determine if any cultural shift could be identified.

Process Evaluation

Responses to the interview questions were transcribed at the time of the interview. Thematic analysis of the following was carried out: (i) interview records - pre and post implementation for all groups interviewed and (ii) online survey responses - post implementation. Qualitative data, which included consultant feedback logs and checklist findings, was analyzed to determine themes, possible correlations and the impact of EPIC on the COS of each organization. In addition, each site submitted baseline quantitative data regarding their organization at the beginning of the project. Conclusions were drawn and recommendations developed from the themes and findings of all data sources.

Data Elements

As part of the data collection carried out by the consultants, standardized workforce information was requested from each organization. The data elements were determined by the research team with input from PSHSA and the ONF and included turnover rates, sick time and injuries and/or accidents. A number of the elements are required for reporting to the Ministry of Health and Long-Term Care (MOHLTC); others are calculated by the Workplace Safety and Insurance Board (WSIB). Organizations provided their data to the PSHSA consultants who then forwarded the completed forms to the researchers for integration.

Consultant Feedback Log

To assist PSHSA in further refining the EPIC program, the consultants maintained detailed logs for each site throughout the project, using a form developed by PSHSA. Consultants documented their assessment of each visit and the strengths and opportunities for improvement in the processes and tools used during the visit. The research team reviewed these logs at least twice to validate the improvement opportunities, which the sites also identified throughout the project and particularly during the post implementation visit.

Post Implementation Online Survey

Organizations were offered an additional opportunity to evaluate EPIC by providing voluntary feedback via an online survey following the post implementation site visit (see Appendix H). An evaluation of the

EPIC design was also undertaken using an online survey forwarded to all organizations after the post implementation site visit. The purpose was to determine the impact of EPIC and opportunities to improve the program. The research team completed an analysis of this data to further validate earlier findings from the thematic analysis.

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FINDINGS

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Each organization embraced the project, and they all used the historical data on staff incidents and injuries provided by the PSHSA consultant to define their area of focus. Four organizations chose MSD - other and two chose STF - staff, public and clients. As the project evolved, most organizations further narrowed their focus to one or two functions/processes performed by the staff in the specific departments involved. Consultants facilitated the choice of functions/processes by helping the organizations identify hazards and prioritize risks. In some organizations, the SC identified the specific area of focus. In others, the CT completed the identification, which was then supported by SC. Sites that had an active CT completed the process faster.

There was variation in the rate of progress made and outcomes during the term of the EPIC pilot project. Most organizations were able to keep to timelines, but two indicated they were "just beginning implementation." Various "competing priorities" affected the speed of implementation in these organizations. For example, preparing for and hosting accreditation, unanticipated fiscal constraints and the H1N1 flu vaccination program.

Data Elements Analysis

The researchers reviewed the data and identified several issues, including non-standardized data collection. Some measures use fiscal years, while others use calendar years. For elements reporting numbers, denominator information that was not included would have allowed comparison across organizations. However, because the organizations have different mandates and are different sizes, comparison of this type is not possible.

A number of data elements appear to have dissimilar definitions or units of reporting across organizations (e.g., vacancy rate, absenteeism rate, number of work accommodations, short- and long-term disability rates and training information). The WSIB statistics have the benefit of calculation by the WSIB. Hence, a standardized and consistent method is applied across organizations, but not all organizations have the capacity to provide consistent workforce data. Finally, some measures related to patient and public safety are not currently collected or are not being shared externally.

In addition, there were still problems with the availability of data in some organizations. In spite of the attempts to provide definitions of the various data elements, there was variability in how the data was expressed. In particular, there were at least two different calculations for vacancy rate. This is consistent with other findings related to primary data elements across organizations (Baumann, Fisher, Blythe, Oreschina, 2003). Even if data appeared to be answering the appropriate question, it was presented in different ways. Furthermore, some data, presumably reported to the MOHLTC, was reported by fiscal year, while other data was reported by calendar year. Observations related to the various data elements are included in Appendix I.

Thematic Analysis

Thematic analysis of the pre and post implementation visits was completed through examination of the interview transcripts. Major themes emerged and findings were grouped under each thematic heading. The general themes that emerged from the thematic analysis for the pre and post implementation visits are discussed below.

Understanding of the EPIC Program

Pre Implementation Site Visit

A general knowledge of EPIC was evident at the SC level. At most sites, the organizational "champion" (generally a senior leader for the organization) was more familiar with the overall concepts of EPIC. However, this person had no greater awareness of the specific processes or activities to be undertaken than other SC members did. At the Change Team level, awareness of EPIC program and the processes to be undertaken was initially very limited.

Post Implementation Site Visit

From the pre implementation stage to the post implementation stage, there was a significant change in the ratings regarding understanding about EPIC. Members of the SC and CT described an increase in their knowledge about EPIC and an increased understanding of their role in the program. In the majority of sites, the SC and CT gained a clearer understanding of the program and its expectations as the project progressed. They understood EPIC "is about engagement of frontline staff and finding solutions" and required involvement of the SC and CT in the implementation process.

The most significant shift between pre and post implementation occurred at the CT level. Staff reported that they "learned processes to assess risk," "developed more awareness of safety and hazards," "learned a lot" and "now everyone is taking responsibility to reduce risk." However, CT members at the two sites that experienced a delayed start-up continued to express uncertainty about their role.

Organizational Infrastructure to Support the EPIC Project

Pre Implementation Site Visit

Each organization formally agreed to participate in EPIC by signing a letter of commitment with PSHSA. Organizations assigned a member of senior leadership to serve as champion for the project. At four sites, this was the person responsible for the Quality Program. The two remaining sites assigned the person responsible for the Health and Safety Program. The champion was responsible for providing regular updates to the senior leadership team and ensuring linkages with and reports to the JH&SC. Various committee structures were used to create these linkages, including cross-appointments of SC and/or CT members, appointing the JH&SC to serve as either the SC or CT or making the SC a subcommittee of the JH&SC.

