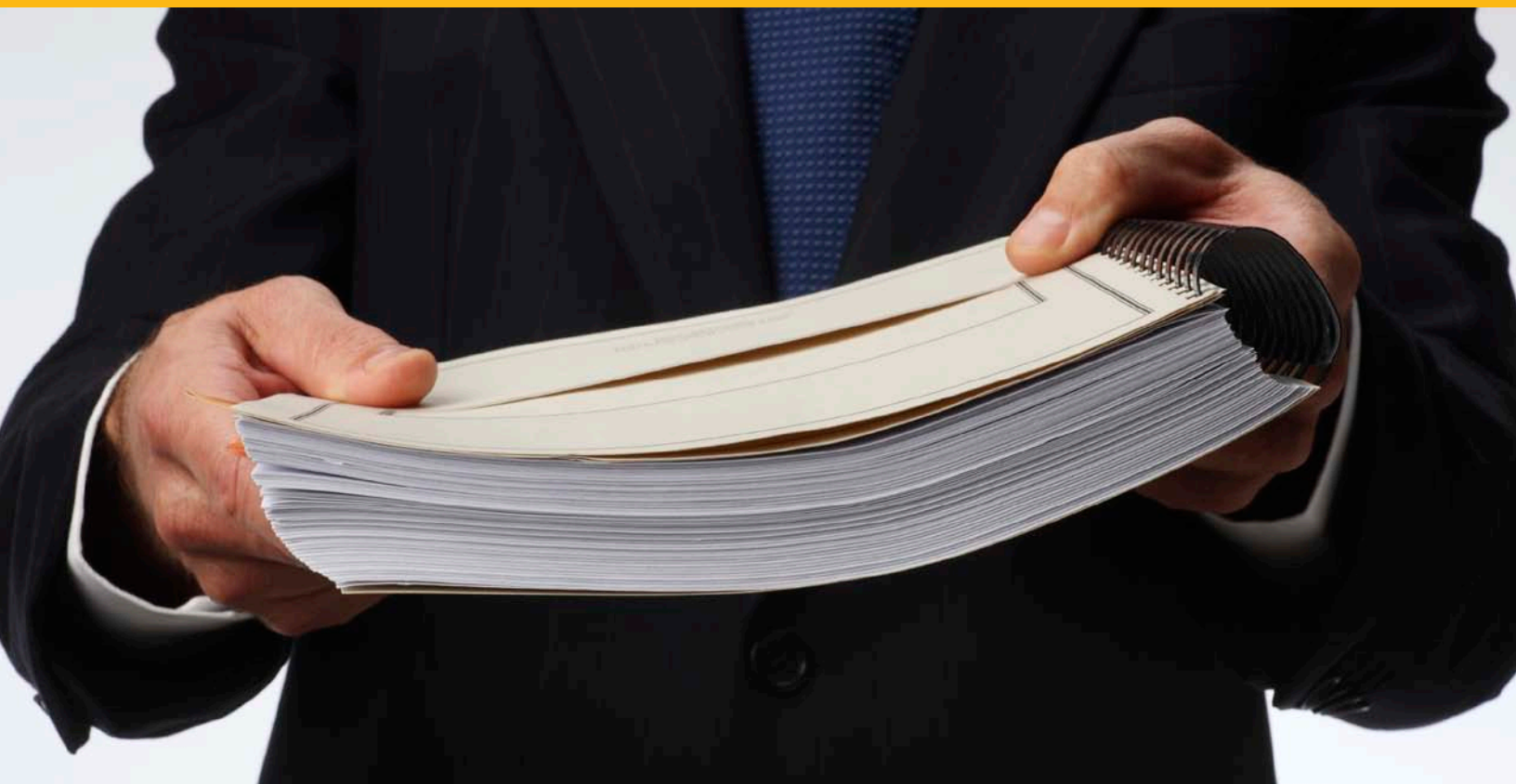


Institute for Work & Health Accomplishments Report 2011



Institute
for Work &
Health

Research Excellence
Advancing Employee
Health



2011 Accomplishments Report

**Research
Knowledge Transfer & Exchange
Publications, Presentations & Awards**

Institute for Work & Health
481 University Avenue, Suite 800
Toronto, ON Canada
M5G 2E9

Telephone: 416-927-2027
Fax: 416-927-4167
Website: www.iwh.on.ca

2011 ACCOMPLISHMENTS REPORT

Table of Contents

Introduction	1
RESEARCH	
Prevention of Work Related Injury and Illness	5
Working Conditions and Health	6
Vulnerable Workers.....	13
Preventing Musculoskeletal Disorders.....	17
Effective Occupational Health and Safety Practice	20
Regulation and Incentives.....	29
Evidence Guides and Tools	36
Prevention and Management of Work Disability	43
Measuring Health and Function	44
Clinical Treatment	50
Return to Work Practices	57
Compensation and Benefits.....	64
Evidence Guides and Tools	82
Foundation Programs	87
KNOWLEDGE TRANSFER & EXCHANGE	101
PUBLICATIONS, PRESENTATIONS & AWARDS	116
STAFF & COLLABORATORS	139
GLOSSARY	163

Introduction

The mission of the Institute for Work & Health is to conduct research to protect, promote and improve the health of working people and to share this research with workers, labour, employers, clinicians and policy-makers including our primary funder the Workplace Safety and Insurance Board. The Institute is dedicated both to conducting high quality research and making this research evidence available, understandable and usable for decision-makers to assist in creating safer and healthier workplaces.

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, labour market experiences, population health, and disability compensation systems.

The goal of our Knowledge Transfer and Exchange (KTE) activities is to build relationships with stakeholders to enable an ongoing exchange of information, ideas and experience. This exchange allows research knowledge to flow to our stakeholder audiences so it can be used in day-to-day decision-making and, in turn, allows practice-based knowledge to flow to researchers to inform and improve the work we do. 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.

Since 1990, we have provided research and other evidence-based products to inform and assist clinicians, employers, labour and other researchers. We also provide evidence to support the policy development processes of federal and provincial institutions, including workers' compensation boards and other organizations 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, as well as through our seminar and workshop programs. Over the past 20 years, the Institute has hosted over 68 in-residence trainees and sabbaticants.

Research at the Institute

A summary of our 2011 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 so stakeholders know that the Institute is a dependable resource for research evidence. The KTE accomplishments in 2011 are presented in a separate KTE section that fully describes accomplishments in our stakeholder relationship and exchange activities, as well as our communications activities.

Presentations, Publications, Awards and Collaborators & Staff

The third and fourth sections report on 2011 publications, presentations, grants and awards, and provide details on professional collaborations and staff appointments, as well as information on our academic and service contributions. It is important to note that many of our scientific staff are cross-appointed to other organizations which may require a substantial time commitment. The information reported here is therefore a reflection of IWH-related activity only.

The final pages of the report also list all IWH staff in 2011, as well as IWH adjunct scientists who have contributed to our activities in the past year.

Prevention of Work Related Injury and Illness	5
<u>Working Conditions and Health.....</u>	<u>6</u>
Working Conditions and Health in the Canadian Labour Market (0448)	7
The Measurement and Surveillance of Working Conditions and Lost-time Claims in Ontario (0417).....	8
Healthy and Productive Workers: Designing a Multidisciplinary Health Promotion and Wellness Program to Improve Presenteeism at Work (1140).....	9
A Longitudinal Examination of the Relationship Between Immigrant Labour Market Experiences, Health Behaviours and the Incidence of Diabetes and Hypertension (1165).....	10
Supporting Implementation of the Advisory Panel Recommendations (1175)	11
Methods for Surveillance of Work Injury by Time of Day in Ontario (1185).....	12
<u>Vulnerable Workers.....</u>	<u>13</u>
Geographic Variation in Occupational Injury and Its Correlates Among Canadian Men and Women (0437)	14
Prevention is the Best Medicine: Developing a Tool to Share Information about Workplace Rights, Occupational Health and Safety and Compensation with New Immigrant Workers in Ontario (1155).....	16
<u>Preventing Musculoskeletal Disorders.....</u>	<u>17</u>
Development and Evaluation of a Computer-based Training Program to Prevent and Manage Musculoskeletal Injuries in Computer-based Work Environments (1150).....	18
A Randomized Control Trial of the Effectiveness of Two Office Ergonomic Training Approaches for Seated Environments: Comparing an In-person to Computer-based Training (0261).....	19
<u>Effective Occupational Health and Safety Practice</u>	<u>20</u>
High Risk Firm Initiative: Assessing the Impact of Targeted Prevention Consultation Services (0432).....	21
Effective Organizational Policies and Practices in Injury Prevention and Disability Management (0277)	23
Understanding the Management of Injury Prevention and Return to Work in Temporary Work Agencies (1125).....	24
The Safety Case for Business: A Multi-stakeholder Examination of Best Practices and Health and Safety Outcomes (0429).....	25
Benchmarking Leading Organizational Indicators for the Prevention and Management of Injuries and Illnesses (1160)	26
Leading Indicators from Occupational Health and Safety Audit Data (1190)	27
Repeat Workers' Compensation Claims (1195).....	28

<u>Regulation and Incentives</u>	29
A Comparative Analysis of the Occupational Health and Safety Incentives of Workers' Compensation Premium Setting in Ontario and British Columbia (1130).....	30
The Impact of Experience Rating and Occupational Health and Safety on Claims Experiences in Ontario (0416).....	31
Accounting for all the Benefits: How Should we Judge the Worth of Occupational Health and Safety Programs in the Healthcare Sector (1135).....	32
Breakthrough Change in Workplace Occupational Health and Safety Performance (1145).....	34
Support to the Funding Review: Workplace Safety & Insurance Board (1205).....	35
 <u>Evidence Guides and Tools</u>	 36
Economic Evaluation Software for Workplace Parties (1180)	37
Development and Evaluation of Musculoskeletal Disorder Pictograms for the Ontario Prevention System (1110)	38
Occupational Health and Safety Economic Evaluation Resource Needs for the Health Care Sector in Ontario (1200)	39
Economic Evaluation of Health and Safety Programs: A Training Workshop for Workplace Parties (1220)	40

Prevention of Work Related Injury and Illness

Almost half of the Institute's core budget in 2011 was devoted to research and KTE activities that focus on evidence based strategies for the primary prevention of workplace injury and illness. This work 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 work place including testing safety climate measurement tools and evaluating participatory ergonomic interventions. 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 that can be used by stakeholders, such as the launching of a web based tool, for use by workplace parties interested in evaluating the cost effectiveness of prevention strategies in their workplace and a downloadable guide for participatory ergonomics.

2011 Quick Statistics

Completed projects (7)
Ongoing projects (16)
New Projects (4)

Papers published or in press (8)
Peer review papers submitted (8)
Presentations of results (5)
External grants awarded (22)

Working Conditions and Health

Projects in the area of working conditions and health include two completed projects, one looking at a multidisciplinary health promotion and wellness program to improve presenteeism, and one that examines the relationship between labour market experiences, health behaviours and the incidence of diabetes and hypertension. The latter has resulted in a number of peer reviewed paper submissions.

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.

Working Conditions and Health in the Canadian Labour Market (0448)

Project Status: Ongoing

Introduction: Over the past seven years, the Institute has established capacity to conduct research using Statistics Canada master files of longitudinal, repeated measure, health and labour market interview surveys the National Population Health Survey (NPHS), the Survey of Labour Income Dynamics (SLID) and the National Longitudinal Survey of Children and Youth (NLSCY)). The longitudinal cohort in the NPHS now extends to ten years, with the most recent cycle (2004) added at the end of 2007. The SLID now contains information across four different panels from 1993 to 2005. Each survey contains detailed information on health status, disability status, labour market entry, labour market exit and labour market trajectories.

Objectives:

- To apply methods to measure changes in working conditions and examine their effects on different health outcomes.
- To examine the relationships between childhood living conditions and adult health and labour market conditions over time.
- To examine if these relationships are consistent across selected groups (e.g., gender, social class).

Methods: To date the work under this project has been primarily directed in two areas. The first has been on how best to measure occupational position, and discrepancies between occupational attainment and personal educational potential. The second area of investigation has been the measurement of change over time. There has been some work to date on how to measure change in working conditions (e.g., job control) between the 1994 and 2000 cycles of the NPHS.

Results: This work is currently underway and is led by Brendan Smith. A grant submission on labour market experiences and obesity is being prepared for submission for funding to CIHR in September 2012.

Researchers: Peter Smith (Principal Investigator, Monash University), Brendan Smith, Cameron Mustard, Sara Morassaei

Stakeholder Involvement: There is limited stakeholder involvement given the use of secondary data.

Potential Audiences and Significance: The results will interest policy-makers, workers' compensation bodies and government departments involved in settings policies related to the provision of health benefits for labour market participants and policies aimed at worker protection through employment regulations.

Publications:

Morassaei S, Smith PM. A path analysis examining the effects of working conditions on leisure time physical activity in Canada. *Journal of Occupational and Environmental Medicine* 2011; 53 (10): 1099-1105.

Smith PM, Bielecky A. Examining the impact of changes in job strain and its components on the risk of depression. *American Journal of Public Health* 2012; 102 (2): 352-358.

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

Project Status: Ongoing

Introduction: In 1997, the legislative mandate of the Ontario Workplace Safety and Insurance Board (WSIB) expanded to include an increased focus on the prevention of work-related injuries. IWH has responded to this broadened mandate through an added emphasis on research which seeks to understand the nature and patterns of work and workplace injuries. This secondary surveillance of working conditions and workplace injuries is an integral part of a comprehensive prevention strategy. Effective surveillance involves the accurate reporting of working conditions and injury estimates. Both between particular labour force sub-groups, as well as between time points.

Objectives:

- To conduct surveillance research of policy relevant to the MOL and WSIB.
- 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.
- To examine the measurement properties of commonly used measures examining labour market experiences (e.g., job control, job satisfaction).

Methods: The work performed under this project involves utilizing secondary data from Statistics Canada surveys and administrative claim data from the WSIB. The objectives are to better understand what each data source is measuring (e.g., what do lost-time claims represent, what do "usual hours worked per week" represent), and to create time series to understand trends in particular working conditions among different labour market groups.

Results: Due to various problems accessing the data for the career handbook from Human Resources and Skills Development Canada (HRSDC), we had to hire someone to undertake manual data entry (under the supervision of Amber Bielecky). This work is currently underway. Furthermore, we were unable to secure a masters student for a placement and preparation of a grant on the measurement of working conditions for submission has been put on hold due to the departure of Peter Smith from IWH.

Researchers: Cameron Mustard (Institute Coordinator), Amber Bielecky, Brendan Smith, Curtis Breslin, Cynthia Chen, Sara Morassaei, Sheilah Hogg-Johnson, Peter Smith (Monash University)

Stakeholder Involvement: Stakeholders include the Ontario Ministry of Labour and the Ontario Workplace Safety and Insurance Board, as well as stakeholders in similar positions in other provinces.

Potential Audiences and Significance: The results of this project will be directly relevant to policy makers at the MOL and the WSIB.

Publications:

Breslin FC, Smith PM, Moore I. Examining the decline in lost time claim rates across age groups in Ontario between 1991 and 2007: Descriptive and multivariate analyses. *Occupational and Environmental Medicine* 2011; 68(11): 813-817.

LaMontagne AD, Smith PM, Louie AM, Quinlan M, Ostry AS, Shoveller J. Psychosocial and other working conditions: Variation by employment arrangement in a sample of working Australians. *Forthcoming: American Journal of Industrial Medicine* 2012; 55(2): 93-106.

Smith PM, Morassaei S, Mustard CA. Examining changes in the work environment in Quebec, Ontario and Saskatchewan between 1994 and 2003-2005. *Canadian Journal of Public Health* 2011; 102(2): 127-132.

Smith PM, Bielecky A. The impact of changes in job strain and its components on the risk of depression. *Forthcoming: American Journal of Public Health* 2012; 102(2): 352-358.

Healthy and Productive Workers: Designing a Multidisciplinary Health Promotion and Wellness Program to Improve Presenteeism at Work (1140)

Project Status: Completed

Introduction: Ontario workplaces are currently experiencing profound changes in their workforce. The changing nature of work and the significant demographic shift observed in our population may result in a workforce that is likely to be at work despite chronic disease and disability. This reality impacts the quality of life of workers and their ability to perform on the job. In an attempt to minimize this problem, workplaces are implementing health promotion and wellness programs aimed at maximizing employee health, preventing chronic health problems and optimizing production.

Objectives:

- To develop a wellness program for the workplace using an innovative participatory methodology that focuses on the experience and need of stakeholders.

Methods: There are three phases involved in the project. Phase I involves a systematic review of the literature to identify workplace interventions that improve presenteeism, to identify important health issues impacting presenteeism and the workplace and to identify characteristics of successful workplace health promotion programs. Phase II entails conducting a needs assessment with our workplace partner to identify health issues and health related risk factors that may impact workers ability to perform their work. Phase III involves the design of a workplace health promotion program using intervention mapping. An intervention mapping methodology will be used where evidence is combined with theory and practical experiences of important stakeholders in a systematic way. A combination of one-on-one interviews, discussion group sessions and focus groups will be the main method of data collection. Data synthesis will be done through consensus using an iterative process.

Results: Phase 1 of the project, a systematic review of workplace health promotion literature, has been completed and submitted for publication. Phase 2 of the project, a needs assessment, was undertaken and completed. As well, interviews and discussion groups have been held with stakeholders. Data from these sessions have been transcribed and preliminary summary of findings have been obtained.

Researchers: Carlo Ammendolia (Principal Investigator), David Cassidy (Toronto Western Hospital), Eleanor Boyle (University of Toronto), Jan Hartvigsen (University of Southern Denmark), Paula Stern (Canadian Memorial Chiropractic College), Pierre Côté (University Health Network), Sophie Soklaridis (University of Toronto)

Stakeholder Involvement: Workplace unions, supervisors, employees, disability managers, health and safety personnel, decision makers and workplace health care providers.

Potential Audiences and Significance: Third party insurers, workplaces, policy makers and health care providers will be interested in an evidence-based health promotion and wellness program aimed at maximizing employee health, preventing chronic health problems and optimizing work production.

Funding:

Ammendolia C. Healthy and productive workers – designing a multidisciplinary health promotion and wellness program to improve presenteeism at the workplace. Canadian Chiropractic College: \$149,500 (2009-2011)

A Longitudinal Examination of the Relationship Between Labour Market Experiences, Health Behaviours and the Incidence of Diabetes and Hypertension (1165)

Project Status: Completed

Introduction: Immigration is an increasingly important aspect of Canadian society and the Canadian labour market. One in five labour market participants is an immigrant. New immigration is expected to account for all labour market growth within the next five years. Past research has suggested that certain immigrant groups (e.g., South Asian) may be at higher risk for particular health problems such as diabetes and high blood pressure compared to people born in Canada. Examining factors associated with diabetes and high blood pressure is important as both these diseases have increased rapidly over the previous two decades.

Objectives:

- To examine the relationship between immigrant status, working conditions and the incidence of diabetes and hypertension over a five to seven year period.
- To gain an understanding of the relative contribution that ethnicity, work conditions and health behaviours have on two increasingly important health outcomes, and suggest potential prevention and policy responses to decrease the numbers of Canadians, in particular immigrants, who suffer from both conditions.

Methods: This project will use time to event models to examine the relationships between immigrant status, ethnicity, and labour market conditions in the development of diabetes and hypertension using the linked Canadian Community Health Survey and Ontario Health Insurance Plan databases.

Results: The study has been completed with a fourth paper planned for submission to American Journal of Epidemiology in early 2012. This paper will address the interaction between body mass index and the psychosocial work environment on the subsequent risk of diabetes in Ontario.

Researchers: Peter Smith (Principal Investigator, Monash University), Cameron Mustard, Richard Glazier (ICES)

Stakeholder Involvement: There is limited stakeholder involvement given the use of secondary data.

Potential Audiences and Significance: The results of this project are directly relevant to policy makers at the Ministry of Health and Long-Term Care. They are also of interest to immigrant agencies in Ontario.

Publications:

Smith PM, Glazier RH, Lu H, Mustard CA. The psychosocial work environment and incident diabetes in Ontario, Canada. Submitted: Occupational Medicine.

Smith PM, Mustard CA, Lu H, Glazier R. The relationship between immigration, ethnicity and the nature of work on the risk of incident hypertension among a cohort of Ontarians: examining differences by gender and education. Submitted: Canadian Journal of Public Health.

Smith PM, Smith BT, Mustard CA, Lu H, Glazier R. Examining the pathways through which low education leads to increased diabetes risk among Canadian men and women. Submitted: Journal of Epidemiology and Community Health.

Funding:

Smith PM, Glazier R, Mustard CA. A longitudinal examination of the relationship between immigrant labour market experiences, health behaviours and the incidence of diabetes and hypertension. CIHR: \$64,995 (2009-2010)

Supporting Implementation of the Advisory Panel Recommendations (1175)

Project Status: Ongoing

Introduction: The Expert Advisory Panel on Occupational Health and Safety reported to the Minister of Labour on December 10, 2010. A number of the Panel's recommendations addressed the governance of the provincial prevention mandate, proposing the establishment of a prevention agency (under the auspices of the Ministry of Labour), with responsibility to develop and execute an integrated occupational health and safety strategy for the province and responsibility for ensuring the alignment of prevention services provided to Ontario workplaces. The goal of this project is to support the implementation of Advisory Panel recommendations concerning health and safety research, enhanced data for performance measurement, the design of a common database for planning and evaluation purposes and to strengthen knowledge management capacity in the Ontario prevention system.

Objectives:

- To support the implementation of Advisory Panel recommendations concerning: health and safety research, enhanced data for performance measurement, the design of a common database for planning and evaluation purposes, to strengthen knowledge management capacity in the Ontario prevention system.

