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Synthesizing Occupational Health and Safety Knowledge for Local Stakeholders

Final Report to the Workplace Research and Innovation Program of the Workers Compensation Board of Manitoba



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Executive Summary

This report describes a study funded by the Workers Compensation Board of Manitoba (WCB Manitoba) in 2014. Called *Evidence in Context for Occupational Health & Safety* (EC-OHS), the research project aimed to describe a process by which stakeholders in occupational health and safety, such as policy-makers, employers, unions, and workplace health and safety committees, can initiate the best possible policies and procedures to make workplaces and workers safer and healthier based on what the best available research says about the issue or issues involved. These stakeholders would probably not have the time or the expertise to examine and analyze all the relevant studies or to figure out which of these to trust. What they would need is to locate, or commission, what is called a ‘systematic review’ of these studies, which involves doing a comprehensive search of the relevant literature, identifying the pertinent studies, evaluating each of them to determine how trustworthy it is, and synthesizing the findings of the most reliable studies to summarize the points of consensus and of disagreement. Such a review will help them understand what, according to the best available scientific research, can work to solve the problem they are facing. It will, however, only tell them what works in general rather than what is most likely to work in their particular setting—their region, their economic sector, their type of workplace, their set of available personnel, and resources. For that, they will need an extra step to contextualize the evidence for their kind of setting.

An engaged group of stakeholders in Manitoba, a team of researchers from the Institute for Work & Health (IWH) in Toronto and researchers based at Memorial University’s SafetyNet Centre for Occupational Health & Safety Research (SafetyNet) and the Contextualized Health Research Synthesis Program (CHRSP) of the Newfoundland & Labrador Centre for Applied Health Research (NLCAHR) combined and refined their respective synthesis approaches to meet the objectives of this project. Project objectives included:

- a new methodology for contextualized reviews;
- a sample knowledge synthesis of a review topic relevant to Manitoba stakeholders contextualized for the specific resources, capacities, and challenges of the province; and
- a handbook targeted to decision makers and stakeholders that describes the new methodology and provides tips for its application.

The *EC-OHS Operational Handbook* provides an outline of what they will need to do to plan and oversee the production of this kind of contextualized evidence synthesis. It elaborates on the following key steps:

1. Identifying the issue(s) to study
2. Building a contextualized synthesis project team
3. Developing the research question
4. Choosing the type of contextualized synthesis project to be done
5. Performing the search and synthesis
6. Contextualizing the key findings
7. Reporting the results.

Our intention is that this approach will be widely used and will help increase the effective use of scientific evidence in OHS decision making in Canadian jurisdictions, economic sectors, and workplaces.

Project Overview

The Evidence in Context for Occupational Health & Safety (EC-OHS) research project was funded by the Workers Compensation Board of Manitoba ([WCB Manitoba](https://www.wcb.mb.ca/))¹ in 2014. The project involved a collaboration between researchers at Memorial University's SafetyNet Centre for Occupational Health & Safety Research ([SafetyNet](http://www.safetynet.mun.ca/))² and the Institute for Work & Health ([IWH](http://www.iwh.on.ca/))³ in cooperation with research partners in Manitoba and a committee of Manitoba stakeholders.

The purpose of the project was to develop and test an innovative methodology for providing support for decision-makers and stakeholders in occupational health and safety (OHS) at the workplace, local, and provincial levels by synthesizing the best available evidence on questions chosen by them and contextualizing the results to produce recommendations geared to be effective in the specific contexts with which those decision-makers are dealing. In most research synthesis studies, such as those undertaken by [Cochrane](http://www.cochrane.org/)⁴ or the [Campbell Collaboration](https://www.campbellcollaboration.org/),⁵ the aim is to answer the question: **what works?** This new methodology will help answer a different question: **what will work here?** This is what we have called 'contextualized evidence synthesis.'

The project used **three** pilot studies to develop and fine-tune this approach to contextualized evidence synthesis. The approach blended the methodologies of two existing programs:

- the '[Systematic Review Program](#)' at IWH,⁶ and
- the '[Contextualized Health Research Synthesis Program](#)' (CHRSP)⁷ of the Newfoundland & Labrador Centre for Applied Health Research (NLCAHR), a partner of SafetyNet at Memorial University.

