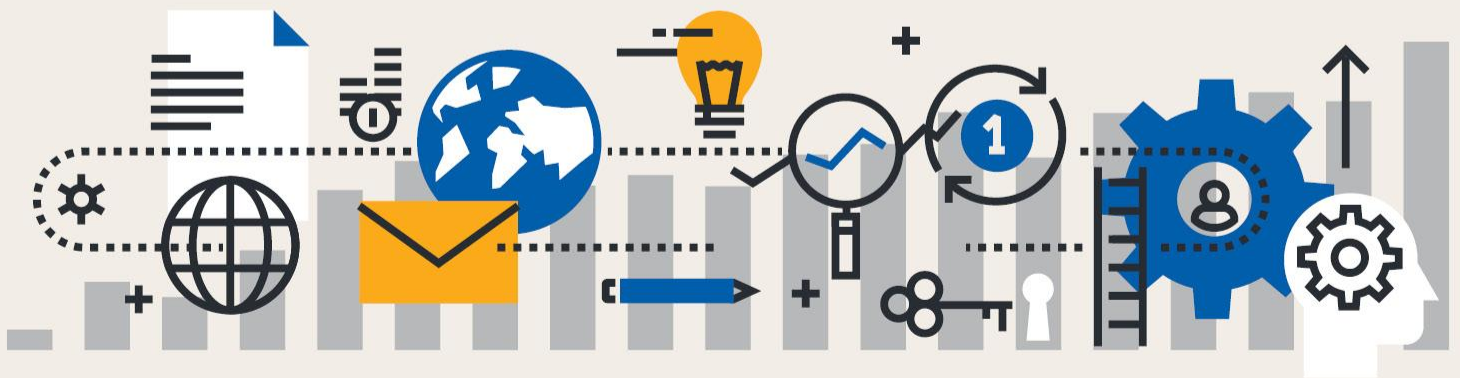


Institute for Work & Health Accomplishments Report 2016



Institute
for Work &
Health

Research Excellence
Advancing Employee
Health



2016 Accomplishments Report

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2016 ACCOMPLISHMENTS REPORT

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Introduction

The Institute for Work & Health promotes, protects and improves the safety and health of working people by conducting actionable research that is valued by employers, workers and policy-makers. The Institute is also committed to provide knowledge transfer and exchange services to improve access to and application of research evidence among agencies in the Ontario prevention system, workplace parties, occupational health and safety professionals, clinicians, and policy makers to support improved outcomes in the prevention of work-related injury and illness and the prevention of work disability.

Our transdisciplinary research is focused in two key areas: preventing work related injuries and illnesses before they occur (primary prevention); and preventing and managing work disability should injuries or illness occur (work disability prevention and management). Prevention of work-related injury and illness, evidence-based health care and return to work practices to manage disability are critical elements in an effective health and safety system. The Institute has core competencies in the areas of work-related musculoskeletal disorders, labour market experiences and health, and disability compensation systems.

The goal of our Knowledge Transfer and Exchange Program builds relationships with stakeholders to enable the ongoing exchange of information and research evidence and to facilitate their participation in research projects. We use a range of strategies to accomplish this goal and are committed to collaborations with partners in the Ontario prevention system, and with a wide range of other health and safety stakeholders. The Corporate Services Program provides facility management services, financial management services, human resource services and support to the Institute's Board of Directors.

Since 1990, we have provided research and other evidence-based products to inform and assist our stakeholders. We also provide evidence to support the policy development processes of federal and provincial institutions, including workers' compensation boards in Canada. We provide training and mentorship for the next generation of work and health researchers by sponsoring Masters and PhD students and Post-doctoral fellows.

Research at the Institute

A summary of our 2016 progress and accomplishments are described below in the areas of Primary Prevention of Work Related Injury and Illness research; Prevention and Management of Work Disability research; and our three Foundation Programs which support this research portfolio: Data and Information Services, Measurement of Health and Function; and Systematic Reviews.

Knowledge Transfer & Exchange at the Institute

The overall strategic direction of Knowledge Transfer & Exchange (KTE) is to engage the Institute's stakeholders in research and knowledge transfer to ensure that the research evidence that is generated is available, understandable and usable for decision-making, program planning and practice. Enhancing the visibility of the Institute through communications and marketing is also part of this goal ensuring stakeholders know that the Institute is a dependable resource for research evidence. The KTE accomplishments in 2016 are presented in a separate KTE section that describes accomplishments in our stakeholder relationship and exchange activities, as well as our communications activities.

Publications, Awards and Collaborators & Staff

The third and fourth sections report on 2016 publications, grants and awards. The final pages of the report also list all IWH staff in 2016, as well as IWH adjunct scientists who have contributed to our activities in the past year and a list of related organizations.

Prevention of Work Related Injury and Illness

Our research on the primary prevention of workplace injury and illness spans a wide range of methodologies and issues. Our analyses of workers' compensation administrative data including no-lost-time and lost-time workers' compensation claims provide a comprehensive picture of the trends in claim rates across industries and labour force sub-groups. This information is fundamental to planning effective prevention strategies targeting those sub-groups at highest risk. We already know that some groups of workers are at higher risk than others. Workplace policies and practices have significant effects on health and safety within a company. Our research explores how OHS policies and practices in different work environments influence injury and illness. We have made significant progress this past year in several evaluation projects that are examining specific interventions and preventative strategies in the workplace. These evaluations should be of value to the prevention system partners and to individual employers interested in improving their safety record. Our research also leads to the development of tools and guides that can be used by stakeholders and workplace parties.

Prevention of Work Related Injury and Illness

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Vulnerable Workers

Protecting vulnerable workers from the risks of work-related injury and illness is a central priority of the Ontario prevention system. New workers, some of whom are in temporary employment arrangements and many of whom are young workers, are most at risk of injury during the first month on a job. Immigrant workers, who make up an increasing segment of the Canadian labour force, may also be more vulnerable to workplace injury or illness. The proportion of workers aged 50+ is increasing and there are growing incentives for older workers to continue employment beyond the age of 65. Finally, not all workers enter the workforce with optimum health. Many have pre-existing physical and mental health conditions or develop health problems that may make them vulnerable to workplace injury or illness. Work continued in 2016 on expanding applications of the Institute's measure of 'OHS vulnerability', including the use of this measure to evaluate the impact of mandatory awareness training among Ontario workers. Also in 2016, an IWH project team implemented a case definition for serious traumatic occupational injury in administrative health care records. We also began the qualitative component of a program on addressing essential skill gaps among participants in an OHS training program. This study assesses trainee document use, numeracy and communication skills while comparing two groups using either a baseline and revised curriculum.

Occupational health & safety risk in Ontario (1175)

Project Status: Ongoing

Introduction: The Expert Advisory Panel on Occupational Health & Safety reported to the Minister of Labour (MOL) in December 2010. Legislation was passed in June 2011 implementing a range of recommendations from the panel, including the establishment of a prevention office within the MOL with responsibility to develop and execute an integrated occupational health and safety (OHS) strategy for the province. The recommendations of the Expert Advisory Panel also included a charge to improve the indicators of OHS performance at the workplace level and at the system level (Recommendation 6). The goal of this project is to support the implementation of the Expert Advisory Panel recommendations concerning enhanced data for OHS performance measurement. Phase one of the project has been completed resulting in the development of a framework of indicators of OHS performance based on characteristics of key economic sectors in Ontario including measures of numbers of workers, geographic distribution, occupational mix and hazard exposures. In 2016, the project objective was to implement a case definition for serious traumatic occupational injury in administrative health care records.

Objectives:

- To implement a case definition for serious traumatic occupational injury in administrative health care records
- To describe trends over time in the incidence of serious injury arising from occupational and non-occupational settings

Status: The project team reviewed the conceptual and methodological approaches to defining severe and/or serious traumatic injury, and implemented a case definition based on ICD codes. This implementation required a translation from ICD-9 to ICD-10. The case definition was implemented in emergency department encounter records for the period 2004-2014. Approximately 13% of the 7 million traumatic injuries treated in emergency departments were attributed to work-related exposures. Approximately 3% of occupational and non-occupational traumatic injuries were classified as serious. Over the ten year time period, there was no reduction in the incidence of serious injury arising in non-occupational settings. In contrast, there was a strong decline in the incidence of serious occupational injury in both men (annual average percent change (AAPC): -4.3 (-6.0, -2.6) and women: AAPC -4.4 (-6.9, -1.8).

Researchers: Cameron Mustard (Principal Investigator), Victoria Landsman.

Collaborations and Partnerships: A project team within the Ministry of Labour has participated in defining the objectives and timelines of this project.

Potential Audiences and Significance: The recommendations of the Expert Advisory Panel on Occupational Health and Safety place prominent emphasis on enhanced data for the measurement of the Ontario prevention system and the development of a common database for planning and operational purposes. This project will support the development of a framework for OHS system performance measurement.

Publications:

Landsman V, Mustard CA. Trends in serious traumatic occupational and non-occupational injuries in Ontario, 2004-2014. Manuscript in preparation.

Presentations:

Landsman V, Mustard CA. Trends in serious traumatic occupational and non-occupational injuries in Ontario, 2004-2014. Oct 16-18 2016; Toronto, Ontario: the 9th Canadian Association for Research on Work and Health Conference.

Addressing essential skills gaps among participants in an OHS training program: a pilot study (1340/1341)

Project Status: Ongoing

Introduction: The study is designed to develop, implement and evaluate a pilot occupational health and safety (OHS) training program designed to improve training outcomes for workers with essential skills gaps by embedding curriculum that enhances essential skills. The pilot involves the hoisting and rigging training program offered by the training centre of local 506 of the Labourers' International Union of North America (LIUNA), using curriculum developed by the Infrastructure Health and Safety Association (IHSA).

Objectives:

- To determine the extent to which a redesigned curriculum for the hoisting and rigging safety training program that addresses essential skills gaps improves learning of the health and safety content and adherence to safe practices.
- Should the pilot prove successful, the longer term goal is to apply the model to a range of other OHS programs, thereby improving worker / workplace safety more broadly.
- Develop an understanding of the trainees/ instructor experience taking/delivering the regular and modified hoisting and rigging OHS training program, and insights on how to improve the process of modifying an OHS training program to address gaps in essential skills.

Status: In 2016, we completed the modified curriculum program for the hoisting and rigging training and conducted a train-the-trainer session to help the instructor deliver the embedded program. Program intakes were put on hold from May to November due to limited enrollment. An additional qualitative component was added to the study to further our understanding of the experiences and insights of trainees/ instructors taking/delivering the program. A project coordinator was hired to conduct the qualitative data collection (focus groups and interviews) and complete the initial analysis. Preliminary results were presented at two conferences (CARWH and PREMUS).

Researchers: Ron Saunders (Principal Investigator), Curtis Breslin, Siobhan Cardoso, K Myers (Blueprint)

Collaborations and Partnerships: The training centre of LIUNA local 506 and the IHSA are key partners. The training centre is delivering the program and conducting assessments of learning outcomes. IHSA assisted with curriculum development, which was led by a consultant, Tracy Collins.

Potential Audiences and Significance: If the pilot is successful, the process used to develop it could be a model for the improvement of other OHS training programs that serve a trainee population with essential skills gaps. We will explore such opportunities with other health and safety associations (besides IHSA) through meetings with them once findings from the pilot have been identified.

Publications: None to date

Presentations:

Saunders R. Addressing essential skills gaps among participants in an OHS training program: a pilot study. PREMUS 2016: the 9th International Scientific Conference on the Prevention of Work-Related Musculoskeletal Disorders. June 20, 2016, Toronto.

Saunders R, Cardoso S. Addressing essential skills gaps among participants in an OHS training program: a pilot study. CARWH 2016, the 9th Canadian Association for Research on Work and Health Conference, October 16-18, 2016, Toronto, Canada

Funding: Saunders R, Myers K, Breslin FC. Addressing essential skills gaps among participants in an OHS training program: a pilot study. Ministry of Labour- Research Opportunities Program: \$220,00 (2015-2017)
Saunders R, Myers K, Breslin FC. Addressing essential skills gaps among participants in an OHS training program: a pilot study. Max Bell Foundation: \$225, 312 (2015-2017)

Evaluating the impact of mandatory awareness training on OH&S vulnerability in Ontario (1336)

Project Status: Ongoing

Introduction: On July 1 2014, the province of Ontario introduced a mandatory awareness training program. The aim of this province-wide intervention is to increase worker and supervisor knowledge of basic occupational health and safety (OH&S) rights and responsibilities under the Ontario Occupational Health and Safety Act. This increased knowledge among workplace parties will in turn improve the effectiveness of workplace level policies and procedures to prevent workplace incidents and injuries. The regulation introduced along with the mandatory awareness training intervention requires employers to provide and document that their employees have received a minimum level of training on a variety of topics. The introduction of mandatory awareness training was designed to improve the OH&S of Ontario's most vulnerable workers. It also represents a large public investment in OH&S by the province. It is therefore important to evaluate the impact of this program using rigorous methods and relevant measures, as the findings of such an evaluation will provide unique information that can be used to support or modify existing and future primary prevention efforts. The aim of this research study is to evaluate the impacts that the introduction of mandatory awareness training has had on worker level of OH&S vulnerability.

Objectives:

- To measure four dimensions of the work context that are thought to place workers at a higher risk of work injury in a sample of workers in Ontario and BC prior to the introduction of mandatory awareness training.
- To examine changes in these dimensions after the introduction of mandatory awareness training in Ontario to changes occurring in British Columbia, where no similar program is taking place
- To examine if changes in Ontario at the population level are similar within labour market sub-groups (e.g. Age, workplace size) and if there are implications on inequalities in work-injury risk in Ontario workers.

Status: Over the previous 12 months this project has resulted in multiple peer-reviewed publications that demonstrate the utility of the measure of OHS vulnerability. Numerous agencies across Canada have expressed an interest in the use of the OHS vulnerability measure as part of their ongoing primary prevention activities.

Researchers: Peter Smith (Principal Investigator), Curtis Breslin, Morgan Lay , Ron Saunders, Emile Tompa, A Lamontagne (Deakin University),

Collaborations and Partnerships: The proposed project involves collaborations with three Health and Safety Associations (Public Services Health & Safety Association, Workplace Safety & Prevention Services, and the Workers Health & Safety Centre). The research team will also consult with staff at the Ministry of Labour Prevention office.

Potential Audiences and Significance: This project is relevant to multiple stakeholder groups involved with primary prevention activities. These include policy makers, workplaces, organised labour and workers.

Publications:

Lay A, Saunders R, Lifshen M, Breslin FC, LaMontagne AD, Tompa E, Smith PM. (2017) The relationship between occupational health and safety vulnerability and workplace injury. *Safety Science*. 94:85-93.

Lay AM, Saunders R, Lifshen M, Breslin FC, LaMontagne, AD, Tompa E and Smith P (2016) Individual, Occupational, and Workplace Correlates of Occupational Health and Safety Vulnerability in a Sample of Canadian Workers. *American Journal of Industrial Medicine*, 59 (2), 119 – 128

Presentations:

Lay, M. Understanding and Measuring Occupational Health and Safety. Workplace Safety North Mining Health and Safety Conference. Sudbury, Ontario. April 7, 2016.

Smith P Occupational health & safety vulnerability. Partners in Prevention Conference. Toronto, Ontario. April 27, 2016

Smith P. Overview of the vulnerability measure, recent research using it, and opportunities for future use. Ministry of Labour- Prevention Office, Operations, and Policy. Toronto, Ontario, May 13, 2016.

Smith P. Further discussion on future uses of the vulnerability measure. Ministry of Labour- Prevention Office, Operations, and Policy. Toronto, Ontario. May 16, 2016.

Peter Smith. Occupational health & safety vulnerability. Association of Workers' Compensation Boards of Canada, May 18th 2016

Smith P, Saunders R. Overview of the vulnerability measure, recent research using it, and opportunities for future use, including potential use to support the targeting strategies of OHSB. Ministry of Labour- Occupational Health and Safety Branch, Operations Division. Toronto, Ontario. September 14, 2016.

Lay, M. Measuring the impact of health and safety curriculum on occupational health & safety vulnerability. WorkSafeBC and DECODA Literacy Solutions. Vancouver, British Columbia. September 29th 2016.

Peter Smith. A framework and measure to better assess and understand occupational health and safety vulnerability. Occupational and Environmental Health Seminar Series. Toronto, Ontario. September 30th 2016

Lay, M. Identifying OHS vulnerability factors among workers with disabilities. Canadian Association for Research on Work and Health. Toronto, Ontario. October 17, 2016.

Funding: Smith P, Saunders R, Tompa E, Breslin FC, LaMontagne A. Examining the impact of mandatory awareness training on worker OH&S vulnerability in Ontario. Ministry of Labour- Research Opportunities Program: \$263, 994 (2015-2017).

Effective Occupational Health and Safety Practice

IWH has a number of research projects examining the measurement of organizational policies and practices that support optimal workplace practices. In 2016, we initiated a project that seeks to obtain detailed estimates of firm-level expenditures in Occupational Health and Safety in a representative sample of Ontario employers. The study has looked at a sample of approximately 350 Ontario employers across 16 economic sectors. We also continued work on a project that is benchmarking leading organizational indicators for the prevention and management of injuries and illnesses. In 2016, we continued a study on the implementation of violence prevention requirements within the healthcare sector, based on the outcomes from recent Ministry of Labour inspections,

Breakthrough change in workplace occupational health and safety performance (1145)

Project Status: project completed in 2016

Introduction: This project consists of three related mixed methods projects. They address the need to better understand the processes and critical factors involved in making large and intentional improvement in a workplace's rate of injury and illness, i.e. "breakthrough change" (BTC). The first project (P1) involved screening Workplace Safety and Insurance Board (WSIB) claim statistics to find firms that underwent BTC and then studying four of them in-depth. The second project (P2) involves a multiple case study of three sister manufacturing plants with contrasting outcome profiles (BTC, more modest change, no change) and includes nested quantitative analyses. The third project (P3) will test the validity of the BTC factors emerging from the first study, by investigating "stay-the-same" (STS) cases matched to the four in the first study. STS cases will be matched on size, sector and earlier poor performance; they will differ from BTC cases in having not undergone a large change in claim rate. Qualitative methods will be used to understand the basis for differences over time in OHS performance between BTC and STS cases.

Objectives:

- To understand why and how firms make breakthrough improvements in their safety performance over time in manufacturing. (P2)
- To identify and understand factors determining differences in work injuries in manufacturing. (P2)
- To understand relationships between operational and safety performance in manufacturing. (P2)
- To test the validity of BTC factors. (P3)

Status: In 2016 the final project report was submitted to the WSIB. Several presentations were made to various stakeholder groups.

Researchers: Lynda Robson (Principal Investigator), Ben Amick, Siobhan Cardoso, Sheilah Hogg-Johnson, Emile Tompa, M Pagell (University of Dublin), H Shannon (McMaster University).

Collaborations and Partnerships: Partners include the Infrastructure Health and Safety Association, the Public Services Health & Safety Association, the Workplace Safety & Prevention Services, the Workers Health & Safety Centre, the Business Council on Occupational Health and Safety, and the Ministry of Labour.

Potential Audiences and Significance: The results of this project will be relevant to employers, health and safety associations, joint health and safety committees, the Ontario Ministry of Labour, and researchers.

Publications:

Robson LS, Amick III BC, Moser C, Pagell M, Mansfield E, Shannon HS, Swift MB, Hogg-Johnson S, Cardoso S, South H. Important factors in common among organizations making large improvement in OHS performance: results of an exploratory multiple case study. *Safety Science* 2016;86:211-227.

Robson L. Report to WSIB on "Further exploration of breakthrough change in OHS performance (project 11030) - Revised". Toronto: Institute for Work & Health. September 30, 2015.

Presentations:

Robson LS. Breakthrough change model: Important factors in common among organizations making large improvement in OHS performance. Workplace Safety & Prevention Services' Safety Culture Network Knowledge Exchange Meeting, Mississauga, ON, Jul 29, 2016. (invited)

Robson LS. Important factors in common among organizations making large improvement in OHS performance. Construction Users Council, Mississauga, ON, Jun 10, 2016. (invited)

Robson L (Invited speaker). Important factors in common among organizations making large improvement in OHS performance. Apr 6-7 2016; Sudbury, Canada: Workplace Safety North Mining Health and Safety Conference.

Robson L (Invited speaker). Breakthrough change in workplace health and safety. Feb 29 - Mar 1 2016; Vancouver, Canada: Canadian Centre for Occupational Health and Safety Forum 2016.

Robson L. Organizational change and its relationship to OHS systems. Guest lecture in: OHS 818 System Management II, Ryerson University, 2016 Mar 31.

Funding: Robson LS, Amick BC, Hogg-Johnson S, Mansfield L, Pagell M, Shannon HS. Breakthrough change in workplace OHS performance. Workplace Safety & Insurance Board RAC: \$57,668 (2010-2012)

Robson LS, Amick BC, Pagell M, Mansfield L, Shannon HS, Hogg-Johnson S, Tompa E. Further exploration of breakthrough change in OHS performance. Workplace Safety & Insurance Board RAC: \$180,360 (2012-2014)

Robson LS, Amick BC, Pagell M, Mansfield L, Shannon H, Hogg-Johnson S. Testing a Model of Breakthrough Change in Workplace Occupational Health & Safety. MOL Supplemental Funding: \$104,000 (2013-2014)

How are leaders using benchmarking information on occupational health and safety? (1161)

Project Status: project completed in 2016

Introduction: There has been a great interest in Ontario in developing a knowledge base for leading indicators of occupational health and safety (OHS) performance. Researchers produce information that is potentially useful for organizations in improving their OHS such as the benchmarking reports provided by IWH's Ontario Leading Indicators Project (OLIP) and Organizational Performance Metric Project (OPM). Despite this growing knowledge base and growing awareness of the importance of transferring research to practice in OHS, little attention has been paid to whether this information is in fact applied to organizational decision making. The distribution by IWH in partnership with the HSAs of over 2000 benchmarking reports creates a unique opportunity to examine how evidence affects organizational decision-making. The study will develop a leading indicator and benchmark dashboard. The web-based application will allow companies, across all sectors, to improve or adjust an existing health and safety program to achieve efficiencies or increased effectiveness. This information is of particular value to small and medium sized organizations within the province.

Objectives:

- To determine how organizational leaders use the benchmarking data in making OHS decisions.
- To identify the facilitators and barriers to using the benchmarking data and how can this be improved, and what other types of information leaders use to inform OHS decisions.
- To identify the knowledge and features that a performance dashboard should have in order to engage leaders to make decisions to support change, reduce hazards, and improve OHS.
- To identify information that an app with follow-up activities should have in order to engage leaders to make decisions to support change, reduce hazards, and improve OHS.

Status: In 2016, we completed the knowledge use coding and thematic analysis of the data collected from interviews and focus groups. A detailed summary of the knowledge use results was prepared and presented to the HSAs. A prototype (Alpha version of the App) was developed with input from the research team. This included a series of meetings to reach consensus on the user profile criteria, content, and game challenges tailored to specific industrial sectors. We also prepared and submitted a final report on study results for the funder.

Researchers: Ben Amick (Principal Investigator), Dwayne Van Eerd (Principal Investigator), Teresa D'Elia, Basak Yanar, Colette Severin, I Lambraki (University of Waterloo).

Collaborations and Partnerships: This was an active collaboration with Public Services Health and Safety Association (PSHSA) and the University of Ontario Institute of Technology (UOIT).

Potential Audiences and Significance: The results of this research are directly relevant to all stakeholders in Ontario, including WSIB, MOL, and the HSAs.

Publications: None to date

Presentations:

Mustard CA. Benchmarking leading indicators of occupational health and safety performance. Oct 5 2016; Toronto, Ontario: Schedule 2 Employers Group Conference.

Amick BC and Tchernikov I. Understanding Your Leading Indicators Marketplace. April 26, 2016; Mississauga, Canada: Partners in Prevention 2016 Health & Safety Conference & Trade Show.

Funding: Amick BC (Co-PI), Van Eerd D (Co-PI), Village J, Lambraki I. How Are Leaders Using Benchmarking Information on Occupational Health and Safety? MOL ROP R4W: \$257,795 (2014-2016)

Determinants of health and safety in Ontario's construction sector (1256)

Project Status: project completed in 2016

Introduction: This project seeks to identify workplace policies and practices associated with lower rates of work-related injury and disease among construction workers in Ontario. It spawned from earlier research in partnership with the Ontario Construction Secretariat (OCS) where Workplace Safety and Insurance Board (WSIB) data was linked to comprehensive lists of union-certified firms provided by the OCS and which found that union certified firms in the construction sector have 20% fewer lost-time, musculoskeletal and critical injury workers' compensation claims, compared to non-union firms. At the moment there is no research in the area of occupational health and safety workplace policies and practices in construction and the role of unions in Ontario or Canada and there is only a weak and conflicting body of evidence in the US. This research is needed because of the high rates of injury, death, and disability that are sustained by construction workers in Ontario and elsewhere, as well as the overwhelmingly high prevalence of small businesses and hazards in this industry.

Objectives:

- To understand the union and employer drivers of injuries and illnesses.
- To describe how union organizations and union certified firms contribute to lower lost time injuries and illnesses, and critical injures and musculoskeletal injuries.

Status: In 2016 the team completed the recruitment, administration of the survey and extraction of the WSIB data. The MOL, OCS, and WSIB data were linked and the analysis was undertaken. The results were presented to the partners and the final report was submitted to the funder.

Researchers: Ben Amick (Principal Investigator), Sheilah Hogg-Johnson (Principal Investigator), Desiree Latour-Villamil, Ron Saunders, P Demers (Cancer Care Ontario), C McLeod.

Collaborations and Partnerships: This project is in collaboration with the OCS, and other partners include the WSIB, the construction sector, various union organizations, and policy-makers.

Potential Audiences and Significance: The results of this research project will be relevant to the construction sector, unions, the MOL, the WSIB, policymakers, and other prevention partners.

Publications: none to date

Presentations:

Amick, B. Exploring Differences in Organizational Policies and Practices Between Union and Non-Union Construction Firms. IWH Plenary. Toronto, Ontario. June 16, 2016.

Amick B, Jacobs K, Lewis C. Exploring Differences in Organizational Policies and Practices Between Union and Non-Union Construction Firms Voluntary Protection Program Participants Association conference. Orlando, Florida, USA. May 16, 2016.

Funding: Amick BC, Hogg-Johnson S (Co-PI), Saunders R, Demers P, McLeod C . Determinants of Health and Safety in Ontario's Construction Sector Ministry of Labour- Research Opportunities Program: \$296,908.00 (2014-2016).

Implementation and evaluation of caregiver-friendly workplace policy (CFWP) interventions on the health of full-time caregiver-employees (Ces): implementation and cost-benefit analysis (1325)

Project Status: Ongoing

Introduction: Caregiver-friendly workplace policies (CFWPs) are “deliberate organizational changes – in policies, practices, or the target culture – to reduce work-family conflict and/or support employees’ lives outside of work” (Kelly, 2008). This project is a CFWP intervention evaluation that includes an economic evaluation. There are three components to the study. Study A is an effectiveness evaluation, Study B an economic evaluation, and Study C a process evaluation. The question to be addressed by the economic evaluation is “What are the costs and consequences for workers, employers and society of the CFWP intervention?” Intervention sites are McMaster University and a second, as yet undecided, manufacturing location. The McMaster intervention will be a training and communication program targeted at increasing awareness and use of McMaster's flexible work options and its Employee and Family Assistance Programs (EFAPs) through program promotion. The current offering of EFAP services includes counseling, information and coaching related to elder and family care, and assistance with managing work-life balance. Supervisor training will focus on enhancing family supportive skills. The intervention will be introduced in spring 2015. A second CFWP intervention will take place in a manufacturing setting. The location and timing is yet to be determined.

Objectives:

- To pilot test a newly implemented CFWP intervention in two workplaces. (Study A)
- To compare the health of caregiver-employees in each workplace before, during, and after the intervention to understand the impacts of the policy on health. (Study A)
- To study the economic impacts of the CFWP intervention(s) in the two workplaces. (Study B)
- To measure the benefits gained by the employers by implementing the intervention. Benefits may include: monies, improved performance, reduced absenteeism, improved health, decreased use of health benefits, reduced turnover, and reduced work injury/illness. (Study B)
- To explore the amount of support for the CFWP intervention(s) from the view of employers, co-workers, human resources professionals, and CEs at the two workplaces. (Study C)
- To study how workplace culture, sex and gender, and co-worker’s responses to the interventions affect the amount of support. (Study C)
- To examine factors which influence the success or failure of the CFWP intervention(s). (Study C)

Status: The McMaster intervention being undertaken as part of this study is at the mid-point data collection stage. Over the year, two levels of baseline data collection were completed, one at the university level and another at the caregiver level. Execution of the intervention was underway. This included a caregiver component and a supervisor training component. The baseline survey, which had a total of 760 respondents, provided insights into the level of employee awareness of supports and services available through their employer, as well as demographic, health, and psychosocial information about the labour force. The Guarding Minds at Work questionnaire was also included in the survey, allowing us to assess climate at the institution. The survey had questions about caregiving status, which made it possible to identify the proportion of caregivers in the workforce, as well as compare caregivers with non-care givers across the university. Three manuscripts were prepared, one on the protocol, another on recruitment challenges, and a third on the baseline university survey. A spinoff of this study is the development of a Canadian standard on caregiver friendly workplace policies. Funds were secured for the development of the standard, and a technical committee for the standard was struck in the fall. The standard will be released in the spring of 2017.