Another element of infrastructure identified by PSHSA as necessary to support EPIC is the existence of safety-related policies and procedures. A review by the PSHSA consultant revealed that all organizations had a pre-existing infrastructure in place.

Post Implementation Site Visit

At all sites, the commitment of the senior leader assigned to the project was identified as an essential facilitator to the progress made in the short time period for the project. All teams reported that participants in the project were "more engaged" in advancing a COS and safety was becoming the "way of working" at their organization.

Committee Structure

Committee structures varied significantly among the organizations. However, all had linkages and accountability processes for reporting to their JH&SC. The organizations agreed that having a distinct committee structure for EPIC facilitated successful and timely outcomes for the project, but this structure must "fit" the organization. All organizations embraced the concept of using existing committees as much as possible to lead the EPIC project. However, appointing the JH&SC as the CT without augmenting their membership and the hours needed for the project was "not the ideal model." The organizations informed their Board and Quality Committee of their participation in the project and intended to provide progress reports. Only a few had started to define outcome indicators and how they could be integrated into their organization's performance scorecard.

Almost all the initial SC and CT teams remained consistent throughout the implementation process. There was wide variation in committee size and frequency of meetings, especially with the CT. The CTs, which ranged from 3 to 11 members, consisted primarily of a representative group of frontline staff

from the department involved in the project. Conversely, the SCs consisted mostly of individuals in management positions within the organization. Because many CT and SC members served on other safety and quality-related committees, there was a lot of opportunity for networking.

Participants indicated that the "most important component of EPIC is supporting the CT." Everyone understood that they were involved in recognizing hazards and coming up with solutions to remove them. However, there was some confusion regarding overlapping roles, specifically in relation to the champion and the CT leader. One organization assigned all staff from the department involved in the project to the CT. As a result, attendance at CT meetings was not consistent. The frequency of CT meetings within the organizations varied from twice monthly to once every two months. The organizations found that at least one meeting per month was required to make progress.

Resources to Support EPIC

All organizations struggled with providing the necessary resources to support EPIC. They reported the project needed "a significant organizational investment" to achieve outcomes because of the short timeline. Logistical challenges included the scheduling of and attendance at meetings and the cost of replacing staff to attend the meetings. In addition, the amount of time required and the number of meetings scheduled proved to be a hurdle for the majority of organizations. Organizations invested heavily in the pre implementation education sessions by enabling all members of the SC and most members of the CT to participate in up to three full days of education provided by the PSHSA consultant. Most of the sessions were planned for the summer months (during peak vacation time), which presented a challenge for all sites. Some organizations completed all meetings and follow-up activities within existing work hours, while others replaced staff members who served on the committee. The organizations believe the provision of additional resources would have resulted in a better, timelier outcome.

Communication

All organizations used their existing communication channels with good success. The most common strategies included internal newsletters, word of mouth, staff and client surveys and staff and management meetings. Other useful methods for conveying information about EPIC included intranet, posters and mass e-mailing to staff. Safety is a regular agenda item at staff and management meetings at all organizations, and these forums were used to share information about EPIC. However, the sites agreed that a more comprehensive communication strategy to share the EPIC experience and outcomes would be beneficial.

Outcome Monitoring

All organizations have an incident reporting system in place, and all are working to improve the reporting of "near misses." Each site has existing indicators related to patient/visitor and staff incidents and injuries, which are monitored longitudinally. However, there is no set of common core indicators reported by all organizations or a consistent system for monitoring and reporting. Data are generally not reported to staff. There is an opportunity for PSHSA to assist organizations to develop a common set of indicators.

Experience with Participatory Ergonomics and EPIC

Pre Implementation Site Visit

None of the organizations reported that they had participated in a safety-related project using the PE approach before. Four sites indicated previous participation in other PSHSA sponsored projects and their positive experience with PSHSA enhanced their willingness to participate again. All indicated that they viewed participation in EPIC as an opportunity to strengthen their Quality Management program and enhance focus on staff safety. Frontline staff involved in EPIC confirmed that PE was a new concept for them. All those interviewed said their organization was committed to providing a safe working environment and supporting staff to "work safely."

Post Implementation Site Visit

The project resulted in many positive outcomes, including increased staff awareness and communication and heightened team dynamics. The organizations reported that employee safety and wellness had taken on a "new level of importance." Staff reported developing more skills that "helped them work safer" and felt safety was becoming a "way of working." One employee said, "We saved a lot of steps and learned how to do things with less wear and tear on our bodies." The most notable difference was recognition by frontline staff that "they have a role in identifying hazards and taking initial steps to prevent incidents." There is a perception that EPIC contributed to the reduction of exposure to or progression of a hazard, but the incident reporting system data is not yet available to validate this assessment.

One site reported no practical changes as of yet, and some sites are just beginning to make specific changes within the organization. However, most organizations listed numerous improvements attributed to participation in EPIC. Two sites focused on the Food Service Department and reported significant changes. Data used to support these changes included the consultant assessments, use of training booklets, the PSHSA safety survey results and meetings with staff to identify areas of concern. The information was used to identify hazards and develop an action plan to implement changes within

the organization. All sites noted an increased awareness of safety issues, hazards and potential solutions.