The final product — the *EC-OHS Operational Handbook* (the *Handbook*) — provides a step-by-step guide for OHS decision-makers, and for the researchers supporting them, on how to organize and undertake this kind of synthesis. Working with researchers, OHS decision-makers can use the *Handbook* to

¹ <https://www.wcb.mb.ca/>

² <http://www.safetynet.mun.ca/>

³ <http://www.iwh.on.ca/>

⁴ <http://www.cochrane.org/>

⁵ <https://www.campbellcollaboration.org/>

⁶ <http://www.iwh.on.ca/systematic-reviews>

⁷ <http://www.nlcahr.mun.ca/CHRSP/>

identify topics of concern to them, to formulate these topics as researchable questions, to discover and summarize what the best available evidence recommends, and to determine how these recommendations apply to their specific contexts and how they can be implemented there most effectively.

Background

Work-related injuries, disorders, and diseases are burdensome for workers and employers, as well as for provincial health-care and compensation systems. The Association of Workers' Compensation Boards of Canada (AWCBC) estimates that, in 2010, expenditures on health-care and wage replacement benefits for new work-related injuries and illnesses totaled over \$5 billion, with an additional \$2.3 billion spent on injuries and illnesses that had occurred in previous years. In 2011, the AWCBC reported that a total of 249,511 claims were accepted across the country for lost-time injuries. Progress has been made in reducing lost-time injury rates through evidence-informed practices and policies (e.g., Ontario's guidelines for the prevention of musculoskeletal disorders). In light of various trends associated with higher risk of injury and exposure (such as the aging of the workforce and the growth of non-standard forms of employment), sustaining this progress will prove challenging.

To take effective action to prevent workplace injuries and diseases, those designing and implementing interventions (i.e., health and safety professionals, employers, employees, ergonomists, joint health and safety committees, etc.) need to know about the latest scientific evidence on what works in occupational health and safety (OHS) interventions. Growing amounts of information are available to users of occupational health and medical literature, but individual stakeholders have limited time and/or capacity to locate, assess, and synthesize this literature. Systematic reviews are an efficient solution to this problem. Systematic reviews aim to integrate the results of a number of studies using meticulous and explicit methods to limit bias and capture the existing consensus and discussions in the scientific literature.

However, simply locating or producing systematic reviews does not fully solve OHS problems. Review findings need to be communicated effectively to government decision-makers and to stakeholders in workplace environments. This requires attention to two issues—the engagement of the decision-makers in

the research process and the tailoring of the findings and recommendations to the specific context or contexts involved.

A prominent review of the literature on effective knowledge transfer and exchange (KTE) notes that one of the most important factors facilitating the effective transfer of knowledge is the relationship between the research producers and the research users (Mitton et al., 2007). The quality of that relationship and the trust developed between the research partners were found to be critical components, as were interactive meetings and face-to-face contact. Others have also found that direct involvement of stakeholders within the research process increases the use of research findings, and that it is important to engage stakeholders from the beginning of a research project and to maintain their participation throughout (Lavis et al., 2002; Lomas, 2000a; Lomas, 2000b).

Keown et al. (2008) have provided a model for including stakeholders in a systematic review process, and this approach is the one employed by the Institute for Work & Health in its Systematic Review Program. NLCAHR, in its Contextualized Health Research Synthesis Program, uses an engagement model that differs in some details, but is consistent with the fundamentals of the IWH approach.

The other factor that makes a major difference in the uptake of evidence is attention to context (Kitson et al., 2008). Evidence syntheses that do not explicitly consider how the findings of the scientific literature do and do not apply to the specific context for which a decision is to be made or how the interventions being recommended can best be organized and implemented in that context are likely to be ignored, undervalued or misinterpreted (Tricco et al., 2011). Features of the environment under consideration that differentiate it from the environment(s) in which the reviewed research was done could significantly affect the relevance of the findings for that environment and the likely effectiveness there of any recommended interventions or policies. Accordingly, decision-makers are much more likely to incorporate evidence syntheses into their decision processes if they have confidence that contextual issues have been taken into consideration.