Researchers: A Williams (Principal Investigator) (McMaster University), Emile Tompa (Institute Coordinator), Christina Kalcevic, Amirrabas Mofidi (Research Associate), A Yasdani (University of Waterloo).

Collaborations and Partnerships: The McMaster Intervention has active involvement of Human Resources and labour. The site for the manufacturing intervention is yet to be determined, but it will likely involve UNIFOR

Potential Audiences and Significance: This study is of relevance to all sectors of employment where the workforce is aging, and with a large proportion of female workers. Sectors of particular interest are administration, education, health care, service sector, and manufacturing. It will be of interest to managers, and senior executives looking for best practice information to support retention of workers with family care giving responsibilities. It is

also of interest to organized labour, and workers, particularly middle aged females, who are more likely to be primary care givers for family members.

Publications:

Williams A, Tompa E, Lero D, Fast J, Yazdani A, Zeytinoglu IU, Evaluation of caregiverfriendly workplace policy (CFWPs) interventions on the health of full-time caregiver employees (CEs): Implementation and cost-benefit analysis. Submitted to BMC Intervention Research.

Atanackovic, J., Allison, W., Ireson, R., Yazdani, A & Tompa, E. (2016). Overcoming Recruitment Difficulties in Conducting Intervention Research with Caregiver-Employees: Lessons Learned from a Research Study at a Canadian University. Submitted for review to International Journal of Social Research Methodology.

Yazdani A, Williams A, Ireson R, Atanackovic J, Tompa E. Caregiver-Friendly Workplace Policies: Findings from an Organizational-wide Survey in the Education Sector. In preparation for submission to the Human Resource Management Journal.

Presentations:

Williams, A., Tompa, E., Ireson, R., Yazdani, A., Atanackovic, J. & Dardas, A. (2016). Caregiver-Employee Intervention Research in the Post-Secondary Educational Workplace: Managing Work-Life Balance at McMaster University. CARWH Conference, Toronto, October 16-18.

Atanackovic, J., Allison, W., Ireson, R., Yazdani, A & Tompa, E. (2016). Overcoming Recruitment Difficulties in Conducting Intervention Research with Caregiver-Employees: Lessons Learned from a Research Study at McMaster University. CARWH Conference, Toronto, October 16-18.

Funding: Williams A (Principal Investigator), Tompa E, Fast J, Lero D, Zeytinoglu I (Co-investigators). Evaluation of Caregiver-Friendly Workplace Policy (CFWPs) Interventions of the Health of Caregiver-Employees (CEs): Implementation and Cost-Benefit Analysis. Canadian Institutes for Health Research (CIHR) Open Operating Grant– Spring 2014, \$330,954 (2015-2018)

Employer investments in occupational health and safety: establishing benchmarks for Ontario (1345)

Project Status: Ongoing

Introduction: This research study will obtain detailed estimates of firm-level expenditures and investments in occupational health and safety (OHS) for a representative sample of employers in the province of Ontario. The study will replicate a study design pioneered by the International Social Security Association (ISSA) and the German Social Accident Insurance funds (DGUV). This groundbreaking study, titled “Calculating the International Return on Prevention for Companies: Costs and Benefits of Investments in Occupational Safety and Health” obtained detailed estimates of firm-level OHS expenditures and investments for more than 330 companies in 19 countries. The ISSA/DGUV study reported that the average investment per employee per year was more than €1,200. There is no comparable source of information on employer expenditures and investments in occupational health and safety in the province of Ontario. This study will address this gap by replicating the features of the ISSA/DGUV structured interview design in a sample of approximately 350 Ontario employers recruited from among firms that have previously participate in the Ontario Leading Indicators Project (OLIP).

Objectives:

- To obtain detailed estimates of firm-level expenditures and investments in occupational health and safety (OHS) for a representative sample of employers in the province of Ontario.
- To obtain estimates of OHS expenditures and investments on the following five dimensions: 1. Management and supervision, 2) employee training, 3) personal protective equipment, 4) OHS consulting services and 5) the share of new capital investments attributed to improved OHS practices.

Status: The project team commenced primary data collection in Q2 2016. As of Q4 2016, approximately 180 Ontario employers had completed workbooks documenting OHS expenditures in the five domains of interest. Recruitment of employer respondents is meeting sector quota targets. Preliminary findings confirm estimates obtained by the ISSA/DGUV study. The average OHS expenditure per worker per year across 16 economic sectors is \$1,900 CDN.

Researchers: C Mustard (Principal Investigator), Emile Tompa, Morgan Lay.

Collaborations and Partnerships: The study will include a knowledge user advisory committee to provide guidance in the implementation of this project and in the interpretation and dissemination of the project findings. The Knowledge User Advisory Committee is comprised of the Canadian Manufacturers and Exporters Association, the Business Council on Occupational Health and Safety and two health and safety associations.

Potential Audiences and Significance: This study will provide the current estimates of firm-level expenditures and investments in OHS for a representative sample of Ontario employers. The project will prepare sector benchmark reports which will be of interest to OHS professionals in the design and implementation of policies and programs and which will serve as a foundation for the future monitoring of employer investments in OHS in Canada. The information obtained from this survey will also have the potential to inform prevention system priorities.

Publications: None to date

Presentations: None to date

Funding: Mustard CA, Tompa E. Employer investments in occupational health and safety: establishing benchmarks for Ontario. Ministry of Labour- Research Opportunities Program (R4W), \$250,000 (2015-2017).

Implementation of workplace violence legislation in the Ontario acute healthcare sector (1355)

Project Status: New in 2016

Introduction: Healthcare workers experience high rates of work-related violence, including physical abuse and harassment. Workplace violence legislation directs employers to adopt measures to reduce the risk of workplace violence in Ontario, yet recent inspections conducted by the Ministry of Labour demonstrated a number of inadequacies with respect to the implementation of violence prevention requirements under the Occupational Health and Safety Act (OHSA). This study is designed to enhance the successful implementation of measures for the prevention of workplace violence in Ontario's acute health care sector. A multiple case study design will be used to examine the conditions that support and limit the successful implementation of requirements under the OHSA for the prevention of workplace violence.

Objectives:

- To examine the measures organizations use to address workplace violence and perceptions of how these measures have played out in practice.
- To understand decisions made about implementation strategies and processes used to prevent violence.
- To identify contextual factors (internal and external to the workplace) that have supported or challenged implementation of violence prevention policies and practices.
- To gain input (e.g. from organizational informants; front-line workers, regulators, policy makers) about ongoing challenges associated with the prevention of workplace violence and strategies for improvement.

Status: Ethics reviews have been completed at University of Toronto and all hospital sites. All external key informant interviews have been completed. Hospital based interviews and focus groups have been completed in three out of five sites (data collection is ongoing at one site and will begin in April in the final site). A coding manual has been developed and coding of interviews is ongoing.

Researchers: Agnieszka Kosny (Principal Investigator), Monique Gignac, Cam Mustard, A Chambers (Public Health Ontario).

Collaborations and Partnerships: This study will be guided by an advisory community that includes the Ontario Nurses' Association, the Ontario Hospitals Association, health and safety associations, health care worker and employer representatives, and three hospitals in the province. In addition, we will work closely with appropriate Working Groups supporting the Leadership Table on Workplace Violence Prevention in Healthcare. Through the in-depth study of acute care settings and active engagement with key stakeholders, this study will result in a clear set of guidelines for implementing policies, programs and practices aimed at reducing work-related violence in the Ontario acute healthcare sector.

Potential Audiences and Significance: Hospital unions (e.g. OPSEU, CUPE), Ontario Hospital Association, Ministry of Labour, Ministry of Health, WSIB

Publications: none to date

Presentations: none to date

Funding: Kosny A, Chambers A, Mustard C, Gignac M. Implementation of workplace violence legislation in the Ontario acute healthcare sector. Ministry of Labour- Applied Research Initiative, \$220,000 (2016-2018).

Working Conditions and Health

Over the past 15 years, Institute researchers have gained expertise in analyzing large and complex data sets. These include population-based information, such as the Survey of Income & Labour Dynamics (SLID), National Population Health Survey (NPHS), the Canadian Community Health Survey (CCHS) and other Statistics Canada holdings. Through our special research agreements with the WSIB, IWH researchers have also developed an understanding and become adept in analyzing workers' compensation administrative data from Ontario and other provinces. Our work on analyzing population-level data and compensation claims focuses on gaining a better understanding of working conditions and employment relationships, and risk factors for injury and disability in the labour market. In 2016, we contributed to the indicators, evaluation and reporting working group that reported to the leadership table on workplace violence for the Ministries of Labour and Health and Long Term Care. We also began work on a new study that uses different population-level data sources and workers' compensation data to examine the incidence and consequences of workplace violence.

The Measurement and Surveillance of Working Conditions and Lost-time Claims in Ontario (0417)

Project Status: Ongoing

Introduction: The nature of an individual's employment will to a large extent determine whether they derive health benefits from employment, or if work contributes to deterioration in their physical or mental health. There are a range of characteristics of employment that are associated with risk of adverse health effects. For example, physical job demands and psychosocial work exposures are key determinants of the risk of work-related musculoskeletal disorder. Other working conditions relevant to understanding the health of the Canadian labour force include: hours of work, overtime hours, shift work, contingent or short-tenure employment and exposure to outdoor work. For more than a decade, IWH has made extensive use of health interview surveys and labour market surveys administered by Statistics Canada to describe the incidence and prevalence of work-related health disorders associated with various dimensions of working conditions. This work has served both to provide accurate surveillance information on the prevalence of different working conditions and to provide information on the risk of work-related disorders associated with different working conditions.

Objectives:

- To conduct surveillance research on relationship between working conditions and work-related disorder.
- To examine differences between self-reported work-related injury information and routinely collected information (e.g. accepted claims from Workers' compensation boards).
- To document trends in working conditions and work injuries across different geographical and labour market segments over time.

Status: This project has had limited activity in 2016. However, it is important to maintain its status as open for specialised data requests examining claim rates in Ontario

Researchers: Peter Smith (Principal Investigator), Curtis Breslin, Cynthia Chen, Sheilah Hogg-Johnson, Sara Morassaei, Cameron Mustard, Kathy Padkapayeva, Amber Bielecky.

Collaborations and Partnerships: Stakeholders at the Ontario Ministry of Labour and the Ontario Workplace Safety and Insurance Board, as well as possible stakeholders in similar positions in other provinces, will be identified.

Potential Audiences and Significance: Findings from this study are relevant to policy makers at the MOL and the WSIB, and worker's compensation boards in other provinces.

Publications: None to date

Presentations: None to date

Examining gender/sex differences in the relationships between work stress and disease, work injury risk, and the consequences of work injury (1310)

Project Status: Ongoing

Introduction: Women make up nearly half of labour force participants, yet much of what we know about the relationship between working conditions and health is based on measures developed on men and frameworks tested in male-dominated workplaces. Little is known about why work-related risk factors for disease or injury may differ for men and women. In addition, gender differences in the return-to-work process and outcomes after injury are not well-understood. This research program will generate new research across three areas where there are significant gaps in knowledge concerning the work and health experiences of men and women. These are: (1) The psycho-social work environment, including job control, psychological demands and social support, and the development of hypertension and diabetes among men and women; (2) Gender and sex differences in work-related risk factors for occupational injury and disease; (3) Individual, workplace and health-care provider factors leading to differences in the return-to-work outcomes after work-related injury among men and women.

Objectives:

- To create a more nuanced understanding of how sex/gender shape injury risk, the relationship between the work environment and chronic illnesses, and time off work after a work-related injury.
- To help shape the development of gender- and sex-sensitive policies and practices to improve the health of all working Canadians.

Status: Over the past 12 months this project has produced important work on the measurement of the concept of “gender” in secondary data. This work has led to one peer-reviewed publication and multiple presentations focused on gender-sensitive approaches to secondary data analyses. The work from this project has informed one of the three training modules developed by the CIHR Institute for Gender and Health on how to take a gender-sensitive approach to research.

Researchers: Peter Smith (Principal Investigator).

Collaborations and Partnerships: This research project will have in place an independent advisory committee with members from various stakeholder communities. The advisory committee will meet at the outset of the program and at least annually thereafter.

Potential Audiences and Significance: The research program outlined in this proposal is supported by a well-developed capacity building and training program and a knowledge transfer and exchange program. The program of research will lead to both an increase in the momentum and capacity in gender, work and health research, and to the development of gender- and sex-sensitive policies to improve the health of working Canadians.

Publications:

Smith PM and Koehoorn M. Measuring gender when you don't have a gender measure: constructing a gender index using survey data. *International Journal for Equity in Health* 2016;15(1):82-.

Cawley C, Wong I, Mustard CA, Smith P.. Examining gender differences in the effects of shift work and dependent children on sleep duration.. Submitted to *Canadian Journal of Public Health*.

Presentations:

Smith P. Is it possible to measure gender when you don't have a measure of gender? Analyses of secondary data. Panel on gender, work and musculoskeletal disorders. June 19-23 2016; Toronto, Ontario: 9th International Scientific Conference on the Prevention of Work-Related Musculoskeletal Disorders.

Smith P. "Sex and Gender-Based Analysis Week". Science Panel Speaker. Sex and gender considerations in secondary data collection. The panel title is "Getting to Better Science through Sex-and Gender-Based Analysis". May 19 2016; Ottawa, Ontario: Health Canada.

Smith P. Gender, Work and Health: Research Applications across Disciplines. October 16-18 2016; Toronto, Ontario: CARWH 2016: Advancing Research to Improve Work and Health.

Funding: Smith PM. Examining gender/sex differences in the relationships between work stress and disease, work injury and the consequences of work injury. CIHR Chair, \$60,000 (2015).

Developing a gender/sex-sensitive understanding of how the psychosocial work environment is related to chronic disease (1315)

Project Status: Ongoing

Introduction: Male and female labour force participation rates in Canada have changed dramatically over the last three decades. The percentage of female labour force participants increased from 39% to 48% between 1980 and 2011. Despite this increase in female labour market participation, our understanding of how aspects of work impact on health status is still male-centric. This is evident than in the area of psychosocial work environment and chronic disease, where much of our understanding has been generated in male-dominated samples. However, there might be important male and female differences in the assessment of work stress, the biological and behavioural reactions to work stress, and the relationship between work stress and risk of subsequent disease. Creating a need to better understand the role of sex (biological) and gender (societal and work-role) differences in generating these findings. The purpose of this project is to build an evidence base concerning male and female differences in the relationship between the psychosocial work environment and future risk of metabolic diseases.

Objectives:

- To examine gender/sex differences in factor structure of dimensions of psychosocial work environment.
- To examine gender/sex differences in the association between dimensions of the psychosocial work environment and general work stress and general life stress.
- To examine gender/sex differences in the relationship between the psychosocial work environment and subsequent health behaviour and body mass index (BMI) trajectories over a 16-year period.
- To examine the relationship between the psychosocial work environment and cardiovascular disease in Ontario over a 12-year period.

Status: Over the past 12 months multiple analyses have been completed on this project using longitudinal self-reported data from the NPHS and linked self-reported and administrative data from ICES. Each of these analyses focused on the impact of psychosocial work exposures on health behaviours and chronic conditions over time.

Researchers: Peter Smith (Principal Investigator), Cameron Mustard, C Brisson (Unité de recherche en santé des populations), R Glazier (Institute for Clinical Evaluative Sciences).

Collaborations and Partnerships: Institute for Clinical Evaluative Sciences, Laval University.

Potential Audiences and Significance: Findings from this research will determine if more gender-sensitive measures of the psychosocial work environment are needed; if models linking the work environment to health status should further consider gender/sex, and if gender/sex-sensitive primary prevention activities for health behaviours and BMI that integrate aspects of the work environment should be further developed. This project will also help develop a cross-disciplinary, cross-jurisdictional, team of researchers to undertake future work exploring the relationships between the work environment and risk of disease that takes into account gender and sex.

Publications:

Padkapayeva K, Chen C, Bielecky A, Ibrahim S, Mustard C, Beaton D, Smith P. Male-female differences in work activity limitations: Examining the relative contribution of chronic conditions and occupational characteristics. In Press. *Journal of Occupational and Environmental Medicine* 2016.

Bielecky A, Ibrahim S, Mustard CA, Brisson C and Smith P (2017) An analysis of measurement invariance in work stress by sex: Are we comparing apples to apples? (in press) *Journal of Articles in Support of the Null Hypothesis*.

Presentations:

Smith P (Presenter), Jetha A, Chen C, Bielecky A, Ibrahim S, Beaton D, Mustard C. Understanding the relationships between chronic conditions and labour market participation in Canada. September 6-8 2016; Barcelona, Spain: *Epidemiology in Occupational Health Conference*.

Funding: Smith PM, Brisson C, Glazier R, Mustard CA. Developing a gender/sex-sensitive understanding of how the psychosocial work environment is related to chronic disease. Canadian Institutes of Health Research (CIHR) Operating Grant: \$329,946 (2015-2018)

Support to the construction action plan (1320)

Project Status: project completed in 2016

Introduction: In October 2014, the Prevention Office, Ministry of Labour requested assistance from the Institute for Work & Health to prepare a bibliography of published research on effective policies and practices in the prevention of work-related injury and illness in the construction sector. Employment in the Ontario construction sector is substantial. More than 420,000 people are employed in the sector, representing approximately 6.5% of the Ontario labour force. The construction sector including residential building construction, heavy and civil engineering and non-residential building construction, is active in all regions of Ontario. Much of the construction sector exposes workers to substantial hazards for work-related injury and illness. Construction sector hazards include working at elevated heights and in confined spaces, traffic control during roadwork, hoisting, excavation, repetitive motion, overexertion, electrical and mechanical hazards, poor ventilation and chemical exposures, danger of explosion, and the potential for exposures to asbestos, silica dust, carbon monoxide and noise. In this project, we reviewed and classified approximately 3,000 published research studies relevant for the prevention of traumatic injuries, non-traumatic injuries and occupational illness and disease in the construction industry.

Objectives:

- To develop a framework for classification of primary hazards in the construction sector (Phase 1).
- To conduct a comprehensive search of peer-reviewed research (Phase 2) which are relevant to the recognition and control of construction hazards defined (Phase 1).
- To review and classify peer-reviewed published research to compile a structured bibliography of titles and abstracts of peer-reviewed published research (Phase 3).

Status: This project prepared a structured electronic bibliography of 2,300 published academic studies of occupational health and safety hazards and control practices in the construction sector. Studies were classified on three dimensions: 1) the health focus of the study, 2) the research focus of the study, and 3) the hazard focus of the study. Studies included in the bibliography had a predominant focus on occupational illness and disease (57% of studies). The primary research focus of the studies was observational epidemiology (75% of studies). There were fewer studies reporting on worksite-level prevention practices (17% of studies). The two most common hazards drawing interest in the published academic literature were chemical exposures (49% of studies), followed by biomechanical exposures (12% of studies). A structured electronic bibliography of this literature, including titles and abstracts, was provided to Ministry of Labour officials.

Researchers: Cameron Mustard (Principal Investigator), Lynda Robson, Jacob Etches

Collaborations and Partnerships: Over the course of this project, Institute staff will maintain frequent contact with the Ministry of Labour secretariat leading the development of the construction sector action plan.

Potential Audiences and Significance: The work of this project has summarized research evidence concerning the prevention of work-related injury and illness in the construction sector. This summary will provide guidance to representatives of employers, workers and OHS professionals in the Ontario construction sector concerning promising practices to consider in efforts to reduce the incidence of work-related injury and illness.

Publications:

Robson L, Mustard CA, Mahood Q. Briefing Note: Research on front-line supervisor effectiveness in construction. Institute for Work & Health, July 2016.

Presentations: None to date

Funding: Mustard CA. Support to the Construction Action Plan. Ontario Ministry of Labour Transfer Payment: \$390,000.

Incidence of work-related aggression and violence in Canada (1350)

Project Status: New in 2016

Introduction: In 2004, almost one in five Canadian victims of violence reported that the violence took place at work; with approximately 356,000 incidents of workplace violence being reported. The importance of violence at work has led to the development of specific legislation and resources in most Canadian provinces. Yet, workplace violence in Canada appears to be on the rise. This increase in violence is particularly alarming as work-related injuries that are not due to workplace violence have declined substantially. As part of a comprehensive primary and secondary prevention approach to workplace violence it is important to understand how often workplace violence occurs, which groups are at the highest risk for workplace violence, if risk for workplace violence differs depending on the work context or the time of day. This study will examine the incidence and consequences of workplace violence using different population-level data sources and workers' compensation data.

Objectives:

- To describe the incidence of workplace violence in Canada, both overall and for particular demographic (e.g. Men versus women) and workplace groups (e.g. Industries).
- To identify groups of workers who are at risk of workplace violence, and to understand the relationships between these risk groups, and to examine if risk groups differ depending on data source, or type of workplace violence (e.g. Sexual violence versus non-sexual violence, or workplace violence from co-workers/supervisors compared to violence from clients).

Status: The work for this project has mainly been administrative, supporting IWH's contribution to the indicators, evaluation and reporting working group that reported to the leadership table on workplace violence for the Ministries of Labour and Health and Long Term Care.

Researchers: Peter Smith (Principal Investigator), Cameron Mustard, P Donnelly (Public Health Ontario),

Collaborations and Partnerships: Stakeholders involved in the work of the Leadership Table on Workplace Violence Prevention in Healthcare will assist in disseminating results of the project to relevant stakeholders, and involve them with the interpretation of our research findings.

Potential Audiences and Significance: The work completed as part of this project has important implications for the health care, education and public transportation sectors, where the prevalence of workplace violence is very high.

Publications: None to date

Presentations: None to date

Funding: Smith P, Chambers A, Mustard C. The Incidence of work-related aggression and violence in Canada. Ministry of Labour- Applied Research Initiative, \$114,790, (2016).

Osteoarthritis and work: a systematic review (3185)

Project Status: Ongoing

Introduction: Arthritis is among the most prevalent chronic health problems in Canada. It is estimated to affect more than 4.4 million people, which makes it the leading cause of physical disability in Canadian adults). Moreover, the number of people with arthritis disability is rising with the percentage of Canadian adults living with rheumatic diseases projected to become 26% by 2020. Although often thought of as a disease of aging, about 60% of people with arthritis are under age 65 with most being in their prime earning years (ages 45+). As a result, costs for arthritis are high. In 2000, the estimated burden of the disease in Canada was \$6.4 billion per year with two thirds of the costs (\$4.3 billion) thought to be indirect and come mostly from lost productivity and long-term disability. Similar findings have been found elsewhere with disability and productivity costs in Canada and other developed countries estimated to be 2-4 times greater than the direct health care costs of the disease. Osteoarthritis (OA) is the most common type of arthritis and ranks among the top ten causes of disability worldwide. It is characterized by significant pain, stiffness, swelling, fatigue, and limitations in everyday activities and roles, including work. Osteoarthritis can be found in a number of joints in the body, but research to date has focused mostly on OA of the knees, hips, ankles/feet and hands/wrists with less research on the shoulders, neck and spine. Of increasing interest are personal and environmental factors that may contribute to the development of OA or aggravate its trajectory over time, particularly the role of occupational activities.

Objectives:

- To examine the current literature to ascertain the level and quality of evidence for a causal relationship between work-related activities/exposures and the development of OA, including the type of work activities potentially associated with OA and whether the amount of activity matters.
- To examine factors that may independently relate to the development of OA or that may modify or mediate the relationship between work activities and trajectory of OA in terms of sustaining work.

Status: In 2016, the team used the evidence synthesis to create key messages from the review evidence using stakeholder feedback collected at various stages of the project. The final report was submitted to the funder for peer review.

Researchers: Monique Gignac (Principal Investigator), Emma Irvin (Principal Investigator), Dorcas Beaton, Quenby Mahood, Dwayne Van Eerd, C Backman (University of British Columbia), C McLeod (University of British Columbia)

Collaborations and Partnerships: WorkSafeBC Policy and Regulation Divisions, and Health Care Services. The Arthritis Society (TAS) Mr. Johnathan Riley, Vice-President Research; Richard Mulcaster, Executive Director TAS BC Division; Joan Vyner, Director Education and Services, BC Division; and Lynn Moore, National Director, Education, Programs and Services form an advisory group to all phases of the research project.

Potential Audiences and Significance: Findings from this study will be important to the OA research community, clinical practitioners, workers' compensation boards, and policy makers.

Funding: Gignac MAM (Co-PI), Irvin E, (Co-PI), McLeod C, Backman C, Van Eerd D, Beaton D, Mahood Q. Osteoarthritis and Work: A Systematic Review. WorksafeBC: \$62,813 (2015-2016)

PREMUS 2016 (3990)

Project Status: Completed in Q2 of 2016

Introduction: PREMUS is an international scientific conference that serves as a forum for work-related musculoskeletal health research, with an emphasis on the prevention of work-related musculoskeletal disorders (MSDs). It is the primary conference of the Musculoskeletal Disorders Scientific Community of the International Commission of Occupational Health (ICOH), and has been taking place every three years since 1992. The conference brings together scientists, researchers, occupational health and safety professionals, ergonomists, industrial engineers and policy-makers from around the world. These delegates have a shared interest in understanding the causes and prevalence of work-related musculoskeletal disorders (MSDs), as well as the evidence-based interventions that will prevent them. The Institute for Work & Health hosted PREMUS 2016 from June 20-23, 2016 with almost 400 international delegates.

Objectives:

- To promote and disseminate research into state-of-the-art interventions aimed at the prevention of musculoskeletal disorders at work.
- To foster cross-disciplinary, trans-disciplinary and translational research into the etiology and prevention of work-related MSDs.
- To provide an international platform for the exchange of knowledge and expertise in musculoskeletal research and practice related to occupational MSD prevention.
- To provide a forum for exploring future research collaborations to address gaps in knowledge about work-related MSDs.

Status: The conference was held at the AllStream centre June 20-23, 2016 with almost 400 people attending. Pre-conference workshops and the conference reception were held on June 19. The conference included an address from the Minister of Labour on June 22. The conference abstract book, including posters, was posted to the PREMUS website in July. Certificates of attendance were distributed upon request. A set of files has been prepared for the team hosting the next conference in Bologna to provide guidance on conference timelines and target audiences.

Team members: Cameron Mustard, Ben Amick, Siobhan Cardoso, Jan Dvorak, Emma Irvin, Sara Macdonald, Cindy Moser, Ron Saunders, Uyen Vu

Collaboration and Partnerships: Ontario Ministry of Labour, Provincial Building and Construction Trades Council of Ontario, CIHR Institute of Gender and Health, CIHR Institute of Musculoskeletal Health and Arthritis, and Fanshawe College.

Potential Audiences and Significance: The overarching theme of PREMUS 2016 was Preventing Work-Related Musculoskeletal Disorders in a Global Economy. PREMUS gathered together scientists, students, practitioners in occupational health and safety, epidemiologists, ergonomists, industrial engineers, clinicians and policy-makers, with the goal of promoting multidisciplinary research and the translation of that research into applicable use. Experts were able to share and build upon this knowledge for the benefit of workers everywhere who already have, or are at risk of developing, MSDs.

Evidence Guides and Tools

Stakeholders are always interested in seeing research information developed into highly practical and applied tools. Some primary prevention projects at IWH lead to this type of product, such as the “Smart Planner” and the Participatory Ergonomics guide. In 2016, we completed work on a project that seeks to evaluate the validity of violence prevention tools for health care workers.

Development of violence prevention tools for health care (1330)

Project Status: project completed in 2016

Introduction: IWH is supporting the Public Services Health and Safety Association (PSHSA) and the system in the development of a series of violence prevention tools for health care. IWH will be involved in the support of the tool development committees, in the selection of tools, and in the formative evaluation of tools. IWH will also work with the PSHSA and the tool development groups to produce a series of reports on the tool development, results of the formative evaluation, and a series of proposed summative evaluations as next steps to produce the scientific evidence to support the tools chosen.

Objectives:

- To provide tools to evaluate the usability, ease-of-implementation, comprehensiveness and validity of existing violence prevention tools.
- To support the assessment by health care workers of the tools.
- To guide formative tool evaluations.
- To develop a violence prevention tools summative evaluation plan.