Members of the SC and CT found the education sessions helpful and reported that they "learned a lot." They remembered the sessions given at the start of the program and indicated that refreshers on the course content were helpful when it came time to utilize the tools. All participants identified opportunities to streamline the education sessions and simplify the content and language to enhance understanding by frontline staff. Staff felt that the training materials focused too heavily on ergonomics and were highly repetitive. They suggested combining the sessions with the practical walk-through to make the program more interactive.

Staff believed the PSHSA consultants were vital to the success of the project and appreciated their "expertise and professionalism." However, all sites indicated that the start time of the project could be improved so that organizations progress more quickly through the various stages (i.e., commitment, education and implementation). The organizations also found the tools and activities provided by PSHSA helpful. The most beneficial were the Physical Demands Analysis Tool and Ergonomic Assessment and the staff safety surveys. Other useful tools included the walkabout with the consultant and/or ergonomist and the photographs of identified hazards.

Members of the CT appreciated recognition of their role as a committee member and noted that their peers are bringing information and safety concerns to them sooner. The sites reported positively on the outcomes to date and recognized that the program is not a "one-time" project but an ongoing safety initiative. The organizations intended to expand the program to other areas/departments, and indicated they would need support from the PSHSA consultants to complete the expert assessments and enhance knowledge of the tools and processes. Several sites identified the importance of knowledge transfer and the development of internal expertise, but none felt ready to use PE and the EPIC framework without support from the consultants.

Facilitators to Support Implementation of EPIC

Pre Implementation Site Visit

Participants identified a number of common themes that facilitated implementation of EPIC within their organizations. Foremost, staff believed the dedication of organizational leaders was essential to "make it happen." Other facilitators included a stable workforce, granting staff time to attend meetings and complete follow-up, using multiple communication tools to convey information about the project, emphasizing that safety is "everyone's responsibility," and providing staff with the knowledge and skills

to enable safe practice. Maintaining clear accountability for safety throughout the organization was also identified as a facilitator and requires the presence and use of an incident reporting system.

The most significant enablers to the success of the program included strong leadership and organizational commitment, dedicated and involved PSHSA consultants and overall staff buy-in. There was consensus that the commitment of the entire leadership team is critical to the advancement of EPIC. Examples of leadership commitment included timely follow-up and action regarding improvement suggestions, ensuring ongoing meaningful dialogue and involvement with frontline staff, recognition of the work done by the team, allowing time for safety-related education programs and providing replacement time or a mechanism to enable staff to attend sessions. The SC noted that when the "CEO and VP sit on the Steering Committee, support is palpable."

Other enablers included open communication lines between all staff and management, encouraging staff involvement, creating opportunities for staff to interact through teamwork and heightened accountability and regular monitoring of project progress. Most of the organizations agree that the enthusiasm, dedication, involvement and expertise of the consultants are vital to the success of EPIC.

Barriers to Successful Implementation of EPIC

Pre Implementation Site Visit
Barriers across all organizations were uniform. The themes of resistance to change and the need for adequate funding and resources arose repeatedly.

Post Implementation Site Visit
There was consensus among the sites that resources continue to be the greatest challenge. For the majority of organizations, the main logistical barriers included scheduling of and attendance at meetings, number of meetings, the cost of replacing staff and the amount of time required for the projects. Participants agreed, "Organizations need to put the right amount of time into EPIC and it will have impact."

Specific concerns included the time required for organizations to participate in the education sessions, implement the program and the improvements suggested and enable meaningful staff participation. Staff concerns included resistance to change, the persistence of "old habits" and ensuring proposed solutions meet the needs of each worker who performs the same task. Issues such as variation in the stature and physical shape of different individuals who perform the same task need to be taken into account. Additional barriers included not ensuring sustainability of the program or advancing a blame-

free culture, not fostering a consistent and positive staff attitude and not providing readily available, timely and meaningful data to support decision-making and demonstrate outcomes.

Long-term sustainability of EPIC was also highlighted as an area of concern. Some organizations intend to implement PE and EPIC in other departments in the future. However, expansion and maintenance of the program will be a challenge unless there is greater and more timely development of in-house expertise regarding the tools used. The ability to measure and monitor outcomes was one area identified for improvement. Organizations also noted that the volume of corporate initiatives and competing priorities frequently resulted in them feeling challenged to "fit everything in" and contributed to "project fatigue."

Safety Culture Checklist

Data captured from the checklist showed a heightened awareness of safety within the organizations and the activities of the safety committees. The checklist also indicated an increase in the integration of safety in client activities/interaction and in discussions with clients and their families. In addition, the data reported a slight increase in the number of employees wearing protective gear and equipment.

Consultant Feedback Log

The detailed information in the logs identified various opportunities to improve the program, many of which were validated during the post implementation site visit. Issues cited by the PSHSA consultants included difficulty scheduling the team visits and the education sessions, repetitive content of some education sessions, the time gap between the education sessions and implementation of the program, the readiness/ability of some organizations to fully participate and internal capacity building and knowledge transfer relating to the tools and processes of PE and EPIC. Opportunities for improvement included streamlining the educational content and timing for delivery, completing a more detailed readiness assessment with organizations to determine if participation in this project is "at the right time" and tightening timelines so organizations proceed to implementation sooner. Consultants agreed that project start-up should not coincide with peak vacation time and a more comprehensive strategy should be developed to enable organizations to work independently earlier in the project.

Online Survey of Pilot Site Participants

Five out of the six sites responded to the survey. A total of 13 members from the SC and CT chose to answer the survey. At the time of survey completion, most (92.3%) of the organizations were still working to complete the program.