In summary, the relevant literature on knowledge transfer emphasizes two key facilitating factors in the effective transfer of knowledge and its uptake into decisions—engagement and context. To be effective, a KTE process must engage the knowledge-users directly and extensively, and it must pay close attention to

the context in which knowledge-users operate. The IWH team involved in this proposed project has developed an approach to knowledge synthesis that gives their stakeholders a prominent and continuing role in the design, implementation, and dissemination of systematic reviews in OHS. The CHRSP team at Memorial University, working in a related but specific set of fields (health policy, health services, and health technology), has designed an approach to knowledge synthesis that involves working very closely with a small number of key stakeholders. It also emphasizes the ‘contextualization’ of the topics, the syntheses, and the recommendations in order to increase the ultimate uptake of their reports into policy and clinical practice. This project was designed to combine the features of these two approaches into a new methodology for implementing OHS in provinces such as Manitoba.

Objectives

The purpose of this project was to develop, test, and disseminate to end-users in Manitoba, as well as in other provinces and territories, an innovative methodology for producing what we call ‘contextualized knowledge syntheses’ for use by stakeholders in local and provincial OHS settings. This was achieved through a multi-stage process with three key deliverables:

- a new methodology for contextualizing reviews;
- a sample knowledge synthesis of a topic relevant to Manitoba stakeholders, contextualized for the specific resources, capacities, and challenges of the province; and
- a handbook targeted to decision-makers and stakeholders that describes the new methodology and provides tips for its application (*EC-OHS Operational Handbook*).

Methodology

The EC-OHS project sought to blend two established methodologies—IWH’s approach to the production of systematic reviews and CHRSP’s approach to collaborative contextualized synthesis—in order to produce a tool that can be used efficiently and effectively by OHS stakeholders, specifically the WCB Manitoba, as well as other provinces. Our project team (Table 1) consisted of

researchers involved in each of the two methodologies, as well as colleagues from Manitoba with relevant expertise and experience.

Table 1: EC-OHS Project Team	
Lead Investigators	
Stephen Bornstein	SafetyNet (Memorial University)
Emma Irvin	Institute for Work & Health
Co-Investigators:	
Dwayne Van Eerd	Institute for Work & Health
Ron Saunders	Institute for Work & Health
Leslie Johnson	University of Manitoba
Steve Passmore	University of Manitoba
Research Associates:	
Kim Cullen	Institute for Work & Health
Amanda Butt	SafetyNet (Memorial University)

A Manitoba Stakeholder Advisory Committee (MSAC) was created with key OHS stakeholders in Manitoba, including business leaders, union representatives, government ministry officials, and representatives of WCB Manitoba (Table 2).

Table 2: MSAC Representation
Construction Safety Association of Manitoba
Haskayne School of Business, University of Calgary
Manitoba Government, General Employees' Union
Manitoba Nurses Union
Manitoba Trucking Association
Manitoba Federation of Labour Occupational Health Centre
Mining Association of Manitoba
SAFE Manitoba
University of Manitoba
Workers Compensation Board Manitoba
Winnipeg Regional Health Authority

The project involved eight stages over two years.

Stage 1 Project Launch

Activities in this first stage focused on identifying staff and introducing the project to additional stakeholders in Manitoba and Newfoundland & Labrador (NL). OHS stakeholders in Manitoba were identified primarily through word of

mouth, and all were invited to join the MSAC. The MSAC provided information and feedback in subsequent stages of this project.

Stage 2 Pilot Phase

An “Opening Workshop” brought the MSAC and the project team together (May 14, 2014). The workshop’s agenda focused on these objectives:

- to familiarize the members of the MSAC with the goals of the project and with the two methodologies that were to be its starting points;
- to introduce existing IWH systematic reviews for possible contextualization exercises focused on workplaces in NL;
- to hold a preliminary discussion of the challenges involved in blending the two methodologies and, particularly, in using the CHRSP contextualization approach developed for health services and policy issues in the different field of occupational health and safety; and
- to plan the work that would be undertaken in Stage 3.

Stage 3 Adapting Existing Reviews

The EC-OHS project team chose two recently completed IWH reviews in order to consider how their findings and recommendations might be considered in a specific context – NL:

1. [Interventions in health-care settings to protect musculoskeletal health: a systematic review](#)
Ben Amick, Jessica Tullar, Shelley Brewer, Emma Irvin, Quenby Mahood, Lisa Pompeii, Anna Wang, Dwayne Van Eerd, David Gimeno, Bradley Evanoff.⁸
2. [A systematic review of the effectiveness of training & education for the protection of workers](#)
Lynda Robson, Carol Stephenson, Paul Schulte, Ben Amick, Stella Chan, Amber Bielecky, Anna Wang, Terri Heidotting, Emma Irvin, Don Eggerth, Robert, Peters, Judy Clarke, Kimberley Cullen, Lani Boldt, Cathy Rotunda, Paula Grubb.⁹