Status: Analysis and evaluation based on two rounds of focus groups conducted in 2015 was completed. A final outcome report was prepared and submitted to PSHSA. A presentation of evaluation outcomes was provided to the toolkit development steering committee members. Based on our evaluation, The PSHSA violence prevention tools for health care have been revised.

Researchers: Ben Amick (Principal Investigator), Sheilah Hogg-Johnson, Dwayne Van Eerd.

Collaborations and Partnerships: Partners in this project include the Public Services Health and Safety Association (PSHSA).

Potential Audiences and Significance: The findings from this study will be relevant to policy makers and health care professionals.

Publications:

Amick B 3rd, D'Elia T, Van Eerd D. IWH Outcome Report: Evaluating Toolkits to Manage and Prevent Workplace Violence in Healthcare. Toronto: Institute for Work & Health; 2016.

Presentations: None to date

Funding: Amick B. Development of Violence Prevention Tools in H.C. Public Services Health & Safety Association (PSHSA): \$110,000 (2015-2016)

Prevention and Management of Work Disability

The Institute has been committed to the study of return to work issues for over a dozen years. Its research portfolio in this area includes systematic reviews, observational studies based on primary data collection, and observational studies using administrative or secondary data. This portfolio of work has led to the development of tools for practical application in workplace parties and the compensation system.

In 2016, our portfolio of research included the continued examination of several interventions designed to improve the process and sustainability in return to work. We also continued our research on optimal approaches to integrate health care providers in workplace return-to-work. The Institute for Work & Health also continued to host the Cochrane Back and Neck Group, which has made major contributions towards evidence-based practice (EBP) for the most burdensome musculoskeletal conditions: low-back pain, neck pain, upper extremity conditions and chronic back pain.

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Clinical Treatment

Injured workers, health care providers, payers, such as the WSIB and the public, are increasingly asking for system-wide processes to improve the quality of care provided and to measure the success of care delivery. High quality care implies practices that are consistent with the best evidence of efficacy and effectiveness (from randomized trials or observational studies) as well as systematic assessment of actual health outcomes. The Institute has made major contributions towards evidence-based practice (EBP) for the most burdensome musculoskeletal conditions: low back pain, neck pain, upper extremity conditions and chronic back pain. In addition, much of the current work of our researchers in EBP is related to the Institute's role as an international Cochrane Collaboration Review site.

Cochrane collaboration back review group: systematic reviews of the scientific literature on spinal disorders (0440)

Project Period: Ongoing

Introduction: Cochrane is an international network of individuals and institutions committed to preparing, maintaining, and disseminating systematic reviews of the scientific literature on the effects of health care. The Institute hosts the Cochrane Back and Neck (CBN) Group (formerly the Cochrane Back Review Group), one of over 50 international Review Groups. CBN coordinates the publication of literature reviews of diagnosis, primary and secondary prevention and treatment of back and neck pain and other spinal disorders, excluding inflammatory diseases and fractures. The editorial and central coordinating activities associated with the CBN are described here. The activities associated with Institute researchers who are conducting Cochrane reviews are described in project 670. The work of the CBN remains closely aligned with the IWH systematic review program, which in turn has close relations with the Cochrane Work group. We apprise stakeholders of our activities via our website, news bulletins, and social media (Twitter and Facebook).

Objectives:

- To prepare and disseminate systematic reviews of scientific literature on back and neck pain and spinal disorders.
- To maintain a specialized database of trials on back and neck pain and spinal disorders for literature searches, and to help identify gaps in the literature and suggest areas for further study.
- To communicate regularly with our CBN stakeholders.

Status: In 2016, Cochrane Back and Neck summarized findings across intervention reviews and presented this information in user-friendly formats on the IWH and CBN websites.

Researchers: Andrea Furlan, Claire Bombardier, Shireen Harbin, Emma Irvin, J Hayden (Dalhousie University), M Van Tulder (VU, Amsterdam)

Collaboration and Partnerships: Clinical stakeholders who are involved in this project participate in Cochrane activities at their own level of interest and expertise. This varies by individual, but may involve attending a systematic review workshop, conducting a review, or helping with strategies to make Cochrane reviews more accessible to clinical colleagues, students and the general public.; Cochrane and non-Cochrane systematic reviews form the evidence basis of clinical practice guidelines worldwide and of evidence-based clinical tools for practitioners

Potential Audiences and Significance: Patients, health care professionals, policy-makers and payers. Updated systematic reviews of the literature provide the most current information on the effectiveness of treatment modalities and therapies, thereby assisting evidence-based treatment and payment decisions.

Publications:

The review group published 5 protocols, 8 Reviews and 7 Co-publications.

Presentations:

A Furlan. Massage for low-back pain, and updated Cochrane Review. Massage Therapy Association of Saskatchewan (Regina, SK), 04/03/2016

A Furlan. Should You Try Massage for Back Pain? <http://www.consumerreports.org/health/should-you-try-massage-for-back-pain/> July 21st, 2016

Funding: Grimshaw J, Beyene J, Bombardier C, Feagan BG, Klassen TP, Lavis JN, Moayyedi P, Moher D, Tugwell P, Wright JM. Knowledge synthesis and translation by Cochrane Canada. CIHR: \$9,600,000 (2010-2015)

Early opioid prescriptions for work-related musculoskeletal disorders of the low back: understanding utilization patterns, determinants, and impact on work disability (2170)

Project Status: project completed in 2016

Introduction: Increasing use of prescription opioids among workers with musculoskeletal disorders, such as back pain, has become a significant source of concern for workers' compensation systems across North America. Recent data suggest opioids are being prescribed increasingly earlier after filing a workers' compensation claim for work-related low back pain (WRLBP) and that these early opioid prescriptions are leading to prolonged work disability. However, a number of methodological limitations are present in these studies that cast doubt on the validity of their conclusions.

Objectives:

- To describe pre-claim and post-claim patterns of LBP-related health care and opioid, non-opioid, and adjuvant analgesic prescriptions and their associated factors.
- To describe whether opioid, non-opioid, and adjuvant analgesic prescription patterns have changed.
- To assess the validity of billing data on opioid, non-opioid, and adjuvant analgesic prescriptions.
- To describe post-claim opioid prescriptions patterns suggestive of possible opioid misuse or problematic prescribing and describe whether these patterns have changed since 1998.
- To determine whether opioid analgesics prescribed to workers within the first eight weeks of filing a new workers' compensation lost-time claim for WRLBP are associated with future work disability compared to NSAIDs and muscle relaxants.
- To determine whether specific opioid prescription characteristics are associated with future work disability among workers who receive at least one opioid prescription in first eight weeks of claim.

Status: All analyses are complete and final report was submitted to WorkSafeBC. Manuscripts are in preparation.

Researchers: Sheilah Hogg-Johnson (Principal Investigator), Nancy Carnide, Andrea Furlan, P Côté (Ontario University Institute of Technology), M Koehoorn (University of British Columbia).

Collaborations and Partnerships: Partners supporting this project include workers' compensation boards, the National Opioid Use Guideline Group, clinicians, and injured workers and their representatives.

Potential Audiences and Significance: The findings will improve our understanding of whether opioids provided early in the course of a claim are associated with work disability. This study will generate new knowledge on LBP-related health care leading up a claim, analgesic prescribing patterns, and opioid prescription patterns suggestive of misuse or problematic prescribing. These findings will be fundamental to informing new and existing policies in workers' compensation systems, as well as for physicians. It will also have implications for injured workers seeking safe and effective pain management options.

Publications:

Hogg-Johnson S, Carnide N, Côté P, Furlan AD, Koehoorn M. Early Opioid Prescriptions for Work-Related Musculoskeletal Disorders of the Back: Understanding Utilization Patterns, Determinants and Impact on Work Disability. Final Report. WorkSafeBC Grant #RS2011-OG12. Toronto, ON: Institute for Work & Health, 2016.

Presentations:

Carnide N, Hogg-Johnson S, Côté P, Furlan A, Koehoorn M. Prescription analgesic patterns before and after a workers' compensation claim: A historical population-based cohort study Of Workers With Low Back Pain Disorders in British Columbia. June 20-23 2016; Toronto, Canada: PREMUS 2016 - 9th International Scientific Conference on the Prevention of Work-Related Musculoskeletal Disorders.

Carnide N, Hogg-Johnson S, Furlan A, Côté P, Koehoorn M. Early analgesics among workers' compensation claimants with low back pain from 1998-2009: A population-based study in British Columbia, Canada. August 25-

28, 2016; Dublin, Ireland: ICPE 2016. 32nd International Conference on Pharmacoepidemiology and Therapeutic Risk Management.

Funding: Hogg-Johnson S, Carnide N, Furlan A, Koehoorn M, Côté P. Early opioid prescriptions for work-related musculoskeletal disorders of the back: Understanding utilization patterns, determinants and impact on work disability. Worksafe BC: \$64,855.00 (2011-2013)

Canadian Institutes of Health Research (CIHR): \$65,576.00 (2011-2013)

Predicting successful return to work in workers on disability due to low back pain (2210)

Project Status: Ongoing

Introduction: Low back pain costs in Canada are estimated at 11 to 23 billion dollars. Most costs are caused by productivity losses and compensation. Some of the costs and suffering can be diminished by identifying those at high risk. Workers that are at low risk will most likely return to function and work with limited assistance. Those at high risk might benefit from early or more intensive intervention. In this study, we will examine which combination of factors best predicts important outcomes for injured workers that enter a rehabilitation program aimed at improving function and return to work. We will review information routinely collected at the Ontario Workplace Safety and Insurance Board (WSIB). We will use well established (but currently underused) statistical approaches to build predictive rules. The final product will be an easy to use prediction tool.

Objectives:

- To determine what combination of factors measured at the start of rehabilitation predicts successful work re-entry at the two year follow-up.
- To determine what combination of factors best predicts the length of the first episode of LBP until successful work re-entry at the two year follow-up.
- To determine what combination of factors best predicts successful work retention at two year follow-up.
- To identify prognostic factors needed to develop prediction tools (also known as clinical decision rules) for clinicians and work disability prevention professionals.

Status: All requested CBI Health Group Program of Care (POC) forms were obtained. Applications for access to WSIB client files were submitted and granted. The database for the analysis of the POC data was created and all data from the POC forms were entered. The POC data and WSIB has been successfully linked. Data analysis is currently underway.

Researchers: Sheilah Hogg-Johnson (Principal Investigator), Ivan Steenstra, Ben Amick, Andrea Furlan, G McIntosh (CBI Health Group).

Collaborations and Partnerships: CBI Health Group (Greg McIntosh)

Potential Audiences and Significance: The tool will be of interest to injured workers, workers' compensation board professionals, rehabilitation professionals, employers and researchers. We will reach these communities through specific audience briefings, presentations and by the publication of papers in trade and scientific journals.

Presentations:

Steenstra I; D'Elia T; McIntosh G; Hogg-Johnson S; Amick III BC. Predicting successful return to work in workers on disability due to low back pain: Strategies and challenges in the recruitment of rehabilitation patients. Sept 25-28 2016; Amsterdam, Holland: WDPI, the 4th Annual Workplace Disability Prevention Knowledge Conference.

Steenstra I; D'Elia T; McIntosh G; Hogg-Johnson S; Amick III BC. Predicting successful return to work in workers on disability due to low back pain: Strategies and challenges in the recruitment of rehabilitation patients. Oct 16-8 2016; Toronto, Ontario: CARWH 2016, the 9th Canadian Association for Research on Work and Health Conference.

Funding: Steenstra IA, McIntosh G, Amick BC, Furlan AD, Hogg-Johnson S. Predicting successful return to work in worker on disability due to low back pain. Canadian Institutes of Health Research (CIHR): \$322,946 (2013-2017)

Engaging Healthcare Providers in the Return to Work Process (2245)

Project Status: Completed in 2016

Introduction: International research has generated strong evidence that health care providers (HCPs) have an important role in the return to work (RTW) process. This research also suggests that HCPs can struggle managing return to work (RTW) consultations. Pressure on consultation time, administrative challenges and limited knowledge about a patient's workplace can thwart active engagement. This two year study will focus on HCPs' experience within the workers' compensation system and how their role in the RTW process can be enhanced.

Objectives:

- To identify programs, guidelines, forms and policies developed by workers' compensation boards designed to facilitate HCPs' engagement in the RTW process.
- To examine the development, benefits and challenges of various approaches used to facilitate HCP engagement in the RTW process through a series of interviews with senior policy makers.
- To understand the perceived role of HCPs in the RTW process including the challenges they face related to interacting with the WCB, injured workers, employers, and other HCPs. Determine practical ways of facilitating meaningful HCP engagement in RTW.

Status: All data collection and analysis is complete. The final report has been submitted to the funder. KTE dissemination activities will continue.

Researchers: Agnieszka Kosny (Principal Investigator), Dorcas Beaton, Andrea Furlan, J Cooper (University of Manitoba), M Koehoorn (University of British Columbia), E MacEachen (University of Waterloo), B Neis (Memorial University).

Collaborations and Partnerships: Partners in this project include workers' compensation boards in Ontario, Newfoundland, Manitoba and British Columbia.

Potential Audiences and Significance: The results of this study will be relevant to healthcare providers, disability prevention policymakers, case managers, and RTW coordinators. The findings will help identify policies and practices that facilitate healthcare provider involvement in RTW.

Publications:

Agnieszka Kosny, Marni Lifshen, Sabrina Tonima, Basak Yanar, Elizabeth Russell, Ellen MacEachen, Barb Neis, Mieke Koehoorn, Dorcas Beaton, Andrea Furlan, Juliette Cooper. The role of health-care providers in the workers' compensation system and the return-to-work process: Final Report. December 2016, Institute for Work & Health, http://www.iwh.on.ca/system/files/documents/role_of_health-care_providers_in_return_to_work_final_report_2016.pdf.

Mojtehdzadeh S., Doctors frustrated workers' compensation boards seem to ignore medical opinions, report says. The Toronto Star: Torstar Publishing, January 9, 2017 [online and print article reporting on Iggy Kosny's research on role of health-care providers in workers' compensation and RTW]. Available at: <https://www.thestar.com/news/gta/2017/01/09/doctors-frustrated-workers-compensation-boards-seem-to-ignore-medical-opinions-report-says.html>

Presentations:

Kosny A. The role of health care providers in workers' compensation and the RTW process. CIRPD Webinar (online). September 13th, 2016.

Kosny A. The role of health care providers in workers' compensation and the RTW process. Occupational health nurses association of Newfoundland and Labrador. St. John's, Newfoundland. October 27th 2016.

Kosny A. The role of health care providers in workers' compensation and the RTW process. SafetyNet Newfoundland and Labrador (plenary). St. John's, Newfoundland. October 28th 2016.

Kosny A. What are physicians told about their role in return to work? IWH External Plenary, Tuesday, November 1, 2016.

Kosny A. The role of health care providers in workers' compensation and the RTW process. Federation of Labour/Ontario Network of Injured Workers Group conference on workers' compensation. Toronto, Ontario. November 4th, 2016.

Kosny A. The role of health care providers in workers' compensation and the RTW process. Manitoba WCB senior leadership group. Winnipeg, Manitoba. November 9th, 2016.

Funding: Kosny A. (Principal Investigator), Beaton DE, Cooper J, Furlan A, Koehoorn M, MacEachen E, Neis B. Engaging health care providers in the return to work process. Workers Compensation Board - Manitoba: \$174,252.00 (2013-2015)

Return to Work Practices

Improving return to work outcomes is a priority in reducing costs to the workers' compensation system. There is a need to fully support workplace parties in achieving more successful return to work outcomes and to reduce the costs of claims while respecting injured workers. In 2016, the Institute completed an update of a systematic review on effective workplace practices for return-to-work that was first published in 2007. Institute scientists have also been engaged for a number of years in research evaluating disability management practices in the workplace. Institute scientists continued a project on better understanding factors that mediate the relationship between age and gender/sex and RTW outcomes following a musculoskeletal injury.

Organizational change to protect workers health (1250)

Project Status: project completed in 2016

Introduction: The burden of disabling musculoskeletal pain arising from work-related causes among workers in many health care settings in Ontario is substantial. This project proposes to measure the impact of a three-year organization change initiative to reduce the burden of work-related injury and illness in Ontario's largest multi-site acute care community hospital system. The Niagara Health System (NHS) is an acute care community hospital system with seven sites in the Niagara region employing more than 4,300 staff. The initiative has been developed by Niagara Health System management and labour unions, with technical support provided by the Occupational Disability Response Team of the Ontario Federation of Labour, the Occupational Health Clinics for Ontario Workers and the Public Services Health & Safety Association. In 2011, NHS senior management and union representatives commenced implementation of a three-year organization change plan to reduce the incidence of work-related musculoskeletal disorders, improve workplace practices in the area of return-to-work and disability prevention and strengthen the culture of safety in the organization. Over 2012-2014, objectives of the organizational change plan are to reduce incidence of total compensation claims registered with the Workplace Safety and Insurance Board (WSIB) by 25% and to reduce total days of disability provided wage replacement benefits by WSIB by 25%.

Objectives:

- To conduct a quasi-experimental design, comparing workers' compensation claim incidence and duration in NHS to a comparable Ontario health care system for a 3 year period prior to and following Jan 2012.
- To conduct a repeated survey of a sample of approximately 350 NHS staff for 3 years (2012-14).
- To conduct two detailed case studies of the organizational change process, using both qualitative and quantitative research methods.

Status: This study, completed in early 2016, has described the process and outcomes of the implementation of a strengthened disability management policy in a large Canadian health care employer. The study applied mixed methods, combining a process evaluation within the employer and a quasi-experimental outcome evaluation between employers for a three year period prior to and following policy implementation in January 2012. Both qualitative and quantitative measures of the implementation process were predominantly positive. Over the six year observation period there were 624 work disability episodes in the organization and 8,604 in the comparison group of 29 large hospitals. The annual percent change in episode incidence in the organization was -5.6 (95% CI: -9.9, -1.1) comparable to the annual percent change in the comparison group: -6.2 (-7.2, -5.3). Disability episode durations also declined in the organization, from a mean of 19.4 days (16.5, 22.3) in the pre-intervention period to 10.9 days (8.7, 13.2) in the post-intervention period. Reductions in disability durations were also observed in the comparison group: from a mean of 13.5 days (12.9, 14.1) in the 2009-2011 period to 10.5 days (9.9, 11.1) in the 2012-2014 period. The incidence of work disability episodes and the durations of work disability declined strongly in this hospital sector over the six year observation period. The implementation of the organization's return-to-work policy was associated with larger reductions in disability durations than observed in the comparison group.

Researchers: Cameron Mustard (Principal Investigator), Ben Amick, Marni Lifshen, Dwayne Van Eerd, A Chambers (Public Health Ontario).

Collaborations and Partnerships: : Partners in this project include the Niagara Health System, the Ontario Nurses' Association, the Occupational Disability Response Team of the Ontario Federation of Labour, the Occupational Health Clinics for Ontario Workers, and the Public Services Health & Safety Association.

Potential Audiences and Significance: The results of this applied research project will be relevant to acute care health care institutions in Ontario and will be expected to provide evidence-based guidance to quality improvement initiatives focused on the protection of the health of health care workers in Ontario.

Publications:

Mustard CA, Skivington K, Lay M, Lifshen M, Etches J, Chambers A.. Implementation of a disability management policy in a large healthcare employer: a quasi-experimental evaluation. Submitted to BMJ Open.

Skivington K, Lifshen M, Mustard CA. Implementing a collaborative return-to-work program: lessons from a qualitative study of a large Canadian healthcare organization. *Work*. 2016 Nov 22;55(3):613-624. DOI: 10.3233/WOR-162437.

Presentations:

Mustard CA, Etches E, Chambers A, Amick B, Van Eerd D. Outcomes of the implementation of a return-to-work/accommodation policy in a large healthcare employer. Oct 16-18 2016; Toronto, Canada: CARWH 2016, the 9th Canadian Association for Research on Work and Health Conference.

Mustard CA, Etches E, Chambers A, Amick B, Van Eerd D. Outcomes of the implementation of a return-to-work/accommodation policy in a large healthcare employer. Sept 25-28 2016; Amsterdam, The Netherlands: 4th Conference Work Disability Prevention & Integration (WDPI).

Mustard CA, Skivington K, Lifshen M, Kosny I. Implementation of a return-to-work/accommodation policy in a large employer. 3rd WDPI Conference on Implementing Work Disability Prevention Knowledge. Toronto, Canada. September 29-October 1, 2014.

Funding: Mustard CA, Amick BC, Van Eerd D. Organizational change to protect workers health. Canadian Institutes of Health Research (CIHR): \$306,706.00 (2012-2015)

A national and international collaboration on comparative, inter-jurisdictional research in occupational health and safety and workers' compensation (2200)

Project Status: Ongoing

Introduction: The project brings together knowledge users and researchers from Canadian provinces, Australian states and New Zealand; jurisdictions that have similar economies, labour market institutions and approaches to workers' compensation, but that have differences in regulations, policies and practices. Comparative studies across these jurisdictions have the potential to assess and evaluate occupational health and safety and workers' compensation system performance and improve the health and safety of workers in Canada and internationally. Results from comparative studies are more powerful than those from single jurisdiction studies as it is possible to control for additional sources of variation that may be driving the findings and take advantage of natural policy experiments. The project builds on a recently funded grant by the Manitoba Worker's Compensation Board that will examine the determinants of severe work-related injuries and long duration claims in British Columbia and Ontario.

Objectives:

- To facilitate formalization of collaboration, including regulatory agencies participation agreement.
- To conduct an assessment of the data available in each jurisdiction to identify a comparable set of data across the participating jurisdictions.
- To explore logistics of developing and hosting comparable, cross-jurisdictional research dataset.
- To conduct a comparative analysis of severe work-related injuries and long duration claims using data from British Columbia, Manitoba and Ontario.
- To conduct a pilot project across the broader range jurisdictions that would provide proof in concept of the collaboration.
- To prepare project or programmatic research grants to submit to national research funding agencies.

Status: The first phase of this project, funded by Manitoba Workers' Compensation Board has now been completed and end of grant project report has been submitted to the funder. We have brought together data from five Canadian jurisdictions (BC, AB, MB, ON, NB) and our extending and updating analysis to include current data and to examine additional RTW outcomes. We have been conducting a scan of changes to workers' compensation legislation in Canada between 2000 and 2015. This scan will inform the analysis that will be conducted later this. We expect descriptive results in second and third quarter of 2017 and results relating to the analysis of legislative changes last quarter of 2017. A CIHR project grant to continue to support the research 2018 onward will be submitted on Spring or Fall 2017 competitions.

Researchers: C McLeod (Principal Investigator) (University of B.C.), Ben Amick, Sheilah Hogg-Johnson, Cameron Mustard, Peter Smith, A Collie (ISCRR), M Koehoorn (University of British Columbia), A Kraut (Manitoba).

Collaborations and Partnerships: Safe Communities Foundation

Potential Audiences and Significance: Results will be relevant to workers' compensation boards, OHS regulators, employer and labour. Results also have the potential to directly inform policy and practice.

Publications:

McLeod C, Macpherson R, Quirke W, Fan J, Hogg-Johnson S, Mustard C, Amick B, Kraut A, Koehoorn M. *Work disability duration: A comparative analysis of three Canadian provinces*. Report submitted to Manitoba Workers Compensation Board. February 2017. 150 pages including appendices

Presentations:

Macpherson R, Koehoorn M, Quirke W, Fan J, Amick B, Mustard CA, Hogg-Johnson S, Kraut A, McLeod C. Gender differences in work disability duration across three workers' compensation systems in Canada. Oct 16-18 2016; Toronto, Canada: CARWH 2016, the 9th Canadian Association for Research on Work and Health Conference.

Quirke W, Fan J, Koehoorn M, Macpherson R, Amick B, Mustard CA, Hogg-Johnson S, Kraut A, McLeod C. Disability duration after work injury: a comparative analysis in British Columbia, Manitoba and Ontario, by sector and time. Oct 16-18 2016; Toronto, Canada: CARWH 2016, the 9th Canadian Association for Research on Work and Health Conference.

McLeod C, Quirke W, Fan J, Macpherson R, Amick B, Mustard C, Kraut A, Hogg-Johnson S, Koehoorn M. Work disability duration: a comparative analysis of Canadian provinces. Sept 4-7 2016; Barcelona, Spain: EPICOH 2016, Epidemiology in Occupational Health Conference.

Macpherson R, Koehoorn M, Quirke W, Fan J, Amick B, Mustard CA, Hogg-Johnson S, Kraut A, McLeod. Gender differences in work disability duration across three workers' compensation systems in Canada. Oct 16-18 2016; Toronto, Ontario: CARWH 2016, the 9th Canadian Association for Research on Work and Health Conference.

McLeod C, Quirke W, Fan J, Macpherson R, Amick B, Mustard C, Kraut A, Hogg-Johnson S, Koehoorn M. A Comparative Analysis of Severe Work-Related Injuries and long Duration Claims in Three Canadian Provinces. Presentation to Saskatchewan Workers' Compensation Board senior executive and management. Regina, SK: Nov. 29, 2016.

McLeod C, Quirke W, Fan J, Macpherson R, Amick B, Mustard C, Kraut A, Hogg-Johnson S, Koehoorn M. A Comparative Analysis of Severe Work-Related Injuries and long Duration Claims in Three Canadian Provinces. Presentation to Workers Compensation Board of Manitoba senior executive and management. Winnipeg, MB: Nov. 28, 2016.

McLeod C. Leading Indicators: Applying the IWH OPM in the BC long-term care and manufacturing sector. Presentation to Workers Compensation Board of Manitoba senior executive and management. Winnipeg, MB: Nov. 28, 2016.

McLeod C, Quirke W, Fan J, Macpherson R, Amick B, Mustard C, Kraut A, Hogg-Johnson S, Koehoorn M. Work disability duration: A comparative analysis of Canadian provinces. Presentation to WorkSafeBC senior executive and management. Richmond, BC: Nov. 22, 2016.

McLeod C, Quirke W, Fan J, Macpherson R, Amick B, Mustard C, Kraut A, Hogg-Johnson S, Koehoorn M. Work disability duration: A comparative analysis of Canadian provinces. Presentation to Workplace Safety and Insurance Board of Ontario. Toronto, ON: Nov. 17, 2016.

Funding: McLeod C, Collie A, Amick BC, Hogg-Johnson S, Koehoorn M, Smith P. Return to work after work injury and illness: an international comparative effectiveness study of Canada, Australia and New Zealand. Canadian Institutes of Health Research (CIHR): \$525,825 (2014-2017)

Koehoorn M, McLeod C, Amick BC, Hogg-Johnson S. A comparative analysis of severe work-related injuries and long duration claims in three Canadian provinces. WCB Manitoba: \$199,246 (2013-2015)

Understanding why gender and age differences exist in return-to-work following a musculoskeletal injury (2250)

Project Status: Ongoing

Introduction: Studies on return-to-work (RTW) have consistently identified female workers and older workers as two groups that have poorer recovery outcomes and longer absences from work following a work-related injury. Although female workers and older workers have, in general, a lower risk of work injury, the increasing number of older and female workers in the labour market, and the changing nature of hazards in Canadian workplaces have resulted in the number of injuries among both these groups to rise substantially. To date most research on the consequences of work injuries has treated age and gender as things to adjust for in analyses. As a result, while we know that factors such as recovery expectations, offers of work accommodation, interactions between the worker and their health care provider, contact with the worker by the workplace are all associated with shorter durations of disability, we do not know if the provision of these factors differs for women compared to men, or older workers compared to younger workers. In addition, we do not know if the relationships between factors are more or less effective for women or older workers. Although gender and age are non-modifiable factors, if we can better understand where differences between men and women, and older and younger workers occur in the RTW process; or if particular interventions of more efficacious among these groups; then this would inform the development of targeted secondary interventions to improve the recovery and economic outcomes of both these groups.

Objectives:

- To better understand factors at the individual, occupational, workplace and health care provider level that mediate the relationship between age and gender/sex and RTW outcomes following a musculoskeletal (MSK) injury.
- To identify situations where gender/sex and age moderate the relationship between injury, occupational, workplace and health care provider factors and RTW outcomes following a MSK injury.

Status: The past 12 months has seen the majority of the analytical work for this project completed. It is anticipated that this work will lead to multiple peer-review publications over the next year.

Researchers: Peter Smith (Principal Investigator), Sheilah Hogg-Johnson, Cameron Mustard.

Collaborations and Partnerships: This work will be done in collaboration with the Canadian Centre for Occupational Health and Safety (CCOHS). In addition, all results from this study will be presented to a nine-person advisory committee consisting of leading research and policy makers in occupational health and safety in Ontario.

Potential Audiences and Significance: Findings from this study will provide a much needed knowledge base on which targeted interventions to improve the health and economic outcomes of older workers and female workers following a work-related injury can be developed. The current wage replacement and health care expenditures associated with work-related injury in Ontario are approximately \$1 billion in the 12 month period following injury. Given this study will re-examine previously collected information on a large number of compensation claimants; this project offers the potential of a large return on investment in a relatively short time period.