When asked if they would recommend the program to others, 100% responded they would. One organization said EPIC provided "excellent resources, training and support to implement the program [and] excellent support to begin a participatory program that improves safety culture." Participants indicated that the process would be enhanced by further clarification upfront of the processes and time commitment involved. In addition, 80% of participants suggested that the educational sessions should be improved because they were "repetitive and lengthy." Twenty percent of respondents recommended improvements be made in the approach used by the consultant (i.e., more hands-on use of the tools). The majority (92.4 %) of participants indicated that the level of support from PSHSA was good, very good or excellent. Participants agreed that assistance is critical to the success of the project: "The consultant . . . [helped] keep us on track, assess the environment and prioritize the areas of improvement." The organizations supported the use of the consultant model because it contributed to the achievement of timely outcomes.

When asked to comment on what was good about EPIC, responses included the importance of collaboration among the staff, support by the PSHSA consultant, the use of education and better understanding of MSD, STF and prevention strategies. The organizations appreciated that EPIC is a PE program, which increased the engagement of frontline staff and enhanced their overall commitment to the program. The education tools were also seen as a highlight of the program. They provided the knowledge and support necessary to help the various departments involved in the project find solutions to hazards. One organization commented, "We now have a great start for continuing the process and integrating it into our existing safety culture."

The major message from the organizations was that the participatory approach used in EPIC enabled frontline staff to address the issues in their work environment. Participants felt that the program raises awareness of ergonomic issues and provides an excellent framework for hazard identification and prevention. All organizations agreed that EPIC was vital to their successful implementation of ergonomic solutions. However, it was suggested that the program be at least a two-year project to allow the organizations to enact the plan and evaluate the outcomes. Recommended improvement opportunities included streamlined education/training sessions; use of a phased training approach, which would be delivered as needed for each stage of implementation; and distribution of a detailed guideline at the beginning of the program to assist organizations in understanding each step of the EPIC process. The overall experience with the EPIC program was positive; 100% of participants indicated it was good, very good or excellent.

LIMITATIONS

This evaluation study has several limitations. The timing and size of the representative groups was an issue. Given the participants' responsibilities, attendance at pre scheduled meetings and achieving good representative numbers was a challenge at some sites. Diversity within the sample of organizations was also an issue. Differences in the type, size and number of sites, as well as the governance structure of the organizations made comparison of outcomes difficult and somewhat extraneous. Procuring comparable organizational statistics was hampered by a lack of common data and existing information. The inconsistent sample sizes across the sites and the large group setting used during the pre and post implementation site interviews may have affected the quality and range of contributions. Finally, it was difficult to measure the long-term impact of EPIC under the short time frame available for this evaluation.

CONCLUSION

Limitations aside, all sites indicated that EPIC benefited their organization. The program was structured but flexible enough to address the unique needs of each organization. In particular, the program supported the inclusion of frontline staff in reducing hazards and improving their work environment. There is consensus among staff that EPIC "improved our way of working and understanding of our work. We work smarter and safer." The program helped entrench staff participation as a way of developing a more robust infrastructure to support and advance the organizational culture of safety and link staff safety and wellness with patient safety. Thus creating "a more balanced and comprehensive framework for safety at the organization."

Organizations felt EPIC was thorough and well structured and that participation in the project resulted in more safety-related initiatives than the organizations would have identified and implemented on their own. Sites identified many improvements made during the project. Since many of these improvements are still in progress, the organizations are not yet able to demonstrate measurable long-term improvements or outcomes or reduced staff incident and lost-time injury rates. All organizations believe the program will contribute to advancing a COS and ensuring staff safety is considered as important as patient safety.

All sites identified some key facilitators to advancing EPIC: strong leadership commitment, dedicated and involved PSHSA consultants, open communication and dialogue between staff and management, use of existing committees where possible and active frontline staff involvement. These findings support the analysis completed by Volpe (2008), which identified the qualities that contributed to the ongoing

success of the WellAware program. Strong leadership commitment, the committee structure and the level of frontline staff involvement on the CT are the most noteworthy similarities between EPIC and WellAware. However, comparison is limited at this time as WellAware is a mature program that has been fully operational for more than 12 years, while EPIC is in its infancy. In comparing the outcomes achieved by WellAware during the initial start-up phase to those of EPIC, the progress made by the organizations involved in EPIC appears to be greater. This suggests that the PE approach and EPIC present great opportunities for the future by not only contributing to the body of knowledge regarding the WellAware best practice but also to PE in general, and how it could influence staff safety and wellness in healthcare in Ontario.

The sites also identified some main barriers to implementing EPIC: organizational resource challenges, logistical issues in scheduling and attendance at meetings. Other barriers included time for staff to attend educational sessions, resistance to change by some staff members, financial resources, and ensuring long-term sustainability and accurate measurement of outcomes.

Sites previously involved in the PSHSA HSMS pilot project reported that EPIC supports the ongoing development of a comprehensive health and safety management framework for the organization and enhances the work initiated through HSMS. However, all agreed that HSMS and EPIC are individual systems, which are complementary and can be successfully implemented independent of the other.

RECOMMENDATIONS

The following recommendations are put forth to guide PSHSA and assist organizations that adopt the EPIC framework and a PE approach to advance staff safety and wellness and an overall COS. The recommendations emanate from data element analysis and thematic analysis of baseline data, site visits, surveys and other data such as the consultant logs.