⁸ <https://www.iwh.on.ca/sys-reviews/interventions-in-health-care-settings-to-protect-musculoskeletal-health-a-systematic-rev>

⁹ <https://www.iwh.on.ca/sys-reviews/training-and-education-programs>

Beginning with information and data gathered through interviews with key individuals in NL, revised report briefs were created that examined how the findings of each of the original IWH reviews might be reconsidered in terms of variables unique to the context of NL. For each pilot project, the team involved decision-makers and knowledge-users in NL who provided information and advice on key contextual factors to consider for NL. Each pilot project used the resulting data and advice to produce a contextualized version of the original synthesis report's summary. Interviews also served as a methodological tool that informed both the larger review and the development of the *EC-OHS Operational Handbook*.

Stage 4 Operational Handbook Development

The project team and the MSAC met for a “Mid-Project Workshop” (October 19, 2015) to review the project's work, to select possible systematic reviews for the next stage, and to outline how the MSAC could provide input for the remaining stages. Following this workshop, the team produced a working draft of the *Handbook* based on the advice received and the experience of adapting the two IWH reports for use in NL.

A presentation on the preliminary lessons learned to date was made at the Canadian Association for Research in Work and Health (CARWH) Conference in Saskatoon in October, 2014.¹⁰

Stage 5 Contextualized Review – Testing the Methodology

The working version of the *Handbook* was then used as a guide to organize and perform a synthesis report on a topic — the management of depression in the workplace — picked by MSAC in an e-mail consultation from a list of options presented by the research team.

The team ran literature searches in seven electronic databases from inception up to June 2015. Independent reviewers selected articles that met the following criteria: working-age individuals with mild or moderate depression; workplace-based interventions; inclusion of a comparator group in the analysis; outcomes of prevention, management, work disability or sickness absence, and work

¹⁰ Bornstein S, Irvin E, Van Eerd D, Saunders R, Passmore S, Kean R, Johnson L. Evidence in Context- what works in OHS (EC-OHS). October 19 – 21, 2014; Saskatoon, SK: Canadian Association for Work and Health (CARWH) 2014- 7th International Symposium: Safety & Health in Agricultural & Rural Populations: Global Perspectives (SHARP).

functioning. Reviewers independently reviewed each article for quality and extracted data using standardized forms. The quality of evidence addressing each outcome was graded as high, moderate, low or insufficient, and was synthesized using a “best evidence synthesis” approach.

On September 12 and 13, 2016, a team was formed to contextualize the results of the review. The team was made up of members of the project team, content experts from Manitoba and elsewhere on the topic being studied, members of the MSAC, and other decision-makers and end-users from Manitoba.

The final product, the contextualized review “Managing Depression in the Workplace – Manitoba”, was finalized in March 2017.

Stage 6 Second workshop

The next step was an “In-person Workshop” designed to discuss the Manitoba synthesis and to seek consensus on any revisions to the *Handbook*. While the entire MSAC was invited, only four members attended this meeting. The discussion, however, was very productive and generated very helpful advice about changes needed in the *Handbook* and about how the results of the project could best be disseminated.

Stage 7 Wrap-Up Work

Following the workshop, the research team worked to revise the *Handbook* in light of these discussions. A final team meeting was held in St. John’s, NL to finalize the *Handbook* and generate plans for dissemination.

Stage 8 Dissemination

The results of this project, its outputs and, especially, the *Handbook* have been, and will continue to be, communicated to key stakeholders from all segments of the OHS communities in Manitoba, Ontario, and NL. This will be done by e-mail and website posts, as well as through a series of webinars. It is also hoped that, with the assistance of WCB Manitoba, this report and the *Handbook* can be presented at a meeting of the Association of Workers’ Compensation Boards of Canada, as well as at the Canadian Association of Administrators of Labour Legislation’s Occupational Safety and Health Committee (CAAL-OSH).

Conference presentations (in reverse chronological order):

Johnson L, Irvin E, Bornstein S, Van Eerd D, Cullen K, Butt A, Saunders R, Passmore S. Will that work here? Attending to Context in Evidence-Based Practice. *Canadian Association of Occupational Therapists Conference*. Charlottetown, PEI: June 21 – 25, 2017.