Publications: None to date

Presentations: None to date

Funding: Smith PM, Hogg-Johnson S, Mustard CA. Understanding why gender and age differences exist in return-to-work following a musculoskeletal injury. Canadian Institutes of Health Research (CIHR) Operating Grant: \$162,615 (2015-2017)

Return to work systematic review update (3130)

Project Status: project completed in 2016

Introduction: A systematic review of workplace-based return to work interventions was carried out by the Institute and published in 2004. The review included studies published between January 1990 and December 2003. Since the review was completed there has been a growing research literature in the area of return to work (RTW). This project will update the initial review to reflect the current research evidence base. It will also extend the review through the inclusion of research relating to system/ jurisdictional interventions. Furthermore, it will determine whether the Seven Principles of Successful RTW, a globally recognized action tool, need to be changed or modified based on the current evidence. This review will facilitate the integration of high quality best practice research evidence into the development of return to work policies and programs and in so doing will improve the effectiveness of programs to reduce work disability and return injured workers to employment.

Objectives:

- To update the evidence base for workplace-based return to work programs and system/jurisdictional return to work programs and policies.

Status: The review was completed in 2016 discussed with stakeholders and accepted for publication by the Journal of Occupational Rehabilitation in the 4th quarter.

Researchers: Emma Irvin (Principal Investigator), Ben Amick, Nancy Carnide, Kim Cullen, Sheilah Hogg-Johnson, Vicki Kristman, Quenby Mahood, Ron Saunders, Dwayne Van Eerd, F Clay (ISCRR), A Collie (ISCRR), U Gensby (Roskilde University), G Kovacs (WSIB), M Laberge (ISCRR), S Newman (ISCRR), A Palagyi (ISCRR), R Ruseckaite (ISCRR), D Sheppard (Monash University), S Shourie (ISCRR), G Syres (ISCRR).

Collaborations and Partnerships: Partners in this project include the Ontario Workplace Safety and Insurance Board, Workplace Safety & Prevention Services, Public Services Health & Safety Association, Infrastructure Health & Safety Association, Workplace Safety North, Injured Worker's Consultants, members of the employer community, private insurers, and the Ontario Public Service Employees Union.

Potential Audiences and Significance: Members of our stakeholder community as listed above are eager to receive an update to this literature and the Seven Principles document as they refer to them frequently in their workplaces. The Seven principles remains one of the top downloaded items from our website.

Publications:

Cullen K, Irvin E, Collie A, Amick III BC, Palagyi A, Clay F, Gensby U, Jennings P, Hogg-Johnson S, Kristman V, Laberge M, McKenzie D, Ruseckaite R, Sheppard D, Shourie S, Steenstra I, Van Eerd D. Workplace-based interventions for improving return to work after musculoskeletal and pain related conditions: a systematic review. Submitted to Journal of Occupational Rehabilitation.

Presentations:

Cullen KL, Irvin E, Collie A, Clay F, Gensby U, Jennings P, Hogg-Johnson S, Kristman V, Laberge M, McKenzie D, Newnam S, Palagyi A, Ruseckaite R, Sheppard D, Shourie S, Steenstra I, Van Eerd D, Amick B. What's new in return-to-work (RTW) for musculoskeletal, pain-related and mental health conditions? June 20-23 2016; Toronto, Canada: PREMUS 2016. 9th International Scientific Conference on the Prevention of Work-Related Musculoskeletal Disorders.

Cullen K, Irvin E, Collie A, Amick III BC, Palagyi A, Clay F, Gensby U, Jennings P, Hogg-Johnson S, Kristman V, Laberge M, McKenzie D, Ruseckaite R, Sheppard D, Shourie S, Steenstra I, Van Eerd D. Current evidence for workplace-based interventions on return-to-work and recovery for musculoskeletal pain-related and mental health conditions: A systematic review update. Sept 25-28 2016; Amsterdam, Holland: The 4th Conference Work Prevention & Integration (WDPI).

Gensby U, Kosny A, Laberge M, Irvin E, Mahood Q, Cullen K, Van Eerd D, Amick III BC. The process of workplace-based return to work and work disability management support interventions: A review update and

meta-ethnography of the qualitative literature.. Sept 25-28 2016; Amsterdam, Holland: The 4th Conference Work Prevention & Integration.

Irvin E; Cullen K; Collie A; Clay F; Hogg-Johnson S; Jennings P; Kristman V; Laberge M; Steenstra I; Van Eerd D; Amick III BC. What's new in return-to-work (RTW) for musculoskeletal, pain-related and mental health conditions? Oct 16-18 2016; Toronto, Ontario: CARWH 2016, the 9th Canadian Association for Research on Work and Health Conference.

Total Project Funding: \$170,663.

MOL Core (\$136,082); Other External (\$34,581)

Sustainable work participation: work disability prevention and improvement of employment outcomes among those with chronic, episodic health conditions (2270)

Project Status: New

Introduction: For many Canadians with chronic health conditions – both mental and physical – remaining employed is a challenge. In particular, many chronic physical and mental health conditions do not cause continuous problems but rather cause episodic or intermittent disability with periods of well managed disease punctuated by more severe disease activity (e.g. depression, arthritis, diabetes, HIV and some forms of cancer). Privacy legislation has shifted disability management away from disease diagnoses (which workers are not obligated to disclose) to focus on activity limitations as the means of guiding accommodations. For episodic conditions where symptoms fluctuate, and are often unpredictable and invisible to others, accommodation needs can be difficult to assess and implement. A better understanding of similarities and differences across physical and mental health episodic disabilities and the processes whereby needs are communicated and accommodations are delivered, utilized and changed is critical.

Objectives:

- to engage stakeholders and build further partnerships with organizations concerned about episodic physical and mental health conditions and sustainable work participation;
- to increase understanding of the impact of episodic disabilities on workers and workplaces;
- to better understand workplace planning and provision of accommodations, their impact and effectiveness;
- to illuminate communication processes and needs related to disclosure of episodic disabilities ;
- to begin development of a toolkit to help employers and workers to better communicate and implement accommodations.

Status: In our first year, our partners have been engaged and actively involved in research design. We have completed a review of relevant literature, are engaged in an environmental scan of existing resources, and have received ethics approval for data collection. Data collection will commence in 2017.

Researchers: Monique Gignac (Principal Investigator), Dorcas Beaton, Curtis Breslin, Sheilah Hogg-Johnson, Emma Irvin, Arif Jetha, Ron Saunders, Peter Smith, Emile Tompa, Dwayne Van Eerd, RL Franche (Simon Fraser University), J MacDermid (Western University), W Shaw (Liberty Mutual Research Institute)

Collaborations and Partnerships: Ontario Ministry of Labour (OMOL), the Mental Health Commission of Canada (MHCC), Episodic Disabilities Network/Forum (EDN/EDF) and the Institute for Work & Health (IWH).

Potential Audiences and Significance: This partnership development project will further strengthen our existing partnerships, as well as help create and nurture further partnerships. Through both literature and original research, we will develop a more complete conceptual model of adaptation and communication related to living with episodic physical and mental health disabilities, which can guide research and practice for organizations, human resources, disability managers, researchers and others. Theory and data will inform the components of an evidence-informed episodic disabilities toolkit that will help workers, supervisors, and disability managers prevent at-work disability and sustain employment.

Funding: Gignac MAM (PI), Saunders R, Van Eerd D, Jetha A, Franche R-L, MacDermid J, Tompa E, Beaton D, Breslin C, Hogg-Johnson S. Sustainable work participation: work disability prevention and improvement of employment outcomes among those with chronic, episodic health conditions. Canadian Institutes of Health Research (CIHR) / Social Science and Humanities Research Council of Canada (SSHRC) Healthy and Productive Work Signature Initiative, Phase 1 (Partnership Development Grant): \$145,950 (2016-2018)

Strengthening disability management in the Ontario municipal sector (2275)

Project Period: New

Introduction: This initiative will partner with a minimum of six Ontario municipalities to work with the Institute for Work & Health over a 24 month period of funding support to audit and benchmark disability management practices with the goal of identifying innovative practices that have the potential to reduce the incidence of avoidable disability days. There are opportunities to improve the quality and consistency of current disability management practices in the Ontario municipal sector. These quality improvement initiatives in workplace disability prevention practices will focus on reducing the incidence of avoidable disability days, defined as days of work absence that are due to delays in return-to-work planning and implementation and delays in establishing suitable accommodations and modified work. In this project, we will undertake six specific activities with our municipal partners to assess current practice and identify opportunities for innovation. These activities include key informant focus group interviews, the administration of a nationally-recognized disability management program audit, the development of a program logic model as an evaluation framework for measuring the economic costs and benefits of innovative practices in disability management and the specification of a formal plan to implement the quality improvement initiatives in each participating municipality.

Objectives:

- to apply audit and benchmarking protocols to identify promising innovations in disability management practices that are feasible to implement in the Ontario municipal sector
- to support partner municipalities in preparing formal plans to implement the quality improvement initiatives and
- to support the implementation of quality improvement initiatives

Status: In the first year of this project we have engaged with a number of municipal and private sector partners to discuss strategies to improve disability management. We received ethics approval and field work including key informant interviews has begun. Data collection and further partnership development will continue in 2017.

Researchers: Cameron Mustard (Principal Investigator), Arif Jetha, Agnieszka Kosny, Morgan Lay, Christopher McLeod, Lynda Robson , Basak Yanar

Collaboration and Partnerships: This research partnership brings together the internationally-recognized research expertise of the Institute for Work & Health in the social and health sciences with leading human resource professionals in Ontario municipalities employing more than 25,000. The partnership also includes non-profit professional service organizations that support the work of municipal human resource leaders, including the Ontario Municipal Human Resources Association, the National Institute for Disability Management and Research and the Public Services Health and Safety Association.

Potential Audiences and Significance: We expect that municipal employers and unions representing the municipal labour force across Canada will be the primary users of the knowledge arising from this research project. Additional groups who may be interested in the results of this research initiative include policy-makers in provincial workers' compensation authorities, disability benefit trusts and private sector disability insurance plans and representatives of organized labour in the public sector.

Funding: Mustard C, Amick B, Robson L, Kristman V, Jetha A, Gensby U, McLeod C, Kosny A. Strengthening disability management in the Ontario municipal sector. Canadian Institutes of Health Research (CIHR) / Social Science and Humanities Research Council of Canada (SSHRC) Healthy and Productive Work Signature Initiative, Phase 1 (Partnership Development Grant): \$50,000 (2016-2018)

Compensation and Benefits

The Canadian OHS and disability policy systems should support workplaces and protect workers and their families. Research can help to ensure these systems are functioning as intended. As such developing a clearer understanding of the impact that health conditions, by themselves and in combination, have on labour market participation, and if these relationships differ for men and women, is a vital area of future research. Additional research looks to describe post-injury earnings and benefits of workers' compensation beneficiaries in Ontario since the changes in the program that came into effect in 1998.

The examination of wage replacement benefits is another area of IWH research which is highly relevant to workers' compensation policy in managing work disability in Ontario and other jurisdictions. One of the objectives of our research is to understand the adequacy and equity of long term disability income loss compensation programs. This work attempts to answer questions about earnings loss post-injury and the impact of workers' compensation system policies on the lives of injured workers.

A third area of study follows the Institute's long standing commitment to conduct research that informs compensation policy and practice that responds to the needs of injured workers and other particular groups of workers. One of the key objectives in this area is to understand the impact of legislation, policies and programs on the income security and labour market engagement of different groups of workers.

Benefits adequacy for workers compensation claimants, 1999-2005 (2150)

Project Status: Ongoing

Introduction: The purpose of this study is to describe post-injury earnings and benefits of workers' compensation beneficiaries in Ontario since the changes in the program that came into effect in 1998. The enactment of Bill 99 in 1998 introduced a number of changes to the workers' compensation system in Ontario, including the following: benefits are based on a rate of 85% of pre-injury post-tax earnings (changed from 90%), benefits are adjusted annually for inflation, at a rate of " of the increase in the Consumer Price Index (CPI), minus one percentage point, to a maximum of 4 percent a year, and vocational rehabilitation services that had been delivered by the Workers' Compensation Board were replaced by a Labour Market Re-entry program with third-party delivery of rehabilitation services.

Objectives:

- To provide a comprehensive summary of earning losses and earnings replacement rates for a cohort of workers' compensation beneficiaries who experience a work injury in the period 1998-2006.

Status: An issue brief was released in the spring of 2016 that summarized findings on benefits adequacy of the LOE program for long-term disability claimants. The study found that on average, workers' compensation benefits fully compensated for lost earnings among workers with permanent impairments injured between 1998 and 2002. The average earnings replacement rate, when taking labour force earnings, workers' compensation benefits and Canada Pension Plan Disability benefits into account, was 104 per cent of the average earnings of workers with similar characteristics who were not injured. Similar to the earlier findings for the pre-1998 program, there is some variation around the average in the earnings replacement rates. About 46 per cent of the sample had replacement rates of 100 per cent or more, while 25 per cent had replacement rates of under 75 per cent; 65 per cent of the sample had an earnings replacement rate of 85 per cent or more, which is the rate used in the post-1998 Ontario legislation to determine benefit payments. The project will include an analysis of benefits adequacy of short-term disability claimants, using a similar approach to that for long-term disability claimant sample. Statistical analysis is also underway to assess the impact of socio-demographic and injury characteristics of claimants on labour-market earning recovery.

Researchers: Emile Tompa (Principal Investigator), Cameron Mustard, Ron Saunders.

Collaborations and Partnerships: In August 2010, Institute staff briefed senior management of the Ontario Workplace Safety and Insurance Board (WSIB) on the results of studies examining the adequacy of benefits in the pre-1990 Ontario program and in the program that was in place during the period 1990-1997. At this briefing, the President of the WSIB requested that the Institute proceed to update these studies to describe more recent cohorts of beneficiaries.

Potential Audiences and Significance: A key knowledge transfer and exchange activity for this study will be frequent consultations with WSIB policymakers and worker representatives to ensure that the analyses undertaken and results obtained are framed appropriately and address relevant issues.

Publications:

Tompa E, Saunders R, Mustard C, Liao Q. Measuring the adequacy of workers' compensation benefits in Ontario: an update. Toronto: Institute for Work & Health; Mar-2016.

Tompa E, Hogg-Johnson S, Amick III BA, Liao Q. Labour-market earnings recovery following permanent work disability: An evaluation of the return-to-work success under three policy regimes. Prepared for submission to Health Policy.

Presentations:

Tompa E, Saunders S, Mustard C, Liao C. Measuring the Adequacy of Workers' Compensation Benefits in Ontario: An Update, Presentation to IWH Forum with Leaders from the Employer Community, Toronto, Ontario, May 11, 2016.

Tompa E, Saunders R, Mustard C, Liao Q. Measuring the Adequacy of Workers' Compensation Benefits in Ontario: An Update. Canadian Manufacturers & Exporters, Mississauga, Canada. December 8, 2016.

Tompa E., Hogg-Johnson S, Amick B, Liao Q. Labour-market Earnings Recovery Following Permanent Work Disability: An Evaluation of the Return-to-work Success under Three Policy Regimes. Keynote, Health and Labour Policy Evaluation Workshop, Paris, France, Feb 1-3, 2017

Funding: Tompa E (Principal Investigator), Saunders R, Mustard C (Co-investigators). Impairment and work disability of workers' compensation claimants in Ontario, a cohort study of new claimants from 1998-2006. Canadian Institutes for Health Research (CIHR) Open Operating Grant, \$204,685 (2013-2015).

Income security and labour-market engagement: envisioning the future of disability policy in Canada (2195)

Project Status: Ongoing

Introduction: A significant current context of work disability policy is the changing nature of work, workers, and injuries. By work disability policy, we mean policy related to any federal or provincial Canadian program that shapes income security and labour-market engagement for work-disabled individuals. We also include employers in the disability policy system as they play an important role. In the past, efforts to revamp the Canadian work disability policy system have been piecemeal, uncoordinated, and have failed to address core changes to workplaces and the labour-markets. Our 7-year initiative is a transdisciplinary inquiry into the future of work disability policy and labour-market engagement.

Objectives:

- To provide a forum for within- and cross-provincial and national dialogue on challenges and opportunities for improving the work disability policy system for working age individuals.
- To identify problems and challenges associated with program coordination and complexity.
- To identify relevant and favourable alternative approaches to system design or service provision.
- To build capacity for research and knowledge mobilization on the topic of work disability policy.

Status: The highlight of CRWDP's 2015 activities was a 3 day event in November during which we held a daylong National Policy Round Table, a daylong National Symposium and a half-day National Action Planning Meeting. At the Policy Round Table senior policy makers from various ministries of the federal and provincial governments attended to discuss program coordination and navigability. The forum was an inaugural session, with plans to continue the dialogue at the national and provincial levels on a regular basis. The National Symposium was attended by more than 120 delegates representing various stakeholders, including academics and students, injured workers and people with disabilities, employers, policymakers and service providers. Several keynotes were given and student research was profiled in a poster session. Keynotes were recorded for posting as podcasts on the CRWDP website. The National Action Planning Meeting provided a forum for key CRWDP participants and partners to brainstorm research priorities for the Centre under three thematic areas—1) program coordination and navigability, 2) employer opportunities, and 3) adequacy of program supports. Other activities during the year included inaugural sessions of community caucuses in each of the four clusters, as well as a national caucus session. Several new projects have been profiled on the website—1) A Disability Policy Scoping Review, 2) Two Reviews of Evidence on Policies and Practices for the Accommodation of Persons with Disabilities, and 3) A Proposal for a National Standard for Work Disability Prevention Management Systems to be developed by the Canadian Standards Association. A related international collaborative of academics and policymakers (of which CRWDP is a founding member) is spearheading international comparative research on work disability policy. The collaborative, called the International Work and Life Academy (IWALA), met virtually on several occasions, and twice in person over the last year. The group had its inaugural in-person meeting in Stockholm, Sweden, and a second meeting in Tilburg, the Netherlands.

Researchers: Emile Tompa (Co-Principal Investigator), Ellen MacEachen (Co-Principal Investigator, University of Waterloo), Curtis Breslin, Ron Saunders. Over 60 external researchers are also part of the initiative.

Collaborations and Partnerships: Stakeholders, including disability communities and program provider representatives, are involved in all aspects of the initiative, including governance. Several new organizations have joined the initiative as partners.

Potential Audiences and Significance: This initiative will be of interest to all stakeholders in the Canadian work disability policy system, which includes injured worker and disability communities, as well as employers. Policy makers and academics in other countries have expressed interest in the CRWDP initiative as a model for partnered research in their own country.

Publications:

CRWDP. Working Policy: News, Views and Research from CRWDP, Volume 2: Issue 1, May 2015.

MacEachen E, Du B, Bartel E, Tompa E, Stapleton J, Kosny A, Petricone I, Ekberg K. 2015. Work Disability Policy Scoping Review Database. <https://www.crwdp.ca/en/new-studies>

Prince M. 2015. Policies and Practices on the Accommodation of Persons with Invisible Disabilities in Workplaces: A Review of Canadian and International Literature. Final Report. Employment and Social Development Canada. 65 pp. <https://www.crwdp.ca/en/new-studies>

Tompa E, Buettgen A, Mahood Q, Padkapayeva K, Posen A, Yazdani A. (May 2015). Literature Review of Types of Workplace Accommodations Made for Persons with Visible Disabilities: Final Report. Employment and Social Development Canada. 173 pp. <https://www.crwdp.ca/en/new-studies>

Tompa E, Posen A, Farquhar A, MacEachen E, Galer D, Torjman S. An Environmental Scan of Past Policy Initiatives Addressing Coordination Issues in the Canadian Work Disability Policy System. <https://www.crwdp.ca/en/new-studies>

Presentations:

Lippel K, Eakin J, Holness L, Howse D (keynotes). Fourth Session of Bancroft Speaker Series. How Characteristics of Workers' Compensation Systems Affect Doctors: A Comparative Study of Québec and Ontario. 14 May 2015; Toronto, Canada: St. Michael College the University of Toronto.

MacEachen E, Tompa E. Centre for Research on Work Disability Policy: Mission, Structure and Key Activities. 19 Nov 2015; Toronto, Canada: CRWDP National Policy Round Table on the Future of Work Disability Policy in Canada.

Tompa E, MacEachen E. The Centre for Research on Work Disability Policy: How We Got Started and Established. 12 Feb 2015; Stockholm, Sweden: Presentation given to the Swedish Welfare Academy.

Tompa E. Discussant at the Roundtable on Income and Employment Needs of Persons Dealing with Illness, hosted by the Institute for Research on Public Policy (IRPP). 17 Jun 2015; Ottawa, Canada.

Tompa E. Ideas for Collaborative Projects and Building Capacity. 25-27 Aug 2015; Stockholm, Sweden: International Knowledge Network Conference on Work and Health.

Tompa E, MacEachen E. A systems focus on WDP at the government policy level: the Centre for Research on Work Disability Policy mandate. 19 Jun 2015; Toronto, Canada: Challenges Workshop at the Work Disability Prevention CIHR Strategic Training Initiative.

Tompa E, MacEachen E. Centre for Research on Work Disability Policy: Mission, Structure and Key Activities. 20 Nov 2015; Toronto, Canada: CRWDP National Symposium: Informing the Roadmap for Work Disability Policy in Canada. <https://www.crwdp.ca/en/informing-roadmap-work-disability-policy-canada>

Tompa E, Posen E, Farquhar A, Torjman S, MacEachen E, Galer D. Environmental Scan of Past Initiatives Addressing Canadian Work Disability Policy System Coordination and Navigation Issues. 19 Nov 2015; Toronto, Canada: CRWDP National Policy Round Table on the Future of Work Disability Policy in Canada.

Funding: Tompa E (Co-Principal Investigator), MacEachen E (Co-Principal Investigator), et al. Income Security and Labour-Market Engagement: Envisioning the Future of Disability Policy in Canada. Social Sciences & Humanities Research Council of Canada (SSHRC): \$2,760,782 (2013-2019)

Tompa E. Policies and Practices on the Accommodation of Persons with Visible Disabilities in the Workplace. Office of Disability Issues, Employment and Social Development Canada—Fall 2014, \$21,900 over 8 months.

Tompa E. Feasibility Study and Needs Assessment for a Canadian Searchable Online Resource for Workplace Accommodation for Persons with Disabilities. Office of Disability Issues, Employment and Social Development Canada—Fall 2015, \$24,999 over 8 months.

Assessment of the human and economic burden of workplace cancer (2205)

Project Status: Ongoing

Introduction: There is now an increasing awareness of how occupational exposures can give rise to cancer, despite long latency that has historically prevented attribution of the cancer to work. In particular, there is a growing interest in better understanding the extent of occupational cancers and their economic burden to society. Yet assessing the economic burden of occupational cancer has rarely been performed. This is likely due to the challenges associated with such a task. One of the challenges is methodological. There is little standardization of methods and some uncertainty related to conceptual issues. Data availability is another challenge. It is difficult to identify sources with the range of data needs. The objective of this study is to estimate the economic burden of occupational cancer in Canada. Morbidity and mortality burden will be estimated separately before aggregation. Both types of cases will include lifetime costs associated with medical expenses, market productivity losses, and losses in health related quality of life.

Objectives:

- To estimate the direct costs of hospitalization, physician care, treatment costs.
- To estimate the indirect and health-related quality-of-life costs such as lost output in the paid labour force, activity loss in non-paid roles, and the intrinsic value of health.

Status: In 2016, several economic burden studies of cancer sites and exposure types were near completion. The key one is a study on the economic burden of mesothelioma and lung cancer from occupational asbestos exposure. This study is currently under review at Occupational and Environmental Medicine. Burden studies for occupational bladder cancer, and another for occupational nasopharynx, pharynx, and sinonasal cancer were near completion. These two studies are being spearheaded by two PhD candidates (Young Jung and Amirrabas Mofidi), who are undertaking the studies as part of their theses. In the occupational asbestos burden study, we identified 427 cases of newly diagnosed mesothelioma cases and 1,904 lung cancer cases attributable to asbestos exposure in 2011, for a total of 2,331 cases. Our estimate of the economic burden is \$831 million in direct and indirect costs for newly identified cases of mesothelioma and lung cancer, and \$1.5 billion in quality of life costs based on a value of \$100,000 per quality-adjusted life year. This amounts to \$356,429 and \$652,369 per case, respectively.

Researchers: Emile Tompa (Principal Investigator), Christina Kalcevich, Young Jung, Amirrabas Mofidi, C McLeod (University of B.C.), M Lebeau (Institut de recherche Robert-Sauvé en santé et en sécurité du travail (IRSST)).

Collaborations and Partnerships: One component of this four part initiative is a knowledge transfer and exchange component. This component will be used to effectively communicate the findings from the other three components by: 1) integrating the Canadian Cancer Society (CCS) as a valued research partner; 2) engaging in multiple communication strategies with CCS's collaboration; and 3) having a knowledge broker from CCS who will help the team target, strengthen, and build relationships with various stakeholders, especially policy makers, who can use the findings to help inform policy change.

Potential Audiences and Significance: Burden of disease studies provide insights into the magnitudes of the health loss and the cost of a disease to society. Information on the economic burden is extremely useful for government and industry decision making on the benefits of investing in prevention-related efforts, such as exposure reduction and increased enforcement of government regulations. In cases where best practices for prevention are not clear, burden estimates can help prioritize research and development. Key audiences are policy makers, workers, employers and physicians.

Publications:

Tompa E, Kalcevich C, McLeod C, Lebeau M, Chaojie S, McLeod M, Kim J, Demers P. The Economic Burden of Lung Cancer and Mesothelioma Due to 5 Occupational and Para-Occupational Asbestos Exposure. Revised and resubmitted to Occupational and Environmental Medicine.

Jung Y, Tompa E, Kalcevich C, McLeod C, Kim J, Demers P. The Economic Burden of Bladder Cancer in Canada due to Occupational Exposure. In preparation for submission to Cancer Survivorship.

Mofidi A, Tompa E, Kalcevich C, McLeod C, Lebeau M, Song C, Kim J, Demers P. The Economic Burden of Nasopharynx and Sinonasal Cancers Due To Occupational Exposure in Canada. Prepared for submission to the Journal of Occupational and Environmental Hygiene.

Presentations:

Tompa E, Kalcevich C, McLeod C, Lebeau M, Song C, McLeod K, Kim J, Demers PA. Economic burden of lung cancer and mesothelioma in Canada from occupational and para-occupational asbestos exposure.. October 16-18 2016; Toronto, Ontario: CARWH.

Tompa E. Burden basics, usefulness and limits: The Institute for Work & Health perspective. IRSST-NIOSH workshop on the economics of Occupational Safety and Health, Montreal, Canada. September 7-8, 2016.

Tompa E, Kalcevich C, McLeod C, Lebeau M, Song C, McLeod K, Kim J, Demers PA. Economic burden of lung cancer and mesothelioma in Canada from occupational and para-occupational asbestos exposure. IRSST-NIOSH workshop on the economics of Occupational Safety and Health, Montreal, Canada. September 7-8, 2016.

Tompa E, Sarnocinska-Hart A, Grant K, Kapoor K, Robson L, Irvin E, van Dongen H, Macdonald S. Economic evaluation of health and safety programs: A training workshop for workplace parties. IRSST-NIOSH workshop on the economics of Occupational Safety and Health, Montreal, Canada. September 7-8, 2016.

Funding: Demers P, Davies H, Kramer D, Tompa E (Principal Investigators). Assessment of the Human and Economic Burden of Workplace Cancer, Multisector team grants in prevention research. Canadian Cancer Society Research Institute (CCSRI): \$1,000,000 (2012-2016). Sub-project: Tompa E (Project Lead), Hyatt D, McLeod C. Estimation of Economic Burden. CCSRI Multisector Team Grant: \$256,635 over 3 years (2013-2016).

Enhancing community participation in Canadians with physical disabilities: development, implementation and evaluation of a partnered strategy (2255)

Project Status: Ongoing

Introduction: Many Canadians with physical disabilities report disrupted levels of participation in several important aspects of community life such as employment, sports and active recreation, and simply being able to move about their communities independently and with dignity (i.e., community mobility). This 7-year program focuses on three community participation domains that people with physical disabilities consistently identify as being the most restrictive, as well as the domains in which they most desire greater participation: employment, mobility, and sports. As part of the employment research, IWH is conducting a qualitative study comparing the work experiences of young adulthood, middle-aged adults and older workers with arthritis to determine the similarities and differences in employment transitions across the working life course.

Objectives:

- To describe and understand participation, its barriers and facilitators in the disability community.
- To examine how the relationship between working, self-management/health and involvement in personal social roles may change across the working life course
- To examine what types of formal job accommodations/modifications are most needed to support employment in people with rheumatic disease, and identify similarities and differences in both need and access to job accommodations across the life course

Status: To date, study data have been coded and analyses completed for two papers: 1) applying life course theory to describe important transitions among young, middle-aged and older adults with arthritis and to examine the impact of important transitions on work experiences; and 2) examining life course differences in the need, accessibility and use of job accommodations, work modifications and personal strategies to sustain employment for people with rheumatic disease. The first paper is currently under review and writing of the second paper is underway.