Methods: In supporting the implementation of the recommendations of the Expert Advisory Panel, this project proposes two areas of focus. In assisting the development of a performance measurement framework, the workplan would include consultation with experts and reference to measurement frameworks in other jurisdictions. In assisting in the specification of data requirements for program planning and evaluation purposes, the workplan would include consultation with experts and the assessment of the quality and timeliness of potential data sources.

Results: Work on this project did not commence until the final months of 2011, following the appointment of the Chief Prevention Officer in October 2011. There are no results to report for 2011.

Researchers: Cameron Mustard (Principal Investigator), Ben Amick, Lynda Robson, Ron Saunders, Sheilah Hogg-Johnson, Peter Smith (Monash University)

Stakeholder Involvement: The implementation team appointed by the Ministry of Labour will be responsible for governance of the objectives and timelines of this project. Contributions to this project would also be expected from the Workplace Safety and Insurance Board, the four Health and Safety Associations, Occupational Health Clinic for Ontario Workers (OHCOW) and the Workers Health & Safety Centre (WHSC). Over the period 2004-2010, the Institute worked with the above agencies in preparing six annual system performance measurement reports under the direction of the Occupational Health and Safety Council of Ontario.

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 develop preliminary design frameworks for performance measurement and for an enhanced operations information system for the Ontario prevention system.

Methods for Surveillance of Work Injury by Time of Day in Ontario (1185)

Project Status: Ongoing

Introduction: About 25% of full-time workers aged 19-64 in Canada worked shifts in 2005. Research evidence has identified a number of potential health risks associated with shift work. As many as 6-7% of workplace injuries can be attributed to higher risk of injury associated with shift work schedules. In Ontario, there is currently no adequate method for monitoring the differences in work injury risk according to the time period of work. This project will address this gap by developing methods to estimate the association between rate of work-related injury and time of injury for labour force participants in Ontario for the period 2004-2008. This project will evaluate emergency department encounter records as a source of information for surveillance of work-related injury and illness in Ontario.

Objectives:

- To compare the incidence of work-related injury and illness presenting to Ontario emergency departments to incidence of worker's compensation claims filed with the WSIB from 2004-2008.
- To use both data sources to estimate the incidence of work-related injury in relation to time of day of injury occurrence.

Methods: Information on the hour of work injury, measured across the 24 hour clock, will be obtained from workers' compensation lost-time claims and records of non-scheduled emergency department visits where the main problem is attributed to a work-related for the period 2004-2008. Denominator information required to compute risk of work injury per 200,000 hours for eight three-hour periods over the 24 hour clock, will be estimated from labour force and population surveys conducted by Statistics Canada.

Results: To date on this project, records of work-related injury have been obtained from the two administrative data sources in Ontario for the period 2004-2008. We have completed descriptive analyses comparing the two data sources. The number of emergency department visits for all work-related conditions was approximately 60% greater than the incidence of accepted lost-time compensation claims. When restricted to injuries resulting in fracture or concussion, injury incidence was similar in the two data sources. Between 2004 and 2008, there was a 17.3% reduction in emergency department visits attributed to work and a 17.8% reduction in lost-time compensation claims. There was evidence that younger workers were more likely than older workers to seek treatment in an emergency department for work-related injury. Work is in progress to estimate differences in the risk of work injury by time of day.

Researchers: Cameron Mustard (Principal Investigator), Andrea Chambers, Peter Subrata, Ron Saunders, Sheilah Hogg-Johnson, Peter Smith (Monash University)

Stakeholder Involvement: The project team will consult with representatives of the Ontario Ministry of Labour and representatives of labour unions.

Potential Audiences and Significance: The results of this work are expected to identify characteristics of workers, occupations, industries and injury events that are associated with the risk of work injury by time of day. Prevention authorities will also be interested in a detailed assessment of the validity of emergency department records as a source of surveillance information on health of workers in Ontario.

Publication:

Mustard CA, Chambers A, McLeod C, Bielecky A, Smith PM. Comparison of data sources for the surveillance of work injury. *Occupational and Environmental Medicine* 2012 [Epub ahead of print].

Presentation:

Mustard CA, Chambers A, Bielecky A, Smith PM. Emergency department visits for the treatment of work-related injury and illness in Ontario. Plenary, Institute for Work & Health. October 18, 2011.

Funding:

Mustard CA, Smith PM, Saunders R, McLeod C. Improved methods for work injury surveillance in Ontario. WSIB RAC: \$170,140 (2011-2013)

Vulnerable Workers

For the past several years, new and young workers have been a key population of interest to IWH researchers. These workers are most at risk of injury during the first month on a job. Another population that may be considered vulnerable to workplace injury or illness are immigrants, who make up an increasing segment of the Canadian labour force. IWH researchers initiated a WSIB RAC funded study with focus on the labour market experiences of immigrant workers in Canada using a number of secondary data sources originally collected by Statistics Canada. This project compared immigrant workers' risk of workplace injury with Canadian-born workers. IWH researchers investigated the nature of these risks or protective factors relating to immigrant workers, including characteristics related to workers themselves (e.g., ethnicity, gender), type of occupations (physical demand), and organizational factors (workplace size, industry).

Geographic Variation in Occupational Injury and Its Correlates Among Canadian Men and Women (0437)

Project Status: Ongoing

Introduction: Previous research shows that work injury rates differ by province, as well as regions within a province. These geographic differences in work injury risk may be related to provincial work safety policies, regional demographics, the region's socioeconomic status and social capital, and the region's labour market characteristics (e.g., industrial mix, unionization rates). We will use a national survey to describe work injury risk by province and regions within a province, as well as to identify the correlates of the variability. We will also determine the degree to which geographic variation in work injury risk differs for men and women. This project will provide some of the most detailed information on the geographic distribution and correlates of work injury.

Objectives:

- To describe and map geographic variation in work injuries at the provincial and sub-provincial level, with subanalyses by gender and industry.
- To examine the association between injury risk and the regional socioeconomic indicators (e.g., household income, residential stability), regional labour market characteristics (e.g., firm size, unionization density), province of residence, demographic, and work-related characteristics.
- To specifically examine gender differences in the individual- and place-level factors predicting men's and women's work injuries. As part of these analyses we also plan to examine the rate of repetitive strain injuries. These analyses will be completed with particular attention to gender differences, given the strong gender segregation of the labour market.

Methods: The primary data will be the combined Statistics Canada's Canadian Community Health Survey 2003 and 2005 cycles, cross-sectional surveys that include over 110,000 respondents who reported working in the past 12 months, as well as reports of work injury. Additional data to operationalize constructs such as regional labour market characteristics, and regional socioeconomic status will be obtained from Census data, other Statistics Canada surveys, and provincial Ministries of Labour. To provide descriptive information in a form appropriate for dissemination to stakeholders, we will be calculating and mapping work injury rates per 100 full time equivalents at the provincial level and at the subprovincial level. Separate calculations will be conducted for provincial acute work injury rates and repetitive strain work injury rates. More detailed descriptive analyses include, for example, calculating the provincial and subprovincial work injury rates stratified by gender. Multilevel logistic regressions will examine provincial differences as well as the region- and individual-level characteristics affecting work injury variable. We will also examine gender differences and possibly stratify the analyses by gender, if indicated.

Results: The mapping and descriptive analysis for the Workplace Safety and Prevention Services (WSPS) regional teams is ongoing. Also, we prepared and submitted a manuscript for peer review on a study examining the demographic and contextual correlates of repetitive strain injuries among men and women. A similar paper examining the contextual factors related to acute work injuries is planned for submission in the spring of 2012.

Researchers: Curtis Breslin (Principal Investigator), Ben Amick, Jeremy Petch, Kathy Padkapayeva, Sara Morassaei, Selahadin Ibrahim, James Dunn (St. Michael's Hospital), Ketan Shankardass (St. Michael's Hospital), Peter Smith (Monash University)

Stakeholder Involvement: WSPS, Canadian Auto Workers, Ministry of Labour.

Potential Audiences and Significance: This project will provide some of the most detailed information on the geographic distribution and correlates of work injuries. This knowledge could, for example, help the prevention system efficiently target resources and activities on regional "hot spots". In addition, information on the socioeconomic and labour market correlates of geographic variation in work injuries would point to non-occupational health and safety policy arenas that are a direct concern for efforts to reduce the burden of work injury in Canada.

Publication:

Breslin FC, Ibrahim S, Smith PM, Mustard CA, Amick III BC, Shankardass K. The demographic and contextual correlates of work repetitive strain injuries among Canadian men and women. Submitted: Health and Place.

Presentation:

Breslin FC. The demographic and contextual correlates of work repetitive strain injuries among Canadian men and women. 17-21 May 2011; Orlando, 9th FL: 9th International Conference on Occupational Stress and Health. APA-NIOSH.

Funding:

Breslin FC, Amick BC, Dunn JR, Ibrahim S, Shankardass K, Smith PM. Geographic variation in occupational injury and its correlates among Canadian men and women. CIHR: \$127,112 (2009-2011)

Prevention is the Best Medicine: Developing a Tool to Share Information about Workplace Rights, Occupational Health and Safety and Compensation with New Immigrant Workers in Ontario (1155)

Project Status: Completed

Introduction: New immigrants to Ontario have a greater probability of being employed in jobs with a higher number of occupational health and safety hazards. In addition, recent immigrants may have higher risks of work injuries and be less likely to access compensation after injury. Despite these occupational health and safety risks, information provided to new immigrants about occupational health and safety or workers' compensation is often informal and fragmented. The development of the proposed module has the potential to improve existing services offered to new immigrants and increase immigrant worker knowledge about health and safety before a workplace problem or injury occurs. Such knowledge can help reduce the risk of injury and lead to more positive social, health and economic outcomes.

Objectives:

- To develop an information and training module on workplace rights, occupational health & safety and workers' compensation which could be systematically delivered through settlement agencies and integrated into existing language, job search and employment programs for new immigrants.

Methods: This project will collect and build upon existing information and lead to the development of a module that could be delivered systematically as part of job preparation and language training workshops. A scan will be conducted of workplace rights, occupation health and safety and workers' compensation information which are currently provided to new immigrants in Ontario. The research team will design review criteria that will help us evaluate the material. Both the criteria and the results of the scan will be reviewed by the researchers and our partners. Gaps, areas for improvement, and domains where appropriate information is already offered, will be identified.

Results: A scan has been conducted of workplace rights, occupation health and safety and workers' compensation information which are currently provided to new immigrants in Ontario via settlement agencies and programs. A list of health and safety associations, and other organizations have been compiled and a searchable database developed. The *Prevention is the Best Medicine*, an 11-item toolkit containing information on two separate, but related topics within an Ontario context: occupational health and safety, and workers' compensation, was released and loaded onto the IWH website. The toolkit was designed to be delivered to recent immigrants who are preparing to enter the labour force. We will receive feedback on the toolkit from our partners and continue to refine the toolkit. Two focus groups with settlement service staff and clients at Skills for Change will provide further feedback on the toolkit.

Researchers: Agnieszka Kosny (Principal Investigator, Monash University), Curtis Breslin, Joanna Liu, Marni Lifshen, Quenby Mahood, Ron Saunders, Sara Macdonald, Peter Smith (Monash University)

Stakeholder Involvement: The following individuals are on the project advisory committee: Roland Rhooms (Skills for Change); Kiran Kapoor (Workplace Safety and Prevention Services); Laura Pascoe and Tom Parkin (WHSC); Ann Missetich, Nick Robins and Maria Papoutsis (MOL); Leslie Piekarz (OHCOW); Marion Endicot, John McKinnon and Rebecca Lok (Injured Workers' Consultants).

Potential Audiences and Significance: The project will provide up-to-date, relevant information and resources to settlement service providers, workers advocates and their clients about occupational health and safety, workplace rights and responsibilities and workers' compensation. Our partnership with Skills for Change and the Workers' Action Centre will assist us in disseminating our tool to a large audience.

Publication:

Kosny A, Lifshen M. A national scan of employment standards, occupational health & safety and workers' compensation resources for new immigrants to Canada. Submitted: Canadian Journal of Public Health.

Funding:

Kosny A, Smith PM, Breslin FC, Saunders R. Prevention is the best medicine: Developing a tool to share information about workplace rights, occupation health and safety and compensation with new immigrant workers in Ontario. WSIB BTG: \$34,900 (2010-2011)

Preventing Musculoskeletal Disorders

These research projects will assess the effectiveness of approaches to the prevention of non-traumatic musculoskeletal disorders in two economic sectors. For example, we will aim to produce new knowledge about the effectiveness of in-person training programs compared with computer-based training programs for workers in seated office environments.

Development and Evaluation of a Computer-based Training Program to Prevent and Manage Musculoskeletal Injuries in Computer-based Work Environments (1150)

Project Status: Ongoing

Introduction: Ontario's growing knowledge and service industries are driven by computing and communication technologies. Consequently, more workers will be exposed to computer-based health and safety hazards. Conducting in-person training (IPT) as a prevention action is time and cost intensive. Computer-based training (CBT) has been shown to be just as effective as IPT in knowledge transfer/acquisition and changing behaviours. CBTs can be delivered quickly with minimal cost. With changing office work environments, however, it is important for office ergonomic training to be as up-to-date as possible with science and standards (e.g., CSA, ANSI and ISO). An office ergonomic expert panel will be convened to ensure the CBT is standard-compliant and comports with recent evidence. Instructional system design theory and usability assessment methods will guide the CBT design and development. The final product will be an evidence-based/standards-compliant office ergonomics CBT program that can be used by workplace parties in combination with other office ergonomic hazard control methods.

Objectives:

- To develop an evidence-based/standard-compliant office ergonomics CBT program.
- To test the program's effectiveness in transferring the knowledge and skills required to reduce musculoskeletal disorder symptoms/injuries.

Methods: The research team will conduct a longitudinal study at the Centre of Addiction and Mental health (CAMH), where a group of 50-60 workers will be followed over time. Data will be collected using internet-based self-administered questionnaires to assess health and self-efficacy, in-person self-administered knowledge test before and after the training, observational data to assess ergonomic risk and appropriate ergonomic adjustment. To develop the CBT we will conduct a preliminary assessment of whether the CBT is designed based on the current standards and the scientific evidence using an expert panel of ergonomists. We will conduct two formative user assessments with one focus group of the expert panel and two focus groups of CAMH employees. The CBT will be based on a successful in-person office ergonomics training.

Results: The content base for the CBT was completed. The pilot evaluation of the CBT at CAMH was initiated.

Researchers: Ben Amick (Principal Investigator), Dwayne Van Eerd, Ivan Steenstra, Lynda Robson, Trevor King, Mark Fernley (Centre for Addiction and Mental Health), Michelle Robertson (Liberty Mutual Research Institute for Safety)

Stakeholder Involvement: CAMH, Liberty Mutual, University of Waterloo.

Potential Audiences and Significance: Ergonomists, clinicians, external researchers, employers.

Funding:

Amick BC, Dondertman B, Robertson M, Robson LS, Steenstra I, Van Eerd D. Development and evaluation of a computer-based training program to prevent and manage musculoskeletal injuries in computer-based work environments. WSIB BTG: \$56,680 (2010-2011)

A Randomized Control Trial of the Effectiveness of Two Office Ergonomic Training Approaches for Seated Environments: Comparing an In-person to Computer-based Training (0261)

Project Status: Ongoing

Introduction: As the Canadian economy shifts to a service industry base, questions about how to reduce musculoskeletal injuries among knowledge workers become more important. Numerous studies have documented the role of occupational health and safety training in improving workplace health. While many companies offer computer-based training there is little evidence on the effectiveness of computer-based training compared to in-person training.

Objectives:

- To produce new knowledge about the effectiveness of in person training programs as compared with computer-based training programs for knowledge workers in seated environments.
- To contribute to the nascent intervention effectiveness literature in office environments by identifying key pathways for reducing MSK injury risk and demonstrate economic benefits.
- To contribute to the evidence base on the effectiveness of worker health and safety training in office ergonomics.

Methods: To test the primary health and lost productivity outcome hypotheses, the research team will conduct a longitudinal study at Ontario Power Generation (OPG) where groups will be randomly assigned to either intervention or control. Cluster randomization will be used to avoid contamination.

Results: Multiple worksites were identified and we successfully recruited several of these worksites for the study.

Researchers: Ben Amick (Principal Investigator), Donald Cole, Dorcas Beaton, Emile Tompa, Ivan Steenstra, Trevor King, Michelle Robertson (Liberty Mutual Research Institute for Safety), Peter Smith (Monash University), Philip Bigelow (University of Waterloo)

Stakeholder Involvement: Liberty Mutual Research Institute for Safety.

Potential Audiences and Significance: WSIB, HSAs, Employers, Labour, Training Companies.

Funding:

Amick BC, Van Eerd D, Steenstra I, Smith PM, Cole DC, Ibrahim S, Tompa E, Bigelow P, Robertson M, Beaton DE. A randomized controlled trial of the effectiveness of two office ergonomic training approaches for seated environments: Comparing an in-person to computer-based training. WSIB-RAC: \$235,047 (2008-2010)

Effective Occupational Health and Safety Practice

IWH has initiated a number of research projects to refine the measurement of organizational policies and practices that support optimal workplace practices. In 2011, we continued to benchmark leading organizational indicators for the prevention and management of injuries and illnesses, in addition to, examining leading indicators from occupational health and safety audit data. In 2011, we also initiated two projects; the first will analyze data already collected through an audit program in order to develop metrics predictive of later firm claim experience. This work will make a unique contribution to the research literature by contributing information on the predictive validity of OHS management audit data. The second project will seek to describe the incidence of repeat workers' compensation claims over a five year period, including measures of total health care expenditures, total wage replacement benefits and days of wage replacement benefits.

High Risk Firm Initiative: Assessing the Impact of Targeted Prevention Consultation Services (0432)

Project Status: Ongoing

Introduction: In 2005, the Ontario Ministry of Labour (MOL) led the development of the Ontario High Risk Firm Initiative (HRFI), a comprehensive approach to workplace health and safety that aligns the efforts of the MOL inspectorate and the technical consulting and training staff of the Health and Safety Associations (HSAs). Under this initiative, the Ontario government committed to the goal of reducing workplace injuries by 20 per cent over a four-year period. The initiative features two core elements: 1) enhanced inspection and enforcement of health-and-safety systems in Ontario workplaces; and 2) the delivery of education, training and consultation services. The initiative targets Ontario workplaces with the poorest health-and-safety performance. Early in 2005, the Institute for Work & Health was invited to lead the development of options for an evaluation of the High Risk Firm Initiative. These evaluation options were discussed at a workshop held in Toronto on June 23, 2005 with participation from program staff at the MOL, the WSIB and the HSAs.

Objectives:

- To assess whether the HRFI produces changes in health and safety practices and final outcomes (claims rates; costs and consequences of the initiative) in Ontario firms with costs appropriate to effectiveness and benefits.
- To determine whether there is an overall reduction in firm level lost time (LT) and no-lost time (NLT) claims rates (frequency) and durations (severity) corresponding to implementation of the initiative over time.
- To determine whether firms receiving different aspects of the intervention (inspection and enforcement, consultation and education) show differential changes in LT and NLT claims rates and durations and in organizational policies and practices for health and safety, as compared to each other and to untargeted firms.
- To compare and contrast different versions of firm selection algorithms that have been used in the Ontario system between 2004 and the present with respect to which firms are selected, and what long term work injury claim trends look like with and without intervention.

Methods: A detailed evaluation protocol was developed, based on the recommendations of the June 2005 workshop. This protocol had four components: 1) plan to evaluate the system as a whole using secondary data sources; 2) primary data collection within a sample of firms, plus randomization of some firms to different components of the intervention; 3) economic evaluation of how firms react to intervention; 4) two qualitative studies - one studying firms and how they respond to the intervention and one studying the inspectors and HSA staff delivering the intervention.

Results: We submitted a manuscript to the National Occupational Injury Research Symposium (NOIRS) competition for entry into their Intervention Research contest. Our manuscript was named runner up in the NOIRS intervention competition. We also completed and submitted a manuscript on the randomized study for peer review. The final report was also prepared and submitted to the WSIB RAC. We are currently continuing to prepare specifications for the assembly of data for the Firm Selection Model (FSM) study. The Ministry of Labour has provided us with additional information for the randomized study on reactive inspections, and we are currently in process of receiving the first extraction of data from the MOL.

Researchers: Sheilah Hogg-Johnson (Principal Investigator), Ben Amick, Cameron Mustard, Donald Cole, Dwayne Van Eerd, Emile Tompa, Lynda Robson, Peter Subrata, Peter Smith (Monash University), Philip Bigelow (University of Waterloo)

Stakeholder Involvement: The MOL and WSIB continue to be involved with the project by providing data, and helping with interpretation of findings.

Potential Audiences and Significance: The results of this research project will have major and broad implications for policy makers interested in prevention of work-related injuries and the communication and enforcement of workplace safety standards at a system-wide level, both within and outside of Canada.

Publications:

Hogg-Johnson S, Robson LS, Cole DC, Tompa E, Subrata P, Amick BC, Smith PM, Mustard CA. Targeted occupational health & safety consultation or inspection in Ontario workplaces – delving inside intervention delivery to understand implementation. Submitted: Occupational and Environmental Medicine.

Hogg-Johnson S, Robson LS, Cole DC, Tompa E, Subrata P, Amick BC, Smith PM, Mustard CA. A randomized controlled study of targeted occupational health & safety consultation or inspection in Ontario workplaces – intention to treat analysis. Submitted: Occupational and Environmental Medicine.

Presentations:

Hogg-Johnson S, Robson LS, Cole DC, Subrata P, Amick B, Tompa E, Smith PM, van Eerd D, Bigelow P, Mustard CA. Poster presentation. A randomized controlled evaluation of interventions to protect worker health. 21-24 Jun 2011; Montréal, QC: 3rd North American Congress of Epidemiology.