Infrastructure to Support EPIC and Participatory Ergonomics

1. Advance the COS by utilizing a PE approach and EPIC program as a viable worker involvement strategy to improve staff safety and wellness.
2. Support the development of a longitudinal research study to compare over time the impact of the PE approach and EPIC to existing safety and best practice programs such as WellAware.
3. PSHSA should identify exemplars and good practices in using PE to advance staff safety and wellness. Sites should emphasize good practices to share with other organizations, which would enhance knowledge transfer across the province and within sectors.
4. Workforce planning and human resource considerations in support of advancing the COS should

a. Utilize workforce planning/profiling tools and concepts to plan for adequate staffing to support a COS

b. Develop a long-term comprehensive plan to support safety-related programs, preventive education and training programs for staff

c. Maintain adequate staff in order to create surge capacity

5. Work with participant organizations to assess their readiness to participate in EPIC. Factors that should be considered include relationship of this program to the overall quality framework of the organization and other external/internal initiatives that could affect the timing and success of EPIC (e.g., accreditation)

6. Develop a standard set of core outcome indicators that all sites could implement and monitor from the beginning, over the course of the project and into the future to measure the program's long-term sustainability.

7. Maintain a consultant model for the delivery of the EPIC program. The level of support should be customized based on unique organizational needs.

8. PSHSA should make improvements to the program, including the following opportunities identified by the consultants and supported by the participating organizations:

a. Streamline educational content (combine PE and MSD training modules), simplify language and reduce length of education sessions to a maximum of ½ day per session

b. Provide all education sessions as soon as possible after the introductory session and offer each session only once

c. Plan educational sessions at times of the year other than the summer months and during peak vacation times

d. Combine the educational sessions with the practical walk-through to limit the lecture-style education session and make the program more interactive

e. Tighten timeline for the initial aspects of the program so that organizations proceed from project acceptance and education to the implementation phase sooner and apply process and skills learned more quickly

f. Provide organizations with a detailed step-by-step action plan to ensure a better understanding of the entire process and the time and commitment involved

g. Ensure active involvement of the PSHSA consultant to maintain momentum of the program

h. Provide organizations with tools/activities to support their interventions (e.g., example Physical Demands Analysis and Ergonomic Assessment)

i. Provide clarification regarding roles of committee members (e.g., the role of the champion versus the CT leader)

j. Develop a more comprehensive strategy to support organizations to build capacity at the beginning so they can start to work independently earlier in the program

k. Develop a toolkit that organizations can use to support the advancement of the program to the entire organization.

9. Commitment to EPIC requires the following organizational support:

a. Provision of resources, both fiscal and human, to support the project to achieve outcomes in a timely manner

b. Commitment of entire senior leadership team

c. Maintenance of open communication between staff and management

d. Maintenance of a distinct committee structure for EPIC within the organization

e. Maintenance of a consistent size of committees (SC and CT)

f. Frequency of meetings should be consistent and a minimum of one monthly meeting is required to make progress on the project

g. Availability of incident reporting system data to validate the perception that EPIC contributes to reducing exposure to the progression of a hazard

h. Availability of readily available, timely and meaningful data to support decision-making and outcome monitoring

i. Long-term commitment to the program to advance PE and EPIC to all departments

10. Work with key stakeholders to develop a toolkit that organizations can use to build awareness of all staff in supporting and advancing a COS.

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APPENDIX A. Decision Matrix

Matrix Elements	Grenadier Retirement Residence	Halton Region Services for Seniors Division	West Park Healthcare Centre	Alexandra Hospital	Tillsonburg District Memorial Hospital	St. Paul's L'Amoreaux Centre
Address	2100 Bloor Street West, Toronto, ON M6S 1M7	1151 Bronte Road, Oakville, ON L6M 3L1	82 Buttonwood Avenue, Toronto, ON M6M 2J5	29 Noxon Street, Ingersoll, ON N5C 3V6	167 Rolph Street, Tillsonburg, ON N4G 3Y9	3333 Finch Avenue East, Scarborough, Ontario, M1W 2R9
Local Health Integration Network (LHIN)	LHIN 7 (Toronto Central)	LHIN 6 (Mississauga Halton)	LHIN 7 (Toronto Central)	LHIN 2 (South West)	LHIN 2 (South West)	LHIN 9 (Central East)
Consultant	Derek Morgan	Frances Ziesmann	Derek Morgan	Derek Morgan	Derek Morgan	Frances Ziesmann
Health Sector	Retirement	Long-Term Care	Rehabilitation & Long-Term Care	Acute Care	Acute Care	Community
Organization Size (number of beds)	246	572 Long-term Care	133 Rehabilitation 154 Complex Continuing Care 200 Long-Term Care	35	51	N/A
HSMS Sites	Yes	Yes	Yes	Yes	No	No
On-Site Safety Resources	Included in Resident Manager role	Included in role of Manager CQI & Risk	Yes	Included in role of Manager, Quality	Included in role of Human Resources Manager	Included in role or Manager, Quality
Specific Intervention (e.g., MSD vs. STP)	STF	MSD	MSD	MSD	MSD	STF

Note. STF = slips, trips and falls; MSD = musculoskeletal disorders

APPENDIX B. Profile Summary for Each Organization

	Alexandra Hospital	Halton Region Services for Seniors Division	The Grenadier Retirement Residence	St Paul's L'Amoreaux Centre	Tillsonburg District Memorial Hospital	West Park Healthcare Centre
Location	Ingersoll	Halton	Toronto	Scarborough	Tillsonburg	Toronto
Local Health Integration Network	South West	Missisauga - Halton	Toronto Central	Central East	South West	Toronto Central
Classification	Acute Care Hospital	Long-Term Care	Retirement Residence	Community Services	Acute Care Hospital	Rehabilitation & Complex Continuing Care and Long-Term Care
Governance	Public Hospitals Act	Municipal Act/Public Hospitals Act	Operated by Diversicare	Several acts depending on program	Public Hospitals Act	Public Hospitals Act
Number of Sites	1	3 Long-Term Care Homes 2 Adult Day Program Sites	1	1 Campus 4 Off-site day programs	1	1 Campus
Bed Capacity/Residents	35 Beds	572 Long-Term Care (3 sites) Creekway -	246	N/A	51 Beds	133 Rehabilitation 154 Complex Continuing Care 200 Long-Term Care
Staff (FTEs) - Full-Time/Part-Time Ratio		495 FTE				666 FTE Excludes Long-Term Care FTEs
Participated in HSMS Program	Yes	Yes	Yes	No	No	Yes
Steering Committee	Yes	Yes	Yes	Yes	Yes	Yes
Change Team	1	1	1	1	2	1
Safety Officer (dedicated/shared)		Shared				Dedicated