Researchers: Arif Jetha (Principal Investigator), Monique Gignac, C Connelly (McMaster University), K Martin Ginis (McMaster University), S Tucker (University of Regina)

Collaborations and Partnerships: Partners include the Canadian Council on Rehabilitation and Work (Monica Winkler), March of Dimes (Keith Rashid), and the Neil Squire Society (Gary Birch).

Potential Audiences and Significance: This project will generate data to better understand life course transitions that workers with disabilities face (e.g., young adults transitioning into the workforce; middle-aged adults balancing employment with increased family responsibilities, etc.), as well as specific strategies that can enable workers to meet their employment goals and sustain work. The findings will be of relevance to workers with disabilities, employers (e.g., HR), and not-for-profit groups who work with people with disabilities to find employment and meet accommodation needs.

Publications:

Jetha A, Bowring J, Tucker S, Connelly S.E, Martin Ginis K, Proulx L, Gignac MAM. Transitions that matter: Life Course differences in the employment of adults with arthritis. Under review.

Bonaccio S, Gellatly I, Martin Ginis K, Jetha A, Connelly C. Checking in with the myth busters: Beliefs and state of the science regarding the participation of people with disabilities in the workplace. Under review.

Presentations:

Jetha, A., Bowring, J., Tucker, S., Connelly, C., Gignac, M.A.M. Conceptualizing the Life Course in the Employment Experiences of Working-Aged Adults with Arthritis: A Qualitative Study. Nov 11-16 2016; Washington, USA: Annual Meeting of the American College of Rheumatology.

Funding: Martin Ginis K (PI), Connolly C, Borisoff J, Bray J, Hayes K, Latimer-Cheung A, Mortenson

B, Beauchamp M, Miller B, Noreau L, Rimmer J, Horrocks J, Tucker S, Gignac MAM, Bassett-Gunter R, Jetha A. Enhancing community participation in Canadians with physical disabilities: Development, implementation and evaluation of a partnered strategy. Social Sciences and Humanities Research Council (SSHRC): \$2,643,997 over 7 years; \$24,275 for this project.

Extended working life and its interaction with health, wellbeing and beyond (2260)

Project Status: New in 2016

Introduction: In Europe and Canada, policymakers are facing particular challenges related to rising life expectancy, an aging workforce and the consequent increase in the prevalence of chronic illness and disability. But these increases in life expectancy are not experienced. Less skilled workers, for example, have a shorter life expectancy, earlier onset of chronic illness and disability, are more likely to suffer multi-morbidities as they get older and enjoy fewer years of life after retirement. Policymakers in Europe and Canada therefore face a dual challenge of extending health, quality of life and wellbeing into old age for all groups, whilst finding more effective and equitable ways of ensuring that all older people are fairly treated in strategies and policies to extend working life. This project will conduct transnational research that advances understanding of the differential impacts of health inequalities on the opportunity to work later in life and of strategies and policies for extending working life that take these health inequalities into consideration.

Objectives:

- To examine how the pattern of morbidity and co-morbidity with different physical and mental health conditions, and caring responsibilities, vary over working life by socioeconomic status and gender in different country contexts.
- To determine what the employment consequences of these changing patterns of morbidity, co-morbidity, and caring responsibilities at older ages are.
- To find policy approaches that have been taken in the study countries to extend the working lives of people with chronic illness.
- To consider the implications of the impact of health inequalities revealed in this research for future trends and the development of policies to extend working lives fairly.

Status: In the first year of this three-year workplan, the THRIVE project team has completed four reviews of country-level policy developments over the past three decades in three areas of policy interest: pensions and retirement income security policies, disability income security benefits and employment protections for persons with disability and policies supporting caregivers among working age adults. The THRIVE project team has also completed harmonized descriptive analyses of the prevalence of chronic conditions among older working age adults over a twenty year time period for each of the four countries, analysing differences in labour force participation and risk of poverty by health status and socioeconomic status. The Canada project team has commissioned Statistics Canada to prepare a specialized database linking cross-sectional samples of the Canadian Community Health Survey to longitudinal income tax records.

Researchers: C Mustard (Principal Investigator), Emile Tompa.

Collaborations and Partnerships: Dr Whitehead from the University of Liverpool, UK, and includes partners from the University of Copenhagen, Denmark and the Karolinska Institute, Sweden.

Potential Audiences and Significance: This project brings together a coherent group of study countries - UK, Canada, Sweden and Denmark - which are addressing similar policy problems, but have been experimenting with a variety of strategies to tackle the problems. We will take an innovative approach that integrates comparative quantitative analysis of population datasets in each country with the knowledge generated through policy analysis and systematic reviews of qualitative and quantitative intervention studies. Through this research, there is scope for international policy learning on how best to extend the working lives of older people in ways that are effective and equitable.

Publications: None to date

Presentations: None to date

Funding: Mustard CA, Tompa E. Tackling health inequalities and extending working lives (THRIVE). CIHR Operating Grant: Health, Wellbeing and Extended Working Life: \$268, 500 (2016-2018)

The cost of exclusion of persons with disability in Canada (2265)

Project Status: New in 2016

Introduction: Exclusion of people with disabilities from paid work is widely documented in the literature, but has not been quantified in monetary terms. In Canada it is estimated that 795,000 people with disabilities are unemployed despite being able and willing to work. Many different barriers prevent these people from working, including discrimination and bias, employers' concerns about cost and productivity, and a lack of knowledge on how to appropriately accommodate different abilities. Not counted are the underemployed—individuals with skill levels higher than their job demands who are unable to secure appropriate work due to their disability. This study will first develop a conceptual framework and methods for costing the exclusion of people with disabilities and then apply it to the Canadian context. It will draw on the cost of illness/ economic burden methodology, and extend it into the sociological domain based on concepts of the disablement process. The question driving the review is: What is the cost to Canadians of excluding people with disability from fully participation in society?

Objectives:

- To develop a counterfactual framework of a more inclusive society for application in Canada context.
- To synthesize theoretical and methodological literature on a more inclusive counterfactual scenario.
- To develop a grounded counterfactual scenario for application in a cost of exclusion study based on the literature synthesis and to identify measures available to operationalize the counterfactual scenario.
- To estimate the magnitude of key components of exclusion, e.g., labour-market output/ productivity costs, exclusion from social role engagement, expenses for support provision by social programs.
- To identify the distribution of costs of exclusion across stakeholders—people with disabilities and their families, employers, the public sector, and society at large.

Status: This study was still in the planning stages in 2016. Young Jung, a PhD candidate from McMaster Health Policy was recruited to serve as research associate on the project. He is also completed a PhD thesis paper on the topic, which will be based on a data linkage of the Canadian Community Health Survey with the T1 Family File of tax data. A special issue of a journal is also planned that will gather contributions from various countries. The focus of the special issue will be on benchmarking country performance in the area of inclusiveness of persons with disabilities in the labour market and other areas of social engagement.

Researchers: Emile Tompa (Principal Investigator), Young Jung

Collaborations and Partnerships: We will be draw on relationships we have established in various policy circles to help guide the development of methods and their execution in the Canadian context. Individuals to be contacted include representatives from Employment and Social Development Canada, the Public Health Agency of Canada, the World Health Organization and the International Labour Organization.

Potential Audiences and Significance: This study is of relevance to injured worker and disability communities, employers, policymakers, disability program administrators, and service providers. The methodology to be developed for this study will be of interest to international stakeholders in work disability arena, including the World Health Organization and the International Labour Organization.

Publications: None to date

Presentations: None to date

Funding: Tompa E. The Cost of Exclusion of Persons with Disability in Canada. Centre for Research on Work Disability Policy (CRWDP), \$76,700 (2016-2018).

Literature Review of Policies and Practices on the Accommodation of Persons with Visible Disabilities in the Workplace II (3181)

Project Status: project completed in 2016

Introduction: This study builds on our literature review and evidence synthesis completed for Employment and Social Development Canada (ESDC) in the spring of 2015. The motivation for this study is that employers often lack accurate information on the best practices for accommodating persons with disabilities and have misconceptions around accommodation costs. Furthermore, our previous study revealed that involving the employee with a disability in the accommodation process and developing a customized accommodation is a critical component to a successful outcome. This study consists of a feasibility study and needs assessment for an online resource. It will provide insights into how ESDC might better support the information needs of employers seeking to hire and accommodate workers with disabilities, as well as the information needs of persons with disabilities seeking employment or accommodation at the workplace.

Objectives:

- To identify best practice resources for employer accommodations from the academic and grey literatures in the field of rehabilitation and return to work, disability management, health and labour economics.
- To identify information needs of employers and stakeholders, their sources of information on workplace accommodation, and whether they think a Canadian searchable online resource would be value added.
- To identify how vendors of assistive technologies and supplies connect with clients, forums that exist in providing services and whether they think a Canadian searchable online resource would be value added.
- To identify what does or does not work for web-based models of searchable resources for workplace accommodation and costs for building and maintaining an online resource for workplace accommodation.

Status: The findings of this study suggest that there is value in developing an online searchable resource for workplace accommodations specific to the Canadian labour market. An important caveat is that such a resource should not duplicate existing services, but rather, dovetail with them. Specifically, the web resource would need to work with existing service providers (e.g., referring clients to other services if they better meet clients' needs) to minimize duplication of efforts and ensure continuing service provision. The web resource could serve as an initial point of contact for employers and other stakeholders to provide quick and easy access to information and services for accommodation and/or direct them to where they can find needed information and services. There are several resources that are currently available to Canadian employers and other stakeholders that provide information and services to support hiring people with disabilities and identify appropriate workplace accommodations for new and existing employees. Some are Canadian-based, while others are international-based. But employers are often uncertain about where to find information and services. The patchwork of resources available online and elsewhere is hard to navigate. Therefore, partnering with existing online resources or creating a portal that would bring existing resources and services together (such as suppliers of adaptive equipment/technology, disability service providers, employer groups), could enhance the reach and impact of current offerings. Equally important is the need to connect stakeholders with each other, as well as to learn from and communicate the experiences of others (e.g., through employer peer support). In terms of knowledge mobilization of the findings from this study, the final report was shared with the funder (ESDC) in the summer of 2016. We plan to post the report on the Centre for Research on Work Disability Policy (CRWDP) website in early 2017.

Researchers: Emile Tompa (Principal Investigator), Quenby Mahood, A Buettgen (McMaster University), A Yazdani (McMaster University).

Collaborations and Partnerships: This study is funded by ESDC and is of great interest to various departments in that Ministry. They are actively involved in guiding the research project. We will also be connecting with various stakeholder communities including employers, vendors, website administrators, and persons with disabilities.

Potential Audiences and Significance: This study is directly related to the development of best practice guidelines by the Canadian Standards Association, and may be a platform for the larger evidence synthesis they will be completing in the process of developing work disability prevention best practice guidelines. The study is also relevant to employers, policymakers, support providers and disability communities.

Publications:

Tompa E, Buettgen A, Padkapayeva K, Yazdani A, Dufour J, Mahood Q, (August 2016). Feasibility Study and Needs Assessment for a Canadian Searchable Online Resource for Workplace Accommodation for Persons with Disabilities: Final Report. Employment and Social Development Canada. 194 pp.

Padkapayeva K, Posen A, Yazdani A, Buettgen A, Mahood Q, Tompa E. (2016). Workplace accommodations for persons with physical disabilities: Evidence synthesis of the peer-reviewed literature. Disability and Rehabilitation. <http://www.tandfonline.com/doi/suppl/10.1080/09638288.2016.1224276?scroll=top>

Buettgen A, Tompa E, Posen A, Padkapayeva K, Mahood Q, Yazdani A. Reviewing workplace accommodation resources and best practices: Realizing the value of grey literature. Prepared for submission.

Presentations:

Padkapayeva K, Posen A, Yazdani A, Buettgen A, Mahood Q, Tompa E. Workplace accommodations for persons with physical disabilities: Evidence synthesis of the peer-reviewed literature. 16-18 October 2016; Toronto, ON: CARWH.

Tompa E, Posen A, Buettgen A, Yazdani A, Padkapayeva K, Mahood A. Employer policies and practices for recruitment and retention of persons with disabilities: Evidence synthesis from grey and peer-reviewed sources. International Forum on Disability Management (IFDM). Kuala Lumpur, Malaysia, November 22-24, 2016.

Tompa E. Employer costs and benefits of accommodation: What is the evidence? International Forum on Disability Management (IFDM). Kuala Lumpur, Malaysia, November 22-24, 2016.

Tompa E, Posen A, Buettgen A, Yazdani A, Padkapayeva K, Mahood Q. Recruitment and Retention of Persons with Disabilities: Evidence Synthesis from Grey and Peer-reviewed Sources. Work Disability Prevention and Integration. Amsterdam, The Netherlands, September 25-28, 2016

Tompa E. Employer costs and benefits of accommodation: What is the evidence? Employment and Social Development Canada Inaugural WebCast Speaker Series. February 25, 2016.

Funding: Tompa E (Principal Investigator). Policies and Practices on the Accommodation of Persons with Visible Disabilities in the Workplace. Office of Disability Issues, Employment and Social Development Canada—Fall 2014, \$21,900 over 8 months.

Measuring Health and Function

Over the past 20 years, the Institute has focused on several aspects of research relevant to clinical care: the measurement of health and function includes understanding the course of disability and recovery; and the development of a clinical evidence base on the effectiveness of clinical interventions. These measurement tools and evidence on the clinically effective interventions for work related disability can assist in increasing the capacity to measure other return to work and health care outcomes to improve the effectiveness of business management.

In 2016, the Institute continued to strengthen its focus on the impact of chronic illness on the incidence of work disability and premature exit from the workforce. This issue is likely to be of increasing importance given the aging of the population and advances in treatment of many chronic diseases that enable individuals across the life course who have left the workplace or who were previously unable to work, to participate in employment.

Measurement methodology studies (0925)

Project Status: Ongoing

Introduction: This is a group of studies with a primary focus on measurement issues in the development and use of measurement instruments as indicators and outcomes of health and safety efforts. The data for much of this work comes from projects initiated for other research objectives within this theme but in this particular application are focusing on the measurement issues.

Objectives:

- To determine the best methods for cross cultural adaptation of self-report measures of outcome.
- To produce models of recovery based on qualitative and quantitative findings.
- To explore cognitive interviewing/debriefing as a tool to understand respondents processing of rating systems or questions.

Status: In 2016 the measurement group has been reviewing methods used for outcome selection and this has had direct relevance to the processes used in the OMERACT Instrument Selection Process and related tools. Within OMERACT we have continued to advance the methods used in the measurement of worker productivity, with a particular emphasis on contextual factors and at-work productivity loss. We co-lead an international consensus group on this. We have been asked to be involved in international groups to decide on core outcomes to be used in studies of fracture repair and shoulder soft tissue disorders. This year we published a paper verifying the model of recovery first posited in the Toronto Star suite of studies in 2001. This current testing was done in persons with ankle disorders needing reconstruction. Our group was involved in offering methodological support to the development and testing of instruments from school functioning to physiotherapy competence. We will continue to advance best methods in measurement of outcomes, and support international endeavours in this field.

Researchers: Dorcas Beaton (Institute Coordinator), Claire Bombardier, Cynthia Chen, Kim Cullen, Jocelyn Dollack, Sheilah Hogg-Johnson, Emma Irvin, Carol Kennedy-Yee, Peter Smith, Michael Swift, Dwayne Van Eerd, R Buchbinder (Monash University), F Guillemin (University of Nancy), J Katz (Brigham and Women's Hospital, Harvard University), R Osborne (Monash University), P Tugwell (University of Ottawa), G Wells (Ottawa Hospital Research Institute)

Collaboration and Partnerships: Partners in this project include users of the instrument database, clinicians, researchers, trainees, and students, as well as international organizations collaborating in our activities, including OMERACT, COSMIN, IMMPACT

Potential Audiences and Significance: The results of this project will be relevant to users of indicators and measures in health and work research. Researchers in measurement sciences, epidemiologists, health and safety organizations, clinical community at large will also be interested in this work.

Publications:

Pinsker E, Inrig T, Daniels TR, Warmington K, Beaton DE. Symptom resolution and patient-perceived recovery following ankle arthroplasty and arthrodesis. *Foot Ankle Int* 2016;37(12):1269-76

de Wit M, Kirwan JR, Tugwell P, Beaton DE, Boers M, Brooks P, Collins S, Conaghan PG, D'Agostino MA, Hofstetter C, Hughes R, Leong A, Lyddiatt A, March L, May J, Montie P, Richards P, Simon LS, Singh JA, Strand V, Voshaar M, Bingham CO III, Gossec L. Successful stepwise development of patient research partnership: 14 years' experience of actions and consequences in outcome measures in rheumatology (OMERACT). *Patient*. October 5, 2016 [E-pub ahead of print].

Taylor AM, Phillips K, Patel KV, Turk D, Dworkin RH, Beaton DE, Clauw DJ, Gignac MAM, Markman JD, Williams DA, Bujanover S, Burke LB, Carr DB, Choy EH, Conaghan PG, Cowan P, Farrar JT, Freeman R, Gewandter J, Gilron I, Goli V, Gover TD, Haddox JD, Kerns RD, Kopecky EA, Lee DA, Malamut R, Mease P, Rappaport BA, Simon LS, Singh J, Smith SM, Strand V, Tugwell P, Vanhove GF, Veasley C, Walco GA, Wasan AD, Witter J.

Assessment of physical function and participation in chronic pain clinical trials: IMMPACT/OMERACT recommendations. *PAIN* 2016;157(9):1836-50.

Leggett S, van der Zee-Neuen A, Boonen A, Beaton DE, Bojinca M, Bosworth A, Dadoun S, Fautrel B, Hagel S, Hofstetter C, Lacaille D, Linton D, Mihai C, Petersson IF, Rogers P, Sciré C, Verstappen SM, Worker Productivity group. Content validity of global measures of at-work productivity in patients with rheumatic diseases: an international qualitative study. *Rheumatology (Oxford)* 2016;55(8):1364-73. (C)

Kennedy CA, Beaton DE. A user's survey of the clinical application and content validity of the DASH (Disabilities of the Arm, Shoulder and Hand) Outcome Measure. *J Hand Ther.* July 25, 2016 [E-pub ahead of print]. (CPA)

Kirwan JR, de Wit M, Bingham CO III, Leong A, Tugwell P, Voshaar M, Gossec L, OMERACT Executive Committee. Commentary: Patients as partners: Building on the experience of Outcome Measures in Rheumatology (OMERACT). *Arthritis Rheumatol* 2016;68(6):1334-6.

Mori B, Norman KE, Brooks D, Herold J, Beaton DE. Evidence of Reliability, Validity, and Practicality for the Canadian Physiotherapy Assessment of Clinical Performance. *Physiother Can* 2016;68(2): 156-169.

Leggett S, van der Zee-Neuen A, Boonen A, Beaton DE, Bojinca M, Bosworth A, Dadoun S, Fautrel B, Hagel S, Hofstetter C, Lacaille D, Linton D, Mihai C, Petersson IF, Rogers P, Sergeant JC, Sciré C, Verstappen SM, Worker Productivity group. Test-retest reliability and correlations of 5 global measures addressing at-work productivity loss in patients with rheumatic diseases. *J Rheumatol* 2016;43(2):433-9

Beaton DE, Dyer S, Boonen A, Verstappen SMM, Escorpizo R, Lacaille D, Bosworth A, Gignac MAM, Leong A, Purcaru O, Leggett S, Hofstetter C, Petersson IF, Tang K, Fautrel B, Bombardier C, Tugwell P. OMERACT filter evidence supporting the measurement of at-work productivity loss as an outcome measure in rheumatology research. *J Rheumatol* 2016;43(1):214-22

Beaton DE, Boers M, Tugwell P. Health Outcomes Assessment. Chapter 33 in Kelley's Rheumatology, 10th edition, Philadelphia: Saunders Elsevier, 2016, 496-508.

Presentations:

October 2016 - DASH Outcome Measure: Recap of the Last 20 Years. 10th Triennial Congress of the International Federation of Societies for Hand Therapy (IFSHT). Buenos Aires, Argentina.

October 2016 - How can Measures Improve My Clinical Decision-Making and Practice? 10th Triennial Congress of the International Federation of Societies for Hand Therapy (IFSHT). Buenos Aires, Argentina.

Employment needs and experiences of workers with arthritis and diabetes: keeping the boomers in the labour market (2230)

Project Status: Ongoing

Introduction: The large size of the Canadian baby boomer generation (born 1946 to 1964) has created concerns for older workers. A loss of skills in the labour market as older workers retire has meant the need for strategies to keep individuals working and delay retirement. To date, we don't have information about how characteristics of many chronic health conditions that arise with age may create unique challenges for workers, including conditions like arthritis and diabetes that do not have a continuous impact but result in episodes of disability, unpredictable symptoms, and stress related to working and disclosing health problems to colleagues. This proposal focuses on women and men 50-67 years of age who work with arthritis and/or diabetes compared to workers with no disabling health conditions. This study forms an important step in understanding the interplay of health and work and will provide information to help sustain employment.

Objectives:

- To describe extent to which remaining employed is a priority among baby boomers as they age.
- To examine the experiences and perceived impact of working with an episodic health condition, as well as factors that act as barriers or facilitate working.
- To examine characteristics of episodic health conditions (e.g., symptom unpredictability, invisibility) and their association with work outcomes (e.g., job disruptions, absenteeism).

Status: Three papers are currently underway from this research: 1) A paper examining the availability, need for, use of and helpfulness of diverse accommodations and workplace policies is being revised before re-submission to an aging journal; 2) A second paper comparing the retirement expectations and experiences of those with arthritis, diabetes and no chronic conditions has been drafted and will be submitted for review; 3) A third paper looking at gender similarities and differences in accommodations has been given the green light for submission to a special issue of *Annals of Work Exposures and Health* (papers due in June). In addition, M. Gignac will present an invited talk at a plenary in Birmingham at the British Rheumatology Society 2017 meeting.

Researchers: Monique Gignac (Principal Investigator), Dorcas Beaton, Selahadin Ibrahim, Vicki Kristman, Cameron Mustard, Peter Smith, E Badley (Krembil Research Institute).

Collaborations and Partnerships: We will collaborate with IWH's network of educationally influential practitioners in ergonomics, occupational therapy and physiotherapy, as well as disability management professionals

Potential Audiences and Significance: Data from this research will provide insight into the experiences, needs, and expectations of working baby boomers. It will enable a comparison of healthy baby boomers and those who may experience difficulties working related to a chronic disease. It can also provide concrete information and potential strategies to inform and enhance policies, practices and interventions to help older workers sustain their employment. Results of this research will be relevant for older workers and especially those living with chronic conditions. It will also be relevant to employers, disability managers, human resource professionals, occupational health professionals, insurers, and consumer/patient organizations.

Publications:

Gignac M, Badley E, Beaton D, Kristman V, Mustard C, Smith P, Ibrahim S. Keeping the Boomers in the Labour Market: A Comparison of workplace accommodations, health and job outcomes among healthy older workers and those with arthritis and diabetes. Revise and resubmit for *Work, Aging & Retirement*.

Gignac, M.A.M., Kristman, V., Smith, P.M., Beaton, D.E., Badley, E.M., Ibrahim, S., Mustard, C.A. Keeping the Boomers in the Labour Market: A Comparison of Workplace Accommodations, Health and Job Outcomes among Healthy Older Workers and those with Arthritis and Diabetes. Submitted to [journal decision not yet made].

Presentations:

Gignac M.A.M (Invited presenter). Keeping the Boom(ers) in the Labour Market: Can Existing Workplace Policies and Accommodations make a Difference? Jun 8 2016; Toronto, Canada: Canadian Institute for the Relief of Pain and Disability (CIRPD) (webinar).

Gignac, M.A.M (Invited speaker). Keeping the Boom(ers) in the Labour Market: Job Accommodations, Benefits & Employment Outcomes among Healthy Older Workers and those with Chronic Diseases.. Apr 19 2016; Toronto, Canada: Educationally Influential Kinesiologists' Expert Forum.

Gignac M, Kristman V, Smith P, Beaton D, Badley E, Mustard CA, Ibrahim S. Keeping the boomers in the labour market: a comparison of workplace accommodations, health and job outcomes among healthy older workers and those with arthritis and diabetes. Oct 16-18 2016; Toronto, Canada: CARWH 2016, the 9th Canadian Association for Research on Work and Health Conference.

Gignac M, Kristman V, Smith P, Beaton D, Badley E, Mustard CA, Ibrahim S. Keeping the boomers in the labour force longer: what are the retirement expectations of older workers with chronic diseases compared to their healthy counterparts? Oct 16-18 2016; Toronto, Canada: CARWH 2016, the 9th Canadian Association for Research on Work and Health Conference.

Funding: Gignac MAM, Badley E, Beaton DE, Kristman V, Mustard CA, Smith PM. Employment needs and experiences of workers with arthritis and diabetes: Keeping the Boomers in the labour market. Canadian Institutes of Health Research (CIHR): \$176,466.00 (2013-2015)

Evidence Guides and Tools

As in Primary Prevention, the research we conduct in work disability management and prevention may lead to the evaluation of specific interventions and to the development of tools or decision aids.

One of our large, multi-year projects, involves the ongoing development and testing of the DASH, a 30-item questionnaire designed to measure disability and symptoms in any or multiple disorders of the upper limb.

Development and testing of the DASH outcome measure - DASH instrument (0425)

Project Status: Ongoing

Introduction: This multi-year project involves the development and ongoing testing of the DASH, a 30-item self completed questionnaire designed to measure disability and symptoms in any or multiple disorders of the upper limb. The DASH Outcome Measure was jointly developed by the Institute for Work & Health (IWH) and the American Academy of Orthopaedic Surgeons (AAOS). It is now in world-wide use with cross-cultural adaptation versions having been completed in over 50 language translations and 18 languages currently in progress. In 2003, the 11-item QuickDASH was released. In 2011, we published a paper that outlined benchmarking scores for the DASH. In 2012, the 3rd edition of the DASH/QuickDASH User's Manual was loaded onto our website. Several tools to assist users with the calculation of DASH/QuickDASH scores have been developed within the Institute (e.g., QuickDASH scoring e-tool, DASH Outcome Measure app). In 2012, we developed the DASH Outcome Measure application for use on the iPad (allows for real-time administration, scoring and longitudinal tracking of DASH outcomes) and the app is available from the Apple App Store. In 2016, we celebrated the DASH's 20th anniversary, and kicked the celebrations off with the DASH BASH, which was attended by many of the original developers and involved a presentation looking at the DASH Outcome Measure over the years and how it has been used all over the world in many different capacities. Dr. Beaton and Carol Kennedy also presented at several conferences in 2016, including the American Association for Hand Surgery in Scottsdale, Arizona in January, PREMUS 2016, the 9th International Scientific Conference on the Prevention of Work-Related Musculoskeletal Disorders held in Toronto in June, and the 10th Triennial Congress of the International Federation of Societies for Hand Therapy (IFSHT) held in Buenos Aires, Argentina in October.

Objectives:

- To continue work with the DASH and modern measurement theory.
- To revise the scoring system for the DASH based on the findings of repeated factor analysis.
- To develop a searchable DASH database.

Status: We have moved forward in many ways with the DASH Outcome Measure this year. We are working collaboratively with several international groups that are developing core sets for clinical trials in various upper limb conditions. We have begun a systematic review of the measurement properties of the DASH and this year focused on transferring knowledge of the DASH and its 20 years of use to its users.

Researchers: Dorcas Beaton (Institute Coordinator), Kim Cullen, Shireen Harbin, Sheilah Hogg-Johnson, Carol Kennedy-Yee, Peter Smith, Grant Yao.

Collaborations and Partnerships: Consultation with clients, clinicians, educators, professional organizations, regulatory bodies and other researchers have and will continue to occur throughout the development and fulfillment of these projects.

Potential Audiences and Significance: Professional organizations such as the Canadian Physiotherapy Association (CPA), American Academy of Orthopaedic Surgeons (AAOS) and regulatory colleges have demonstrated their support through use of the DASH, as has the Ontario Workplace Safety and Insurance Board (the QuickDASH is the outcome used in the shoulder program of care). Anyone interested in outcome measurements that reflect client's perspective could be a potential user of DASH.

Publications:

Kennedy CA, Beaton DE. A user's survey of the clinical application and content validity of the DASH (Disabilities of the Arm, Shoulder and Hand) Outcome Measure. *Journal of Hand Therapy*, 2016 Jul 25, doi: 10.1016/j.jht.2016.06.008. [Epub ahead of print].

Presentations:

Beaton D, Kennedy CA. DASH 20 years old: The Little Tool That Grew. January 2016; Arizona, USA: American Association of Hand Surgeons Conference.