Hogg-Johnson S, Robson LS, Cole DC, Tompa E, Subrata P, Amick BC, Smith PM, Mustard CA. A randomized controlled study of targeted occupational health & safety consultation or inspection in Ontario workplaces. 18-20 Oct 2011; Morgantown, West Virginia: National Occupational Injury Research Symposium Intervention Evaluation Contest.

Funding:

Hogg-Johnson S, Robson LS, Cole DC, Amick BC, Smith PM, Tompa E, Mustard CA. A randomized controlled study of targeted OHS education, training and consultation in Ontario workplaces - High Risk Firms. WSIB RAC: \$59,700 (2008-2010)

Hogg-Johnson S, Amick BC, Cole DC, Mustard CA, Robson LS, Smith PM, Tompa E, Van Eerd D. Firm selection algorithms-comparison over time. WSIB RAC: \$72,650 (2011-2012)

Effective Organizational Policies and Practices in Injury Prevention and Disability Management (0277)

Project Status: Ongoing

Introduction: This project extends the work of Renee Williams and Ben Amick in examining the measurement and distribution of organizational policies and practices for the prevention of injuries and illnesses and the management of disability in the following sectors of the Ontario labour market: education, health care, hotel and entertainment. The research will examine the relationship between seven organizational policies and practices (people-oriented culture, active safety leadership, safety training, safety diligence, ergonomics policies and practices, disability management and labour management climate) and workers' compensation based injury rate calculations to determine which, if any, predict injuries and illnesses.

Objectives:

- To describe the relationship between organizational policies and practices and future workers compensation claim rates.

Methods: The seven scales representing organizational policies and practices (OPPs) will be derived from the data collected from each of the firms in the study. Claims rates data have already been extracted and prepared for five years prior to and three year post collection of the OPPs. The relationship between these seven scales of OPPs and both past- and future- injury claims rate will be examined. The research team will examine the relationship between past injury and illness experiences as measured by claims rates over the previous five years and current operational policies and practices using multivariate linear regression. The relationship between current organizational practices and policies and future claims will be assessed using multiple Poisson regression or negative binomial regression as appropriate.

Results: An ethics application is currently being prepared for submission. Work on this project is ongoing.

Researchers: Ben Amick (Principal Investigator), Arold Davilmar, Michael Swift, Peter Subrata, Sheilah Hogg-Johnson, Harry Shannon (McMaster University), Renee Williams (McMaster University)

Stakeholder Involvement: HSAs: Workplace Safety & Prevention Services, Public Services Health & Safety Association, Workplace Safety North.

Potential Audiences and Significance: WSIB, MOL and HSAs who are interested in trying to capture firm-level behaviour in a meaningful way and this will contribute valuable information to the on-going OHSCO initiative on safety culture.

Understanding the Management of Injury Prevention and Return to Work in Temporary Work Agencies (1125)

Project Status: Ongoing

Introduction: Temporary work agencies (TWAs) are a growing phenomenon and are a part of new flexible labour markets, where the labour forces of organisations can be quickly and easily increased or decreased in response to demand for their product. There are over 700,000 temporary workers in Ontario and 1,300 or more TWAs. TWAs pose special challenges for the management of labour and health and safety. While the TWA is the worker's legal employer, the three-way employment relationship between the worker, TWA, and client employer creates difficult conditions for the management of workers' job conditions, injury prevention, and return to work after injury. Also, temporary workers are, in general, at greater risk for occupational accidents and diseases than permanent workers.

Objectives:

- To gain an understanding of how TWAs are organized and how they manage injury prevention and RTW, and to examine industry-specific policy, legislation, industry norms and practices.
- To examine the responsibilities of client firms for the protection of workers' health and safety.
- To gain an understanding of how TWAs manage a diverse workforce and the client firms who hire the worker; how agency managers communicate with workers and clients about workplace safety, and to learn what injury prevention and management systems and practices exist within TWAs.
- To identify practices that can help protect and restore the health of TWA workers.

Methods: The methods will consist of five parts: 1) analysis of legislation, case law, and policy governing Ontario TWAs and their approaches to workplace health; 2) focus groups with workers employed by TWAs; 3) focus groups with employers who hire labour from TWAs; 4) in-depth interviews with TWA managers who interact with workers and clients; 5) situational grounded theory and discourse analysis of data considered together with legal-policy analysis. An Advisory Group will guide the research.

Results: We hired a project coordinator, and participant recruitment was completed in 2011. Data collection was also initiated and completed. After a preliminary analysis of data, in-depth analysis of the qualitative data began and a consolidation of findings was undertaken. We also held an advisory committee meeting with our project partners. A draft paper is currently being prepared.

Researchers: Ellen MacEachen (Principal Investigator), Christine Carrasco, Liz Mansfield, Ron Saunders, Agnieszka Kosny (Monash University), Katherine Lippel (University of Ottawa)

Stakeholder Involvement: Michael Zacks, Cindy Trower (Office of the Employer Adviser); Nicholas Robins, Benita Swarbuck (Ministry of Labour); Elisabeth Mills (OSSA); Deena Ladd (Workers Action Centre); Judy Geary (WSIB); Renzo Dalla Via (WSPS); John Bartolomeo (Toronto Workers' Health and Safety Legal Clinic); Sheree Backus (United Food and Commercial Workers 175).

Potential Audiences and Significance: This study is expected to help the WSIB and MOL respond to health and safety challenges in non-standard work arrangements. The study will have implications for workers, unions, employers, and compensation system parties and researchers interested in understanding and better managing work and health in the changing labour market.

Publication:

Lippel K, MacEachen E, Saunders R, Werhun N, Kosny A, Mansfield L, Carrasco Christine, Pugliese D. Legal protections governing occupational health and safety and workers' compensation of temporary employment agency workers in Canada: reflections on regulatory effectiveness. *Policy and Practice in Health and Safety* 2011; 9(2): 69-90.

Funding:

MacEachen E, Kosny A, Lippel K, Saunders R. Understanding the management of injury prevention and return to work in temporary work agencies. *WSIB RAC*: \$208,941 (2010-2012)

The Safety Case for Business: A Multi-stakeholder Examination of Best Practices and Health and Safety Outcomes (0429)

Project Status: Ongoing

Introduction: By employing a multiple stakeholder perspective this study endeavours to provide empirical support for the safety case for business. Some literature suggests that practices that harm safety may also harm other business outcomes. Unfortunately, comprehensive and compelling empirical research needed to reach conclusions as to the nature of the relationship between safety outcomes and economic outcomes is rare. The safety focused literature has assumed business outcomes, while the business literature has generally ignored safety outcomes. This study simultaneously examines best practices in safety and business operations and the effects of best practices on both economic and safety outcomes.

Objectives:

- To empirically explore key relationships between safety and other organizational outcomes.
- To examine the relationship between health and safety outcomes and other operational outcomes such as costs, operating revenues, innovation, quality, flexibility and delivery.
- To study how the best practices in operations affect health and safety outcomes.
- To study how best practices in health and safety affect operational outcomes.

Methods: In Phase 1, workplace parties are interviewed in about 10 plants/facilities in manufacturing and transportation sectors in Ontario. Information from Phase 1 is used to develop a questionnaire for surveying organizations by telephone. In Phase 2, survey is administered by phone to over 250 plants/facilities in Ontario. In both Phases data is collected from multiple respondents, specifically operating management, health and safety specialists and workers and/or their representatives. For Phase 2, health and safety outcomes are primarily measured with WSIB data. Statistical modeling will estimate impact of health and safety on operational outcomes, and of operational outcomes on health and safety.

Results: Revisions of the Ethics Agreement and Data Sharing Agreement was completed. Stage 1 analysis and review was completed and the Stage 2 questionnaire was developed. Stage 2 sample frame selection was completed, as well as the survey testing. A Request For Proposal for Stage 2 survey was prepared and released. IPSOS was hired to undertake the Stage 2 survey. The Stage 2 survey was completed and non-response bias analysis is currently underway. Two manuscripts from Stage 1 were completed and are being submitted. We are also in the process of preparing a manuscript from Stage 2.

Researchers: Mark Pagell (Principal Investigator, York University), Emile Tompa (Institute Coordinator), Anna Sarnocinska-Hart, Ben Amick, Lynda Robson, Sara Macdonald, Sheilah Hogg-Johnson, Anthony Veltri (Oregon State University), David Johnston (York University), Markus Biehl (York University), Robert Klassen (University of Western Ontario)

Stakeholder Involvement: A variety of labour representatives.

Potential Audiences and Significance: Workplace parties (employers, workers, unions), WSIB.

Publication:

Veltri A, Pagell M, Johnston D, Tompa E, Robson L, Amick BC, Hogg-Johnson S, Macdonald S. Understanding safety in the context of business operations: evidence from ten case studies. Submitted: Safety Science.

Funding:

Pagell M, Tompa E, Biehl M, Johnston D, Klassen R, Veltri A, Hogg-Johnson S, Robson LS, Amick BC. The safety case for business: A multi-stakeholder examination of best practices and health and safety outcomes. WSIB-RAC: \$387,300 (2008-2011)

Benchmarking Leading Organizational Indicators for the Prevention and Management of Injuries and Illnesses (1160)

Project Status: Ongoing

Introduction: The proposed research involves a cross-sectional survey of a series of organizational metrics considered important predictors of injury and illness rates and claims duration in a random sample of firms served by two Health and Safety Associations (HSAs) (IAPA and OSSA), and a full enumeration of firms served by three HSAs (MHSA, PPHSA, EUSA). The total sample is expected to be 4,500-5,000 firms. The key organizational metrics (70 items) are: five measures of organizational policies and practices developed by Amick (2000) (people-oriented culture, active safety leadership, safety practices, ergonomic policies and practices and disability management programs and practices); one measure of safety culture developed by OHSCO (2008); eight measures for assessing the occupational health and safety (OHS) management system (safety policy, incentives for participation, training, communication, prevention planning, emergency planning, internal controls and benchmarking) developed by Fernandez-Muniz (2007); and one measure of employee relations/joint health and safety committee functioning developed by Shannon (1996) and Amick (2000). The firm-level survey data will be linked to five years of retrospective injury and illness claims data and one year of prospective injury and illness claims to determine which organizational metrics are related to injury and illness claims. We will use this information to describe what the most reliable and valid leading indicators are for use in benchmarking organizational and management behaviour in Ontario firms.

Objectives:

- To build a scientifically grounded evidence base for benchmarking leading indicators of firm organizational and management behaviour in OHS that is relevant to all sectors and all firms.
- To identify a reliable and valid set of firm level measures of organizational and management metrics relevant to OHS and usable by the OHS community.
- To examine relationships between WSIB claim rates & organizational and management metrics.
- To demonstrate a scientifically-grounded procedure for collecting valid firm-level estimates of organizational metrics, aggregating the data and disseminating benchmarking information to all key stakeholders.

Methods: We will use a stratified sampling strategy with strata defined by a combination of sector/HSA affiliation, firm size (< 20 versus 20+ FTE), and geographic region. We propose targeting all firms in all 30 strata of the Municipal, Pulp & Paper, and Electrical & Utilities sectors, and 200 firms within each of the strata within the Service and Manufacturing sectors. We will be targeting 5,457 firms overall, allowing for some to refuse participation or to have closed prior to the survey, while still maintaining our targeted sample size of 4,500 overall. Sampling weights will be used for some of the analyses we propose. We will also develop some post-sampling stratification weights for non-participation. In our nested studies, we plan to seek 60 participating firms for the test-retest and to determine who the best informant is.

Results: Recruitment of firms was completed in 2011.

Researchers: Ben Amick (Principal Investigator), Cameron Mustard, Colette Severin, Emile Tompa, Ivan Steenstra, Lynda Robson, Sheilah Hogg-Johnson, Peter Smith (Monash University), L. Tetrack (George Mason University)

Stakeholder Involvement: WSPS, PSHSA, WSN.

Potential Audiences and Significance: WSIB and HSAs (WSPS, PSHSA, WSN).

Funding:

Amick BC, Hogg-Johnson S, Mustard CA, Smith PM, Tompa E, Robson LS, Steenstra I. Benchmarking leading organizational indicators for the prevention and management of injuries and illnesses. WSIB RAC: \$363,072 (2010-2013)

Leading Indicators from Occupational Health and Safety Audit Data (1190)

Project Status: New

Introduction: The development of leading OHS indicators for use across many workplaces is an ongoing challenge. This project will analyze data already collected through an audit program in order to develop metrics predictive of later firm claim experience. This work will make a unique contribution to the research literature by contributing information on the predictive validity of OHS management audit data.

Objectives:

- To determine whether OHS management audit items naturally group together to form a single metric or multiple metrics.
- To determine how predictive audit metric(s) are of later firm claim experience.
- To make recommendations, based on data analyses and expert opinion, toward the development of a short version of the audit instrument.

Methods: Factor analyses will be used to analyze the structure of the audit data. Firm audit data will be linked with corresponding firm claims data and associations will be examined using multiple regression methods. Items will be reduced by considering the following: patterns of responses to items, results of factor analyses, the impact of removing items on internal consistency (KR-20 statistic), the correlation of items within scales, the results of applying the equidiscriminatory item-total correlation method and stakeholder input. The impact of reducing items on factor structure and prediction will be tested.

Results: Confirmatory factor analysis showed that a sixteen element model corresponding to the original organization of the audit instrument was found to have acceptable goodness of fit statistics. In addition, exploratory factor analyses of each of the individual elements showed that in all cases a single factor model was acceptable. This justified the use of the factor scores based on the 16 elements originally specified in the audit instrument in the predictive validity analysis. Examination of inter-item correlations within each element, as well as the content of the correlated items shows there is potential for item reduction in the audit instrument (depending on its intended application). A preliminary analysis of the associations between each of the 16 factor-based variables and claims during the year following the audit showed that a majority were statistically significant.

Researchers: Lynda Robson (Principal Investigator), Ben Amick, Dwayne Van Eerd, Ivan Steenstra, Peter Subrata, Selahadin Ibrahim, Sheilah Hogg-Johnson

Stakeholder Involvement: WSIB, OHCOW, PSHSA, WSPS.

Potential Audiences and Significance: Prevention system, occupational health and safety professionals.

Funding:

Robson LS, Hogg-Johnson S, Amick BC, Van Eerd D, Steenstra I. Developing leading indicators from OHS management audit data. WSIB RAC: \$86,800 (2010-2012)

Repeat Workers' Compensation Claims (1195)

Project Status: New

Introduction: Many of the characteristics of workers that influence the risk of work-related disability are well-known. In most sectors, men have a higher rate of claims than women, younger workers than those over 45, workers recently hired than those with longer tenure, and those in lower rather than higher paid jobs. However, the characteristics of workers who have multiple workers' compensation claims in a defined period of time is less clearly understood. This project will estimate the incidence of repeat workers' compensation claims over a five year period for a cohort of Ontario workers filing a workers' compensation claim in the period 2000-2005. Components of this project will seek to replicate Ontario analyses on workers' compensation data from the Australian state of Victoria.

Objectives:

- To describe the incidence of repeat workers' compensation claims over a five year period, including measures of total health care expenditures, total wage replacement benefits and days of wage replacement benefits.
- To replicate the Ontario analyses, where appropriate, on workers' compensation data from the Australian state of Victoria.

Methods: This study will be based on two longitudinal cohorts of workers registering an accepted workers' compensation claim for lost-time wage replacement benefits in the period 2000-2005 in Ontario, Canada and Victoria, Australia, where each worker in the cohort will be followed over a five year period from the date of an initial claim to ascertain the registration of subsequent compensation claim(s). Measures will be derived from administrative records of compensation claims to describe the injury, characteristics of the accident, the duration of disability, wage replacement benefit expenditures, benefit expenditures for health care services, characteristics of the worker, characteristics of the employer and frequency of reopened claims. Analytic methods will include descriptive analyses of incidence of repeat compensation claims by gender and age, occupation and industry. Additional analyses will be conducted on workers with histories of repeat lost-time claims to determine if repeat injury arose from the same or different affliction, in the same or different bodily location, occurred while working in the same or different industry and the same or different occupation, or occurred while working with same or different employer.

Results: Progress on this study to date has identified that the total number of first lost-time claims was 423,856 in Ontario and 78,605 in Victoria. The probability of a second lost-time claim within 5 years of the date of the first accident was 0.23 in Ontario and 0.18 in Victoria. The probability of a second claim does not appear to be highly conditional on age, sex, nature of injury, occupation or industry. The distribution of characteristics of second injuries was very similar between Ontario and Victoria: for example in both jurisdictions there was low concordance between the first and second claims on the nature of injury and part of body. In both jurisdictions, the majority of second claims are with the same employer and in the same occupation. Claims lasting longer than 1 year are much less likely to be followed by another claim. This study has used population-based work disability insurance records to compare the incidence of repeat compensation claims in two jurisdictions. Despite differences in scheme benefit policies, this study has found broadly similar patterns in the two settings.

Researchers: Cameron Mustard (Principal Investigator), Arold Davilmar, Jacob Etches, Sheilah Hogg-Johnson

Stakeholder Involvement: This project team will consult with representatives of the WSIB, the Ontario MOL and Ontario HSAs.

Potential Audiences and Significance: The results of this work are expected to identify characteristics of occupations, industries and injury events that are associated with a higher risk of repeat workers' compensation claims. These findings will be of interest to prevention authorities. The results of this work will be of interest to workers' compensation authorities.

Regulation and Incentives

In the thematic area of regulation and incentives, Institute scientists will continue their work evaluating the Ontario prevention system. Specifically, we continue to examine the impact of experience rating on the incidence of workers' compensation claims. In 2011, we completed the following two projects; one that examined the impact of experience rating and OHS on claims experiences in Ontario, and the other that looked at measuring the worth of OHS programs in the healthcare sector.

A Comparative Analysis of the Occupational Health and Safety Incentives of Workers' Compensation Premium Setting in Ontario and British Columbia (1130)

Project Status: Ongoing

Introduction: Tying workers' compensation premiums of firms to their claims burden to varying degrees (known as experience rating) is a principal policy lever that insurance providers use to encourage firm-level investment in health and safety. The mechanics of how premiums are experience rated can vary quite dramatically from jurisdiction to jurisdiction, though few studies have investigated the effects of experience rating with direct measures of program features, and even fewer have undertaken comparative analysis of different approaches to experience rating. To respond to these research gaps, we plan to undertake a comparative analysis of workers' compensation premium setting in British Columbia and Ontario using micro-data at the firm level (from 2000-2008) to investigate the impact of various features of the two programs.

Objectives:

- To assess the incentive effects of prospective (British Columbia) versus retrospective (Ontario) experience rating programs.
- To assess the incentive effects of other features of the programs such as the degree of experience rating (using direct measures such as the rating factor), the maximum per claim and per firm costs considered in the program, the weight given claims costs from previous years, and the graduated participation aspect of the British Columbia program.

Methods: We will use regression modeling techniques to identify the effects of experience rating features and other contextual factors on measures of safety performance. Since the outcome measures will be rates or counts of claims by type, we will consider the Poisson and the negative binomial regression models. Another modeling approach we will consider is multi-level modeling, because some categories of firm characteristics, such as size or industry, may have less variability within, than, across categories. Time period, jurisdiction, industry, and firm-level contextual factors that bear on outcomes will be controlled for in the analyses. We plan to use a range of outcome measures at the firm level based on claims data that provide insight into safety and claims management activities. To overcome the fact that claims are not synonymous with injuries, we will use categories of claims that are less likely to be affected by reporting bias such as permanent impairments, acute trauma injuries and fatalities and compare them to those more likely to be affected. We will also use claims data in other creative ways to uncover specific behavioural consequences of the programs.

Results: Due to turnover within the research analyst position, the BC component of the analysis was delayed. Currently, the stage 1 analysis of the BC component is underway, and the stage 2 analysis of the Ontario component is continuing. The project has received an extension until the fall of 2012.

Researchers: Emile Tompa (Principal Investigator), Cameron Mustard, Chris McLeod (University of British Columbia)

Stakeholder Involvement: Senior policymakers with the WSIB and WorkSafeBC.

Potential Audiences and Significance: WorkSafeBC and workplace parties in British Columbia will be particularly interested in the study findings, as they have a vested interest in the experience rating program. The findings will also be of interest to policymakers at the WSIB and at workers' compensation boards across Canada and the United States. Researchers investigating work and health issues, and particularly system level incentives for health and safety, are another target audience of this research.

Funding:

Tompa E, Mustard CA, McLeod C, Moore I. A comparative analysis of the occupational health and safety incentives of workers' compensation premium setting in British Columbia and Ontario. WorkSafeBC: \$201,342 (2009-2011)

The Impact of Experience Rating and Occupational Health and Safety on Claims Experiences in Ontario (0416)

Project Status: Completed

Introduction: Experience rating of workers' compensation insurance premiums is a common practice in North America. It is meant to create incentives for firms to invest in safety by varying their premiums based on their claims activity. Though experience rating is a principal policy lever of workers' compensation insurance providers, few studies have investigated its effects with direct measures of program features. The principal experience rating program in Ontario is called the New Experimental Experience Rating (NEER) program.

Objectives:

- To investigate the impact of the features of the NEER program on safety & claims management.
- To assess the incentive effects of the degree of experience rating.
- To assess the incentive effects of the retrospective aspect of the program.
- To assess the impact of programmatic changes introduced in 2004 and 2006.

Methods: We will use regression modelling techniques based on micro data at the firm level using panel data methods.