	Alexandra Hospital	Halton Region Services for Seniors Division	The Grenadier Retirement Residence	St Paul's L'Amoreaux Centre	Tillsonburg District Memorial Hospital	West Park Healthcare Centre
Linkage to JH&SC	JH&SC serves as Steering Committee with links to Change Team	JH&SC serves as Change Team with links to Steering Committee	Distinct committees, JH&SC members serve on both	Distinct committees, JH&SC members serve on both	JH&SC serves as Steering Committee	Distinct committees JH&SC members serve on both
Focus of Project	MSD - Housekeeping	MSD - Laundry/Linen	STF - Staff & Clients	STF - Staff & Clients	MSD - Food Services & Diagnostic Imaging	MSD - Food Services

Note. STF – slips, trips and falls; MSD = musculoskeletal disorders

APPENDIX C. EPIC Pre Implementation Data Questionnaire

Organizational Profile (Please provide a copy of your organizational chart)

Organization Name:	WSIB Firm#:
Facility Type:	Rate Group:
Number of sites/facilities:	Number of beds:
Local Health Integration Network (LHIN):	Unions:
Senior Leadership Team: (list members and job titles)	

- Percentage paid sick hours = paid sick leave hours for eligible employees / total paid hours per eligible employees (100)

- Short Term Disability Rates

- Long Term Disability Rates

- Vacancy Rate*
  - Number of positions vacant longer than 6 months/total number of budgeted positions (UK uses 3 months as a measure of a "hard to fill" position)

- Overtime*
  - Paid overtime rate = total # OT hours / Total paid hours

- Training and Professional Development Opportunities*
  1. Average training hours per employee; and average training hours per FTE (define what is included – in house and off site)
  2. Percentage of employees participating in in-service training session and/or off-site education and training programs annually

- Turnover Rate *
  1. Number of employees who have permanently left the organization in the fiscal year for any of the following:
     - Resignation (no incentives)
     - Lay-offs (no recall expected) - involuntary
     - Special workforce reductions (resignation/early retirements with incentives)
     - Dismissal for cause
     - Retirement (no incentive)

     Divide the number of employees leaving by the average level of employment observed between the fiscal year

  2. Labour Stability Rate – percentage of staff at the beginning of a fiscal year and were also employed a full year before

- Employee Assistance Program Usage - utilization rate - number of services accessed over number of employees; type of services accessed

- Percentage of Full Time Nurses
  - # FTEs
  - #Part-time
  - # Casual
  - Agency Staff Usage

• Grievances - number and type *(see pre-HSMS assessment tool)*	
• Client Satisfaction ○ Population aged 15 and older receiving health care services in past 12 months who rate their level of satisfaction with those services (overall health services; hospital care; physician care; community-based care; telephone line or tele- health services)	

Organizational Health and Safety Performance and Profile:	
Joint Health and Safety Membership: Number of Worker reps: Number of Management reps:	Number of certified worker reps: Number of certified management reps: Meeting frequency:
WSIB Workwell audit in the past? Yes /No If yes, date: Outcome:	Member of Safety Group? Yes/ No If yes, name the safety group: Number of years involved in SG:
OSACH Safe Workplace Partnership involvement in the last 2 years?	
Date of Last Accreditation? Was the Accreditation Canada Pulse Survey conducted? If so, date Has the organization conducted any other quality of work life surveys? If so date	MoL visits over the past 2 years? Nature of visit? Outcome?

- Workers Compensation Lost Time Rates
    - Average lost time claims accepted per 100 FTEs (200,000 hours) annually (frequency)

    - Average number of days lost per 100 FTEs (200,000 hours) annually (severity)

    - Number of lost time claims accepted per 100 FTEs (200,000 hours) annually (frequency)

    - Number of healthcare (NLT) claims accepted per 100 FTEs (200,000 hours) annually (frequency)

    - Number of days lost per 100 FTEs (200,000 hours) annually (severity)

    - Workers Compensation Costs (NEER): average annual costs; Surcharge/Rebate

    - WSIB Neer Index

- Number of new employee injuries (within first 4 weeks of hire)

- Number of Critical Injuries (per section 51 of the OHSA)

- Number of Fatalities

- Number/count of Work Accommodation Programs – annually ; compensable and non-compensable
    - Temporary

    - Permanent

MSD Other - Injury Classification	First Aid	Medical Aid	Lost Time
2006:			
2007:			
2008:			
2009: YTD			

Top 3 Units/Depts. With Highest Rates of MSDs - Other

1.

2.

3.

MSD Client Handling - Injury Classification	First Aid	Medical Aid	Lost Time
2006:			
2007:			
2008:			
2009: YTD			

Top 3 Units/Depts. With Highest Rates of MSDs – Client Handling

1.

2.

3.

Slips/Trips/Falls (Employee) - Injury Classification	First Aid	Medical Aid	Lost Time
2006: 2007: 2008: 2009: YTD			

Top 3 Units/Depts. With Highest Rates of Slips/Trips/Falls – Employee
1.   2.   3.