Beaton D, Kennedy CA. DASH: Users viewpoint clarifies interpretability of scores. January 2016; Arizona, USA: American Association of Hand Surgeons Conference.

Kennedy C, Beaton D, Harbin S. DASH (Disabilities of the Arm, Shoulder and Hand) at Work. June 20-23 2016; Toronto, Canada: PREMUS 2016. 9th International Scientific Conference on the Prevention of Work-Related Musculoskeletal Disorders.

Beaton D, Kennedy C. DASH Outcome Measure: Recap of the Last 20 Years. October 2016, Buenos Aires, Argentina. 10th Triennial Congress of the International Federation of Societies for Hand Therapy (IFSHT).

Beaton D, Kennedy C. DASHBash: Celebrating 20 years of the DASH Outcome Measure. Feb 23 2016; Toronto, Canada: IWH External Plenary.

Foundation Programs

There are two programs within the Research Program whose scope of activities may cross cut all the research we undertake at the Institute. These two programs, Data & Information Systems and Systematic Reviews have their own methodological foci, and provide this expertise to all relevant research projects in the Institute, hence the term foundation programs.

The first of two foundation programs at the Institute is Data & Information Systems. The success of Institute research, including the productivity of our scientists, rests to no small extent on expertise provided by the staff of this program. This team of statisticians and programmers/analysts provides statistical consulting and information technology solutions to all the other research programs.

Reliable measurement methods and rigorous analytic approaches are vital to research excellence. Among other things, they help scientists clarify the relationship between exposures and outcomes in epidemiologic studies.

Our data sources include current administrative data from the Workplace Safety and Insurance Board (WSIB). Program staff are constantly refining the Institute's ability to use this resource to its maximum capacity. They also develop and maintain our repository of historical WSIB databases as a potential resource for future research projects. Our access to WSIB administrative data provides scientists with some unique opportunities.

Program staff are very responsive to the needs of other Institute researchers, and as a result, are highly regarded by our scientists and staff in the other program. Besides being a source of methodological expertise and data management, program staff have also taken the lead in other areas. These include the exploration, development and implementation of research methodologies with new approaches to accessing, collecting, analyzing, interpreting, storing and maintaining the security of our data.

This team also provides continuity and training across the organization in maintaining issues of privacy, confidentiality and data security. Projects listed below which have an internal focus are a small part of the portfolio of this group as program staff are primarily involved in projects described elsewhere.

In 2016, the Institute hosted the Ninth International Scientific Conference on the Prevention of Work-Related Musculoskeletal Disorders. The conference focused on trends, innovations and emerging issues in the field of work-related MSDs and was attended by almost 400 international delegates.

Foundation Programs

Evidence-based practice systematic reviews (0670)	75
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Evidence-based practice systematic reviews (0670)

Project Status: Ongoing

Introduction: Many researchers at the Institute are authors (or co-authors) of systematic reviews of health care interventions, including Cochrane, non-Cochrane reviews and Clinical Practice Guidelines. These reviews offer opportunities for partnerships with other systematic review teams and with local, national and international communities and stakeholders. While conducting these reviews, Institute researchers are exposed to various challenges on the methodology of conducting reviews, and the expertise of the Institute in solving these challenges is developed and strengthened.

Objectives:

- To conduct and update systematic reviews of health care interventions for musculoskeletal pain

Status: In 2016 Matthew Pelowitz a MSc student defended his thesis and submitted a manuscript on the methods of reviews of harms. Nancy Carnide, our PhD student published a review of opioids and work outcomes.

Researchers: Andrea Furlan (Principal Investigator), Claire Bombardier, Nancy Carnide, Emma Irvin, Dwayne Van Eerd, C Ammendolia (University of Toronto), L Chaparro (University of Antioquia), K Cheng (University of Maryland), A Deshpande (University Health Network), L Lao (University of Maryland), E Manheimer (University of Maryland), M Pelowitz (University of Toronto), M Van Tulder (VU, Amsterdam).

Collaborations and Partnerships: Cochrane and non-Cochrane systematic reviews form the evidence basis of clinical practice guidelines worldwide and of evidence-based clinical tools for practitioners.

Potential Audiences and Significance: Up-to-date systematic reviews of the literature provide the most current information on the effectiveness of treatment modalities and therapies, thereby assisting evidence-based treatment and payment decisions by patients, health care professionals, policy makers and payers.

Publications:

Carnide N, Hogg-Johnson S, Côté P, Irvin E, Van Eerd D, Koehoorn M, Furlan A. Early prescription opioid use for musculoskeletal disorders and work outcomes: A systematic review of the literature.. *Clinical Journal of Pain*. E-pub ahead of print, November 10, 2016.

Presentations:

Pelcowitz M.J., Bombardier C., Ammendolia C., Furlan A.D. A meta-analytic review of adverse drug events (ADEs) of long-term prescription opioids for chronic non-cancer pain (CNCP). June 07 2016; Boston: International Conference on Opioids (ICOO).

Methodological developments in systematic reviews (0951)

Project Status: Ongoing

Introduction: IWH is committed to continuously improving the field of systematic review methodology. In 2015, we propose to initiate, undertake, and advance the following methods projects:

- A. Update three Cochrane reviews: 1) Multidisciplinary interventions for neck and shoulder pain; 2) Multidisciplinary interventions for subacute low back pain; and 3) Alcohol and drug screening of occupational drivers for preventing injury.
- B. Advance Review Methods: 1) Comparison of Cochrane vs. Non-Cochrane reviews; 2) Comparison of Evidence synthesis methods; 3) Realist and Rapid Review project; 4) Review classification project; and 5) Reviews of Complications.
- C. Create a database of prognosis reviews.

Objectives:

- To update Cochrane reviews and develop a database of prognosis reviews.
- To write a paper on adapting the established SR methodology to non-clinical literature.
- To develop a process for conducting realist and rapid reviews and classifying review typologies.
- To recommend a methodology for conducting reviews of complications.

Status: In 2016, the methods group participated with a group of researchers across Canada in a CIHR funded exercise to develop methods for scoping reviews. In 2016 a curriculum to teach a semester graduate course for the Department of Rehabilitation Sciences for the University of Toronto was endorsed by the Governing Council to start in January 2017. A team meeting was held every quarter to extend the work of the Cochrane Prognosis Methods Group and a manuscript was written and submitted to the journal *Systematic Reviews*. A paper on Multidisciplinary interventions for subacute low back pain was submitted for publication in the Cochrane Library.

Researchers: Andrea Furlan (Institute Coordinator), Emma Irvin (Institute Coordinator), Dwayne Van Eerd (Institute Coordinator), Ben Amick, Nancy Carnide, Kim Cullen, Joanna Liu, Quenby Mahood, J Hayden (Dalhousie University), J Jordan (Keele University), R Parker (Dalhousie University), M Van Tulder (VU, Amsterdam), G Wells (University of Ottawa).

Collaborations and Partnerships: Partners in this project include external researchers, the Ontario Workplace Safety and Insurance Board, clinicians, and policy-makers.

Potential Audiences and Significance: The results of this project will be relevant to methods groups of the Cochrane Colloquium and other researchers conducting systematic reviews, and those interested in incorporating stakeholders in the process.

Publications: None to date

Presentations:

Irvin E. When do scientific reviews have an impact on enterprise or public policy? June 20-23 2016; Toronto, Canada: PREMUS 2016. 9th International Scientific Conference on the Prevention of Work-Related Musculoskeletal Disorders. Symposia "When do scientific reviews have an impact on enterprise or public policy?".

Irvin E and Van Eerd D. Pre-Conference All Day Workshop: How to plan, conduct and communicate the findings of a systematic review: An introductory course. June 19 2016; Toronto, Canada: PREMUS 2016. 9th International Scientific Conference on the Prevention of Work-Related Musculoskeletal Disorders.

Synthesizing occupational health and safety knowledge for local stakeholders (3170)

Project Status: project completed in 2016

Introduction: Through a collaboration involving researchers and an advisory panel of OHS stakeholders in Manitoba (MB), Memorial University's SafetyNet Centre for Occupational Health & Safety Research (SafetyNet), and the Institute for Work & Health (IWH), we will develop and test an innovative methodology for synthesizing current scientific knowledge and tailoring it for use in specific provincial and local contexts. The methodology will combine features of the approach used by the 'Contextualized Health Research Synthesis Program' (CHRSP) at the Newfoundland and Labrador Centre for Applied Health Research (NLCAHR) with the systematic review techniques and synthesis reports pioneered by the Systematic Review Program at IWH. In addition to developing an innovative set of methods suitable for OHS stakeholders in MB and other similar jurisdictions, the project will produce a handbook on this approach and a sample knowledge synthesis on a topic selected by the MB Stakeholder Advisory Panel and contextualized for the specific resources, capacities, and challenges of the province. Our findings—the new methodology, the Handbook, and the synthesis reports—will be transferred to end users in MB through the direct participation of the Stakeholder Panel in the project and through other modes of dissemination as detailed below. The methodology will also be transferred to end users in Newfoundland and Labrador and Ontario through a set of end-of-project webinars.

Objectives:

- To produce a practical and relatively inexpensive way for OHS stakeholders in MB, as well as in other provinces, to develop increased research synthesis capacity.
- To enhance the utilization of current knowledge about the causation, prevention, and treatment of occupational injuries and diseases tailored to the context of the province's industries, workplaces, and compensation system.

Status: In 2016 the team completed a systematic review on *Managing Depression in the Workplace* for Manitoba and met with the Manitoba stakeholder team to contextual that review. In addition, the team completed the first draft of the ECOHS handbook and met with the Manitoba Stakeholder Advisory Committee and funders for feedback. The final version of the report and *Managing Depression in the Workplace* review will be submitted in the first quarter of 2017. The final report to the funder was submitted in December 2016.

Researchers: Emma Irvin (Principal Investigator), S Bornstein (Principal Investigator) (Memorial University, Newfoundland), Ron Saunders, Dwayne Van Eerd, L Johnson (University of Manitoba), R Kean (Memorial University, Newfoundland), S Passmore (University of Manitoba).

Collaborations and Partnerships: Partners in this project include the Workers Compensation Board of Manitoba, Memorial University, and the University of Manitoba.

Potential Audiences and Significance: The results of this project will be of interest to workplaces and employers, as well as the compensation system and workers compensation boards.

Publications: None to date

Presentations:

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). June 20-23 2016; Toronto, Canada: 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.

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

Irvin E, Van Eerd D, Cullen K. Preventing work disability in workers with depression; a systematic review. Sept 25-28 2016; Amsterdam, Holland: The 4th Conference Work Prevention & Integration (WDPI).

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

Funding: Bornstein S, Irvin E, Van Eerd D, Saunders R, Passmore S, Kean R, Johnson L. Synthesizing Occupational Health and Safety Knowledge for Local Stakeholders. Workers Compensation Board of Manitoba: \$196,126 (2014-2016).

Knowledge Transfer & Exchange

The Institute considers Knowledge Transfer & Exchange (KTE) to be a process by which relevant research information is made available and accessible through interactive engagement with stakeholders for practice, planning and policy-making. Stakeholders frequently are involved early in the research process to provide researchers with guidance to help shape the research questions and provide information about the context in which research results are likely to be used. Stakeholders also may be involved while the research is underway and at the message extraction stage when the research has been completed. The target audiences for the Institute include policy-makers (for example federal and provincial governments, disability insurers such as WSIB), prevention parties, health and safety associations (HSAs), workplace parties (labour and employers) and clinicians.

The KTE process is supported by user-friendly materials and a corporate communications strategy that enhances the Institute's ability to communicate effectively with its stakeholders. The communication tools include our corporate newsletters, the IWH website, social media, media relations, special events and the marketing of specific products such as booklets and workshops. In addition, KTE actively works to build capacity in our audiences to understand and use research evidence.

The work of KTE falls into three goals:

- Build stakeholder/audience relationships to enhance the applicability and uptake of IWH research. KTE creates formal and informal networks of stakeholders to allow us to link with stakeholders over time with relevant research messages. KTE also provides support to the systematic review program engaging appropriate stakeholders throughout the review process.
- Develop effective strategies to reach key audiences and build capacity in our audiences to make better use of research evidence in their decision-making.
- Support the Institute through effective communication strategies. This goal focuses on increasing the Institute's visibility through communications and marketing. The website continues as a major source of outreach along with the publication of our quarterly newsletter *At Work*. We have continued to pursue coverage in trade media. IWH continued its presence at conferences and workshops to enhance strategic linkages with its audiences and partners

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Issue briefings (0611)

Project Status: Ongoing

Introduction: Research findings of the Institute for Work & Health often have implications for decision makers in government, the Ontario Workplace Safety and Insurance Board (WSIB), and the health and safety associations, and for employers, labour groups, and clinicians. In this project, Institute researchers identify findings that ought to be of particular interest to policy-makers in government and at the WSIB and prepare brief documents that outline the research findings and their implications, in plain language.

Objectives:

- To summarize, in plain language, research findings on topics of interest to policy community.
- To identify implications of this research for decision-makers.
- To help foster a continuing conversation on the issues examined.
- To publish two Issue Briefings each year.

Status: Two new Issue Briefings were published in 2016: “Measuring the adequacy of workers’ compensation benefits in Ontario: An update” was published in March; “Vulnerable workers and risk of work injury” was published in November.

Researchers: Ron Saunders (Project Leader), Kristina Buccat, Cindy Moser, Cameron Mustard

Collaborations and Partnerships: Advance copies of Issue Briefings are sent by email to heads of workers’ compensation boards and senior officials of ministries of labour across Canada. After posting on the IWH website, a link to the Issue Briefings is sent to: senior officials of workers’ compensation boards, public health academics, members of the Prevention Knowledge Exchange Group, the CCOHS, the Industrial Relations Centre at U of T, and others who have signed up to receive notices of Issue Briefings. The individuals are invited to post the link to Issue Briefings on their organizations’ websites and/or bulletins.

Potential Audiences and Significance: The main target audience is policy officials at ministries of labour and workers’ compensation boards in Canada. The topics of Issue Briefings will often be of interest to the wider stakeholder community, such as labour groups, employer associations, injured worker organizations, and OHS professionals.

Publications:

Tompa E, Saunders R, Mustard C, Liao Q. (March 2016). Issue Briefing. Measuring the adequacy of workers’ compensation benefits in Ontario.

Saunders R. (November 2016). Issue Briefing. Vulnerable workers and risk of work injury.

Educationally influential networks (0617)

Project Status: Ongoing

Introduction: Many health practitioner groups provide services to populations of interest to IWH (e.g. workers with musculoskeletal disorders). We have targeted these groups as potential audiences for Institute research messages, as providers who may also work within, or in close association with, workplaces (in primary/secondary prevention roles and/or in return to work, delivering treatment and/or disability management). These groups include: physiotherapists (PT), kinesiologists (Kin), occupational therapists (OT), chiropractors (Chiro) and ergonomists (Ergo). Many IWH research messages are relevant to these groups (management of MSDs, injury prevention, disability management and RTW) and equally, these groups possess a practice expertise and knowledge that is useful and relevant to IWH. Fundamental to this project are collaborations developed with professional bodies that represent or regulate these disciplines. These organizations have assisted in identifying those individuals across the province who are informal opinion leaders, i.e. Individuals who are identified by their peers as “educationally influential” (EI). EI networks for each practitioner group have been convened to foster a two-way exchange: stakeholder information and opinion into IWH (to improve our research and knowledge transfer efforts); and research knowledge out to EIs and, via EIs, to their peers to ultimately assist evidence-based practice. We also sometimes look to EIs to participate in research projects as advisors. In 2016 we brought all EI networks together in a day-long “EI Summit”, intended to encourage cross-disciplinary discussion on research and practice issues.

Objectives:

- To plan and implement annual face-to-face contact with all network members in an EI Summit
- To disseminate regular IWH-news briefs to EI group members as relevant.
- To contribute to association trade publications as relevant research becomes available
- To engage EIs in IWH research

Status: The results of a survey of conducted with two EI network groups were shared with network members in 2016. EIs were contacted to participate in various research projects as stakeholders/advisory committee members as well as for publications. The annual meeting of Chiropractors was held in February 2016. The renewed Physiotherapist and Kinesiologists network members met at their first meetings in March 2016. The Ergonomists met in April 2016. Twenty-seven EI network members participated in the EI Summit in November 2016. EIs supported an EI Summit as the preferred future meeting format. We will be sending EIs regular one-item IWH news briefs or links to single research alert articles to forward to their own networks on research findings in 2017.

Researchers: Ron Saunders (Project Leader), Kristina Buccat, Siobhan Cardoso, Kim Cullen, Sara Macdonald

Collaborations and Partnerships: Partners in this project include clinicians/practitioners and professional bodies (associations and regulatory colleges).

Potential Audiences and Significance: This project is of interest to physiotherapists, kinesiologists, occupational therapists, chiropractors and ergonomists. Relevant findings will be disseminated to appropriate EI groups. It is anticipated that members of these groups will then further disseminate these findings within their own networks. EIs may also be involved with specific research projects, included as either a partner or co-investigator. Individual partner organizations may also promote IWH through their own events or websites.

Tracking KTE and evaluation (0629)

Project Status: Ongoing

Introduction: Consistent with the IWH Five Year Strategic Plan, KTE has identified activities and indicators to be measured. KTE staff will continue to track stakeholder engagement in IWH projects, using templates that we developed for tracking KTE activities associated with each research project and use of tools/guides resulting from those projects. We will complete 5 new case studies of research impact.

Objectives:

- To track KTE indicators that are part of the Five Year Strategic Plan.
- To track stakeholder engagement in systematic reviews and other KTE activities.
- To document indicators of research use, e.g., downloads, media mentions, testimonials of research use.
- To document research impact through case studies.

Status: Five impact case studies were completed in 2016. These case studies talk about the use of IWH's vulnerability measure by a large employer, reduced soft-tissue injuries at an Ontario utility arising from a participatory ergonomics research study, adoption of the [IWH conceptual framework for OHS vulnerability](#) by the Ontario prevention system, use of the IWH eight-item safety culture tool by WorkSafeBC, and use of IWH research on prognostic indicators of return-to-work to improve case management services at the WSIB.

Researchers: Ron Saunders (Project Leader), Kristina Buccat, Siobhan Cardoso, Kim Cullen, Emma Irvin, Sara Macdonald, Cindy Moser, Dwayne Van Eerd

Collaborations and Partnerships: Stakeholders involved include participants in KTE systematic review stakeholder committees, other project stakeholder/advisory committees, and senior policy officials.

Potential Audiences and Significance: This project is of interest to IWH staff, IWH Board of Directors, external stakeholders, and KTE researchers.

Disability managers and occupational health and safety (OHS) professionals networks (0638)

Project Status: Ongoing

Introduction: In 2012, IWH established a network of disability management professionals, and in 2015, IWH established an occupational health and safety professionals network. The groups are currently composed of 55 and 50 members. Annual meetings are held at the IWH to discuss research findings, new projects and emerging practice issues. LinkedIn groups were created at the request of the network members to post and discuss research findings, and provide networking opportunities. All members also receive regular IWH e-news and At Work. Members are also sometimes approached for interest in participating in research projects or advisory committees. In 2015 IWH asked members of the disability managers' network to complete a survey on their research use and dissemination.

Objectives:

- To facilitate knowledge exchange among IWH researchers and individuals who are involved in the practice of disability management and occupational health and safety in Ontario.
- To gain input on new research ideas and research findings for RTW and OHS audiences.
- To facilitate the dissemination of research findings to the community of disability management and occupational health and safety practitioners in Ontario.
- To facilitate participation in IWH research projects or IWH events (e.g. Workshops, seminars).

Status: Presentations are made to the networks at the annual events (held each spring for disability managers and each fall for the OHS professionals). In 2016, presentations to the disability managers were: Effectiveness of workplace-based RTW programs on both RTW and recovery outcomes, including mental health by Kim Cullen and Application of system dynamics modeling methodology for capturing complexity in the RTW process by Arif Jetha. Sara Macdonald also presented the results of the survey on research use and dissemination. Presentations to the OHS professionals were: The effect of joint management system practices on safety and operational outcomes by Lynda Robson and Bridges and silos of OHS and disability management by Kim Cullen.

Researchers: Sara Macdonald (Project Leader), Kristina Buccat, Cindy Moser, Ron Saunders

Collaborations and Partnerships: Private and public insurers, health and safety associations, Ontario workplaces.

Potential Audiences and Significance: Members of the network include workplace disability managers and consultants, case managers, insurance providers and OHS professionals in workplaces, health and safety association consultants, and private consultants. These professionals are increasingly interested in using research evidence in their practice. They often have broad networks of their own within which they share research useful for their work.

Prevention partners networks (0640)

Project Status: Ongoing

Introduction: KTE will continue to build relationships with the prevention partner community through vehicles like the Prevention Knowledge Exchange Group (PKEG), which is hosted by IWH, with representation from the health and safety associations (HSAs), the Ministry of Labour (MOL), the Workplace Safety and Insurance Board, the Centres for Research Expertise (CRE-MSD and CREOD), and the Occupational Cancer Research Centre (OCRC). This regular committee work is supplemented with seminars and presentations in conferences that involve partners in the Ontario prevention system.

Objectives:

- To continue to build relationships with prevention partners to take research evidence to Ontario workplaces and to explore new research ideas.
- To continue to develop opportunities for our prevention partners to participate in the research process and review their experience with this participation.
- To foster dialogue and prevention system networks about strengthening knowledge exchange.
- To coordinate input into the Partners in Prevention conference and assist with research posters.

Status: PKEG met on March 4, June 3, September 9, and December 2, 2016, chaired by the Director of KTE at IWH. There were presentations from system partners, a roundtable on ideas for the prevention system to support mental health in the workplace, and an IWH presentation on the effect of joint management systems on safety and operational outcomes. IWH had a booth at the annual Partners in Prevention conference, and had three presentations in the main program (on leading indicators, on workplace violence prevention and on measuring OHS vulnerability) as well as two scientific posters. IWH also participated in the Ergonomics Integrated Planning Action Committee (chaired by MOL) and the Health & Safety Partners Communications Forum, a network of communications professionals representing partners within Ontario's health and safety system, also chaired by the MOL. The IWH KTE Director participated on two advisory councils of the Public Services Health and Safety Association.

Researchers: Ron Saunders (Project Leader), Kristina Buccat, Siobhan Cardoso, Kim Cullen, Sara Macdonald, Cindy Moser, L Holness and J Brown (CRE-OD), D Kramer (OCRC), R Wells (CRE-MSD)

Collaborations and Partnerships: HSA Community, Ministry of Labour, WSIB, OCRC, CRE-MSD, CRE-OD, and IWH researchers.

Potential Audiences and Significance: For PKEG and EIPAC: Health and safety associations (HSAs), Ministry of Labour, (MOL), WSIB and Centres for Research Expertise (CREs). For the Partners in Prevention Conference, workplace parties and OHS professionals would also be among the audience.

Outreach (0650)

Project Status: Ongoing

Introduction: The Institute continues to engage in opportunities and activities to increase its visibility provincially, nationally and internationally. Throughout the year, the Institute participates in key events and conferences where targeted information can be made available to stakeholder groups to raise the awareness and profile of IWH. In addition, the Institute uses these opportunities to market its products to stakeholders. As workplace parties are priority audiences for IWH research, this project also explores ways to reach employers and organized labour. In 2016, we expanded the membership of our biannual knowledge exchange forums with leaders from the employer and labour communities. We also reach workers and employers through intermediaries (organizations with members or subscribers with an interest in work and health) and direct communication. We continued to meet as a group with people from our stakeholder organizations whom we have identified as “influential knowledge users”.

Objectives:

- To continue implementing the plan for engagement with influential knowledge users.
- To continue to develop/enhance plan for working with intermediaries.
- To implement academic outreach plan.
- To continue to develop themed displays to meet targeted audiences, profiling key research initiatives where appropriate.
- To use these opportunities to profile the Institute as a credible resource of evidenced-based information and tools for improving the health of workers.
- To coordinate and lend support to a calendar of key events.
- To assist IWH researchers in linking with workplace parties

Status: At our booth at the Partners in Prevention conference, we signed up 211 new names to our subscription list. We produced an updated version of the handout called “5 things we think you should know”—outlining five IWH research findings of interest to workplace parties — which included two tools as part of the handout. IWH scientists presented research in oral and poster sessions at the conference. Due to the success of the OHS Professionals Network launch the previous year, the network met again in December 2016. This activity will be reported on as Project 0638. The Employer and the Labour Forums continued to meet at IWH in the Fall and Spring 2016. The Influential Knowledge Users Group met in early July. The annual Alf Nachemson memorial lecture took place in October. It was well attended (107 attendees) and continues to be a major OHS networking event hosted by the Institute. This year’s lecture was a panel tribute to Wolfgang Zimmerman with three speakers and a lunch reception that followed. The Student Resource Guide continued to be promoted on the IWH website throughout the year and sent to OHS and disability prevention program coordinators and instructors across Canada as part of the academic outreach plan.

Researchers: Ron Saunders (Lead), Kristina Buccat, Siobhan Cardoso, Kim Cullen, Emma Irvin ,Sara Macdonald, Cindy Moser, , Dwayne Van Eerd

Collaboration and Partnerships: Influential knowledge users are located in several of our stakeholder organizations, such as health and safety associations, government ministries or agencies, and labour or employer organizations. We partner with OHS specialty media on articles based on IWH research.

Potential Audiences and Significance: All stakeholder groups, with particular attention (in this project) to workers, unions, employers, employer associations.

Tool development and dissemination (0636)

Project Status: Ongoing

Introduction: Stakeholders have told us that they need tools and guidelines to help them apply research findings in the workplace. Research in knowledge transfer has also shown the advantage of having evidence-based tools. IWH has developed several tools for our various stakeholder groups, e.g., IWH-OPM Questionnaire, OHS Vulnerability Measure, DASH Outcome Measure, Prevention is the Best Medicine toolkit for newcomers, Participatory Ergonomics (PE) Guide, Red Flags/Green Lights Return-to-Work (RTW) Guide, Health & Safety Smart Planner, and Seven Principles for Successful Return to Work. As research continues to develop and mature at the Institute, there will be a need for additional tools and guides, and to update existing ones to meet the needs of the Institute's stakeholders.

Objectives:

- To look for new opportunities for tool development, e.g., from systematic reviews.
- To update, repackage and market current tools within IWH toolkit as needed.
- To disseminate and document the uptake of IWH tools and guides.
- To administer and coordinate all procedures related to translations of the DASH, *QuickDASH* and maintain related database.
- To monitor and maintain database of requests for commercial and non-commercial use of DASH.

Status: 1) DASH Outcome Measure: DASH and QuickDASH commercial and non-commercial database requests were maintained and all downloads were tracked. There were 186 user profiles submitted, a large increase from 2015, and it was determined that 14 of these fit into the conditions for commercial use. Four of these applicants took out licences. The DASH User Profile system was completely automated. Applications are now determined by the system to be either for Free Use, Commercial Use, or unclear. In the first two cases, the applicant receives an automated and instant response to their application, informing them of the determination, the Conditions of Use, and in the case of Commercial licences, the fee. All applications which are determined as unclear still require follow-up. Two new licenses for translations of the DASH were issued in 2016. There were 65 iPad apps sold in 2016. The DASH celebrated its 20th Anniversary in 2016, with a large celebration in February called 'The DASH Bash', which included a presentation reviewing the last 20 years of the DASH, and highlighting how the tool has been adopted worldwide for a large variety of clinical and research applications.

2) Guide to Return to Work for Low Back Pain (working title) for Manitoba: A draft of a brief guide (1 leaf) based on the prognostic factors for RTW with workers with LBP SRs was created and submitted to the WCB MB for review. Work continued on an appendix containing more guidance and resources to accompany the brief guide.

3) eOfficeErgo-Ergonomics e-Learning for Office Workers: Jointly with Public Services Health and Safety Association, IWH continues to monitor the uptake of the e-learning program. Reports were sent quarterly to PSHSA. Plans are underway to conduct a user survey and impact case study in 2017.

4) IWH-OPM tool: The IWH-OPM was launched as an official tool, available for download and print, containing guidance on interpreting scores. PSHSA continued work on an app for the OPM to assist leaders improve their OHS performance.

5) The OHS Vulnerability measure was launched as a tool for workplace parties to assess vulnerability in their workplaces.

Researchers: Jocelyn Dollack (Co-Lead), Cindy Moser (Co-Lead), Kristina Buccat, Siobhan Cardoso, Kim Cullen, Jan Dvorak, Sara Macdonald, Ron Saunders

Collaboration and Partnerships: Partners involved in this project include the health and safety associations and research project funders.

Potential Audiences and Significance: This project is of interest to workplace parties, clinicians, and health and safety professionals and practitioners.