Results: A higher degree of experience rating was found to be associated with a lower lost-time claim rate and a higher no-lost-time claim rate. The relationship with the total claim rate was insignificant. The degree of experience rating was also associated with outcomes that proxied for claims cost management practices. A higher degree of experience rating appears to be associated primarily with increased secondary prevention efforts, rather than primary prevention. There is some indication of an incentive for claims cost management. The increase in the experience rating factor in 2006 resulted in firms having a higher proportion of responsibility for deviations in their claims cost burden. Increase in the rating factor has a significant and large impact on many outcomes. Increase was significantly associated with lower lost-time, no-lost-time and total claims, suggesting firms were highly responsive. The increase was also associated with outcomes proxying for claims cost management. The findings suggest that experience rating has important behavioural incentives, but it is difficult to assess the balance between desirable and less desirable responses. Workers' compensation authorities need to consider appropriate checks and balances in financial incentives programs. A manuscript on NEER analysis was prepared and submitted to Policy and Practice in Health and Safety (PPHS). A special issue of PPHS is targeted for spring 2012 publication. A second manuscript on impact of NEER policy change is being prepared for submission.

Researchers: Emile Tompa (Principal Investigator), Ben Amick, Lynda Robson, Miao Fang, Sheilah Hogg-Johnson

Stakeholder Involvement: Paul Casey, Terrence D'souza, Roger Cecchetto, Nella Orsini, Richard Burton.

Potential Audiences and Significance: This project is relevant to the WSIB and other workers' compensation boards. It is also of interest to employers and injured worker representatives.

Presentation:

Tompa E, Mustard CA. Impact of the NEER experience rating programs on compensation claim rates. 28 Jun 2011; Toronto, ON: WSIB.

Funding:

Tompa E, Amick BC, Hogg-Johnson S, Robson LS. The behavioural incentives of experience rating: An investigation into the health and safety consequences of the new experimental experience rating program in Ontario. WSIB RAC: \$122,016 (2009-2010)

Accounting for all the Benefits: How Should We Judge the Worth of Occupational Health and Safety Programs in the Healthcare Sector (1135)

Project Status: Completed

Introduction: In this project we plan to work with employers and unions to develop a jointly supported framework (a set of detailed tools and methods) to conduct comprehensive rigorous economic evaluations of occupational health and safety (OHS) programs in the healthcare sector. The framework will then be applied to the case of patient ceiling lifts in healthcare facilities throughout BC to examine program impacts on all stakeholders and on WorkSafeBC costs. It will provide a detailed return-on-investment accounting for our public healthcare system.

Objectives:

- To identify the relevant costs and consequences that should be included in a comprehensive economic evaluation of an OHS intervention in the healthcare sector.
- To determine how these costs and consequences be measured and integrated in the economic evaluation, given data availability and stakeholder preferences.
- To apply the economic evaluation framework to ceiling lift intervention to assess the feasibility of the framework.

Methods: The primary methodology is participatory action research supported by mixed qualitative and quantitative methods. Research questions were answered in collaboration with an 18-member working group and answers to the initial questions informed subsequent questions. 12 to 24 key-informant interviews with decision-makers were conducted to assess what costs and consequences they typically consider, the types of economic evaluations they are familiar with, and their preferred ways of expressing the results. A 60-member 3-round email-based Delphi panel was performed to prioritize costs and consequences that should be included for each stakeholder group, and preferred ways of measuring them. The working group used nominal group techniques to reach final agreement on the costs and consequences that should be included and on how they should be measured. The resultant framework was applied and refined through its use in the case of ceiling lift programs in BC.

Results: In the in-depth interviews, we found that perspective is more elusive than in private sector. Specifically, many stakeholders noted the importance of patient and worker outcomes regardless of the stakeholder group they represented. Some outcomes considered important can be difficult to monetize or collect on a regular basis, e.g., meaningful return to work, job satisfaction, and quality of care. The Delphi panel ranked the following five cost as most important in an evaluation: health & safety staff time; training the worker; planning, promotion and evaluation costs; equipment purchase / upgrades; and administration costs. The following five consequences were ranked as most critical: number of injuries, illnesses, and general sickness absences; safety climate; days lost due to injuries, illnesses and general sickness; job satisfaction and engagement; quality of care and patient safety. The proposed framework attempts to include five key costs and consequences as well as undertake an evaluation at the societal perspective.

In the economic evaluation of the ceiling lift program, the statistical analysis indicated that the intervention was effective. In fact, the effect of the intervention endured in facilities in which the intervention did not continue. A total of 64 patient handling injuries were averted during the intervention and post-intervention time period. Using the stop and drop method, where only cost and consequences incurred during the measurement time period are considered, the intervention proved to not be cost-beneficial. The net loss from the intervention was \$150,000 and the benefit-to-cost ratio was 0.8. When we projected the intervention over a five year period for all participating locations, the intervention was still not cost-beneficial. The largest cost of the intervention was that of salary time of coaches. The effectiveness of ceiling lift programs can be enhanced with a coaching program, but the investment in coaching time is substantial. Robust application of the framework is dependant on data availability. Measures that are less readily available are safety climate, job satisfaction, engagement, quality of care and patient safety.

Project results were presented to project partners and partners from the ceiling lift coaching program. We are preparing a paper on the economic evaluation of the ceiling lift program for submission to a journal.

Researchers: Emile Tompa (Institute Coordinator), Jaime Guzman (Principal Investigator, University of British Columbia), Sara Macdonald, Hasanat Alamgir (University of British Columbia), Mieke Koehoorn (University of British Columbia)

Stakeholder Involvement: Stakeholders include key decision makers from WorkSafeBC, health authorities, union representatives, Ministry of Labour, and Ministry of Health Services, as well as worker and patient representatives.

Potential Audiences and Significance: OHS directors of health authorities and four major healthcare unions in BC are part of the working group. They can work to develop and endorse the framework that best serves their constituents and best accounts for all the benefits of such initiatives for the healthcare workers they represent. WorkSafeBC and the Ministry of Health Services will be better informed in identifying effectiveness, and in allocating resources.

Funding:

Guzmán J, Keen D, Alamgir H, Tompa E. Accounting for all the benefits: How should we judge the worth of occupational health and safety programs in the health care sector? WorkSafeBC: \$222,976 (2009-2011)

Breakthrough Change in Workplace Occupational Health and Safety Performance (1145)

Project Status: Ongoing

Introduction: This project will address the need of workplaces and their stakeholders to understand better the degree to which large change in a workplace's rate of injury and illness (breakthrough change) is possible and what factors are critical to making such change (e.g., new technology, senior management commitment, an OHS management system, or worker participation). New research on breakthrough change is needed because there is little research to date that focuses on such change, although there are reports in the lay literature.

Objectives:

- To determine the incidence of breakthrough change (BTC) in Ontario firms.
- To determine the critical success factors involved in BTC changes within individual firms.
- To determine the critical success factors common across BTC firms.

Methods: Quantitative analysis of WSIB records, coupled with telephone interviews of a sample of firms that appear from claims statistics to have experienced BTC, in order to define BTC and describe its incidence in Ontario firms. Secondly, a multiple case study technique will be used to identify success factors critical to BTC in individual firms and across firms.

Results: From the 2,599 Schedule 1 firms with ≥ 75 FTE during 1998-2008, 67 were identified that had changed from being among the 50% in their respective rate groups with the highest claim rates to the 20% in their respective rate groups with the lowest claim rates. A modified Delphi process among team members equipped with statistical summaries selected the 32 firms displaying the most definitive change from among the initial 67 firms and attempted contact was made. From among the 15 firms agreeing to a brief interview, 12 described intentional efforts to improve OHS, leading to a rough estimate of BTC incidence of 5 per 1,000 firms.

Researchers: Lynda Robson (Principal Investigator), Ben Amick, Liz Mansfield, Sheilah Hogg-Johnson

Stakeholder Involvement: Project partners are MOL, IHSA, WSPS, WHSC, BCOHS. They will advise the team on research protocols, assist in the recruitment of firms for telephone interviews, will assist in the interpretation of results, and will be involved in developing and disseminating research products.

Potential Audiences and Significance: Interested parties include HSAs, Ministry of Labour, WSIB, employers, OHS professionals, JHSCs and other researchers. Research products include a description by sector of the incidence of BTC, well documented stories of BTC, and a preliminary list of critical success factors for BTC. Partners may choose to disseminate product documents to their membership; e.g., HSA news magazine.

Funding:

Robson LS, Amick BC, Hogg-Johnson S, Mansfield L, Pagell M, Shannon HS. Breakthrough change in workplace OHS performance. WSIB BTG: \$57,668 (2009-2011)

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

Support to the Funding Review: Workplace Safety & Insurance Board (1205)

Project Status: New (Completed)

Introduction: In September 2010, the Ontario Government appointed Professor Harry Arthurs, at the request of the Workplace Safety and Insurance Board, to chair an independent review on a range of issues relating to the WSIB's financial future. The scope of the Funding Review is focused on six issues: funding, premium rates, the structure of rate groups, the design and operation of employer incentive programs, the compensation and funding of occupational disease claims and options concerning benefit indexation. As chair of the Funding Review, Professor Arthurs will be supported by an advisory group of four members: John Tory, Buzz Hargrove, John O'Grady and Maureen Farrow. The Institute for Work & Health has recently completed a number of research projects examining aspects of the performance of employer incentive programs in Canadian workers' compensation systems. Findings from this work may be relevant to the mandate of the Funding Review.

Objective:

- To provide support, if requested, to the secretariat of the Funding Review in identifying and providing research that may inform the mandate of the review.

Methods: At the request of the WSIB Funding Review Secretariat, the Institute for Work & Health may provide background documents to the Review, may conduct original research or may offer comment or opinion on issues as requested.

Results: In January 2011, the Institute responded to a request from the WSIB Funding Review secretariat for briefing materials summarizing the Institute's research on the impact of experience rating on employer occupational health and safety performance. Portions of the Institute's research on long-duration compensation claims were cited in technical briefing materials distributed by the Funding Review secretariat in February 2011. In November 2011, the Institute provided a briefing paper to the Chair of the Funding Review concerning options for evaluating the effectiveness of a reformed experience rating scheme in Ontario.

Researchers: Cameron Mustard (Principal Investigator), Ron Saunders

Stakeholder Involvement: WSIB Funding Review.

Potential Audiences and Significance: The Funding Review will make recommendations to the Workplace Safety & Insurance Board concerning priority options to eliminate the unfunded liability and establish a fully funded workers' compensation scheme in Ontario.

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. While the initial “Smart Planner” project was completed, a new project received funding in order to develop a training workshop for workplace parties. Others focus more on the validation of existing tools. Included also in this section are projects assessing the measurement properties (e.g., reliability and validity) of an existing tool, and developing a prevention system monitoring report.

Economic Evaluation Software for Workplace Parties (1180)

Project Status: Completed

Introduction: After completing a systematic literature review of workplace occupational health and safety (OHS) interventions with economic evaluations, we have become aware of how underdeveloped the methods are in this literature. Though we found a fair number of intervention studies with economic evaluations undertaken in a variety of sectors, many were of low quality. The greatest number of studies was undertaken in the healthcare sector, yet we were unable to make a strong statement about the evidence on the economic merits of interventions in that sector due to the quality of studies. We also found that most intervention studies do not undertake an economic evaluation. Consequently, workplace parties are often not provided evidence on the resource implications of work-related injuries and illnesses or the returns from undertaking health and safety initiatives to prevent them. To fill the gap, we have developed jurisdiction-specific economic evaluation workbook software for workplace parties, starting with the Ontario, as well as the British Columbia healthcare sector. In 2010-2011, we are undertaking software development for the province of Manitoba. The principal contribution in this latter iteration of the software is the development of video training module for the software. The video training module will also be integrated into the Ontario and BC software.

Objectives:

- To develop jurisdiction-specific economic evaluation software to serve the information needs of workplace parties and systems partners on the resource implications of OHS interventions.
- To develop a video training module to support new users in learning how to use the software.

Methods: To develop the workbook software, we used existing tools developed by others, and research undertaken on the economic evaluation of health and safety interventions. We also used research we have undertaken, which includes a systematic review of workplace interventions with economic evaluations, a methods text for occupational health and safety researchers, and several economic evaluations of workplace interventions. The one-year time period of the grant was used to develop the software and field test it with the assistance of the partners participating in the grant.

Results: The Manitoba version of the Health & Safety Smartplanner was developed to provide advanced user support through instructional video inserts. Eleven chapters detail various sections of the software as well as provide an overview for new users on how to make the most of the software capabilities. The software has also been modified substantially, as well as customized for the Manitoba jurisdiction. A key new feature is that it allows use of aggregate incidents data in the analysis components of the software. This can save users time because they do not need to enter individual incident information to evaluate an intervention. The software will be available on the IWH and SafeWork Manitoba websites free of charge in early 2012. Plans are to provide some training sessions to WorkSafe field staff and develop some case studies for profiling in an article.

Researchers: Emile Tompa (Principal Investigator), Ben Amick, Dylan Maccarone, Emma Irvin, Sara Macdonald

Stakeholder Involvement: The workbook was prepared in conjunction with system partners from Workplace Safety & Prevention Services (WSPS) in Ontario, and with senior administrators from regional health authorities in British Columbia.

Potential Audiences and Significance: Workplace parties (employers, workers, unions), researchers undertaking interventions studies, WCBs, Ministries of Labour.

Funding:

Tompa E, Amick BC, Keown K, Dubey A, Irvin E. Economic evaluation software for Manitoba workplaces. Manitoba Workers Compensation Board: \$69,453 (2009-2010)

Development and Evaluation of Musculoskeletal Disorder Pictograms for the Ontario Prevention System (1110)

Project Status: Ongoing

Introduction: This project will address the needs of the English as a Second Language (ESL) population in Ontario's service sector. The initial focus of the project will be MSDs, which account for 30% of long-term claims, 53% of lost time days and 49% of benefit costs in Ontario's service sector. The pictogram approach has been proven to be a successful way to share important messages across various barriers, including cultural, language, age and education. Ontario Service Safety Alliance (OSSA) members need support in effectively communicating ergonomic hazards in their workplaces. This project will continue to support OSSA's alignment with other system partners and initiatives. Specifically, extending the reach of the MSD Guidelines and Tool Kit.

Objectives:

- To increase the accessibility of the MSD Guideline and Tool Kit to small businesses.
- To provide tools that would be suitable for vulnerable workers (youth, aging, immigrant, ESL).
- To provide health and safety in a manner that is simplified and easily understood.
- To ensure an evaluation component of the kitchen prep pictograms is developed.
- To develop pictograms for the hotel/motel sector and validate the existing tools.
- To transfer knowledge into the health and safety system.

Methods: In each phase of the project, literature scans will be conducted to identify best practices in, for example, tailoring training to or developing measurement tools for low literacy and English as a second language workers. Our goal in the scan is to inform the work and the stakeholder dialog. Intervention development will use focus groups for pictogram and training development. The development of the measurement tools, including the self-efficacy measure, will be supported by one-on-one interviews and, if possible, focus groups. Finally, the observational tool and training will be developed internally and pilot tested to examine inter-rater reliability.

Results: The observational assessment of the kitchen preparation pictogram is underway. We are currently working on finalizing the observational tools and training. We are also preparing for a randomized control trial of the evaluation of the hotel/motel pictograms. For this work, we are preparing a grant for submission in the spring of 2012.

Researchers: Ben Amick, Curtis Breslin (Principal Investigators), Emma Irvin, Trevor King

Stakeholder Involvement: Kim Grant (WSPS), Sandra Miller (WSPS), Anne Duffy (MOL), and the WSIB

Potential Audiences and Significance: WSPS, WSIB, MOL, Prevention partners, OHSCO.

Funding:

Amick BC, Grant K, Breslin FC, Van Eerd D, Steenstra I, Keown K, Robson L, Robertson M. Developing an intervention to reduce occupational health and safety risk among vulnerable workers: Pictograms and training for low-literacy hotel/motel workers. WSIB RAC: \$29,760 (2010-2011)

Occupational Health and Safety Economic Evaluation Resource Needs for the Health Care Sector in Ontario (1200)

Project Status: New

Introduction: This research is a developmental project aimed at identifying the best way to advance evidence-based occupational health and safety (OHS) resource allocation decision-making in the healthcare sector in Ontario. The full research project to follow from this development work will be economic evaluation tools and training development in the area of economic evaluation of OHS programs. Such initiatives will assist healthcare decision makers with identifying the most effective and efficient ways to protect the health of their workers. Within the current structure of the Ontario healthcare sector, developing tools and training presents particular challenges for several reasons. First, resource allocation decisions are spread across many parties and organizations with varying ability to evaluate OHS alternatives. Second, the data available for input into an economic evaluation varies across different healthcare organizations. Third, there are a range of economic evaluation analytic skills amongst OHS administrators and decision makers.

Objective:

- To identify the best way to advance evidence-based OHS resource allocation decision making in the Ontario healthcare sector, and in undertaking an environmental scan and needs assessment.
- To develop and deliver a training workshop for workplace parties (managers, labour representatives, and health and safety practitioners) on economic evaluation methods for health and safety initiatives.

Methods: We plan to undertake 15 in-depth interviews with workplace parties (both managers and labour representatives) to get insights into the health and safety decisions they confront, the analyses they currently do, and the information resources they currently access to assist with decisions. The interviews will facilitate customizing the workshop. To create and execute the workshop, we will use the ADDIE model of instructional design. ADDIE is a five-phase design approach that consists of Analysis, Design, Development, Implementation, and Evaluation.

Results: Firstly, we developed a background paper on the economic evaluation of OHS interventions. We also developed a schema of the Ontario Health Care Sector Organizational Structure. The development of the in-depth interview questionnaire was completed, and interviews are underway and ongoing. The development of the telephone questionnaire was also completed, and these interviews are also underway and ongoing. In 2011, we also held two project partners' meetings. We are currently starting work on the write-up of the final report for submission in the spring of 2012.

Researchers: Emile Tompa (Principal Investigator), Ben Amick, Cam Mustard, Sara Macdonald, Carolyn Dewa (Centre for Addiction and Mental Health), Laurie Clune (Ryerson University)

Stakeholder Involvement: Project partners included Patricia Boucher (Public Services Health & Safety Association), Linda Haslam-Stroud (Ontario Nurses' Association), Tim Savage (Ontario Hospital Association), and John Amodeo (Ministry of Health and Long-term Care). Partners will meet with the research team four times over a one year period to provide guidance on the study.

Potential Audiences and Significance: This research will be of interest to the WSIB, the Ministry of Health and Long-term Care, decision makers in healthcare organizations in Ontario, and the Public Services Health & Safety Association.

Funding:

Tompa E, Mustard CA, Amick BC, Clune L, Dewa C. OHS economic evaluation resource needs for the health care sector in Ontario. WSIB RAC: \$29,960 (2010-2011)

Economic Evaluation of Health and Safety Programs: A Training Workshop for Workplace Parties (1220)

Project Status: Ongoing

Introduction: Organizations regularly face challenging resource allocation decisions in an effort to remain competitive and profitable. With sometimes competing demands on scarce funds, managers need to allocate resources wisely across all parts of the organization. Consequently, complete information on the costs and consequences of health and safety (H&S) initiatives can be critical to the decision making process. Yet far too often organizations do not have the skill set to evaluate the cost and consequences of initiatives. In this project we will develop and deliver a half-day training workshop for workplace parties—managers, labour representatives, and H&S practitioners —on the economic evaluation of H&S initiatives. Four sessions will be delivered free of charge. The workshop will not be sector or organization size specific, though there will be a focus on recruiting participants from small- and medium-sized businesses. Through our previous work we have found that the greatest need for skills development is within this group.

Objectives:

- To increase awareness of the need to consider the cost and consequences of H&S initiatives systematically, comprehensively, and on an ongoing basis.
- To advance knowledge about sound economic evaluation methods for H&S initiatives.
- To increase the comfort level and ability to apply economic evaluation methods in workplaces.
- To stimulate dialogue and discussion, in workshop breakout session, about overcoming barriers to undertaking in-house H&S economic evaluations.

Methods: To develop the workshop content, in-depth interviews will be undertaken with workplace parties to get insights into the H&S decisions they confront, the challenges they face when making decisions, the analyses they currently do, and the information resources they currently access to assist with decisions. The interviews will facilitate customizing the workshop and will be the basis for a manuscript. To create and execute the workshop, the ADDIE model of instructional design will be used. ADDIE is a five-phase design approach that consists of Analysis, Design, Development, Implementation, and Evaluation.

Results: A schema depicting the health care system entities was developed as a foundation piece, as well as a pamphlet on the economic evaluation of OHS initiatives. In-depth interviews of 25 key informants was completed and data analysed, and a short-telephone survey was executed. In 2011, two partners' meetings were held to receive feedback on next steps and report on interim finding.

Researchers: Emile Tompa (Principal Investigator), Emma Irvin, Lynda Robson, Sara Macdonald, Kim Grant (WSPS), Kiran Kapoor (WSPS)

Stakeholder Involvement: Workplace parties will be involved in interviews and will participate in four workshops. HSA representatives from WSPS are involved as co-investigators.

Potential Audiences and Significance: This study is relevant to the WSIB, workplace parties in Ontario, and workers' compensation authorities and workplace parties across Canada.