Irvin E, Bornstein S, Cullen K, Butt A, Van Eerd D, Johnson L, Passmore S, Mackey S, Saunders R. Putting evidence in context: what works in occupational health and safety. May 17. *Waypoint Research Institute, 5th Annual Conference – Implementing EBPs in Mental Health & Addictions Conference*. Barrie, ON: May 16 - 17, 2017.

Irvin E, Bornstein S, Van Eerd D, Saunders R, Passmore S, Johnson L. Contextualized knowledge synthesis for local stakeholders in OHS. October 17. *CARWH 2016, the 9th Canadian Association for Research on Work and Health Conference*. Toronto, Canada: October 16-18, 2016.

Irvin E, Bornstein S, Van Eerd D, Cullen K, Butt A, Johnson L, Passmore S, Mackey S, Saunders R. Contextualizing work disability prevention evidence. September 27. *The 4th Conference Work Prevention & Integration (WDPI)*. Amsterdam, Holland: September 25-28, 2016.

Irvin E, Bornstein S, Cullen K, Butt A, Van Eerd D, Johnson L, Passmore S, Mackey S, Saunders, R. Putting Evidence in Context – What works in occupational health and safety (EC-OHS). *PREMUS 2016. 9th International Scientific Conference on the Prevention of Work-Related Musculoskeletal Disorders - Emerging issues in the prevention and management of work-related MSDs*: Toronto, ON: June 20- 23, 2016.

Bornstein S, Irvin E, Van Eerd D, Saunders R, Passmore S, Kean R, Johnson L. Evidence in context - What works in OHS (EC-OHS). *Canadian Association for Work and Health (CARWH) 2014- 7th International Symposium: Safety & Health in Agricultural & Rural Populations: Global Perspectives (SHARP)*. Saskatoon, SK: October 19 – 21, 2014.

The Handbook

The *EC-OHS Operational Handbook* will be disseminated in Manitoba through a webinar involving the project team, the MSAC, and a range of stakeholders

from all parts of the OHS stakeholder community recruited with the help of the members of the MSAC.

The *Handbook* will be available on the websites of IWH (www.iwh.on.ca) and SafetyNet (www.safetynet.mun.ca).

Plain-language summaries modeled on IWH's *Sharing Best Evidence* and an article in the IWH quarterly newsletter, *At Work*, will also be created and disseminated through IWH.

The contextualized review

Dissemination of our contextualized synthesis – “Managing Depression in the Workplace – Manitoba” will be handled by WCB Manitoba.

Results and Evaluation

Through the EC-OHS activities outlined above, the project resulted in three potentially important outcomes:

- a new methodology for contextualized reviews;
- an updated systematic review on managing depression in the workplace, which has been contextualized for the Manitoba audience; and
- a handbook that is targeted to decision-makers and stakeholders that describes a new methodology for contextualizing evidence and provides guidance for its application.

The *Handbook* offers strategies not only on how to investigate what works in general, but also on how to discover what will work in a specific context. While contextualization does not change the recommendations of a research synthesis, our experience suggests that it facilitates the adoption and uptake of the evidence for practice in a particular context. More evaluation of this method, especially in terms of applicability, is needed. The upcoming reception and uptake of the *Handbook* in Manitoba will provide an important element of such an evaluation.

Recommendations

We recommend that WCB Manitoba use the *EC-OHS Operational Handbook* to produce one or more contextualized evidence syntheses for use in the province. We suggest that WCB Manitoba begin by undertaking the simplest, least demanding version of a contextualized synthesis; i.e., taking a pre-existing synthesis and using local data and expertise to transform it into a contextualized synthesis designed to guide implementation in the province. Starting this way should help develop increased local capacity in contextualization in preparation for turning to the more demanding versions of our process that require developing a synthesis from scratch and then contextualizing the results.

One key to success will be topic selection. Support for the process, in its various forms, will depend on finding topics that are controversial enough to mobilize widespread interest, but not so controversial as to provoke strong disagreements among stakeholders. Timing will also be an important consideration: the best topics are ones for which a solution is desired soon enough to give them a certain urgency, but not so soon as to put excessive pressure on the research team. The authors of this report will be happy to provide informal advice to WCB Manitoba as it proceeds.

If WCB Manitoba finds the methodology that we have developed to be useful, we recommend that it spread the word about this new approach to its counterparts in other Canadian jurisdictions.

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