Slips/Trips/Falls (Client)	Client Events
2006: 2007: 2008: 2009: YTD	

Top 3 Units/Depts. With Highest Rates of STF - Clients
1. 2. 3.

Dedicated resources for Health, Safety and Wellness:	
Health and safety:	Ergonomics
Client Safety:	Risk Management:

APPENDIX D. EPIC Pre Implementation Hazard Specific Assessment Tool

Hazard Specific Programs:
- ☐ Safe Client Handling program (MSD client handling)
- ☐ Musculoskeletal Disorder Prevention program (MSD Other)
- ☐ Slip, Trip and Falls Prevention program

Statement	Recommendation	Response
1.0 Hazard Identification and Prevention Control Programs		
1.1 Hazard specific programs have senior management commitment-allocation of appropriate resources, program lead, multi-disciplinary committee.	Conduct a hazard identification and develop hazard specific policies and procedures in consultation with the JHSC.	☐ Yes ☐ No ☐ Partial
1.2 Hazard specific policies and procedures are based on program specific risk assessments.	Conduct program specific risk assessment(s) for hazard specific programs to identify the likelihood and consequence of impact on staff safety.	☐ Yes ☐ No ☐ Partial
1.3 There are hazard specific policies and procedures developed in consultation with the JHSC.	Obtain senior management commitment for hazard specific programs. Ensure adequate human and financial resources. Establish a multidisciplinary committee for program development.	☐ Yes ☐ No ☐ Partial
1.4 Hazard specific programs and policies are communicated widely as appropriate to management, staff, clients, physicians, contract workers, visitors etc.	Develop a communication and marketing strategy to widely communicate the goals and expectations of the hazard specific policies and procedures.	☐ Yes ☐ No ☐ Partial
1.5 Supervisors audit and enforce the hazard specific policies and procedures.	Educate and hold supervisors accountable for auditing and enforcing hazard specific policies and procedures.	☐ Yes ☐ No ☐ Partial
1.6 Equipment and other protective devices required for hazard specific programs are in place, inspected and maintained.	Determine and obtain equipment and other protective devices for hazard specific programs.	☐ Yes ☐ No ☐ Partial

Statement	Recommendation	Response
1.7 The hazard specific program is included in the organization's safety training program. *Foundation element*	Develop and document a health and safety orientation training program for new and transferred staff. Organizations strive to deliver orientation within the first few weeks as WSIB data indicates new workers are at higher risk within the first 4 wks of hire/transfer.	☐ Yes ☐ No ☐ Partial
1.8 There is ongoing, job specific health and safety training in place. *HSMS Journey*	Develop and document ongoing job specific health and safety training. Include a schedule for training and maintain records.	☐ Yes ☐ No ☐ Partial
1.9 The hazard specific policies, procedures and controls have been evaluated in consultation with the JHSC.	Evaluate the effectiveness of the hazard specific policies and procedures in conjunction with the JHSC or H&S rep.	☐ Yes ☐ No ☐ Partial
1.10 The organization is experiencing a reduction of injuries related to the hazard		☐ Yes ☐ No ☐ Partial
2.0 Accident Investigation:		
2.1 There is a work related injury and illness reporting and investigation program in place that includes record keeping. *Foundation Element*	Develop and document a work related injury and illness reporting and investigation program including record keeping.	☐ Yes ☐ No ☐ Partial
2.2 The hazard/near miss/ incident reporting and investigation system promotes a 'blame-free' culture. *HSMS Journey*	Establish a process for hazard/near miss/incident reporting and investigation that encourages open reporting, with a focus on system issues and root cause analysis.	☐ Yes ☐ No ☐ Partial
2.3 Workplace parties have received training on reporting and investigation of work related incidents and accidents. *Foundation Element*	Schedule training on reporting and investigation of work related incidents and accidents.	☐ Yes ☐ No ☐ Partial

APPENDIX E: EPIC Pre and Post Implementation Interview Guide

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APPENDIX E

EVALUATION OF ERGONOMICS PROGRAM IMPLEMENTATION CONTINUUM (EPIC)
Pre and Post Implementation Interview Guide

Organization:
Participant Group:
Number of Participants in Interview:
Dates Held:

Ergonomics Program Implementation Continuum (EPIC) (Pre and Post Implementation Visit)

1. What is your understanding of EPIC program?

2. Describe briefly: Please rate your understanding (on a scale of 1 to 5, 5 being a lot of knowledge and 1 being very little knowledge) of the intervention.

3. Describe briefly your understanding of what is/was expected of you throughout the implementation process. Rate your level of understand of what is/was expected of you from 1 to 5 (one being no understanding at all and 5 being full understanding of the expectations)?

4. Outline the membership on the Steering Committee and Change Team(s) and the roles of each group.

5. What opportunity(ies) did the Change Team identify for improvement?

6. What data was utilized to support the identification of this opportunity ?

7. Describe your experience during the EPIC process?]

8. What are/were the barriers to implementation of EPIC at your organization?

9. What are/were the facilitators to implementation of EPIC at your organization?

POST IMPLEMENTATION VISIT

10. Describe how senior leadership supported EPIC?

11. Describe the changes you have seen as a result of EPIC program? Where there any set backs? (List)

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12. What type of training and education specific to ergonomics, slips/trips and falls/ MSD's have you received in the past year?