Funding:

Tompa E, Grant K, Kapoor K, Robson L, Keown K, Irvin E. Economic evaluation of H&S programs: A training workshop for workplace parties. WSIB: \$58,880 (2010-2011)

Prevention and Management of Work Disability	43
<u>Measuring Health and Function</u>	44
Measurement Methodology Studies (0925)	45
Work-related Outcomes of Injured Workers Attending WSIB Specialty Clinics for Upper Limb Disorders (0113)	46
The Measurement of Work Disability/Disability at Work (0117/0121).....	47
Design of the Back Intervention Program (2160).....	48
Niagara Health System Evaluation (2165).....	49
<u>Clinical Treatment</u>	50
Cochrane Collaboration Back Review: Systematic Reviews of the Scientific Literature on Spinal Disorders (0440).....	51
Evidence-Based Practice Systematic Reviews (0670)	53
Back Guide//Ontario Occupational Health Nurses' Association Journal (0830)	54
A Randomized Controlled Trial of Bone Stimulators for Fracture Healing (2110)	55
<u>Return to Work Practices</u>	57
Recurrent or Persistent Work Disability Episodes (0341)	58
Skills for Job Recovery: Testing the Feasibility of an Online Program for Developing Self Efficacy and the Skills Needed for the Job of Returning to Optimal Work (2125)	60
Training Initiatives in Work Disability Prevention (0144).....	61
Buddies in Bad Times: The Role of Co-Workers in the Return to Work Process (2240)	62
Work Incapacity and Vocational Rehabilitation (2140)	63
<u>Compensation and Benefits</u>	64
Adequacy and Equity of Workers' Compensation Benefits (0418)	65
Examining Explanations for the Increasing Frequency of Long Duration Compensation Claims (0327)	67
Immigrant Workers' Experience after Work-related Injury and Illness (0273)	68
RAACWI: Compensation and Consequences of Work Injury (0428)	70
Examining Trends in the Incidence and Cost of Workers' Compensation Claims in the Ontario and British Columbia Long Term Care Sectors 1998-2007 (0439)	71
A Prediction Rule for Duration of Disability Benefits in Workers with Non-specific Low Back Pain (2105)	73
Work Disability Trajectories and Claim Duration in Ontario Under Three Workers' Compensation Legislations (2115)	74
Examining Determinants and Consequences of Work Injuries Among Older Workers (2120)	75
Critical Review of Literature on Experience Rating and Workers' Compensation Systems (2135)	76

Comparison of the 1993 Early Claimant Cohort and the 2005 Readiness for Return to Work Cohort (2145)	78
Benefit Adequacy and Equity in Ontario, 1999-2005 (2150)	80
Examining the Impact of Physical Conditions and Depression on the Labour Market Participation of Older Working-aged Canadians: Exploring Differences by Gender and Sex (2155)	81
<u>Evidence Guides and Tools</u>	82
Red Flags/Green Lights: A Multi-stakeholder Evaluation of the Uses of a Return to Work Problems Guide (2130)	83
Development and Testing of the DASH Outcome Measure - DASH Instrument (0425)	84

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 2011, our portfolio of research included the continued examination for the risk factors for chronicity and understanding the phenomenon of claims persistency, as well as the examination of several interventions designed to improve the process and sustainability in return to work. As part of our focus in disability management and prevention, our research in the measurement of health and function continued to engage the clinical staff of the WSIB specialty clinics.

2011 Quick Statistics

Completed projects (8)

Ongoing projects (15)

New projects (6)

Papers published or in press (21)

Peer review papers submitted (4)

Presentations of results (2)

External grants awarded (26)

Measuring Health and Function

Over the past 17 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 should assist the WSIB in their goal of increasing their capacity to measure other return to work and health care outcomes to improve the effectiveness of their business management.

Through 2011, researchers undertook a longitudinal cohort of injured workers who are attending the WSIB specialty clinic in Toronto and in London with the goal of understanding the usual course of persons attending the specialty clinic and to identify modifiable and non-modifiable factors that could predict the likely course of injured workers.

Measurement Methodology Studies (0925)

Project Status: Ongoing

Introduction: This is a group of studies with a primary focus on measurement issues and the development of measurement instruments. The objectives describe the particular contexts of work undertaken in 2011. The data for much of this work comes from projects initiated for other research objectives within this theme and are described subsequently within each of those projects in greater detail.

Objectives:

- To advance our understanding of the measurement of longitudinal data collection (change versus trajectories).
- To advance our understanding of transitions in health (when pain becomes a problem, and measurement and interpretation of recovery).
- To disseminate our findings through peer-reviewed publications, presentations and Continuing Medical Education activities.

Methods: This project involves multiple methods aimed at advancing the science of measurement. This involves development and testing of instruments, and efforts to improve the interpretability of their scores (analytic approaches, Rasch/IRT, MCID and benchmarking). Our work has resulted in several methodological papers, theoretical frameworks, and tools to help clinicians or stakeholders to make the best use of instruments.

Results: We continued our work on the instrument database, as well as on the IRT and Rasch differences. Our involvement in the measurement course at the University of Toronto continued in 2011. We are currently working on developing a website to support the use of the instrument database and we hope to publish the database.

Researchers: Dorcas Beaton (Institute Coordinator), Carol Kennedy, Claire Bombardier, Cynthia Chen, Dwayne Van Eerd, Peter Subrata, Sheilah Hogg-Johnson, Gabrielle van der Velde (University of Toronto), Jeff Wright (Hospital for Sick Children), Jeffrey Katz (Brigham and Women's Hospital, Harvard University), Peter Smith (Monash University), Pierre Côté (University Health Network), Sherra Solway (Toronto Rehabilitation Institute)

Potential Audiences and Significance: Primarily directed at researchers at the Institute of Work & Health, the research community at large, and the clinical community who apply these instruments.
Care

Publications:

Beaton DE, Van Eerd D, Smith PM, van der Velde G, Cullen K, Kennedy CA, Hogg-Johnson S. What's new? Minimal change is sensitive, less specific, to recovery: A diagnostic testing approach to interpretability. *Journal of Clinical Epidemiology* 2011; 64(5): 487-496.

Work-related Outcomes of Injured Workers Attending WSIB Specialty Clinics for Upper Limb Disorders (0113)

Project Status: Ongoing

Introduction: It is known that the majority of disability costs associated with lost time claims comes from those workers with the longest duration of lost time – the proverbial "tail of the curve". One access point to injured workers in the "tail" is through the WSIB specialty clinics that usually see workers only after approximately six months post-injury. In this study, we examined the usual course of work-related outcomes (absenteeism and at-work productivity losses) in workers recruited from two upper extremity specialty clinics. We also examined the predictors of this course, and aimed to identify those which were amenable to intervention/modification. The project introduced web-based, touch screen data collection and continues with our "just-in-time" summary reports of the workers' responses.

Objectives:

- To understand the usual course of persons attending the specialty clinic.
- To identify modifiable and non-modifiable factors that could predict likely course.
- To join two specialty clinics (OAI and London) to coordinate and collaborate on this type of data collection and analysis with the view of establishing a network of research across specialty clinics in Ontario.

Methods: This cohort is a longitudinal cohort of injured workers who are attending the WSIB specialty clinic in Toronto and in London.

Results: We continued the prognosis analysis, and structural validation of the scales. We submitted an ethics application to use the Shoulder and Elbow Clinic surveys to examine the structure of WLQ scale. We also began work looking at predictors of physician recommendations of return to work in specialty clinics. A piece of analysis has also been separated for the thesis work of our PhD Student (Kenneth Tang) on developing a clinical prediction rule for longer term claimants.

Researchers: Dorcas Beaton (Principal Investigator), Claire Bombardier, Kim Cullen, Sheilah Hogg-Johnson, Ivan Steenstra, Pierre Côté (University Health Network), Joy MacDermid (McMaster University), Sonia Pagura (Sunnybrook & Women's Health Sciences Centre), Robin Richards (Sunnybrook & Women's Health Sciences Centre), Andrea Thompson (Orthopaedic and Arthritic Institute)

Stakeholder Involvement: WSIB Specialty clinics, speciality clinic partners, and WSIB staff.

Potential Audiences and Significance: WSIB policy-makers, clinicians treating injured workers, researchers interested in the application of research findings directly into clinical practice.

Funding:

Beaton DE, MacDermid J, Richards R. Managing the "tail of the curve": The course, predictive factors and work-related outcomes of injured workers one year after attending the WSIB Specialty Clinics for upper limb disorders. WSIB RAC: \$287,332 (2005-2007)

The Measurement of Work Disability/Disability at Work (0117/0121)

Project Status: Ongoing

Introduction: This project includes five elements all aimed at improving our ability to measure the impact of limitations in health status on work productivity. The measures identify the impact of an injury or illness on work activities through self-reported limitations in job tasks. These measures may be markers for changes in productivity, may be precursors to disability resulting in work absence, and may also serve as indicators of productivity-related costs in an economic appraisal. In this set of projects, we will identify new measurement properties, factors associated with work disability, and also create links between clinical, community and workplace populations, as well as between different local, national and international networks of researchers interested in the measurement of work disability.

Objectives:

- To understand development, use and properties of current measures of work disability & productivity
- To conduct a concurrent comparison of different measures of at-work disability.
- To make recommendations for role of self-report measures of work disability in workplace studies

Methods: These set of projects will be using scale development and measurement methods, such as factor analysis and Item Response Theory. The study of measurement properties of existing scales will include validity and reliability analysis, and examining sources of potential bias in self-report, survey administration.

Results: Our worker productivity collaboration continued in 2011. We submitted a grant to support the work outlined in the objectives, which was successful. We held a collaborative meeting at The European League Against Rheumatism (EULAR) conference in May 2011. We also planned a fall/winter workshop on worker productivity measurement, which was well attended. Currently, work on the projects related to worker productivity measurement consensus is ongoing, we all as ongoing work of a trainee.

Researchers: Dorcas Beaton (Principal Investigator), Ben Amick, Cameron Mustard, Claire Bombardier, Dwayne Van Eerd, Emma Irvin, Sheilah Hogg-Johnson, Elizabeth Badley (University of Toronto), Annelies Boonen (OMERACT), Monique Gignac (ACREU), Mieke Haase (OMERACT), Dianne Lacaille (OMERACT), Robin Richards (Sunnybrook & Women's Health Sciences Centre), Sherra Solway (Toronto Rehabilitation Institute), Peter Tugwell (OMERACT), Douglas Veale (OMERACT), Suzanne Verstappen (UK)

Stakeholder Involvement: The WSIB is a stakeholder, and is also coordinating the WSIB shoulder and elbow specialty clinic, where our study will be conducted. The clinic medical director is a co-investigator, and clinic staff will also be involved. The OMERACT and CAN initiatives both integrate stakeholders into process. Peter Tugwell is our OMERACT mentor, and the CAN-IWH initiative will be well linked with that network.

Potential Audiences and Significance: A thorough understanding of work disability and level of production lost from injured workers in the workplace, and how to measure this construct optimally, will be of interest to researchers, employers, employees, insurers, pharmaceutical industry, disability managers and clinicians.

Funding:

Beaton D, Tang K, Smith PM, Lacaille D, Escorpizo R, Hofstetter C, Montie P, Verstappen S, Boonen A. Interpretability of measures of worker productivity: A Study defining meaningful benchmarks and changes in scores for use in clinical trials and clinical practice in arthritis. Canadian Arthritis Network (CAN): \$50,000 (2012-2013)

Beaton D, Bombardier C. Disability while at work: measuring the progression of at-work disability and workplace productivity loss. Canadian Arthritis Network (CAN): \$250,600 (2005-2007)

Bombardier C. Disability while at work: A comparison of different measures in persons with arthritis. Canadian Arthritis Network (CAN): \$76,488 (2004-2006)

Design of the Back Intervention Program (2160)

Project Status: New (Completed)

Introduction: In early 2011, the Ontario Workplace Safety & Insurance Board issued a request for proposals to design the components of the clinical treatment program in Ontario for workers who sustain disabling back injuries. The scope of the request for proposals was to cover the full continuum of care from date of injury to safe and sustained return-to-work and was to address the clinical management of disability in the acute, subacute and chronic phases.

Objective:

- To develop a comprehensive proposal for the organization and delivery of health care services to address the needs of workers disabled by a low back injury.

Methods: The project team, led by colleagues at the University Health Network (N Mahomed), consulted with other Canadian workers' compensation jurisdictions to document current models for the coordination and referral of care in the management of work-related low back pain. The project team surveyed the most relevant research literature and relied on expert opinion to define indications for care and used expert opinion to develop a proposed model of care for workers in Ontario disabled by a low back injury.

Results: The project team initiated work in May 2010 and presented a final report to the Ontario Workplace Safety & Insurance Board in July 2010. The primary recommendation focused on the establishment of regional assessment and treatment centres to evaluate patient referrals completing care under the current acute phase treatment model.

Researchers: Cameron Mustard (Institute Coordinator), Andrea Furlan, Jason Busse

Stakeholder Involvement: Extensive consultations and briefings with staff of the WSIB Health Care Division occurred throughout the four month period of the project.

Potential Audiences and Significance: This work will be of relevance to health care providers who treat workers with disabling low back injuries.

Funding:

Mahomed N, Rampersaud R, Busse J, Ellison P, Eyre M, Flannery J, Furlan A, Kim J, Loisel P, Mustard CA. Design of the back intervention program consulting services. WSIB (RFP) @ UHN: \$65,000 (.05 year)

Niagara Health System Evaluation (2165)

Project Status: New

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. Over the past two years, NHS has identified limitations in the integrity of OHS policies and practices across the seven sites in the system. Over the course of 2010, NHS senior management and union representatives committed to the 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 the three year period 2011-2013, the objectives of the organizational change plan are to reduce the incidence of total compensation claims registered with the Ontario Workplace Safety and Insurance Board by 25% and to reduce the total days of disability provided wage replacement benefits by WSIB by 25%.

Objectives:

- To document the process and measure the outcomes of the organizational change plan.
- To compare workers' compensation claim incidence and duration in the NHS to a comparable Ontario health care system for a three year period prior to and following January 2011.
- To conduct a repeated survey of a sample of approximately 350 NHS staff for each of three years (2011, 2012 and 2013); and two detailed case studies of the organizational change process.

Methods: The research plan has three components: 1) a quasi-experimental design, comparing workers' compensation claim incidence and duration in the NHS to a comparable Ontario health care system for a three year period prior to and following January 2011; 2) a repeated survey of a sample of approximately 350 NHS staff for each of three years (2011, 2012 and 2013); and 3) two detailed case studies of the organizational change process, using both qualitative and quantitative research methods.

Results: In 2011, this project submitted a funding application to the WSIB Research Advisory Council; completed ethics review of the research protocol; and designed and pilot tested a web-based survey instrument to establish baseline measures of NHS staff perceptions of organizational policies and practices related to the prevention of work-related musculoskeletal disorders and the management of disability arising from work-related injury and illness. The baseline survey will be administered to a random sample of 15% of NHS staff in the spring of 2012.

Researchers: Cameron Mustard (Principal Investigator), Ben Amick, Dwayne Van Eerd

Stakeholder Involvement: Partners supporting 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 other acute care health care institutions in the province of 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. This research project will also address gaps in the evidence base concerning the effectiveness and the cost/benefit ratio of integrated initiatives to reduce the burden of work-related disorders among health care workers.

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 2011, we continued work on a project to conduct an economic evaluation of low-intensity pulsed ultrasound in patients with tibial shaft fractures. 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: Systematic Reviews of the Scientific Literature on Spinal Disorders (0440)

Project Status: Ongoing

Introduction: The Cochrane Collaboration 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 Review Group (CBRG), one of 52 review groups in the Cochrane Collaboration. The editorial and central coordinating activities associated with the CBRG are described here. The activities associated with Institute researchers who are conducting Cochrane reviews are described in project 670. The work of the Cochrane BRG remains closely aligned with the systematic review program initiated at IWH in 2005.

Objectives:

- To prepare, maintain and disseminate systematic reviews of the scientific literature on spinal disorders.
- To maintain a specialized database of trials on spinal disorders and related disorders as a resource for those conducting literature searches, and to help identify gaps in the literature and to suggest areas for further studies.
- To communicate regularly with our CBRG stakeholders.

Methods: The methodology varies according to the product, but generally involves a literature search, synthesis of the evidence and publication of a paper.

Results: We planned and conducted a survey with the website and editorial office support. The findings from this survey were presented at a poster session at the Canadian Cochrane Symposium. Discussions and preliminary work on the update of the website, as well as the author support services, is ongoing. Also, we successfully renewed our CIHR grant led by Jeremy Grimshaw for a five year term and totalling almost \$9.6M for all Canadian Cochrane Entities. At this point, the Ontario MOH-LTC funding result remains outstanding.

Researchers: Claire Bombardier (Principal Investigator), Allison Kelly, Andrea Furlan, Rachel Couban, Jill Hayden (Dalhousie University), Maurits Van Tulder (Vrije Universiteit, Amsterdam), Pierre Côté (University Health Network)

Stakeholder Involvement: Clinical stakeholders 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.

Potential Audiences and Significance: Patients, health care professionals, policy-makers and payers would be particularly interested in the results of our work. 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:

Furlan AD, Irvin E, Kahan M, Chaparro L, Mailis-Gagnon A, Srivastava A, and NOUGG. Canadian Guideline for Safe and Effective Use of Opioids for Chronic Non-Cancer Pain. Canada: National Opioid Use Guideline Group (NOUGG); 2010. Available from: <http://nationalpaincentre.mcmaster.ca/opioid/>

Furlan AD, Pennick V, Ammendolia C, Hayden J. Non-surgical treatments for non-specific low-back pain. In: Busse J (ed). Evidence-Based Orthopaedics. BMJ: Submitted.

Waseem Z, Boulias C, Gordon A, Ismail F, Sheean G, Furlan AD. Botulinum toxin injections for low-back pain and sciatica. Cochrane Database of Systematic Reviews 2011; 1: CD008257.

Presentation:

Pennick V, Furlan AD, Bombardier C, van Tulder M. Have Cochrane back and neck reviews made an impact on practice? 15-18 Mar 2011; Melbourne, Australia: International Forum on Low-Back Pain Research in Primary Care.

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)

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.

Methods: Systematic methodology includes literature search, paper screening for inclusion/exclusion criteria, data extraction of included studies, quality appraisal of included studies, and findings synthesis.

Results: The study of acupuncture and dry-needling for low-back pain (A Furlan) has been split into three protocols in preparation for updating. The Complementary and Alternative Medicine (CAM) Therapies for Back Pain evidence report/technology assessment was completed.

Researchers: Andrea Furlan (Principal Investigator), Claire Bombardier, Emma Irvin, Rhoda Reardon (College of Physicians and Surgeons)

Stakeholder Involvement: 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 current information on the effectiveness of treatments and therapies, thereby assisting evidence-based treatment and payment decisions by patients, health care professionals, policy makers and payers. The College of Physicians and Surgeons of Ontario was involved in developing clinical practice guidelines of opioid use for chronic non-cancer pain. These guidelines will be disseminated by all Colleges in Canada to all primary care physicians and specialists dealing with pain. We have also been involved with the Chalmers Institute in Ottawa to do a comprehensive review of CAM therapies (acupuncture, massage and spinal manipulation) for neck and low-back pain, looking at efficacy, adverse events and cost-effectiveness. These reviews will inform funding decisions at the National Centre for Complementary and Alternative Medicine (NIH-NCCAM).

Publications:

Ammendolia C, Furlan AD, Imamura M, Irvin E, Van Tulder M. Chapter 20: Needle acupuncture. In: Dagenais S, Haldeman S, editors. Evidence-Based Management of Low Back Pain. St. Louis: Elsevier Mosby, 2011.

Furlan A, Chapparo LE, Irvin E, Mailis-Gagnon A. Undertreated pain and opioid misuse: Can we kill two birds with one guideline? Accepted: Canadian Medical Association Journal.

Imamura M, Furlan AD, Dryden T, Irvin E. Chapter 16: Massage Therapy. In: Dagenais S, Haldeman S, editors. Evidence-Based Management of Low Back Pain. St. Louis: Elsevier Mosby, 2011.

Funding:

Furlan AD, Flannery J, Reardon R. Opioid Guidelines Dissemination amongst Ontario physiatrists. AFP Innovation Fund: \$45,604 (2009-2011)

Back Guide/Ontario Occupational Health Nurses' Association Journal (0830)

Project Status: Completed

Introduction: The Institute has developed a number of evidence-based products in response to clinical stakeholders' requests for critiques of the research literature. *From the Research Frontier* is a regular feature of the Journal of the Ontario Occupational Health Nurses' Association (OOHNA), the official publication of the Association. Published three times a year, the column highlights the work of Institute researchers and colleagues that may be important to our occupational health stakeholders. The BackGuide™ is an educational web site for health-care providers who are involved with the management of low-back pain. Based on research conducted by the U.S. Agency for Health Care Policy and Research (AHCPR) and developed by the Institute in collaboration with the University of Calgary, it is designed to improve patient care and foster better use of valuable health-care resources.

Objectives:

- To make the knowledge gained through high quality research both accessible and useful to our stakeholders.

Methods: The methodology varies according to product, but generally involves a literature search, synthesis of the evidence and publication of a paper. BackGuide updates will involve updating the literature supporting the management of the clinical cases and possibly the development of another clinical case.

Results: References for BackGuide have been updated with recent guidelines for the management of LBP. No articles were submitted to the OOHNA journal.

Researchers: Vicki Pennick (Institute Coordinator), Allison Kelly, Claire Bombardier, Philip Kiff

Stakeholder Involvement: Clinical network members, clinical stakeholders and the general public. Stakeholder feedback is obtained through needs assessment and contacts made by our KTE associate and scientific personnel and will guide product development.

Potential Audiences and Significance: By developing and distributing evidence-based clinical products, we support professional excellence and improved quality of health care for workers.

A Randomized Control Trial of Bone Stimulators for Fracture Healing (2110)

Project Status: Ongoing

Introduction: Tibial fractures, the most common long bone fractures, are usually treated operatively. These injuries are associated with a substantial amount of time off work and delay in return to full function. Some surgeons prescribe low-intensity, pulsed ultrasound to speed healing. The results of animal trials and uncontrolled human trials have suggested that low-intensity pulsed ultrasound (30 mW/cm²) may accelerate fracture healing. Putative mechanisms of action include a positive impact on signal transduction, gene expression, blood flow, tissue modeling and remodeling, and the mechanical attributes of the callus. Of the two small RCTs that directly addressed the effect of low-intensity, pulsed ultrasound on healing in operatively managed tibial fractures, one suggested a benefit for the procedure, the other a trend in favour of control. Neither trial explored the effect of low-intensity, pulsed ultrasound on functional recovery from tibial fractures. The impact of ultrasound treatment on fracture healing thus remains uncertain.