Workshops (0643)

Project Status: Ongoing

Introduction: IWH has considerable expertise in conducting systematic reviews to support evidence-based practice. Many researchers and students at the Institute are involved with the Cochrane Collaboration and the Institute's Systematic Review Program. The Institute has many requests to share its expertise and to contribute to the education and training of educators, researchers, clinicians and students. Institute personnel and colleagues have been offering a series of Systematic Review workshops that range from two hours to two-days since 2001 which continued through 2016.

Objectives:

- To build capacity in our audiences to understand, use and conduct research.
- To evaluate and determine lessons learned.

Status: Registration and preparation for the Systematic Review workshop was ongoing. We held the first workshop from April 27-29th, 2016. We held a second workshop from November 28-December 2nd, 2016.

Researchers: Emma Irvin (Project Leader), Andrea Furlan, Quenby Mahood, Lyudmila Mansurova, Dwayne Van Eerd

Collaborations and Partnerships: Participants in the workshops will provide an evaluation which will be used for further development of the existing workshop. In addition, some of our prevention partners may be interviewed so that we can develop a workshop to suit their unique requirements.

Potential Audiences and Significance: The Systematic Review workshop is of particular interest to health-care professional students, educators, clinicians, researchers, insurers and policy makers. The measurement workshop is designed for researchers, research assistants/coordinators, trainees and clinicians who use multi-item measures as part of their research.

Corporate communications (0690)

Project Status: Ongoing

Introduction: Corporate Communications works with IWH's scientists and KTE professionals to raise the visibility and credibility of the Institute, and to "push" IWH research so that stakeholders know about, consider and use evidence-based practices that protect workers from injury, illness and disability, as well as take part in research studies, where applicable. It seeks to reach these audiences more broadly by preparing materials in plain language and using mass communication tools and tactics – such as newsletters, websites, media releases, articles and mentions in trade and general media, social media and external events. Corporate Communications also aims to keep Institute staff informed of the research, projects and events going on within IWH in order to improve working relationships and camaraderie, and assist in meeting our corporate goal of "being a model of a healthy workplace."

Objectives:

- To extend reach/audience for IWH research through website, e-mail, social media, slidecasts, videos and print products, as well as through external media and stakeholder events/ publications.
- To ensure IWH information remains relevant and accessible to external stakeholders in order to help them protect the health and safety of workers.
- To ensure IWH comes to mind among people looking for best evidence in occupational health and safety and return to work.
- To support organizational excellence through strong internal communications.

Status: 2016 saw IWH's research messages reach further through the Institute's website, e-alerts, social media and videos/slidecasts. IWH News subscriptions rose to 4,956 by the end of 2016, up from 4,499 at the end of 2015. The monthly e-alert includes items on IWH research (via links to At Work stories), news, events and scientist accomplishments, as well as items from the Centres for Research Expertise (CREs). At Work subscribers at the end of 2016 stood at 5,299, up from 4,852 at the end of 2015. Subscribers to other products also rose slightly over the year. In all, the total number of subscribers to any IWH product (excluding DASH) rose to 5,817 at the end of 2016, up from 5,322 at the end of 2015.

The website as seen by the public changed only slightly in 2016. Most of the work was done behind the scenes, with the upgrade of the website platform from Drupal 6 to Drupal 7 completed early in 2016, (making the website both mobile-friendly and more accessible) and the redesign of the current website initiated in the late summer (after PREMUS 2016 was over—a conference hosted by IWH that demanded most of the web team's resources in the first half of the year). Website views held steady 2016 after years of exponential growth. The number of unique page views in Q4 2016 was 348,377 (up one per cent from Q4 2015), and the number of unique visitors in Q4 2016 was 283,091 (up six per cent from Q4 2015). Although What Researchers Mean By (WRMB) continued to account for the bulk of unique page views, other web pages more directly related to IWH research and events held steady or grew. Most notably, At Work unique page views stood at 20,268 in Q4 2016 (up from 16,009 in Q4 2015, a 26 per cent increase).

With respect to media relations, 10 releases were issued in 2016, four related to PREMUS 2016 keynote speaker presentations, four on IWH research (construction OHS benchmarking, DASH 20th anniversary, breakthrough change in OHS performance, and enforcement effectiveness) and two on the Nachemson lecture. Average quarterly media mentions went down. In 2015, quarterly media mentions ranged from a low of 53 to a high of 121, with an average of 75 per quarter. In 2016, they ranged from a low of 39 to a high of 84, with an average of 53 per quarter.

Social media outreach continued to grow in 2016 despite continuing to spend less total time on it as a team. The number of Twitter followers grew to 2,497 from 1,898; the number of LinkedIn subscribers grew to 1,880 from 1,581; and the number of video/slidecast views grew to 2,553 from 2,132. In 2016, IWH created two video cards, and these were so popular that video cards are now the preferred video format over traditional "talking heads" videos. For example the video card on the findings of a systematic review into preventing upper extremity MSDs, had over 500 views in Q4 2016, the quarter in which it was published (a number that grew to 900 by the end of

Q1 2017). IWH also posted 15 slidecasts on its YouTube channel—11 plenaries and four PREMUS keynote addresses, as well as four Nachemson lecture videos.

IWH hosted its annual Nachemson lecture, featuring a panel tribute to Wolfgang Zimmerman, founder and executive director of the National Institute of Disability Management and Research (NIDMAR). The panel celebrated Zimmerman's contributions to improving workplace practices surrounding the (re)integration of people with disabilities. The three people on the panel were: Andrew King, former national leader for health, safety and environment at United Steelworkers in Canada; Joachim Breuer, director general of German Social Accident Insurance (DGUV); and the Honourable Wayne G. Wouters, PC, former Clerk of the Privy Council and Secretary to the Cabinet in Ottawa. Zimmermann then followed with a discussion of the challenges that still lie ahead. The event was attended by 107 people.

IWH also staffed a booth at the Partners in Prevention trade show, where a package was handed out that included "5 things we think you should know," an annual offering that communicates five key IWH research findings from the previous year. Also included were two new IWH tools (the IWH-OPM and the OHS Vulnerability Measure), Product Guide, and the Spring 2016 issue of At Work. A badge scanner was used again and, after eliminating people who were already in our CRM, it collected 211 new IWH News subscribers.

The annual report for 2015, released in 2016, celebrated the Institute's 25th anniversary. Themed "Twenty five years of making a difference," the report canvassed the impact of IWH research on injury prevention, rehabilitation and return to work, work and health research, and knowledge translation and exchange. At 48 pages, it was twice as large as a typical annual report, with a bright and engaging design and a playful photo section of current employees.

Internally, 2016 saw the almost-weekly production of the staff newsletter, thistweek@iwh. As well, considerable work on restructuring the wiki-based staff intranet and updating its contents was rolled out in early 2016.

Researchers: Cindy Moser (Project Leader), Kristina Buccat, Jan Dvorak, Lyudmila Mansurova, Uyen Vu, Siobhan Cardoso, Kim Cullen, Sara Macdonald, Ron Saunders

Collaborations and Partnerships: In 2016, Communications Manager Cindy Moser and Communications Associate Uyen Vu continued to attend monthly meetings of a Ministry of Labour-led network called the Health and Safety Partners Communication Forum. This network allows the communications team to meet and work with with communications counterparts in Ontario's prevention system, including the MOL, WSIB and health and safety associations.

Potential Audiences and Significance: External audiences include workplace parties, worker and employer representatives, policy-makers, occupational health and safety professionals, disability management professionals, clinicians, researchers, funders and more. Internal audiences include all IWH staff.

2016 Accomplishments

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2016 Publications

Journal articles: Published

- Beaton D, Dyer S, Boonen A, Verstappen S, Escorpizo R, Lacaille D, Bosworth A, Gignac M.A.M, Leong A, Purcaru O, Leggett S, Hofstetter C, Petersson I, Tang K, Fautrel B, Bombardier C, Tugwell P. OMERACT filter evidence supporting the measurement of at-work productivity loss as an outcome measure in rheumatology research. *Journal of Rheumatology*, 2016 Jan;43(1):214-22 doi: 10.3899/jrheum.141077. Epub 2015 Sep 1.
- Black O, Sim MR, Collie A and Smith P. A Return-to-Work Self-Efficacy Scale for Workers with Psychological or Musculoskeletal Work-Related Injuries. *Quality and Quantity* 2016;10.1007/s11135-016-0312-7.
- Blanchette MA, Rivard M, Dionne CE, Hogg-Johnson S, Steenstra I. Workers' characteristics associated with the type of healthcare provider first seen for occupational back pain. *BMC Musculoskelet Disord*. 2016 Oct 18;17(1):428.
- Blanchette MA, Rivard M, Dionne CE, Steenstra I, Hogg-Johnson S. Which characteristics are associated with the timing of the first healthcare consultation, and does the time to care influence the duration of compensation for occupational back pain? *Journal of Occupational Rehabilitation* 2016 Sep 17 PMID: 27638517
- Blanchette MA, Rivard M, Dionne CE, Hogg-Johnson S, Steenstra I. Association between the type of first healthcare provider and the duration of financial compensation for occupational back pain. *Journal of Occupational Rehabilitation* 2016 Sep 17 PMID: 27638518
- Chambers A, Smith P, Sim MR and LaMontagne AD (2016) Comparison of two measures of work functioning in a population of claimants with physical and psychological injuries. *Quality and Quantity*, p. 1-10. doi:10.1007/s11135-016-0313-6
- Guerriero EN, Smith PM, Stergiou-Kita M, and Colantonio A. Rehabilitation utilization following a work-related traumatic brain injury: a sex-based examination of workers' compensation claims in Victoria, Australia. *PLoS ONE*. 2016; 11(3):e0151462
- Hackett C, Feeny D, Tompa E. (2016) Canada's residential school system: Measuring the intergenerational impact of familial attendance on health and mental health outcomes. Revised and resubmitted to *Journal of Epidemiology and Community Health*. doi:10.1136/jech-2016-207380
- Jetha A, Besen E, and Smith PM. (2016). Comparing the relationship between age and length of disability across common chronic conditions. *Journal of Occupational and Environmental Medicine*. 58(5): 485-491. doi: 10.1097/JOM.0000000000000702
- Jetha A, Pransky G & Hettinger LJ. Capturing complexity in work disability research: application of system dynamics modeling methodology. *Disability Rehabilitation*. 2016;38(2):189-94. doi: 10.3109/09638288.2015.1031291. Epub 2015 Apr 13
- Jetha, A. Pransky, G.P. Fish, J. Hettinger, L.H. Return-to-work within a complex and dynamic organizational work disability system. *Journal of Occupational Rehabilitation*, 2016 Sep;26(3):276-85. doi: 10.1007/s10926-015-9613-2.
- Kennedy CA, Warmington K, Flewelling C, Shupak R, Papachristos A, Jones C, Linton D, Beaton DE, Lineker S, Hogg-Johnson S. A prospective comparison of telemedicine versus in-person delivery of an interprofessional education program for adults with inflammatory arthritis. *Journal of Telemedicine and Telecare*. 2016 Mar 7. pii: 1357633X16635342. [Epub ahead of print]
- Laberge M, Calvet B, Fredette M, Tabet N, Tondoux A, Bayard D, Breslin C. Unexpected events: Learning opportunities or injury risks for apprentices in low-skilled jobs? A pilot study. *Safety science*. 2016 Jul 31;86:1-9.
- LaMontagne AD, Milner AJ, Allisey AF, Page KM, Reavley NJ, Martin A, Tchernitskaia I, Noblet AJ, Purnell LJ, Witt K, Keegel TG, Smith PM. (2016). An integrated workplace mental health intervention in a policing context: Protocol for a cluster randomised control trial. *BMC Psychiatry*. 16:49. DOI: 10.1186/s12888-016-0741-9

Oude Voshaar, M., van Onna, M., van Genderen, S., van de Laar, M., van der Heijde, D., Heuft, L., Spoorenberg, A., Luime, J., Gignac, M.A.M., Boonen, A. (2016). Development and validation of a short form of the Social Role Participation Questionnaire in patients with ankylosing spondylitis. *J Rheumatol.* 2016 May 15. pii: [jrheum.151013](https://doi.org/10.1136/rheum.151013).

Prang, K-H, Bohensky M, Smith P and Collie A (2016) Return to work outcomes for workers with mental health conditions: A retrospective cohort study. *Injury*, 47 (1), 257 – 265

Rotondi NK, Beaton DE, Ilieff M, Adihetty C, Linton D, Bogoch E, Sale J, Hogg-Johnson S, Jaglal S, Jain R, Weldon J. The impact of fragility fractures on work and characteristics associated with time to return to work. *Osteoporosis International* 2016 Aug 5. [Epub ahead of print] DOI 10.1007/s00198-016-3730-4

Sears JM, Bowman SM, Blonar L, Hogg-Johnson S. Industrial injury hospitalizations billed to payers other than workers' compensation: Characteristics and trends by state. *Health Services Research* 2016 May 3. doi: 10.1111/1475-6773.12500. [Epub ahead of print] PMID:27140591

Sears JM, Bowman SM, Rotert M, Blonar L, Hogg-Johnson S. Improving occupational injury surveillance by using a severity threshold: development of a new occupational health indicator. *Injury Prevention* 2016 Jun;22(3):195-201. doi: 10.1136/injuryprev-2015-041807. Epub 2015 Dec 10 PMID:26658981

Sale JEM, Gignac MAM, Hawker G, Beaton D, Frankel L, Bogoch E, Elliot-Gibson V. (2016) Patients do not have a consistent understanding of high risk for future fracture: A qualitative study of patients from a post-fracture secondary prevention program. *Osteoporosis International*. Jan;27(1):65-73. doi: 10.1007/s00198-015-3214-y. Epub 2015 Jun 27.

Sears JM, Bowman SM, Rotert M, Blonar L, Hogg-Johnson S. Improving occupational injury surveillance by using a severity threshold: development of a new occupational health indicator. *Injury Prevention* 2015 Dec 10. pii: injuryprev-2015-041807. doi: 10.1136/injuryprev-2015-041807. [Epub ahead of print]

Smith P and LaMontagne AD. (2015) What is needed to make research on the psychosocial work environment and health more meaningful? Reflections and missed opportunities in IPD debates. *Scand J Work Environ Health*. 41(6):594-6. doi:10.5271/sjweh.3519

Stergiou-Kita M, Pritlove C, Van Eerd D, Holness LD, Kirsh B, Duncan A, Jones J. Am I ready to return to work? Assisting cancer survivors to determine work readiness. *Journal of Cancer Survivorship* 2016 Aug;10(4):699-710. doi: 10.1007/s11764-016-0516-9 [Epub 2016 Jan 27] PMID: 26816271

Taylor AM, Phillips K, Patel KV, Turk DC, Dworkin RH, Beaton D, Clauw DJ, Gignac MAM, Markman JD, Williams DA, Bujanover S, Burke LB, Carr D.B., Choy, E.H., Conaghan, P.G., Cowan, P., Farrar, J.T., Freeman, R., Gewandter, J., Gilron, I., Goli, V., Gover, T.D., Haddox, J.D., Kelly, K., Kerns, R.D., Kopecky, E.A., Lee, D.A., Malamut, R., Mease, P., Rappaport, B.A., Simon, L.S., Singh, J.A., Smith, S.M., Strand, V., Tugwell, P., Vanhove, G.F., Veasley, C., Walco, G.A., Wasan, A.D., Witter, J. (2016). Assessment of physical function and participation in chronic pain clinical trials: IMMPACT/OMERACT recommendations

van Genderen S, Plasqui G, Lacaille D, Arends S, van Gaalen F, van der Heijde D, Heuft L, Keszei A, Luime J, Spoorenberg A, Landewé R, Gignac M, Boonen A (2016). Social Role Participation Questionnaire for patients with ankylosing spondylitis: translation into Dutch, reliability and construct validity. *RMD Open*. 2016 Feb 1;2(1):e000177. doi: 10.1136/rmdopen-2015-000177. eCollection 2016. PMID: 26870393 [Free PMC Article](#)

Wong I, Smith P, Mustard CA and Gignac M. (2016). Mediating pathways and gender differences between shift work and subjective cognitive function. *Occupational & Environmental Medicine*. 73(11): 753-760. doi: 10.1136/oemed-2016-103774

Yazdani A, Bigelow P, Carlan N, Naqvi S, Robson LS, Steenstra I, McMillan K & Wells R. Development and evaluation of a questionnaire to document worker exposures to mechanical loading at a workplace level. *IIE transactions on occupational ergonomics and human factors* 2016;0:1-16. DOI: 10.1080/21577323.2016.1179701

Journal articles: Forthcoming

Bastawrous, M, Gignac, M.A.M., Kapral, M., Cameron, J.I. What factors are associated with adult children caregivers' well being?: A systematic review. *Clinical Rehabilitation* 2016.

Canizares, M., Gignac, M.A.M., Hogg-Johnson, S., Glazier, R., Badley, E.M. (in press) Do baby boomers use more healthcare services than other generations? Trajectories of physician visits across five birth cohorts. *BMJ Open* 2016.

Canizares, M., Hogg-Johnson, S., Glazier, R., Gignac, M. A. M., Badley, E.M. (in press). Increasing trajectories of multimorbidity over time: Birth cohort differences and the role of changes in obesity and income. *Journals of Gerontology*

Chambers A, Smith P, Sim MR, LaMontagne AD Comparison of two measures of work functioning in a population of claimants with physical and psychological injuries. *Quality and Quantity* 2016.

Fan J, Black O and Smith P. (2016) Examining age differences in duration of wage-replacement by injury characteristics. (in press) *Occupational Medicine*.

Hamilton, C.B., Wong, M-K., Gignac, M.A.M., Davis, A.M., Chesworth, B.M. Validated measures of illness perception and behavior in people with knee pain and knee osteoarthritis: A Scoping Review. *Pain Practice* 2016.

Jetha, A. Besen, E. Smith PM. Comparing the relationship between age and length of disability across common chronic conditions. *Journal of Occupational and Environmental Medicine* 2016.

McInnes JA, Akram M, MacFarlane E, Sim MR and Smith P. (2016) Association between high ambient temperature and acute work-related injury: a case-crossover analysis using workers' compensation claims data. (in press) *Scandinavian Journal of Work, Environment & Health*.

McInnes JA, MacFarlane E, Sim MR and Smith P. (2016) Working in hot weather: A review of policies and guidelines to minimise the risk of harm to Australian workers. (in press) *Injury Prevention*.

Salbach NM, O'Brien K, Brooks D, Irvin E, Martino R, Takhar P, Chan S, Howe J. Considerations for the selection of time-limited walk tests post-stroke: A systematic review of test protocols and measurement properties. *Journal of Neurologic Physical Therapy* 2016.

Sears JM, Bowman SM, Blonar L, Hogg-Johnson S. Industrial injury hospitalizations billed to payers other than workers' compensation: Characteristics and trends by state. *Health Services Research* 2016.

Journal articles: Submitted

Darvesh N, Richmond S, Chambers A, Logan L, Mustard CA, Macarthur C. Risk factors and interventions for the prevention of injuries associated with motor vehicle collisions: a systematic review of reviews. *Accident Analysis and Prevention* 2016.

Hackett C, Feeny D, Tompa E. Canada's residential school system: Measuring the intergenerational impact of familial attendance on health and mental health outcomes. *Journal of Epidemiology and Community Health* 2016.

Jetha A, Their KA, Boring MA. Arthritis diagnosis in young adulthood and involvement in employment and education: A population-level analysis. *Arthritis Care & Research* 2016.

Jetha A, Kernan L, Kurowski A. ProCare Research Group (2015) Conceptualizing the dynamics of workplace stress: A systems-based study of nursing aides. Under internal review; *BMC Health Services*. 2016.

Nichol K, Kudla I, Robson L, Hon C-Y, Eriksson J, Holness DL. The development and testing of a tool to assess joint health and safety committee functioning and effectiveness. *Safety Science* 2016.

Roseboom KJ, van Dongen JM, Tompa E, van Tulder MW, Bosmans JE. Economic evaluations of health technologies in Dutch healthcare decision-making: a qualitative study of the current and potential use, barriers, and facilitators. *Implementation Science* 2016.

Van Eerd D, Cardoso S, Irvin E, Saunders R, King T, Macdonald S. Occupational health and safety knowledge users' perspectives about research use. *Journal of Safety Research* 2016.

Yazdani A, Bigelow P, Carlan N, Naqvi S, Robson LS, Steenstra I, McMillan K, Wells R. Development and evaluation of a questionnaire to document worker exposures to mechanical loading at the workplace. *IIE Transactions on Occupational Ergonomics and Human Factors* 2016.

Books/Chapters: Published

Tompa E.. Health Consequences of Labour Market Flexibility and Worker Insecurity. In: *Social Determinants of Health: Canadian Perspectives*, Third Edition, Raphael D (ed.). Toronto: University of Toronto Press, 2016, Chapter 6.

Tompa E, van der Beek A, van Tulder M. Chapter 22: Economic perspectives on return to work interventions. In: *Handbook of Return to Work*, Schultz IZ, Robert Gatchel R (eds.) Springer, 2016 pp. 381-401.

Van Eerd D, Cole DC, Steenstra IA. Chapter 16: Participatory ergonomics for return to work. In: Schultz, IZ., Gatchel, RJ., editors. *Handbook of return to work: from research to practice*. New York: Springer; 2016 pp. 289-305.

Books/Chapters: Submitted

Mustard CA. Workplace Injuries. In *Canadian Injury Prevention Resource*. Parachute.

2016 Funding and Awards

Research Project Funding – Awarded in 2016

Amick B, Jones M, Van Eerd D, McLeod C. Benchmarking Reports and a Dashboard to Change the Conversation in Construction. SSHRC (Special Call), \$24,982, 1 year.

Carnide N, Furlan A (Co-PIs), Cullen K, Farnan P, Franklin G, Irvin E, Mahood Q, Rieb L, Rothfels P, Van Eerd D. Workplace injury and death associated with the use of medication and drugs that affect the central nervous system Worksafe BC, \$100,174, 2 years.

Gignac MAM, Kristman V, Kosny A, Cameron J. Conceal or Reveal? Facilitators and Barriers to Older Workers' Communication of Accommodation Needs in the Workplace and its Relationship to Work Outcomes. SSHRC Insight Grant, \$297,860, 3 years.

Gignac MAM, Saunders R, Van Eerd D, Jetha A, Franche R-L, MacDermid J, Tompa E, Beaton D, Breslin C, Hogg-Johnson S. Sustainable work participation: work disability prevention and improvement of employment outcomes among those with chronic, episodic health conditions. SSHRC\CIHR HWP, \$149,950, 2 years.

Kosny A, Chambers A, Mustard C, Gignac M. Implementation of workplace violence legislation in the Ontario acute healthcare sector. Ontario MOL Applied Research Initiative, \$220,000, 2 years.

Kosny, A, Premji, S. Needs and Opportunities for Employment Preparation of Syrian Refugees. SSHRC (Special Call), \$24,982, 1 year.

Mustard C, Amick B, Robson L, Kristman V, Jetha A, Gensby U, McLeod C, Kosny A. Strengthening disability management in the Ontario municipal sector. SSHRC\CIHR HPW, \$150,000, 2 years.

Mustard CA, Kosny A, Robson L, Jetha A. Strengthening disability management practices in the Ontario municipal sector. WSIB Grants Program, \$250,000, 2 years

Van Eerd D (Co-PI), Amick BC (Co-PI), Hogg-Johnson S, Robson L, Steenstra I, Mustard C, Wells R, Van hulle H. Implementing Participatory Organizational Change (iPOC): Evaluating a participatory intervention in long term care. MOL ROP, \$299,967, 2 years.

Van Eerd D (PI), Cullen K (Co-PI), Irvin E, Gignac MAM, Cardoso S, Mahood Q, Dubey A, Geary J. Managing Depression in the Workplace – Bridging the Research-to-Practice Gap. WorkSafeBC Innovation at Work, \$49,970, 1 year.

Non-IWH Research Project Funding – Awarded in 2016

Armstrong S, Cernigoj M, Danchuk A, Kristman VL, Sawula E, Sawula S, Fraser L. Superior Mental Wellness @ Work: Standard to Action Project. MOL Occupational Health & Safety Prevention and Innovation Program, \$132,900, 2 years.

Demers P (Principal Investigator), Arrandale V, Tompa E, Davies H, Tenkate T. Evaluation of Prevention Strategies for Reducing the Future Risk of Cancer in the Ontario Construction Industry. MOL ROP, \$287433 (\$50,000 for an analyst for Tompa), 2 years.

Kirsch B (Principal Investigator), Mantis S, Lindsay S, Campbell C, Latimer E, Tompa E, Power N, Zimmermann W, Hernandez C, Colantonio A, Dawson D, Holness L, Jones J, Nalder E, Stergiou-Kita M, Haag H. The IDEAS Network: Enabling People with Invisible Disabilities to Enter, Return to, and Stay in the Workforce. SSHRC Partnership Development Grants, \$149,920, 2 years.

MacDermid JC (NPI), Astephen Wilson J (Co-PI), Birmingham T (Co-PI), Robinovitch S (Co-PI), Roy JS (Co-PI), Co-I: Ashe M, Beaton D, Gignac, M.A.M., et al. Canadian MSK Rehab Research Network. CIHR Catalyst Grant, \$599,979, 2 years.

MacEachen E, Saunders R, Kosny A, et al. The new 'sharing economy' and Uber: A developmental evaluation of emergent conditions for occupational health risk and regulation. CIHR Project Scheme

McLeod C, Amick B, Koehoorn M. Improving approaches to early and sustainable return-to-work in the construction sector. WSIB Grants Program, \$172,464, 2 years.

Perruccio, A.V. (Co-PI), Badley, E.M. (Co-PI), Gignac, M.A.M., Canizares, M., Power, J.D. A Biopsychosocial Approach to Understanding the Impact of Osteoarthritis on Social Participation: A Population-based Study. CIHR Catalyst Grant, \$70,000.00, 1 year.

Premji, S, Kosny A, MacEachen E, Saunders R. A Comparative Study of the Policies and Practices that Impact Access to Workers' Compensation for Linguistic Minorities in Ontario and Quebec. SSHRC: Insight Development Grant, \$71,222, 2 years.

Williams A (Principal Investigator), Suridjan C, Baxter S, Duxbury L, Brown L, Sethi B, Markle-Reid M, Tompa E, Yazdani A, Tremblay DG, Fast J, Lero D, Yeandle S, Hilbrecht M. Achieving a caregiver-friendly workplace standard: A partnership approach. SSHRC Partnership Development Grants, \$146,852, 2 years.

Research Project Funding – Submitted in 2016

Amick B, Van Eerd D, Vanhull H, Ferron E, Severin C. The Impact of Organizational Supports on the Health Outcomes of Workers Exposed to Patient Violence in Long-Term Care and Home Care Organizations. MOL ROP, \$291,097, 2 years.

Breslin C, Mirza-Babaei P, Sankaranarayanan K, Robson L, Williams-Bell M, Gignac M, Saurin T. Developing computer based simulations to safely integrate new workers. MOL ROP, \$59,972, 1.5 years.

Cullen K (PI), Irvin E (Co-PI), Amick III BCA, Van Eerd D, Mahood C, Cardoso S, Geary J. System-based return-to-work and disability management/support interventions. A systematic review. WorkSafeBC, \$102,291, 1 year.

Irvin E, Van Eerd D, Cullen K, Gignac M, Carnide N, Yanar B, Cardoso S, Mahood Q. Accommodating and Managing Depression in the Workplace: a practical guide. MOL ROP, \$256,553, 2 years.

Jetha A, Mustard CA, Atkins S. ML, Backman C, Gignac M, E Besen, Kozny A. Getting the message right: Strengthening return-to-work communication in the workplace. WorkSafeBC, \$49,779, 1 year.

Mustard C, Smith P. Improving information on worker health protection in Ontario. MOL ROP, \$199,152, 2 years.

Smith P, Gignac M, Griffith L, Shannon H. Analysis of Canadian Longitudinal Study in Aging (CLSA). CIHR Catalyst Grant, \$70,000.00, 1 year.

Tompa E, Irvin E, McLeod C, Van Dongen H, Mahood Q, Yazdani A. The business case for safety in small workplaces: An evidence-based handbook for decision makers. MOL ROP, \$168,313, 2 years.

Non-IWH Research Project Funding – Submitted in 2016

Bigelow P, Crizzle A, Thiffault P, Tompa E, Smith P, Cooke M, Agarwal G, Whittier M. Adoption of best practices in integrated health, safety, & wellness programs to improve the health of long-haul drivers. MOL ROP, \$242,860.00, 2 years.

Dutta T, Holyoke P (Co-PIs), Amick B, Beach T, Bagheri Z. Back safety training for Personal Support Workers with on-going movement-centred feedback. MOL ROP, \$148,700.00, 2 years.

Gewurtz R, Tompa E, Lysaght R, Kirsh B, Moll S, Rueda S, Harlos K, Sultan-Taïeb H, MacDougall A. The Aspiring Workforce in Canada: Building the business case for employers to actively recruit and retain people living with mental illness. Mental Health Commission of Canada, \$74,992, 1 year.