13. What activities/tools were used to support the intervention?
- Ergonomic facility design consulting
- Physical Demands Analysis (PDA);
- Ergonomic Assessment;
- Participatory Ergonomic Program Training (with/without Slips, Trips and Falls intervention); Office ergonomics,
- MSD Prevention activities;
- On site consultation by experts
- Other: please list

Identify which activities were most helpful? Participants will be asked to rate the effectiveness of each listed activity on a scale of 1 (not at all effective/helpful) to 5 (very effective/helpful)

14. Define the specific activities which occurred relating to:
    a. Hazard Recognition
    b. Hazard Risk Assessment
    c. Hazard Control
    d. Hazard Evaluation

15. What marketing/communication strategies were used to promote EPIC?

16. In your opinion, did implementation of the intervention reduce exposure/progression of an MSD/STF?

17. Other comments regarding EPIC

18. [For Steering Committee]: What mechanism do you currently have in place to monitor and measure outcomes of EPIC and the intervention being implemented? Will these data be presented to the Board and if so how often?

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APPENDIX F. Consultant Feedback Log

CONSULTANT FEEDBACK TEMPLATE			
ITEMS	STRENGTH	WEAKNESS	OPPORTUNITY
Initial Meeting • Who was present? • Number of participants?			
EPIC Presentation			
Letter of Commitment			
Pre-implementation Assessments • Process • Report • Action Plan			

CONSULTANT FEEDBACK TEMPLATE			
ITEMS	STRENGTH	WEAKNESS	OPPORTUNITY
Selection of Steering Committee • List members (job title) • Number of members			
Steering Committee TOR			
Change Team Membership			
EPIC Fast Fact			

CONSULTANT FEEDBACK TEMPLATE			
ITEMS	STRENGTH	WEAKNESS	OPPORTUNITY
Use of education calendar			
Advance scheduling of EPIC assessments/education			
PE Education Workshop			
MSD Education Workshop			

CONSULTANT FEEDBACK TEMPLATE			
ITEMS	STRENGTH	WEAKNESS	OPPORTUNITY
STF – Employee Workshop			
STF – Client Workshop			
Hazard Assessments • Process • Report • Action Plan • Who participated?			
Ergonomic; STF Assessments			

CONSULTANT FEEDBACK TEMPLATE			
ITEMS	STRENGTH	WEAKNESS	OPPORTUNITY
Monthly Steering Committee Meetings • Process • Report • Action Plan • Who participated?			
Final Meeting			

APPENDIX G. Safety Culture Checklist

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APPENDIX G
EVALUATION OF ERGONOMICS PROGRAM IMPLEMENTATION CONTINUUM (EPIC)
Safety Culture Checklist

The following short survey will be completed independently by all participants and returned to researcher on the day of the visit.

1. Site: _____

2. Please check all that apply

   ☐ Steering Committee

   ☐ Change Team Member

   ☐ Staff

   ☐ Management

3. Please provide specific examples of how safety and safety terms are included in the language used at your organization?

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EVALUATION OF PARTICIPATORY ERGONOMIC BEST PRACTICE INTERVENTION
SAFETY CULTURE CHECKLIST - PAGE 1

4. From your perspective, please check (√) the most appropriate answer for each of the questions listed below:

QUESTION	YES	NO	SOMETIMES	UNCERTAIN
At my organization, the culture of safety is supported from the "top down"				
At my organization, the culture of safety is supported from the "bottom up"				
Is workplace safety practices part of everyone's job description?				
Are safe behaviors specified and enforced at your organization?				
Are employees rewarded in a tangible, visible way for promoting safety?				
Are safety concerns evident in discussions/interactions among staff?				
Are safety concerns evident and integrated in client care activities and in discussions/interactions with clients and their families?.				
Are new employees briefed on safety procedures and on the consequences for ignoring safety practices or engaging in unsafe behavior?				
Are ignoring /breaching safety practices addressed?				
Do employees observe and correct hazards?				
Do employees always use/wear appropriate protective gear and equipment for the activity undertaken?				
Is there is an active safety committee?				
Are safety meetings well attended?				

APPENDIX H. Online Survey

Supplement B: Survey to assess Ergonomics Program Implementation Continuum …

Dear Participant,

Thank you for participating in the Ergonomics Program Implementation Continuum (EPIC) Project. One aspect of the research project is to receive feedback on your site's experience and how implementation could be improved for other future participants. We have a brief survey which we ask you to complete that will enable us to provide OSACH with timely feedback. Your opinions will be treated as confidential by the research team and summarized for OSACH.

If you have any questions, please do not hesitate to contact Laurie Kennedy at kennedyl@mcmaster.ca or 905-525-9140 ext. 22206.

Thank you for your time.

2. Name of Organization

3. What was your EPIC Project activity?

4. What is the stage of completion?

- ◯ Planned
- ◯ Planned but not started
- ◯ Planned and pilot tested
- ◯ In progress
- ◯ Fully Implemented

5. What outcomes have been achieved to date?

6. Would you recommend participation in the EPIC program to others?

◯ Yes

◯ No

Please explain why?

[   ]

7. If applicable, please rate the level of support from OSACH throughout the process:

◯ Poor

◯ Fair

◯ Good

◯ Very Good

◯ Excellent

Please comment:

[   ]

8. What was good about the EPIC program? Process?

[   ]

9. What should be improved?

☐ Education sessions

☐ A approach used by consultants,

☐ 5 step participatory ergonomic approach

☐ Use of Health and Safety Hazard Management Flow Chart (hazard recognition, hazard risk assessment, hazard control and hazard evaluation)

☐ Reports

Other (please specify)

[   ]

10. Please rate your overall experience with the EPIC Program:

○ Poor

○ Fair

○ Good

○ Very Good

○ Excellent

Please Comment:

[_____]

11. Other comments, suggestions, or improvements to the EPIC program:

[_____]

Thank You!

Thank you for participating in this survey. Your input will provide valuable feedback for future enhacnements of the EPIC program.

APPENDIX I. Quantitative Data Summary

To be added.