Objectives:

- To conduct a prospective, multi-centre, randomized, blinded, placebo-controlled trial to determine the effect of low-intensity pulsed ultrasound on the functional recovery from closed or open tibial shaft fractures, treated operatively, in skeletally mature adults of at least 18 years of age.
- To evaluate the impact of low-intensity, pulsed ultrasound, applied to operatively treated tibial shaft fractures, on functional status and time to return to normal activities.
- To assess time to radiographic healing of tibial fractures, rates of malunion and non-union of tibial fractures, and rates of secondary procedures (operative and non-operative).

Methods: For each arm of the trial we will measure resource use and estimate costs of hospitalization and other components and collect data to estimate lost economic productivity. It has been conservatively estimated that adding lost productivity can increase the cost of treating a tibial fracture per patient by approximately seven-fold. Second, we will convert Health Utilities Index scores (a health status classification system that yields a mean score per group on the interval from death (=0) to perfect health (=1)) at baseline and follow-up into a measure of QALY. We will evaluate the cost-effectiveness of LIPUS from two perspectives: (1) the perspective of the payer, which will include direct healthcare costs only, and (2) the societal perspective, which will include both direct costs and indirect costs (e.g., time lost from work). We will also explore costs from the perspective of a WSIB-like payer by including wage replacement benefits. The cost structure and reimbursement systems are different enough between U.S. and Canada that one cannot assume common costs. We will empirically explore whether units of utilization of various services differ between countries, and decide whether to separately model units of various services in addition to unit costs.

Results: The recruitment of study subjects and data collection is ongoing. The write-up of results from the pilot study (n=51) for submission to peer review is currently underway.

Researchers: Jason Busse (Co-Principal Investigator), Gordon Guyatt (Co-Principal Investigator, McMaster University), David Saunderson (University of Waterloo), Emil Schmitsch (University of Toronto), James Heckman (University of Waterloo), Kwok Leung (University of Waterloo), Mohit Bhandari (McMaster University), Paul Torretta III (Boston University)

Stakeholder Involvement: The trial is co-funded by the Canadian Institutes of Health Research and Smith & Nephew, and supported by the CLARITY Methods Centre at McMaster University. We have had multiple meetings with our industry partner (Smith & Nephew) to optimize our study design.

Potential Audiences and Significance: Tibial fractures are a common and costly injury, both in terms of direct and indirect (time lost at work) costs. If low-intensity pulsed ultrasound did produce clinically important reductions in time to recovery from tibial fractures, insurers and other payors, employers, clinicians and patients would be interested in these results. If this modality was not effective, the same parties would benefit from this knowledge as low-intensity pulsed ultrasound is now commonly used to augment fracture healing.

Publications:

Busse JW, Bhandari M, Guyatt GH, Heels-Ansdell D, Kulkarni AV, Mandel S, et al. Development and validation of an instrument to predict functional recovery among a sample of tibial fracture patients. In press: Journal of Orthopaedic Trauma.

Dijkman BG, Busse JW, Walter SD, Bhandari M; on behalf of the TRUST Investigators. The impact of clinical data on the evaluation of tibial fracture healing. *Trials* 2011; 12(1): 237.

Presentation:

Busse JW, Bhandari M, Guyatt GH, Heels-Ansdell D, Kulkarni AV, Mandel S, et al. The Somatic Pre-Occupation and Coping Questionnaire predicts functional recovery in tibial fracture patients. 7-9 Jul 2011; St. John's, Newfoundland & Labrador. 2011 Canadian Orthopaedic Association Conference.

Funding:

Busse JW, Bhandari M, Briel M, Einhorn T, Gnam WH, Guyatt GH, Schemitsch EH, Tornetta P. An economic evaluation of low-intensity pulsed ultrasound in patients with tibial shaft fractures. CIHR: \$60,000 (2010-2011).

Return to Work Practices

The WSIB has identified improved return to work outcomes as a priority in reducing costs to the system. They articulate the 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. Approximately 20% of disability episodes compensated by the WSIB involve duration disability longer than twelve weeks. There is some emerging evidence that the persistency of long duration disability episodes is increasing. Understanding the factors which may lead to or which may predict this long duration disability and poor return to work outcomes is a significant part of the IWH portfolio both in our observational and qualitative research studies described below. In 2011, we continued work on a project to look at the “Skills for job recovery” which tests the feasibility of an online program for developing self-efficacy and the skills needed for the job of returning to optimal work. In addition, working with some of our stakeholders we examined the role of co-workers in the return to work process.

Recurrent or Persistent Work Disability Episodes (0341)

Project Status: Ongoing

Introduction: Following an occupational injury and work absence, recurrence of work absence is a critical outcome to consider when assessing sustainability of return-to-work (RTW). It is also associated with future persistent work absence. Indeed, 20% of injured workers with a musculoskeletal (MSK)-related lost-time claim have one recurrence or more of work absence in the first six months post-injury, and are more than twice as likely as workers without recurrences to still be off work. Our study seeks to identify risk factors of long-term RTW trajectories of injured workers, and to describe long-term health, work limitations, and non-work role participation consequences of trajectories, with a focus on recurrent and persistent work absence.

Objectives:

- To identify modifiable workplace, insurer, healthcare provider (HCP), and worker risk factors for recurrent and persistent work absence over 24 months post-injury.
- To describe the differences in, and identify the determinants of, the health status, work limitations, and role participation in parenting and caregiving of injured workers over 24 months post-injury, associated with four RTW trajectories. To determine the impact of variations in definitions of recurrence of work absence (e.g., using administrative data vs. self-report) on rates of recurrences.
- To provide a comprehensive and long-term assessment of RTW trajectories by extending our cohort follow-up period up to 24 months.

Methods: We conducted a prospective cohort study of 632 injured workers, who filed WSIB lost-time claim for an MSK-related work injury of the back or upper extremity. Data was collected via telephone interviews at 1 month, 6 months, 12 months, and 24 months post-injury. Linkage of the interview with WSIB data allowed data extraction on compensation duration and history, leading to a comprehensive picture of RTW trajectory.

Results: The manuscript on OPPs was finalized and submitted for peer review. Factor analysis of HCP questions conducted and decision made to operationalize HCP questions. Longitudinal analysis of self-efficacy was undertaken to examine the predictive validity. We also planned a two week visit with Sandra Brouwer to finalize the analysis and draft out a manuscript on the topic. A draft manuscript was completed and circulated to team members for review. A comparison of self-report and WSIB benefits data was initiated to examine agreement between the two on the date of interview.

Researchers: Sheilah Hogg-Johnson (Principal Investigator), Colette Severin (Institute Coordinator), Cameron Mustard, Curtis Breslin, Hyunmi Lee, Ivan Steenstra, Nancy Carnide, Gail Hepburn (University of Lethbridge), Pierre Côté (University Health Network), Renée-Louise Franche (Vancouver General Hospital)

Stakeholder Involvement: WSIB staff have been involved in determining the main areas of research focus from the beginning of the project. They were also involved in the recruitment process of the study. WSIB has been involved from the beginning of this project in identifying objectives, participating in recruitment, and in knowledge exchange and transfer.

Potential Audiences and Significance: Current RTW interventions do not focus on preventing recurrence and persistent work absence. Our study will provide evidence to guide future RTW interventions, whether they are provided by WSIB or by other insurers/companies. The outcomes of this study will be relevant to current and planned activities in return-to-work at WSIB. Specifically, the findings will strengthen WSIB case assessment ability, and assist in the design and selection of appropriate interventions. Furthermore, the study findings can be incorporated into WSIB's external education initiatives. Returning an injured worker to work following an occupational injury is the shared responsibility of the worker, employer, health-care provider, and the WSIB. This study will provide compelling evidence to support effective workplace-based disability management, integrated with insurer and health-care provider activities, to prevent recurrent and persistent work absence and facilitate sustainable RTW. We anticipate that the importance of involving all RTW parties will be supported, with the main locus of action being the workplace.

Publications:

Amick BC, Steenstra IA, Hogg-Johnson S, Katz J, Lee H, Brouwer S, Franche RL, Bultmann U. How do organizational policies and practices affect return to work and work role functioning following a musculoskeletal injury. Submitted: American Journal of Public Health.

Brouwer S, Franche RL, Hogg-Johnson S, Lee H, Krause N, Shaw WS. Return-to-work self-efficacy: development and validation of a scale in claimants with musculoskeletal disorders. *Journal of Occupational Rehabilitation* 2011; 21(2): 244-258.

Funding:

Franché RL, Breslin C, Cote P, Hogg-Johnson S, Mustard C, Reardon R. Recurrence and persistence of work absence: Understanding their risk factors, and long-term impact on workers' health, work limitations, and non-work role participation. WSIB RAC: \$246,674 (2006-2008)

Skills for Job Recovery: Testing the Feasibility of an Online Program for Developing Self Efficacy and the Skills Needed for the Job of Returning to Optimal Work (2125)

Project Status: Ongoing

Introduction: Injured workers can lack the skills and experience to navigate their way through the potential obstacles to successful return to work (RTW). The purpose of this project is to assess the need for and feasibility of an online support and education program for developing the “Skills for the Job of Recovery.” Through the use of focus groups and survey methods, the content, internet accessibility and literacy, and receptivity of workers can be evaluated. Our workplace partners are the specialty clinics who offer the best access to workers at a later stage in recovery from across the province. Our study will provide a template for content and delivery of this program.

Objectives:

- To explore the feasibility of conducting a web-based support and education program (Skills for the Job of Recovery) that aims to empower injured workers attending WSIB specialty clinics in the successful navigation of their work recovery journeys (specifically improved self-efficacy for RTW, lower health distress, lower illness intrusiveness, improved knowledge of skills).

Methods: We will use focus groups and survey methods to evaluate the content, internet accessibility and literacy, and receptivity of workers. Seven focus groups (three with workers, two with clinicians, and two to be determined based on the first five) will be conducted by a trained facilitator. A coordinator will be present and take field notes and assist. Injured workers’ groups will be recruited from those attending the WSIB Shoulder and Elbow Clinic. Focus groups will be audio-taped and transcribed, and content-based analyses will proceed. Furthermore, a convenience sample of 200 injured workers attending a WSIB Specialty Clinic for their first appointment and who are able to complete a questionnaire in English will be asked to complete a survey about their internet access and confidence.

Results: We initiated the survey portion of the study at Shoulder and Elbow Clinic. Data collection is currently underway. The focus group analyses and interviews with vendors of online learning systems is ongoing. We received a project extension until May 2012.

Researchers: Dorcas Beaton (Principal Investigator), Ben Amick, Carol Kennedy, Dwayne Van Eerd, Ellen MacEachen, Ivan Steenstra, Kenneth Tang, Stephanie Chesser, Gabrielle van der Velde (University of Toronto), Iona MacRitchie (Sunnybrook Health Sciences Centre), Joy MacDermid (McMaster University), Kate Lorig (Stanford University), Peter Smith (Monash University), Robin Richards (Sunnybrook & Women's College Health Sciences Centre), William Gnam (Centre for Addiction and Mental Health)

Stakeholder Involvement: Injured workers will be recruited from the Holland Centre Clinic and potentially the London site. The WSIB specialty clinic programs will be used as the source of longer term injured workers for the study, specifically the Shoulder and Elbow Clinic (Holland Orthopaedic and Arthritic Centre) with partners in the Hand and Upper Limb Clinic and the Post-traumatic Stress Clinic.

Potential Audiences and Significance: Our project will test the feasibility of running an effective online support and education program to improve and support Job of Recovery skills (empowerment, self-efficacy) that are required by injured workers for managing their RTW process. While we will focus on workers attending WSIB specialty clinics, we will also assess the potential to deliver this program through workplaces, WSIB case managers, and health care providers.

Funding:

Beaton DE, Smith PM, Van Eerd D, Kennedy C, Tang K, Steenstra I, Gnam W, MacRitchie I, Lorig K, van der Velde G. Skills for the job of recovery: Testing the feasibility of an online program for developing self-efficacy and the skills needed for the job of returning to optimal work. WSIB BTG: \$58,145 (2009-2010)

Training Initiatives in Work Disability Prevention (0144)

Project Status: Ongoing

Introduction: The Institute is recognized for its expertise in evidence-based practice and work disability prevention. It has received an increasing number of requests to share its expertise and to contribute to the education and training of educators, clinicians and future researchers. The IWH supports the CIHR Work Disability Prevention (WDP) Program, which is now based at the University of Toronto, by contributing Scientist's time and expertise. We also encourage our students to participate in the program. The WDP program has attracted international attention and recognition, and many non-Canadian students apply.

Objectives:

- To influence the next generation of occupational health professionals and research trainees by participating in the development and execution of the CIHR WDP training initiative.

Methods: Many scientists at the IWH are involved as mentors or committee members for this CIHR training initiative in work disability prevention.

Results: In 2011, we planned and offered an e-course and two week summer session in June. We also planned the publication of a work disability prevention handbook to be published by Springer. Work on the WDP Handbook is ongoing. We also organized a special "Sociopolitical Challenges" symposium with international guest presenters. As well, we held quarterly Program Executive Committee meetings.

Researchers: Ellen MacEachen (Institute Coordinator), Curtis Breslin, Donald Cole, Emile Tompa, Sheilah Hogg-Johnson, Jaime Guzman (University of British Columbia), Pierre Côté (University Health Network), Renée-Louise Franche (Vancouver General Hospital)

Stakeholder Involvement: There is a Program Advisory Committee consisting of policy-makers, employers, unions, students, and injured workers. A special "Sociopolitical Challenges" symposium included Canadian and international presenters, presentations from WSIB, unions, health care providers, and advocates.

Potential Audiences and Significance: The IWH training initiatives will be of particular interest to occupational health researchers, health-care professionals, educators, clinicians, and research trainees.

Publications:

Hogg-Johnson SA, MacEachen E. Chapter 9: Methodological issues in work disability prevention. In: Loisel P, Anema, editors. Handbook of Work Disability: Prevention and Management. Springer.

Skakon J, MacEachen E. How does leader stress affect employee stress? Results from a qualitative study. Submitted: Journal of Health Education and Behaviour.

Steenstra I, Busse JW, Hogg-Johnson S. Chapter 16: Specific disorder-linked determinants - musculoskeletal disorders. In: Loisel P, Anema H, editors. Handbook of Work Disability: Prevention and Management. Springer.

Tjulin A, MacEachen E, Stiwnne EE, Ekberg K. The social interaction of return to work explored from co-workers experiences. Disability & Rehabilitation 2011; 33(21-22): 1979-1989.

Loisel P, Anema H, MacEachen E, Pransky G, editors. Managing work disability in the 21st century. Accepted: Springer Press.

Funding:

Loisel P, Breslin FC, Hogg-Johnson S, MacEachen E, Tompa E, Smith PM, Lippel K, Franche RL, Bultmann U, et al. CIHR strategic training program in work disability prevention. CIHR: \$1,950,000 (2009-2015)

Buddies in Bad Times: The Role of Co-Workers in the Return to Work Process (2240)

Project Status: Ongoing

Introduction: Co-worker support is important for successful return to work, yet there is little understanding of the challenges that face co-workers when an injured colleague returns to work (RTW) on modified or accommodated duties. To better understand these challenges, we will interview unionized electricians working within the industrial construction sector. We will examine the social, organizational and systemic barriers that might work against the creation of a supportive and respectful accommodated work environment. We believe that co-workers have a unique perspective on issues that may impact successful RTW, such as the impact of accommodated work on productivity; teamwork and bonuses; the issue of legitimacy of the injury and; sense of (un)fairness or “special” treatment. Interviewees will be asked for solutions to any challenges that they describe. The project has strong partners in the construction sector and electrical trades who will be engaged in consultative workshops, and in a targeted dissemination of findings.

Objectives:

- To gain information about the challenges and rewards of co-worker support for accommodated colleagues
- To understand the social dimensions of RTW from the perspective of co-workers.
- To explore their perceived role in the process of supporting an injured colleague’s RTW.
- To determine, from their perspective, what are the opportunities and challenges of the RTW process for injured colleagues.
- To understand these results as they relate to workplace disability prevention models of RTW.
- To identify constructs around co-worker support with item-generation for the purpose of developing a questionnaire on co-worker social support.

Methods: We will conduct between 15-20 interviews with electricians. We will also conduct two by-invitation consultative focus groups. One focus group will be with injured workers and another with union stewards and business field representatives. The focus groups will focus on issues related to RTW and the role of co-workers. Focus groups will be recorded and transcribed.

Results: A Project Coordinator was hired. Ethics submission was approved. We initiated and completed focus groups. Recruitment of subjects for individual interviews was also completed. Individual interviews are ongoing. We have also started the transcription of interview data and data coding – this work is ongoing. The Principal Investigator and Project Coordinator are currently on leave.

Researchers: Agnieszka Kosny (Principal Investigator, Monash University), Marni Lifshen, Ivan Steenstra, Dee Kramer (University of Waterloo), Diana Pugliese (OHTN), Richard Wells (University of Waterloo)

Stakeholder Involvement: Carmine Tiano, Director of WSIB Training and Advisory Services for the Provincial Building and Construction Trades Council of Ontario is a member of our research team. We will utilize the networks facilitated by Mr. Tiano to help us craft prevention messages that are context-specific to the construction trades, as well as to help us disseminate our findings.

Potential Audiences and Significance: The findings of the research study will be disseminated using the networks of our stakeholder partners including that of the IBEW, Ontario General Contractors Association, the Building Trades Council, Council of Ontario Construction Associations, as well as the internal communication of Guild Electric Limited. The IBEW has 15,000 members in Ontario; the Building Trades’ network includes 14 trades and 122 locals across Ontario; OGCA has 217 members and several alliances and partnerships with other associations. Guild Electric Limited is a large company with 500 employees.

Funding:

Kosny A, Kramer D, Wells R, Steenstra I, Majesky G, Ryan E, Tiano C. Buddies in bad times: The role of co-workers in the return to work process. WSIB RAC: \$50,809 (2010-2012)

Work Incapacity and Vocational Rehabilitation (2140)

Project Status: New

Introduction: When it is not possible, or seems unlikely, that an injured worker will return to their pre-injury occupation, workers' compensation agencies provide vocational rehabilitation services to support reintegration in the labour force. Vocational rehabilitation programs typically provide training in new occupational skills and some degree of employment placement services. Many vocational rehabilitation programs do not achieve high rates of successful outcomes. A recent performance audit of workers' compensation vocational rehabilitation outcomes in Ontario's found that that 44% of workers completing a vocational rehabilitation program had obtained employment. To support performance improvements in vocational rehabilitation programs, this project will examine characteristics of workers and characteristics of vocational rehabilitation services that are associated with successful program outcomes.

Objectives:

- To identify characteristics of workers that indicate suitability for referral to vocational rehabilitation services.
- To determine if there are modifiable characteristics of disabled workers that may improve suitability for vocational rehabilitation.
- To identify differences in vocational rehabilitation outcomes that are associated with geographic region and with characteristics of vocational rehabilitation services.

Methods: For our primary analysis, we will access a large and comprehensive WSIB administrative database to develop regression models. Independent variables in the regression will include characteristics of workers, employers, and the LMR program. Dependent variables will include completion of the LMR program, employability at program completion, and LMR program costs to explore associations. Our secondary analysis, based on surveys of subgroups of workers referred to the LMR program, and hence less generalizable than our primary analysis, will explore associations between characteristics of workers, employers, and the LMR program with employment status following program completion and quality of life as measured by the short-form 12. We will also assess the association between completion of the LMR program and being declared employable at completion, with employment status following program completion. Each of the independent variables will be tested in a univariable regression model, logistic regression models for binary outcomes, and linear regression models for continuous outcomes. All variables will then be entered into a multivariable regression model. A variable will be considered statistically significant if it has a p-value <0.05 in the multivariable model.

Results: There was a delay in obtaining a research agreement to access the WSIB data. The research agreement is now complete and we will begin the extraction of records and will create a database for analysis.

Researchers: Jason Busse (Principal Investigator), Cameron Mustard, Gordon Guyatt (McMaster University)

Stakeholder Involvement: The development of this project has benefited from the contributions of WSIB staff who have been leading the reform of vocational rehabilitation services for workers' compensation beneficiaries in Ontario.

Potential Audiences and Significance: The results of this study will be of interest to policy makers in provincial workers' compensation agencies, employers, health care providers and disability insurance plan administrators.

Compensation and Benefits

Over the course of regular meetings with WSIB staff, the Institute has identified a number of opportunities for our research to contribute to understanding the factors related to long-duration disability episodes. This includes analyses of the markers of claims persistency under two different sets of legislation Bill 162 and Bill 99.

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. This ongoing research program considers the post-accident experience of individuals who have sustained permanent impairment due to a work-related accident occurring in Ontario and British Columbia. This research is supported by grant funding from the U.S. National Institute of Occupational Health & Safety (NIOSH) and WorkSafeBC. In 2011, our work on long duration claims was completed.

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 seriously injured workers and other particular groups of workers. One of the key objectives in this area is to provide evidence based research that responds to the knowledge gaps in understanding the consequences of work injury and to understand the impact of legislation, policies and programs on these consequences within different groups of workers. In 2011, a critical review of the literature on experience rating and workers' compensation systems was completed which will result in a special issue of *Policy and Practice in Health and Safety* in 2012. We also received funding to start a new project which will compare a variety of outcomes in the 1993 early claimant cohort and the 2005 readiness for return to work cohort.