Haan M, **Tompa E**, Farquhar A, MacEachen E, Mantis S, Hawkins K. Including Canadians with disabilities in the world of work: A celebration of our progress and opportunities for the future. Canada 150 Fund, \$50,000, 1 year.

Harris MA (PI), Demers P, Gignac M, Koehoorn M, Smith P. Do shift workers have poorer health and retire early? Metabolic health effects and exposure avoidance. CIHR Catalyst Grant – Analysis of CLSA Data. CIHR Catalyst Grant, \$70,000.00, 1 year.

Hitzig S, Jetha A, Guilcher S. Determining the effectiveness of a community-based vocational rehabilitation program for return-to-work among persons with trauma and non-trauma related chronic work disabilities. WSIB Grants Program, \$85,000.00, 2 years.

Hitzig S, Jetha A, Guilcher S. Evaluation of a Community-based Vocational Rehabilitation Program for Return-to-Work for Persons with Work Disabilities.. OCWI, \$25,000.00, 1 year.

Kristman VL, Gilbeau A. Designing an E-health intervention for Indigenous mental health in the workplace: a partnership with the Nookiiwin Tribal Council. CIHR Catalyst Grant, \$75,000.00, 1 year.

Kristman VL, Moeller H, Mushquash C, Chambers L, Matthews R, Schiff R, Stroink M, Shaw W, Gignac M. Understanding labour force participation, work productivity and disability in the Indigenous context: a partnership with the Nookiiwin Tribal Council. SSHRC Partnership Grant, \$200,000.00, 3 years.

MacEachen E, Bigelow P, Kosny A, Saunders R. Identifying safe and timely return to work strategies in the changing and high risk taxi driver sector. WSIB Grants Program, \$101,654.00, 2 years.

Stock S, Cullen K (Co-I), MacDermid J, Dionne CE, MacEachen E, Koehoorn M, Messing K, Nastasia I, Nicolakakis N. Determinants of the gender difference in the duration of work absence for non-traumatic work-related musculoskeletal disorders: a systematic review of the literature. REPAR-IRSST Knowledge Synthesis Grant, \$40,000.00, 1 year.

Stock S, Franche RL, Cullen K (**Co-I**), Dionne CE, Dube J, Koehoorn M, MacEachen E, Messing K, Nastasia I, Tessier V, Wen E. Determinants of the gender difference in the duration of work absence for non-traumatic work-related musculoskeletal disorders: a systematic review of the literature. CIHR Project Scheme, \$175,000.00, 2 years.

Tranmer J, Aronson K, Smith PM, Rosella L, Baiju S. Shift work and cardiometabolic risk: A population based study. CIHR Project Scheme

Wiesenfeld L, Loftus C (Co-PIs), Amick B, Lowe N, Afriyie-Boateng M, Vyshnevski E, Lawson A. Safe Patients/Safe Staff: Developing a 'Universal Precautions' Aggressive Behaviour Risk Protocol to Improve Healthcare Worker Safety and Patient Care. AHSC AFP Innovation Fund, \$15,000 in Year 2 for dissemination of study results (\$177,221.28 total requested for 2 years).

Williams A (Principal Investigator), Hamilton L, Kaasalainen S, MacEachen E, Markle-Reid M, Ploeg J, Sethi B, Tompa E. Evaluation of Caregiver-Friendly Workplace Policy (CFWP) Interventions on the Health of Caregiver Employees (CEs) working in the Health Care Sector: Implementation & Cost-Benefit Analysis. CIHR, \$500,000, 3 years.

Williams-Whitt K, Smith P and Kristman V. Understanding and supporting employment transitions after dementia diagnosis: A qualitative study and scoping review. Alzheimer's Society Research Funding Program, \$104,250, 2 years.

Research Personnel Funding & Other Awards

Gilber-Ouimet M. CIHR Fellowship Award 2016-2018, \$40,000/year.

Jung Y. CRWDP Student stipend \$7,500

Staff & Partners/Affiliates

2016 Institute for Work & Health Staff

* denotes staff no longer at the IWH

Research

Amick, Benjamin; PhD, Senior Scientist
Beaton, Dorcas; PhD, Senior Scientist
Bielecky, Amber; MSc, Research Coordinator
Bombardier, Claire; MD, FRCP(C) Senior Scientist
Bowring, Julie; MA, Research Coordinator
Buettgen, Alexis; Research Associate, PhD Student
Breslin, F. Curtis; PhD, Scientist
Birk, Kristen; PhD, Events Assistant*
Canga, Albana; BA, Administrative Assistant
Cawley, Caroline, MSc Student*
Chen, Cynthia; MSc, Research Associate, Analyst
Cole, Donald; MD, Senior Scientist
D'Elia, Teresa; MA, Project Coordinator
Dollack, Jocelyn; MHSc, Research Assistant/Administrative Assistant
Etches, Jacob; PhD, Research Coordinator*
Ferron, Era Mae; PhD, Research Associate
Furlan, Andrea; MD, PhD, Scientist
Gignac, Monique; PhD, Associate Scientific Director and Senior Scientist
Habrin, Shireen; Dip. Library and Information Technician, Library Technician
Heath, Charmaine; Dip. Business Administration, Administrative Assistant
Hogg-Johnson, Sheilah; PhD, Senior Scientist
Ibrahim, Selahadin; MSc, Associate Scientist
Iman, Sabrina; MSc, Research Assistant
Irvin, Emma; BA, Director, Research Operations
Kennedy-Yee, Carol; MSc, Research Associate*
Konijn, Astrid; MSc Practicum Student*
Kosny, Agnieszka; PhD, Scientist
Kristman, Vicki; PhD, Associate Scientist
Landsman, Victoria; PhD, Scientist
Latour-Villamil, Desiree; MA, Research Assistant [maternity leave]
Lay, Morgan; MPH, Research Associate
Lee, Hyunmi; MSc, Programmer Analyst

Liao, Qing; MSc, Research Associate, Analyst
Lifshen, Marni; MA, Project Coordinator*
Liu, Joanna; BA, Diploma Library and Information Technology, Library Technician
Mahood, Quenby; MI, Manager, Library Services
Maselli, Paolo; Network Administrator/Systems Analyst
McLeod, Chris; PhD, Associate Scientist
Morassaei, Sara; MSc, Manager, Research Operations*
Nasir, Kay; BA, Research Assistant
Padkapayeva, Kathy; BA, Administrative Assistant
Raktoe, Shanti; BSc, Administrative Assistant
Robson, Lynda; PhD, Scientist
Schnitzler, Lena; MSc Practicum Student*
Severin, Colette; MSc, Manager, Research Operations
Smith, Peter; PhD, Senior Scientist
Swift, Michael; MSc, Research Associate, Data Manager/Programmer
Tomba, Emile; PhD, Senior Scientist
Tonima, Sabrina; BAsc, Project Coordinator
Van Eerd, Dwayne; PhD, Associate Scientist
Yanar, Basak; PhD, Research Associate
Yao, Grant; BComm, Network Administrator/Systems Analyst

Knowledge Transfer & Exchange

Buccat, Kristina; Dip. Radio and Television Production, Administrative Assistant
Cardoso, Siobhan; MEd, KTE Associate/ Manager, Research Operations/Research Associate
Cullen, Kim; PhD, KTE Associate
Dvorak, Jan; BA, Web & Design Coordinator
Macdonald, Sara; QEHS Management Diploma, KTE Associate
Moser, Cindy; BA, Communications Manager
Saunders, Ron; PhD, Director of Knowledge Transfer and Exchange, Senior Scientist
Wu, Yuen; MA, Communications Associate

Corporate Services

Cicinelli, Mary; CHRL, Director, Human Resources & Corporate Services
Maccarone, Dylan; Accounting Clerk
Mansurova, Lyudmila; BSc, Administrative Coordinator, Office of the President
Mustard, Cameron; ScD, President, Senior Scientist
Sir, Cathy; CMA, Manager, Financial Services

2016 Institute for Work & Health Research Trainees

Adihetty, Chamila; PhD Student

Bogaert, Laura; PhD Student

Carnide, Nancy; PhD Student

Fan, Jonathan; PhD Student

Van Eerd, Dwayne; PhD Student

Dobson, Kathleen; PhD Student

Jung, Young; PhD Student

Gilbert-Ouimet, Mahée; PhD, Post-doc

Pickard, Angela; PhD Student

Adjunct Scientists

Dr. Carlo Ammendolia is a clinical epidemiologist and an assistant professor in the Department of Health Policy, Management and Evaluation at the University of Toronto. In 2012, he was appointed to the first "professorship in spine" at the University of Toronto, a new position funded by the Canadian Chiropractic Research Foundation. Dr. Ammendolia is also a staff clinician in the Department of Medicine at Mount Sinai Hospital. His research interests include designing and implementing workplace health promotion and return-to-work programs, developing and testing non-operative treatments for spinal stenosis and herniated discs, and conducting systematic reviews on interventions for back pain.

Dr. Peri Ballantyne is an associate professor in the Department of Sociology at Trent University in Peterborough, Ontario. A health sociologist, she has ongoing affiliations with the Institute for Work and Health, the Leslie Dan Faculty of Pharmacy at the University of Toronto and the Department of Sociology at McMaster University in Hamilton. She currently teaches sociology research methods, the sociology of health and illness, and the sociology of medicine. Her current research is focused on the lay experience of illness (with a particular interest in pharmaceutical use) and the sociology of work and health.

Dr. Philip Bigelow is an associate professor in the Department of Health Studies and Gerontology at the University of Waterloo in Waterloo, Ontario, and has an appointment in the Dalla Lana School of Public Health at the University of Toronto. Bigelow teaches courses in occupational health, risk assessment and epidemiology, and is a faculty member in the Collaborative PhD Program in Work and Health. He has extensive field experience in occupational health and safety. His research is in the area of risk assessment and on the effectiveness of interventions to prevent occupational injuries and disease.

Dr. Claire Bombardier is a professor of medicine and director of the Division of Rheumatology at the University of Toronto. She holds a Canada Research Chair in Knowledge Transfer for Musculoskeletal Care, as well as a Pfizer Research Chair in Rheumatology. She's a rheumatologist at Mount Sinai Hospital and a senior scientist at the Toronto General Research Institute. From 1995-2013, she was a co-editor at the Cochrane Back Review Group housed at the Institute for Work & Health, where she now serves on the editorial board as a founding editor emeritus. Professional interests include the improvement of clinical effectiveness, optimum use of technology and drugs, clinical economics, performance measurement/program evaluation, health research methods (clinical trials), knowledge transfer and workplace/rehabilitation, with a focus on musculoskeletal disorders.

Dr. Cécile Boot is a senior scientist in the Department of Public and Occupational Health / EMGO+ Institute for Health and Care Research at the VU University Medical Center in Amsterdam, the Netherlands. Her research interests include work and health, in particular maintaining working with chronic conditions. She is involved in collaborative projects in Canada (IWH), the United States (Liberty Mutual & Harvard School of Public Health) and Denmark (National Research Centre for the Working Environment).

Dr. Sandra Brouwer is a professor in the Department of Health Sciences, Community & Occupational Medicine at the University Medical Center in Groningen (UMCG), the Netherlands. Her current research work focuses on work (dis)ability assessments and return-to-work outcomes among disabled workers, and on sustainable labour market participation of older workers and young adults with disabilities, as well as people with long-term illnesses.

Dr. Andrea Chambers is an evaluation specialist in Infection Prevention and Control with Public Health Ontario, based in Toronto. She is also a credentialed evaluator with the Canadian Evaluation Society. Her professional interests include developing methods and approaches to support evidence-informed decision-making in public health, implementation science, and the evaluation of complex interventions. Her more recent work has focused on infection prevention and control aspects of occupational health, including needlestick injury prevention and health-care worker influenza immunization.

Dr. Donald Cole is a professor at the University of Toronto's Dalla Lana School of Public Health. He is also a fellow of the Royal College of Physicians and Surgeons of Canada in occupational medicine, public health and preventive medicine. He has skills in occupational and environmental epidemiology, complex intervention evaluation, and research capacity development, with an interest in agricultural work, food systems and human health. He teaches, mentors and contributes mixed-methods research evidence to practice, programs and policy.

Dr. Paul Demers is the director of the Occupational Cancer Research Centre in Toronto, based at Cancer Care Ontario. He is also the scientific director of CAREX Canada, a national workplace and environmental carcinogen surveillance program, as well as a professor with the Dalla Lana School of Public Health at the University of Toronto and a clinical professor with the School of Population and Public Health at the University of British Columbia. He is an epidemiologist whose research focuses on occupational cancer and other chronic diseases.

Dr. Carolyn Dewa currently heads the Work and Well-being Research and Evaluation Program at the Centre for Addiction and Mental Health (CAMH), where she is a senior scientist in the Health Systems Research and Consulting Unit in the Social and Epidemiological Research Department. She currently holds a Canadian Institutes of Health Research/Public Health Agency of Canada Applied Public Health Chair to develop effective interventions for mental illness and mental health in the working population. Her research focuses on three major themes: workplace disability associated with mental illness, access and use of pharmacotherapeutics, and the provision of mental health services and support to individuals with severe mental illness.

Dr. Renée-Louise Franche is a clinical psychologist and consultant in work disability prevention and occupational health. She is an adjunct professor in the Faculty of Health Sciences at Simon Fraser University, in the School of Population and Public Health at the University of British Columbia, and in the Dalla Lana School of Public Health at the University of Toronto. Her research focuses on developing a better understanding of how organizational, health-care and individual factors contribute to safe, sustainable and healthy return to work following injury or ill health.

Dr. Jill Hayden is an assistant professor in the Department of Community Health & Epidemiology at Dalhousie University in Halifax, Nova Scotia. Her research experience and expertise includes systematic review and meta-analysis methods, prognostic research and musculoskeletal health—specifically low-back pain.

Dr. Gail Hepburn is an assistant professor in the Department of Psychology at the University of Lethbridge in Alberta. Hepburn specializes in organizational psychology. Her research interests include the impact of workplace factors—such as perceptions of justice or fairness, safety climate, workplace aggression and work-family balance—on employee well-being.

Dr. Vicki Kristman is an assistant professor in the Department of Health Sciences at Lakehead University in Thunder Bay, Ontario, and an assistant professor in the Dalla Lana School of Public Health at the University of Toronto. She currently holds a CIHR New Investigator Award in community-based primary health care, focusing on preventing work disability through accommodation, and is also an editorial board member of the Journal of Occupational Rehabilitation. Her research interests include understanding the influence of workplace factors on work disability, specifically the influence of supervisors and workplace accommodation, with a focus mainly on musculoskeletal and brain injuries.

Dr. Linn Holness is a professor in the Dalla Lana School of Public Health and Department of Medicine at the University of Toronto, chief of the Department of Occupational and Environmental Health at St Michael's Hospital, and director of the Centre for Research Expertise in Occupational Disease. She is an occupational health physician whose research interests include occupational health services and occupational disease, particularly work-related skin and lung diseases.

Dr. Mieke Koehoorn is a professor in the School of Population and Public Health at the University of British Columbia (UBC). Her research interests focus on the surveillance and epidemiology of work-related injury and illness (e.g. serious injuries, asthma, mesothelioma) and the evaluation of workers' compensation policies and programs (e.g. effect of certification on injury risk of tree-fallers, effect of surgical settings and wait times on return-to-work outcomes). Many of her projects are part of her work as the co-lead of the Partnership for Work, Health & Safety, a research partnership with WorkSafeBC to maximize the use of administrative data for policy-relevant research questions. Mieke is the recent recipient of a CIHR Chair in Gender, Work and Health.

Dr. Marie Laberge is an assistant professor in the Faculty of Medicine at the University of Montreal and a scientist at the Sainte Justine University Hospital Research Centre (which specializes in mother, child and adolescent health). She is also a member of the Interdisciplinary Research Centre on Biology, Health, Society and Environment (CINBIOSE) at the Université du Québec à Montréal (**UQAM**), a Collaborating Centre of the World

Health Organization and the Pan American Health Organization. Her primary disciplinary fields are ergonomics and occupational therapy, and her current research activities concern adolescent occupational injuries and disability prevention.

Dr. Tony LaMontagne leads, and is a professor in, the Work, Health & Wellbeing Unit in the Population Health Strategic Research Centre at Deakin University in Melbourne, Australia. His broad research interest is in developing the scientific and public understanding of work as a social determinant of health, and translating this research into policy and practice to improve workplace and worker health. Currently, his primary focus is on work and mental health—combining a range of etiologic and intervention research projects.

Dr. Ellen MacEachen is an associate professor in the School of Public Health in the University of Waterloo's Faculty of Applied Health Sciences, as well as co-director of the Centre for Research on Work Disability Policy housed at the Institute for Work & Health. She is a mentor and program executive committee member with the CIHR Strategic Training Program in Work Disability Prevention, an academic fellow with the Centre for Critical Qualitative Enquiry at the University of Toronto, and an academic council member with the Pacific Coast University for Workplace Health Sciences. Her research interests focus on systemic, social and organizational determinants of work injury, disability and labour market integration, and on how qualitative methods can inform policy and practice in occupational health.

Greg McIntosh is an epidemiologist and director of clinical research at CBI Health Group in Toronto, where he designed and implemented a company-wide clinical data collection system and clinical database. He has been active in using that data to further the understanding and treatment of low-back pain. In 2000, he joined the journal *Spine* as a scientific referee and is now on its advisory board performing peer reviews.

Dr. W. Patrick Neumann runs the Human Factors Engineering Lab in Ryerson University's Department of Mechanical and Industrial Engineering in Toronto. A certified ergonomist, Dr. Neumann was once based at the former Swedish National Institute for Working Life in Gothenburg. His work emphasizes both the technical and organizational aspects of operation design, and his research looks at the application of human factors science to achieve design solutions with competitive advantages that are sustainable in both technical and human terms.

Dr. Mark Pagell holds a Chair in Global Leadership and is a professor of sustainable supply chain management at University College Dublin (UCD) in Ireland. Prior to joining UCD, he was a professor of operations management and information systems at the Schulich School of Business at York University in Toronto. His research focuses on sustainable supply chain management, human resources issues such as employee safety in operational environments, and operational responses to environmental uncertainty.

Dr. Glenn Pransky is director of the Center for Disability Research at the Liberty Mutual Research Center for Safety and Health in Hopkinton, Massachusetts (USA). He is also an associate professor in the Department of Family Medicine and Community Health at the University of Massachusetts Medical School and is a visiting lecturer at the Harvard School of Public Health and the University of Massachusetts/Lowell. His research interests include disability and outcome measurement, particularly for work-related musculoskeletal disorders.

Dr. Stéphanie Premji is an assistant professor in Labour Studies and Health, Aging & Society at McMaster University in Hamilton, Ontario. Her research interests include the occupational health of racialized workers within industrialized countries and social inequalities in work-related health. Whenever possible or advisable she conducts mixed-methods, interdisciplinary research in collaboration with unions and community organizations, and her research usually incorporates a gender-based perspective. She has written the guidance for incorporating gender in healthy workplace initiatives for the World Health Organization.

Dr. Sergio Rueda is director of the Health Research Initiatives at the Ontario HIV Treatment Network, as well as an assistant professor of psychiatry at the University of Toronto. He is leading a population health research program that situates labour force participation, working conditions and income security as fundamental determinants of health in HIV/AIDS. He also conducts policy-relevant research on the impact of psychosocial stressors on the mental health of people living with HIV.

Dr. Jeanne Sears is a research associate professor with the Department of Health Services at the University of Washington. Her research interests include occupational injury surveillance, occupational health services, policy and program evaluation, and disparities in health and access to health care. She is a member of the National Center for Health Statistics Injury Severity Advisory Group at the U.S. Centers for Disease Control. She has evaluated role expansion for nurse practitioners and physician assistants in the workers' compensation system, and policy changes to the vocational rehabilitation system for injured workers.

Dr. Harry Shannon is a professor in the Department of Clinical Epidemiology and Biostatistics at McMaster University in Hamilton, Ontario. He also has an appointment in the Dalla Lana School of Public Health at the University of Toronto. His research interests include workplace health and safety, and he is a co-investigator on the IWH project on breakthrough change. He chairs the Methodology Working Group for the Canadian Longitudinal Study on Aging, and has written on health and safety implications of the aging workforce. He is also involved in several global health projects, including a simulation study of sampling in difficult settings and another study on evaluating humanitarian aid.

Dr. William Shaw is a principal research scientist at the Liberty Mutual Research Institute for Safety in Hopkinton, Massachusetts (USA) and holds an appointment with the Department of Family Medicine and Community Health at the University of Massachusetts Medical School. His training background is in engineering and clinical psychology, and his research is focused on issues of workplace disability and return to work, especially with regard to psychosocial factors and organizational support for workers with musculoskeletal conditions and chronic illnesses. He is involved in a number of collaborative projects in Australia, Canada, Sweden, and The Netherlands.

Dr. Ivan Steenstra is a research facilitator in the Ted Rogers School of Management at Ryerson University. He obtained a masters degree in human movement sciences in work and health from the University of Groningen and a masters degree in epidemiology at the Vrije Universiteit in Amsterdam. He completed his PhD at the Institute for Extramural Research (EMGO) in the Department of Public and Occupational Health at the VU Medical Center. Steenstra was the recipient of IWH's Mustard Fellowship in Work Environment and Health from 2006-2008. His research interests focus on the epidemiology of return to work in musculoskeletal pain (with an emphasis on older workers), on determining prognosis following low-back pain, and on tailoring interventions to achieve a fast and safe return to work.

Dr. Mary Stergiou-Kita is an Assistant Professor in the Department of Occupational Science and Occupational Therapy, University of Toronto, and an Adjunct Scientist, Toronto Rehabilitation Institute, University Health Network. Her research focuses on developing tools to enhance work performance and participation across worker injury, illness and disability groups.

Dr. Nancy Theberge is Professor Emerita in the Departments of Kinesiology and Sociology at the University of Waterloo in Waterloo, Ontario. Until her recent retirement from the University she was the Coordinator of the Collaborative Doctoral Program in Work and Health and taught courses in the sociology of health, work and health, and social aspects of injuries in sport and work. Her current research addresses questions related to gender, risk and workplace injury.

Dr. Zahi Touma is an assistant professor of medicine in the Division of Rheumatology at the University of Toronto and a staff physician and clinician scientist in the Division of Rheumatology at Toronto Western Hospital and Mount Sinai Hospital. His research interests include outcome measurement, cognitive function assessment and quality of life, especially in patients diagnosed with lupus. He is involved in collaborative research with IWH related to the review of critical appraisal tools of studies on measurement properties.

Dr. Richard Wells is a professor in the Department of Kinesiology, Faculty of Applied Health Sciences at the University of Waterloo in Waterloo, Ontario. He is also director of the Centre of Research Expertise for the Prevention of Musculoskeletal Disorders (CRE-MSD), a multi-university centre hosted at the University of Waterloo. His research focuses on work-related musculoskeletal disorders of the upper limb and back.

Partners and Affiliates

The Institute for Work & Health has ongoing partnerships with a number of organizations on research and knowledge transfer projects. IWH researchers work with colleagues from universities, research agencies, health and safety associations and other agencies to find ways to collaborate on projects and to share information.

Academic

McMaster University
University of Toronto
University of Waterloo
York University

Government

Association of Workers' Compensation Boards of Canada (AWCBC)
Ontario Ministry of Health and Long-term Care
Ontario Ministry of Labour
Ontario Workplace Safety and Insurance Board (WSIB)
Statistics Canada

Health & safety associations (HSAs)

Public Services Health & Safety Association (formerly the Education Safety Association of Ontario, Ontario Safety Association for Community and Healthcare and Municipal Health and Safety Association of Ontario)
Infrastructure Health & Safety Association (formerly the Construction Safety Association of Ontario, Electrical & Utilities Safety Association and Transportation Health & Safety Association of Ontario)
Workplace Safety & Prevention Services (formerly the Industrial Accident Prevention Association, Ontario Service Safety Alliance, Farm Safety Association Inc.)
Workplace Safety North (formerly the Mines and Aggregates Safety and Health Association, Pulp and Paper Health and Safety Association, Ontario Forestry Safe Workplace Association)
Occupational Health Clinic for Ontario Workers, Inc. (OHCOW)
Workers Health and Safety Centre (WHSC)

Research organizations

Canadian Cochrane Centre
Canadian Institute for Advanced Research (CIFAR)
Canadian Institute for Health Information (CIHI)
Canadian Institutes of Health Research (CIHR)
Centre for Health Economics and Policy Analysis (CHEPA)
Cochrane Collaboration
Institut de recherche Robert-Sauvé en santé et en sécurité du travail (IRSST)

WSIB Centres of Research Expertise

The WSIB Research Advisory Council has established three Centres of Research Expertise to strengthen the research capacity in Ontario. As the largest research agency in Ontario devoted to the protection of the health of workers, the Institute for Work & Health is also committed to expanding research capacity through networking and partnership with the Centres of Research Expertise.

IWH researchers and knowledge transfer and exchange staff actively collaborate with colleagues from:

Centre of Research Expertise for the Prevention of Musculoskeletal Disorders (CRE-MSD)
Centre for Research Expertise in Occupational Disease (CREOD)
Occupational Cancer Research Centre (OCRC)

Other associations

American Academy of Orthopaedic Surgeons (AAOS)
Canadian Physiotherapy Association
College of Physiotherapists of Ontario (CPO)

Related Organizations

Academic

Department of Health Policy, Management and Evaluation (HPME), University of Toronto
Centre for Health Services and Policy Research, University of British Columbia
Ryerson University
Queen's University

Business associations

Canadian Federation of Independent Business
Canadian Labour and Business Centre
Conference Board of Canada
The RAND Corporation
W.E. Upjohn Institute

Clinical organizations

Canadian Agency for Drugs and Technologies in Health (CADTH)
Institute for Clinical Evaluative Sciences (ICES)

Government

Canadian Centre for Occupational Health and Safety (CCOHS)
Health Canada
Human Resources and Social Development Canada
Networks of Centres of Excellence (NCE)

Health and safety professional associations

Board of Canadian Registered Safety Professionals (BCRSP)
Canadian Society of Safety Engineering (CSSE)
Ontario Occupational Health Nurses Association (OOHNA)

Health and safety information

Canada National Occupational Safety and Health Information Centre (CANOSH)
eLCOSH - Electronic Library of Construction Occupational Safety and Health
International Labour Organization (ILO)
Parachute – Preventing Injuries, Saving Lives

Policy-maker organizations

Institute for Research on Public Policy (IRPP)
Workers' Compensation Resources

Research organizations

Agency for Healthcare Research & Quality (AHRQ)
Caledon Institute of Social Policy
Canadian Association for Research on Work and Health (CARWH)
Canadian Foundation for Healthcare Improvement (CFHI)
Canadian Institute for Advanced Research (CIFAR)
Canadian Institute for Health Information (CIHI)

Canadian Institutes of Health Research (CIHR)
Centre for Health Economics and Policy Analysis (CHEPA)
Centre for the Study of Living Standards (CSLS)
Cochrane Collaboration
Finnish Institute of Occupational Health
Global Applied Disability Research and Information Network on Employment and Training (GLADnet)
Institute for Clinical Evaluative Sciences (ICES)
Institut de recherche Robert-Sauvé en santé et en sécurité du travail (IRSST)
National Institute of Disability Management and Research (NIDMAR)
National Institute for Occupational Safety and Health (NIOSH)
Natural Sciences and Engineering Research Council (NSERC)
Partnership for Work, Health and Safety
Safety Net
Social Science and Humanities Research Council (SSHRC)

Workers' compensation boards and commissions

Association of Workers' Compensation Boards of Canada (AWCBC)
Alberta Workers' Compensation Board
British Columbia Workers' Compensation Board
Manitoba Workers' Compensation Board
New Brunswick Workplace Health, Safety and Compensation Commission (WHSCC)
Newfoundland and Labrador Workplace Health, Safety and Compensation Commission (WHSCC)
Northwest Territories and Nunavut Workers' Compensation Board (WCB)
Nova Scotia Workers' Compensation Board (WCB)
Ontario Workplace Safety and Insurance Board (WSIB)
Prince Edward Island Workers' Compensation Board
Saskatchewan Workers' Compensation Board
Quebec Commission de la santé et de la sécurité du travail (CSST)
Yukon Workers' Compensation Health & Safety Board
American Association of State Compensation Insurance Funds (AASCIF)

Other organizations of interest

British Occupational Hygiene Society (BOHS)
Canadian Abilities Foundation (CAF)
College of Physicians & Surgeons of Ontario (CPSO)
International Association of Industrial Accident Boards and Commissions (IAIABC)
New England Journal of Medicine (NEJM)
Occupational Health Nurses Association of Nova Scotia (OHNANS)
Registered Nurses' Association of Ontario (RNAO)
European Agency for Safety and Health at Work
World Health Organization (WHO)