Adequacy and Equity of Workers' Compensation Benefits (0418)

Project Status: Ongoing

Introduction: Prior to June 30, 2002, WorkSafeBC had a bifurcated award system for compensating long-term work disability arising from work-related accidents. Two methods of benefits calculation were considered with each claim—a loss-of-function/permanent-impairment benefit and a loss-of-earning-capacity benefit. A worker was eligible for whichever benefit was higher. Bill 49, effective June 30, 2002, introduced a single award system for long-term work disability benefits based on loss-of-function. There are concerns that the change in benefits policy will have an adverse impact on some beneficiaries, particularly those who would have received a loss-of-earning-capacity benefit under the old system. Other changes to the short- and long-term disability benefit programs may also have an adverse impact on the adequacy and equity of wage-replacement benefits received by injured workers. These include a change of the benefit formula from 75% pre-tax to 90% after tax of pre-injury earnings, changes to cost-of-living adjustment, integration of CPP disability benefit into the benefits formula, and changes to benefits received after age 65.

Objectives:

- To investigate the impact of changes in benefits calculation on the financial circumstances of workers' compensation beneficiaries.
- To investigate the adequacy and equity of wage-replacement benefits provided by the pre- and post-Bill 49 benefit programs, including earnings and earnings losses; lost earnings replacement; differences of earnings losses between women and men; regional differences in earnings losses; principal income sources post accident; marital formation/dissolution post accident.

Methods: Using a sample of long-term disability claimants from the pre-June 2002 claimant cohort, a counterfactual analysis is performed, i.e., the benefits the cohort would have received if they were to receive benefits under Bill 49. The sample frame are claimants who had a work accident between 1990 and 1994. This frame is linked to the Longitudinal Administrative Databank (LAD), which is a 20% random sample of Canadian tax filers. Actual benefits received by claimants are linked along with an identifier indicating the type of benefits received (i.e., loss-of-function or loss-of-earning-capacity benefit). We expect to identify approximately 18-19% of this frame in the LAD, based on previous work. For each claimant identified in the LAD, we estimate on a yearly basis: 1) the after-tax labour-market earnings before and after the accident year, 2) the pre- and post-Bill 49 benefits, 3) the earnings recovery rate post-accident, and 4) the lost wage-replacement rate with pre- and post-Bill 49 benefits. Earnings recovery and wage-replacement rates are calculated in two ways: 1) a comparison with pre-injury, after-tax earnings, and 2) a comparison with a sample of uninjured counterparts that have similar socio-demographic characteristics and earnings profiles prior to the accident year. Linkage and analyses for short-term disability claimants are based on frames from calendar years 1996, 1998, 2000, and 2002.

Results: There have been ongoing consultations to assist WorkSafeBC with the presentation of the study report to their Board of Directors and release of the study report to the public. A manuscript has been submitted for peer review. We also presented the study findings to the injured worker community in March 2011, as well as at the RAACWI Stakeholder Symposium in November 2011. An Issue Briefing on the study findings was released in April 2011.

Researchers: Emile Tompa (Principal Investigator), Heather Scott-Marshall, Miao Fang

Stakeholder Involvement: Senior policymakers at WorkSafeBC and BC worker representatives.

Potential Audiences and Significance: This project is of interest to both workers and workers' compensation insurance providers across Canada. WorkSafeBC policy-makers are interested in the comparison of the two benefit programs. Other jurisdictions will also be interested in this study, since the benefits programs in BC are quite unique, particularly the long-term disability program in existence prior to the introduction of Bill 49.

Publications:

Saunders R. The adequacy of workers' compensation benefits. Toronto, ON: Institute for Work & Health, Issue Briefing, April 2011.

Tompa E, Mustard CA, Sinclair S. Evidence from Canada on the adequacy, equity and cost of two approaches to compensation for permanent impairment from work accidents. IWH Working Paper #210.

Tompa E, Scott-Marshall H, Fang M, Mustard CA. Comparative benefits adequacy and equity of three Canadian workers' compensation programs for long-term disability. IWH Working Paper #350.

Funding:

Tompa E, Mustard CA, Koehoorn M. Adequacy and equity of British Columbia workers' compensation benefits. WorkSafeBC: \$163,200 (2006-2008)

Examining Explanations for the Increasing Frequency of Long Duration Compensation Claims (0327)

Project Status: Completed

Introduction: There has been growing concern among the Ontario prevention partners about the increase in days on benefits among Ontario WSIB claimants, including the increasing numbers of claims being locked in at the six year time point.

Objectives:

- To identify markers of claims persistence under two different sets of legislation - Bill 162 and Bill 99.

Methods: A core data file of cohorts of claimants from 1990 to 2001 inclusive was created to be used by all members of the working group for exploration. These cohorts were identified using an agreed upon set of inclusion/exclusion criteria for these cohorts. All working groups used the core data file when extracting different measures. Denominators considered for the first hypothesis included all claimants and the entire labour force. For case mix, we considered age, sex, occupation, industry, injury descriptors, pre-injury wage, etc. Other markers related to the change from Bill 162 to Bill 99 were extracted and included: 12 consecutive months on TT/LOE benefits, changing status from NLT to LT, claim re-opens, health care utilization, VR/LMR activity, locked-in status, FEL and NEL awards. Time trends for various markers were explored in population of all claimants in cohort and in population of those locking in.

Results: Work on the milestones analysis continued with the examination of each milestone, how they had changed over time, and how accounting for them affected what we saw for year to year variation. A draft manuscript for application of the statistical model “mover-stayer” was completed. We examined multivariate models of the probability of NEL award and probability of locking-in, given receipt of NEL, for the pre and post 1998 period. We also prepared and submitted the final report to the WSIB RAC. We are currently working on five manuscripts from this research: paper 1 is on baseline attributes and probability of locking in; paper 2 is on baseline attributes, distribution of benefit receipt over course of claim and by year of accident; paper 3 is on early opioid bills and their relationship to claim outcomes; paper 4 is on the mover-stayer model; and paper 5 is on the analysis of milestones.

Researchers: Sheilah Hogg-Johnson (Principal Investigator), Andrea Furlan, Arold Davilmar, Ben Amick, Cynthia Chen, David Tolusso, Emile Tompa, Hyunmi Lee

Stakeholder Involvement: The WSIB working group on claims persistence under the guidance of Judy Geary.

Potential Audiences and Significance: The WSIB is interested in understanding the reasons for the recent increase in claims persistence.

Funding:

Hogg-Johnson S, Tompa E, Amick BC. The problem of claims persistency – What is driving increases in persistent and locked-in claims? WSIB-RAC: \$182,583 (2008-2010)

Immigrant Workers' Experience after Work-related Injury and Illness (0273)

Project Status: Completed

Introduction: Immigrants are very important to the Canadian labour force. Between 1991 and 1996 immigrant workers accounted for 70% of all labour force growth and are expected to account for almost all net labour force growth by 2011. Immigrants make up 27% of Ontario's and 44% of Toronto's population. Immigrants, particularly visible minorities, tend to be concentrated in precarious, low waged jobs (processing, services, manufacturing) and many hold jobs incommensurate with their education and experience. Those workers with high job insecurity, poor language skills, and a lack of familiarity with Canadian social programs may face particular challenges when injured at work. While other research has investigated risks faced by immigrant workers, little is known about their experiences post-injury, including how they manage, cope and access workplace support, workers' compensation and health-care systems in Canada.

Objectives:

- To examine the experiences of injured immigrant workers in Toronto – a city with the highest level of immigration in Canada.
- To examine workers' experiences as they navigate the workers' compensation system, as well as, their knowledge of and willingness to invoke workplace rights after injury.
- To provide important information about the experiences of a group of workers that represent an important and growing segment of our labour force and speak to the ways in which workplace practices, health-care services, and compensation policies can best serve these workers.

Methods: This study will involve in-depth interviews with 30 injured immigrant workers and 10 service providers. We will first interview service providers (worker advocates, health care providers, settlement counselors, etc.) who can speak to key issues facing immigrant workers, challenges encountered after injury and potential systemic problems and barriers. Next, working closely with worker groups, multicultural organizations, and health care providers, we will recruit two groups of injured immigrant workers – those who have not filed a claim and those who have experience with the compensation system. In our analysis, we will pay special attention to how education, ethnicity, gender, age and language-knowledge shape workers' experiences and trajectories.

Results: Following the completion of data analysis, a manuscript was prepared and accepted for publication in a peer-reviewed journal.

Researchers: Agnieszka Kosny (Principal Investigator, Monash University), Ellen MacEachen, Marni Lifshen, Peter Smith (Monash University)

Stakeholder Involvement: The following individuals are involved in the development of the project and on the study advisory committee: Basil Boolis, Bright Lights Group c/o Injured Workers Consultants; Brian Gibson, LAMP Community Health Centre; Carl Kaufman, Toronto Workers' Health and Safety Legal Clinic; Constanza Duran, Injured Worker Consultants; Gail Lush, National Network on the Environments and Women's Health, Institute for Health Research, York University; Luise Mitschele, WSIB; Marion Endicott, Injured Worker Consultants; Orlando Buonastella, Injured Worker Consultants; Rebecca Lok, Injured Worker Consultants.

Potential Audiences and Significance: The study research team is well-connected to a diverse range of research groups and stakeholders. Drs. Kosny and MacEachen are part of a Research Action Alliance on the Consequences of Work Injury which brings together academic and community researchers studying compensation systems and the effects of injury on workers. Through the Co-Director of the Centre of Excellence on the Study of Immigrant and Settlement, one of five such centres across Canada, our study results will be disseminated to a network of researchers and policy-makers working in the area of immigration and settlement services.

Publication:

Kosny A, MacEachen E, Lifshen M, Smith PM, Jafri GJ, Neilson C, Pugliese D, Shields J. Delicate dances: Immigrant workers' experiences of injury reporting and claim filing. *Ethnicity & Health* 2011 [Epub ahead of print].

Funding:

Kosny A, MacEachen E, Smith PM, Shields J. Immigrant workers' experiences after work-related injury and illness. WSIB RAC: \$164,971 (2008-2010)

Kosny A, Lifshen M. Review of safety information and resources for recent immigrants entering the Canadian workforce. Public Health Agency of Canada: \$24,491 (2011-2012)

RAACWI: Compensation and Consequences of Work Injury (0428)

Project Status: Completed

Introduction: A group of researchers, injured workers, community representatives and organizations is investigating the workers' compensation system and its influence on the lives of injured workers. The research agenda of the Community-University Research Alliance (CURA) on workers' compensation and work injury will look at how the system helps and protects-or negatively impacts - injured and ill workers. The project will focus on injured workers' financial situations, their employment opportunities and their health and well-being. Under this project umbrella, there will be a number of different, but linked research initiatives - some located at IWH and others at our partner institutions.

Objectives:

- To conduct innovative, community-based research that responds to knowledge gaps in understanding the consequences of work injury and the impact of legislation, policies, programs and practices on these consequences.
- To increase research capacity in the social and health sciences on occupational health and safety and workers' compensation through training and mentoring of new researchers.
- To encourage evidence-based policy decision making in the workers' compensation arena through ongoing linkage and exchange with key stakeholders.

Methods: The Alliance research projects are divided into four themes: 1) Legislation, policies, programs & practices; 2) Financial security & employment experiences; 3) Health & well-being; 4) History and social/political movements. The initiative also includes academic and community capacity building.

Results: Application to CIHR for funding of our fall symposium was successful. We planned and held the event in November. It was a very successful two day event with over 130 people attending from across Canada. The second day of the symposium focused on the future of RAACWI. The future of RAACWI planning is ongoing. We have held several meetings on the future of RAACWI and several contacts have been made to funding agencies for funding needs of community. In particular, a meeting was held with the Atkinson Foundation. Also, Blue Sky meetings were held in 2011 – one on stigma and one on return to work. An outline for a RAACWI book was completed. Planning of a SSHRC Partners Grant submission and the report back to SSHRC is planned for 2012.

Researchers: Emile Tompa (Principal Investigator), Cindy Moser, Ellen MacEachen, Heather Scott-Marshall, Sara Macdonald, Bonnie Kirsh (University of Toronto), Fergal O'Hagan (Trent University), Joan Eakin (University of Toronto), Katherine Lippel (Université du Québec a Montréal), Marion Endicott (Injured Workers' Consultant), Pat Vinneau (Injured Workers' Consultants/Bright Lights), Peri Ballantyne (Trent University), Sabrina Puccini (Injured Workers' Consultants/Bright Lights), Sharon Dale Stone (Lakehead University), Steve Mantis (ONIWG), Robert Storey (McMaster University)

Stakeholder Involvement: Ongoing dialogue sessions continue with the WSIB in the form of Blue Sky meetings on the topics of stigma and return to work. A similar series of meetings are planned with the Ministry of Labour. The research program was developed in conjunction with the community of injured workers and their representatives. The lead partner organizations are McMaster University, IWH and the Bancroft Institute. There are several other university and community partners and supporters.

Potential Audiences and Significance: Injured workers, their families and their representatives, WCBs, MOLs and workplace parties.

Funding:

Tompa E, Endicott M, de Wolff A, Franche R-L, Guzmán J, MacEachen E, et al. CURA: Workers' compensation and the consequences of work injury. SSHRC: \$997,322 (2006-2010)

Tompa E, MacEachen E, et al. National Symposium on the consequences of work injury. CIHR Meeting Grant: \$25,000 (2011-2012)

Examining Trends in the Incidence and Cost of Workers' Compensation Claims in the Ontario and British Columbia Long Term Care Sectors 1998-2007 (0439)

Project Status: Completed

Introduction: The goal of this study was to examine trends over time in compensation claim activity and benefit expenditures for work-related health conditions among employees in the long-term care sectors in the Canadian provinces of British Columbia and Ontario. There are more than 60,000 full-time equivalent workers in the long-term care sector in Ontario and more than 14,000 workers in British Columbia. The study had a particular interest in understanding the influence of insurance premium experience rating programs and other policy initiatives in the provinces on practices in the long-term care sector related to prevention of work-related injury and illness and separately, practices related to the management of work disability.

Objectives:

- To assess evidence that the effectiveness of primary and secondary prevention of work-related injury has differed in British Columbia compared to Ontario.
- To describe disability management practices in a representative sample of long-term care facilities in British Columbia and Ontario in 2008.

Methods: The study design was a time series analysis of workers' compensation claims for the long-term care sectors in two Canadian provinces over the ten year period 1998-2007. In both Ontario and British Columbia, the study team obtained electronic abstracts of compensation claim records for workers employed in long term care facilities. In British Columbia, the long term care sector is classified as a unique rate group (Classification Unit Number 766011), representing a range of institutions providing long-term care. The study team manually excluded those British Columbia facilities in CU 766011 that provide services other than long-term care for the aged. Similarly, in Ontario, the large majority of long term care facilities are classified to a unique rate group (851).

Results: The study goals were to describe trends over time in the incidence and duration of work-related health conditions among employees in the long-term care sectors in Ontario and British Columbia, to describe trends in workers' compensation benefit expenditures and to examine evidence for the influence of experience rating on trends in the incidence and cost of compensation claims in this sector. Among the findings of the study were the following. The total compensation claim rate in the British Columbia long-term care system was substantially higher than in Ontario. There were substantial differences between Ontario and British Columbia in the ratio of lost-time claims to no lost-time claims. In British Columbia, the proportion of all compensation claims recorded as no lost-time claims (claimants requiring medical care only) was stable over the ten year observation period, in the range of 22-28%. In Ontario, 48% of all compensation claims were recorded as no lost-time claims in 1998, rising to 61% in 2007. The duration of compensated disability episodes in British Columbia was approximately 50% longer than in Ontario. The combination of a higher incidence rate and longer disability episode duration in British Columbia resulted in benefit expenditures per 100 full-time equivalents approximately four times greater than in Ontario.

The design of the experience rating program in British Columbia contains a number of elements that result in a generally stable assessment outcome for individual facilities over time. In contrast, program design in Ontario results in an assessment outcome that is variable and less predictable over time. A facility's experience rating classification in British Columbia more consistently reflected average benefit expenditures over time than in Ontario. The study did not detect a consistent influence of experience rating on the rate of change in benefit expenditures among facilities in either Ontario or British Columbia. A portion of the provincial differences in incidence and duration of work-related disability episodes appear to be due to differences in administrative practices of provincial workers' compensation agencies.

There is limited information available on workers' compensation administrative records in both provinces describing the use of modified duty arrangements. Given the increasing adoption of these practices, it would be prudent to identify options for the inclusion of information on modified duty in the management of disability arising from work-related conditions. Employment in the long-term care sector continues to present a high risk of work-related injury and illness to workers.

Researchers: Cameron Mustard (Principal Investigator), Anna Sarnocinska-Hart, Emile Tompa, Jacob Etches, Jeremy Petch, Christopher McLeod (University of British Columbia), Mieke Koehoorn (University of British Columbia), Peter Smith (Monash University)

Stakeholder Involvement: This project had regular interactions with key stakeholder groups, including representatives of the Healthcare Employees Union, the Occupational Health & Safety Agency for Healthcare and WorkSafeBC in British Columbia.

Potential Audiences and Significance: Audiences who may be interested in the results include representatives of organized labour organizations, policy-makers in federal and provincial Ministries of Health, policy audiences in provincial Workers' Compensation authorities, trade associations representing proprietary and non-profit operators of long-term care facilities, and accreditation bodies such as the Canadian Council on Health Services Accreditation. Research findings will be disseminated to our non-research partners using a range of approaches. The KTE group will prepare plain language summaries of the study findings for the IWH website. Other dissemination methods will include newsletter articles (e.g., for the IWH newsletter AtWork, OHS Canada newsletter, CCOHS e-newsletter) and individual briefings interested representatives of workers, employers and policy-makers in the long-term care sector. Research findings will also be published in academic journals.

Funding:

Mustard CA, Tompa E, Smith PM, Koehoorn M, McLeod C. Examining trends in the incidence and cost of workers' compensation claims in the Ontario and British Columbia long term care sectors: 1998-2007. WorkSafeBC: \$327,500 (2008-2011)

A Prediction Rule for Duration of Disability Benefits in Workers With Non-Specific Low Back Pain (2105)

Project Status: Ongoing

Introduction: The ability to distinguish between injured workers at high and low risk of chronicity and recurrence is very appealing and could lead to improved outcomes and cost savings. Some prediction rules have been developed for low back pain, although they have not been validated in different jurisdiction. This study aims to build prediction rules and a computer-based prediction tool for key disability outcomes for injured workers in Ontario with low back pain lost time claims. The rule(s) will estimate the probability of remaining on benefits beyond six months, the number of days on benefits, the likelihood of a recurrence, and the probability of remaining on benefits in a possible recurrence specific to each injured worker.

Objectives:

- To study what combination of factors measured early in the life of the claim predicts whether a worker will remain on benefits beyond six months post-accident.
- To study what combination of factors best predicts the length of the first episode of wage-replacement benefits.
- To study what combination of factors best predicts who may have a recurrence of benefit receipt, after the first episode has ended.
- To study what combination of factors best predicts how long it will be until a recurrence, after the first episode has ended.
- To study whether the same combination of factors predict the length of first episodes and of subsequent episodes of wage replacement (and of the gaps between them).

Methods: We will use WSIB administrative data and the Readiness for Return to Work Cohort (R-RTW). Each question will be answered by developing a statistical predictive model for specific outcomes. Different predictors may be important for different outcomes. Each prediction rule will be built in blocks. The first block will consist of variables routinely collected and entered in the WSIB claims database for administrative purposes. A second block will consist of additional variables from the R-RTW cohort, in which workers in the first 4 weeks of work disability were included and administered more elaborate, scientifically established, questionnaires over a two year period. The second block is added to investigate the potential importance of collecting this information routinely at the WSIB. Stakeholders will be involved in the development of final products through focus group meetings and workshops.

Results: We tested the importance of recurrences and validated the prediction rule using a dataset of 6,300 cases. Adjustments were made for over fitting and Receiver-operating characteristic (ROC) curves were established. Fitting of models was completed. In order to explore predictive factors using the R-RTW cohort, we added potentially predictive factors from the cohort to the established prediction rule. The prediction rule was then validated and ROC curves were established.

Researchers: Ivan Steenstra (Principal Investigator), Andrea Furlan, Arold Davilmar, Ben Amick, David Toluoso, Hyunmi Lee, Jason Busse, Sheilah Hogg-Johnson

Stakeholder Involvement: WorksafeBC, Metropolis, settlement organizations, and other researchers.

Potential Audiences and Significance: The key user groups will be disability managers, WSIB case managers, return to work specialists, human resource professionals and employers. These groups are interested in a reliable predictor of time until an injured worker with low back pain is able to return to work.

Funding:

Steenstra I, Amick BC, Busse, J, Franche R-L, Furlan A, Hogg-Johnson S, Toluoso D. A prediction rule for duration of disability benefits in workers with non-specific low back pain. WSIB RAC: \$79,692 (2010-2011)

Work Disability Trajectories and Claim Duration in Ontario Under Three Workers' Compensation Legislations (2115)

Project Status: Ongoing

Introduction: Since the early 1990s, the time on benefits has been increasing for Ontario workers' compensation claims. Over the last decade, there has been a dramatic increase in the number of total compensated days per lost time claim and an increase in the rate of claims remaining active and open for extended periods of time. This trend is in contrast to the trend of declining claim rates experienced over much of the 1990s. This study will provide information that will help better understand how changes in labour-market opportunities have contributed to the increase over a period of approximately 20 years. Specifically, it will use information from a linked database to investigate the labour-market earnings patterns of short- and long-term disability claimants from three different time periods and receiving benefits under three different programs (the pre-1990 Bill 101 program, the 1990-1997 Bill 162 program, and the post-1998 Bill 99 program). Based on the analysis of three successive claimant cohorts, the study will provide invaluable information to better understand the individual and contextual factors that contribute to labour-market engagement and earnings recovery, and how these have changed over time.

Objectives:

- To study how the composition of short-term (temporary disability) and long-term (permanent impairment) disability claimants changed over three time periods in terms of gender, age bracket, region of residence, and pre-accident earnings.
- To study how labour-market earnings recovery changed over the three time periods for short-term and long-term disability claimants.

Methods: This study draws on the linkage of a 20% sample of short- and long-term WSIB claimants from 1986, 1992 and 1998 to a Revenue Canada tax file. The tax file is called the Longitudinal Administrative Databank (LAD) and contains a simple random sample of 20% of Canadian tax filers. Analyses will draw on a claimant-control matching process in which claimants will be matched with uninjured controls in the LAD, based on age, gender, pre-accident earnings trajectories and region of residence. Claimants from the three time periods will also be matched, based on the same characteristics. Descriptive analysis will consist of a difference-in-differences approach in which within and across time period differences in earnings recovery will be compared, i.e., claimants will be compared to their matched controls (the first level of differences) and these differences will be compared to similar claimants from the two other time periods (the second level of differences). Regression modeling techniques will be used to estimate the significance and magnitude of factors that bear on labour-market engagement and earnings recovery.

Results: Stage 1 descriptive analysis was completed. Stage 2 regression modeling is underway and other analysis is ongoing. A manuscript will combine the descriptive paper with the analytic paper. We are planning to present the Stage 2 analysis at a scientific conference. The advisory committee meeting is on hold till Stage 2 analysis is complete. The project is extended till summer of 2012.

Researchers: Emile Tompa (Principal Investigator), Ben Amick, Heather Scott-Marshall, Miao Fang, Qing Liao, Sheilah Hogg-Johnson

Stakeholder Involvement: The study's advisory committee is made up of Judy Geary and Joe Sgro from the WSIB and Nicholas Robins from the Ministry of Labour.

Potential Audiences and Significance: This study is relevant to the WSIB, the Ontario Ministry of Labour, and injured worker representatives. Researchers interested in work disability outcomes will also be interested in the substantive findings as well as the methods used in the analysis.

Funding:

Tompa E, Hogg-Johnson S, Amick BC, Scott-Marshall H. Work disability trajectories and claim duration in Ontario under three workers' compensation legislations. WSIB RAC: \$141,088. (2009-2012)

Examining Determinants and Consequences of Work Injuries Among Older Workers (2120)

Project Status: Ongoing

Introduction: The labour force in Canada is aging. There are currently over 315,000 people aged 55 years or older working in British Columbia. This number is likely to increase as the percentage of people aged over 50 who are working or looking for work is increasing. Given the increasing importance of older workers in British Columbia, this project seeks to examine trends in injuries sustained by older workers.

Objectives:

- To examine the trends in the incidence and intensity of lost-time claims among older workers over time, and relative to workers of younger age groups.
- To determine if patterns have changed over time; if they are different to younger workers within similar occupational and industrial groups; and if they differ depending on pre-existing health status.
- To examine whether similar types of injury claims require similar amounts of health care (including hospitalizations) and time off work (as assessed by wage replacement) across age groups; and the effect that occupation and industry, as well as pre-existing health status have on health care and time off work differences among age groups.

Methods: This project will use administrative workers' compensation and health care data contained within the British Columbia Health Linked Database (BCHLD). The methods will be primarily basic descriptive epidemiology, however multivariate regression techniques will be utilized to account for differences in occupational or industrial exposures where sample size is limited.

Results: Analysis of the relationship between pre-existing health conditions and work injury, and consequences in British Columbia was not able to be undertaken (chronic conditions and work injury) given issues around estimating the population at risk. However, work has begun examining injury rates across labour market subgroups, with manuscripts planned for the summer of 2012.

Researchers: Peter Smith (Principal Investigator, Monash University), Amber Bielecky, Cameron Mustard, David Toluoso, Dorcas Beaton, Heather Scott-Marshall, Ron Saunders, Selahadin Ibrahim, Sheilah Hogg-Johnson, Chris McLeod (University of British Columbia), Mieke Koehoorn (University of British Columbia)

Stakeholder Involvement: We have formal collaborations with various agencies in British Columbia: Fraser Health, the United Food and Commercial Workers Union, and the BC Injury Research and Prevention Unit.

Potential Audiences and Significance: The results of this research program will provide a comprehensive knowledge base on the current work injury burden and associated outcomes for older workers in BC. This knowledge base will serve as a foundation for future decisions concerning the directions of additional primary research on older workers. The results will also provide preliminary evidence for policy development related to working conditions and prevention and consequences of work-injuries among older workers in BC.

Publications:

Bielecky A, Smith PM. "Don't ask, don't report?" Methods of measuring self-reported chronic conditions in epidemiology. Submitted: Chronic Diseases in Canada.

Smith PM, Bielecky A, Mustard CA. The relationship between chronic conditions and work-related injuries and repetitive strain injuries in Canada. In press: Journal of Occupational & Environmental Medicine.

Funding:

Smith PM, Beaton DE, Hogg-Johnson S, Ibrahim S, Koehoorn M, McLeod C, Mustard CA, Saunders R, Scott-Marshall H, Toluoso D. Examining determinants and consequences of work-injuries among older workers. WorkSafeBC: \$225,000 (2009-2012)

Critical Review of Literature on Experience Rating and Workers' Compensation Systems (2135)

Project Status: Completed

Introduction: A critical literature review locates an enquiry about a particular topic within the context of what has been previously studied. This review will investigate qualitative and quantitative literature on the topic of experience-rating, with a focus on how they inform understanding of workers' compensation systems, with a particular focus on Ontario. Academic peer-reviewed literature as well as 'grey literature' such as policies, news reports and trade journals will be included.

Objectives:

- To examine what is known about how experience-rated workers' compensation premiums motivate employer and worker behaviour and what convictions may not be well supported by evidence.
- To examine what is known about the effects on workplace health and safety of experience-rating workers' compensation premiums.
- To study how the design of premium setting vary across different workers' compensation systems.
- To study how the financial incentive programs of other benefits and insurance programs inform understanding about premium-setting in workers' compensation.

Methods: The review was divided into two inter-related parts by researchers with specialized methodological training and whose own substantive research focus is occupational health and safety. A review of qualitative (QL) literature was led by Ellen MacEachen and carried out by Liz Mansfield. A review of quantitative (QN) literature was led by Emile Tompa and carried out by Christina Kalcevich. Marion Endicott provided in-house expertise on key areas for investigation of experience-rating systems and outcomes, as well as interpretation. A research assistant searched for and retrieved data. Content experts were consulted along the way to help us to refine our search and consider our findings. The primary focus was on English-language academic peer-reviewed publications. Grey literature was drawn on where the analysis identifies questions or gaps. Monthly full-team meetings were held to explore points of synergy for understanding the main research question. Sub-team meetings were held in-between full-team meetings. A common search strategy helped capture literature by topic. An initial half day 'kick off' meeting with all team members (and possibly a content expert) positioned the initial search strategy.

Results: The critical literature review found that while there are a number of qualitative studies that consider claims management, few focus directly on the topic of experience rating. Several of the qualitative studies do not adequately theorize the power relations, socioeconomic context and politics of experience rating. Many of the quantitative studies were based on simplified understandings of human behaviours, and made substantial conclusions from proxy measures frequently used in statistical models. Several studies aggregate data across multiple jurisdictions, not attending to much of the variation of contextual details. Discussions on the occupational health and safety incentives of experience rating in the peer reviewed literature tend to be either not critical or to dismiss its effectiveness, generating a polemic that can dichotomize researchers. The social and economic logic of experience rating, as well as the effects of its implementation, is an important and neglected topic in occupational health and safety research.

The systematic review update identified several new quality studies to include in the synthesis. In terms of the introduction of experience rating, based on six studies there was moderate evidence that its introduction is associated with a lower frequency of injuries. With respect to the degree of experience rating, based on seven studies there was also moderate evidence that a higher degree of experience rating is associated with a lower frequency and severity of injuries. The quality of more recent studies has increased, and there were fewer low quality studies meeting inclusion criteria in this literature. As a result of the increase in the number of studies, we were able to undertake substrata analysis based on type of injury outcome. Though the most recent studies published on the topic have improved in quality from the earlier literature, there have only been a few new studies. Consequently, there is still much to be explored in the area of the premium setting practices in workers' compensation insurance and their impact on workplace health and safety performance. Access to administrative data from workers' compensation authorities in some jurisdictions still appears to be a barrier to advancing the evidence base.

The special issue of Policy and Practice in Health and Safety on the topic of experience rating is targeted for spring 2012 publication. The issue will be guest edited by Emile Tompa. Ten manuscripts were submitted for review—two from New Zealand, two from Australia, one from the Netherlands, one from the United States and four from Canada.

Researchers: Emile Tompa (Co-Principal Investigator), Ellen MacEachen (Co-Principal Investigator), Christina Kalcevich, Heather Scott-Marshall, Kim Cullen, Liz Mansfield, Natalie Yeung, Marion Endicott (Injured Workers' Consultants)

Stakeholder Involvement: This project includes injured worker community involvement throughout project development and execution, beginning with RAACWI Team Meeting discussions. Community representatives are involved in the design and execution of project.

Potential Audiences and Significance: This project is relevant to the injured worker community, but is particularly important to the WSIB, as they are currently reviewing their experience rating programs. The study will be applicable to all jurisdictions in Canada, United States and elsewhere where workers' compensation insurance is experience rated.

Funding:

MacEachen E, Tompa E, Endicott M. (Co-PIs) A critical review of literature on experience-rating in workers' compensation systems. Community-University Research Alliance Grant, SSHRC: \$59,998 (2010-2011)

Comparison of the 1993 Early Claimant Cohort and the 2005 Readiness for Return to Work Cohort (2145)

Project Status: New

Introduction: The number of days of benefit payment has been steadily increasing since 1998 in Ontario. Work in progress using WSIB administrative data suggests that changes in worker, injury & workplace attributes do not explain these increases. On the other hand, some markers of claims management (e.g., delays in adjudication) are related to the increase in claim duration. In this project, we will examine differences in injury severity, worker health, workplace attributes such as disability management practices and work status as reported by the worker. To accomplish this we take advantage of two worker cohorts - the Early Claimant Cohort (ECC) and the Readiness for Return to Work Cohort (R-RTW) recruited in 1993 and 2005, respectively. The two cohorts bracket the major WSIB policy changes in 1998. The overarching study goal is to explain what is driving recent increases in lost time claim durations.

Objectives:

- To compare 1-year health-related outcomes and work status to determine whether there are differences in the 1-year outcome or differences in change within the 1st year.
- To compare claims outcomes over four (and then six) years between the two cohorts to determine whether there are differences.
- To determine whether the duration and patterns of benefit receipt are different between the two cohorts and whether those differences can in turn be explained by differences in worker, injury or workplace characteristics or claims milestones.

Methods: This study is based on a comparison of two longitudinal inception cohorts with four years follow-up each, conducted by the IWH. Many design features of the cohorts were similar. We will determine a further set of inclusion criteria to select two even more similar "comparison cohorts". All participants will have soft-tissue injuries of the back or upper limb. A database will be assembled including the eligible claimants of the comparison cohorts and the measures identified as comparable between the two cohorts. Baseline attributes (worker, injury and workplace) will be compared. Health outcomes (pain grade, health-related quality of life) and work outcomes reported by the worker will be compared at 12-month mark. Claims milestones such as delays in registration or adjudication indicative of claims management will be examined and compared across the two cohorts to examine their role in the health and claims outcomes. Finally, predictive models will be constructed to identify factors (worker, injury, workplace, health, claims milestones) related to claim duration and whether they are similar or different between two cohorts/time periods.

Results: We obtained ethics approval for the study. A data sharing agreement was obtained from the WSIB. An investigator meeting was held to review the project workplan and data specifications, and to identify additional data elements. The analytic team met to develop computer codes to specify inclusion/exclusion of the cohort for analysis and comparison. Baseline data requirements were reviewed and data elements were identified. Several iterations of descriptive tabulations to identify comparable data elements from the two cohorts, and to make decisions about how best to adapt data elements that are close but not exactly alike, were performed by regrouping where possible. Adaptations to functional status measures were made to create comparable measures for the two studies – e.g., Roland and DASH. We determined that newly created function measures are comparable to each other and compare favourably to full instruments used in each study. We verified the use of different versions of the SF12. We revised the inclusion/exclusion criteria for the two studies to eliminate amalgated claims. We also established a weighting convention for analysis.

Researchers: Sheilah Hogg-Johnson (Principal Investigator), Ben Amick, Cynthia Chen, David Toluoso, Emile Tompa, Hyunmi Lee, Ivan Steenstra, Renée-Louise Franche (Vancouver General Hospital), Ute Bultmann (University of Groningen)

Stakeholder Involvement: Regular meetings with Judy Geary, Paul Gilkinson and Joe Sgro from the WSIB.

Potential Audiences and Significance: This study will provide information relevant to two of the WSIB RAC's research priorities, namely Fair Compensation, Ontario Workers' Compensation System, and Policy and Return-to-Work, Disability Management, and Rehabilitation. The study goals are to identify factors that have led to prolonged claim durations in recent years, some of which may be related to changes in practices arising from a policy change - the enactment of the Workplace Safety & Insurance Act in 1998. Some of the changes in practices we are examining as a potential driver of prolonged claims duration are key claims milestones. We may identify key changes in key claim milestones that could suggest areas for changes in claims management that might improve worker outcomes and reduce claim durations.

Funding:

Hogg-Johnson S, Toluoso D, Franche R-L, Bultmann U, Amick BC, Steenstra I, Tompa E. Comparison of the 1993 Early Claimant Cohort and the 2005 Readiness for Return to Work Cohort. WSIB RAC: \$120,805 (2011-2013)

Benefit Adequacy and Equity in Ontario, 1999-2005 (2150)

Project Status: New

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 ½ 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.

Objective:

- 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 1999-2005.

Methods: The study will examine earnings losses and earnings replacement rates for long-term and short-term disability claimants who experienced a work injury during the years 1999-2005. Post-injury earnings recovery and earnings-replacement rates will be calculated by comparing claimants' post-injury earnings and benefits receipt with: 1) their pre-injury, after-tax earnings, and 2) the earnings of a sample of uninjured counterparts that had similar characteristics and earnings to the claimants prior to the injury year. Descriptive analyses will be provided for various categories of claimant (age group, gender, region, nature and rating of physical impairment and occupation)--a more extensive set of categories than previously examined.

Results: Ethics review was completed, and the WSIB Privacy Office review is underway. The data extraction was postponed till the Data Sharing Agreement is completed. A record linkage proposal was prepared and submitted to Statistics Canada. The record linkage proposal is awaiting review by Statistics Canada Policy Committee. We have been in ongoing discussions with the WSIB regarding this project and the related linkage.

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

Stakeholder Involvement: In August 2010, Institute staff briefed senior management of the 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.

Examining the Impact of Physical Conditions and Depression on the Labour Market Participation of Older Working-aged Canadians: Exploring Differences by Gender and Sex (2155)

Project Status: New

Introduction: The Canadian population is getting older. Certain aspects of health decline as we get older, such as increases in certain health conditions. From both a society and individual perspective it is important to keep older workers in the labour market. As such, it is important that we understand how health conditions, both physical and mental, impact on the ability of people to continue to work. And if there are differences in the relationships between these health condition and the ability to stay at work for men and women. It is likely that the number of workers with multiple chronic conditions will increase given the aging workforce in Canada. As such developing a clearer understanding 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 in Canada.

Objectives:

- To examine the pattern of chronic conditions among older working-aged Canadian in separate analyses for men and women (40 to 74 years).
- To explore differences in the impact of particular conditions on work status, in particular if the relationship differs for men and women and if it has changed between 1994 and 2007.
- To examine the temporal relationship between the onset of different chronic health conditions and subsequent labour market participation for 40 to 60 year olds at baseline from 1994 to 2008.
- To examine differences in the time lag between the onset of chronic conditions and changes in labour market participation.
- To examine the influence of health conditions on labour market re-entry, among respondents who have left the labour market for at least one survey cycle.

Methods: We will utilize both repeated cross-sectional and labour market surveys between 1994 and 2007, as well as data from the Canadian National Population longitudinal Health Survey. We will use path analysis modeling methods, which allow us to examine both direct and indirect relationships between our independent measures of interest (age and health conditions), while simultaneously examining the relationships between our independent variables, within the one model. Our analytical framework will be guided by a Gender Sex-Based Analytical (GBSA) approach.

Results: Analyses have begun on the cross-sectional data using the CCHS and NPHS. Analyses is ongoing on the cross-sectional data. We anticipate having the preliminary analyses completed in spring of 2012.

Researchers: Peter Smith (Principal Investigator, Monash University), Amber Bielecky, Cameron Mustard, Cynthia Chen, Dorcas Beaton, Selahadin Ibrahim

Stakeholder Involvement: This is a secondary data analysis so stakeholder involvement is limited during the analytical part of the project. Results will be disseminated and discussed with various industry and labour groups with an interest in mental and physical health conditions and labour market participation.

Potential Audiences and Significance: This project will develop a general knowledge base concerning the ability of older workers to find work that fulfills their needs in the Canadian labour market – and highlight particular gender- and sex-based differences in this relationship – providing both direction for future research questions and preliminary evidence for policy development that recognises the role that health plays in the successful labour market participation among older men and women in Canada.

Funding:

Smith PM, Beaton D, Ibrahim S, Mustard CA. Examining the impact of physical conditions and depression on the labour market participation of older working-aged Canadians: exploring differences by gender and sex. CIHR: \$120,000 (2011-2013)

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.

In this suite of projects we describe the evaluation of a return-to-work intervention and the development of tools or metrics for use with long term claims. IWH researchers are also contributing to a Canadian based international training initiative for young researchers interested in work disability prevention. In 2011, we completed work on a multiple stakeholder evaluation of the uses of a return to work problems guide.

Red Flags\Green Lights: A Multiple Stakeholder Evaluation of the Uses of a Return to Work Problems Guide (2130)

Project Status: Completed

Introduction: Return-to-work (RTW) is a complex process and dependent on the coordination of different stakeholders. RTW processes can break down due to poor communication among different parties and system 'blind' spots that leave workers unsupported. In May 2009, we developed a Guide to help decision-makers to identify RTW problems and manage them before they escalate. The Guide, called "Red Flags/Green Lights: A Guide to Identifying and Solving Return-to-Work Problems", is a hands-on product developed from a study of why workers do not return to work as expected.

Objectives:

- To evaluate the implementation process of this Guide among varied RTW stakeholders: workplaces, healthcare centre, injured worker support group, legal clinic, union and prevention partner.

Methods: This study examines the implementation of the Guide among seven varied RTW stakeholders who have partnered with the study to 'test drive' the guide. These are two workplaces, a healthcare centre, an injured worker support group, an occupational health legal clinic, a union and a prevention partner. These stakeholders' practical utilization of the Guide will be tracked for six months by interviews and focus groups. We will evaluate how the Guide is used, under what circumstances, and for what purposes. At the end of the study, a Partner meeting will be held to describe the study results and consider what kinds of RTW needs exist among different RTW decision-makers.

Results: Data collection was completed. Data was analysed and a draft findings report was completed. The write-up of the final report was completed and the findings report was disseminated to project partners. \

Researchers: Ellen MacEachen (Principal Investigator), Liz Mansfield, Siobhan Cardoso, Agnieszka Kosny (Monash University)

Stakeholder Involvement: Eight partner organisations sponsored this research: Gamma-Dynacare Laboratories, Extendicare/ParaMed, The Gage Occupational and Environmental Health Unit at St. Michael's Hospital, Occupational Health Clinics for Ontario, Ontario Public Service Employee Union, Injured Workers Consultants, Office of the Worker Advisor, and Thunder Bay Injured Worker Support Group. This study contributes to the development and fostering of partnerships along workplaces, healthcare practitioners, legal clinics, injured worker groups, prevention partners and unions through the evaluation of this research-based product that directly addresses their RTW decision-making needs.

Potential Audiences and Significance: Workplaces, healthcare practitioners, legal clinics, injured worker groups, prevention partners and unions. This evaluation study will also help researchers and other interested organizations to deliver useful results and products to workplaces and other stakeholders.

Publication:

MacEachen E, Cardoso S, Kosny A, Mansfield L, Keown K. Red Flags/Green Lights: A multiple stakeholder evaluation of the uses of a Return-to-Work Problems Guide. Toronto, Ontario: Institute for Work & Health, 2011.

Funding:

MacEachen E, Kosny A, Mansfield L, Keown K. Red flags/green lights: a multiple stakeholder evaluation of the uses of a return to work problems guide. WSIB BTG: \$39,969 (2010-2011)

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). Copyright of the DASH/*QuickDASH* Outcome Measure was transferred in 2005 to one of sole copyright to IWH. It is now in world-wide use with cross-cultural adaptation versions having been completed on 30 language translations and 10 languages currently in progress. In 2003, the 11-item *QuickDASH* was released. In 2004, there was specific testing of the *QuickDASH* in clinical and research settings and in 2005, the *QuickDASH* development paper was published in the *Journal of Bone and Joint Surgery*. In 2011, the DASH manual was updated and loaded onto our website. Several tools to assist users with the calculation of DASH/*QuickDASH* scores have been developed both within the Institute (e.g., *QuickDASH* scoring e-tool) and externally (e.g., Orthopedic Scores – for DASH/*QuickDASH*). In addition, PRORehab is presently developing a SmartPhone application for DASH.

Objectives:

- To continue work with the DASH and modern measurement theory.
- To continue DASH benchmarking.
- To continue user's survey analysis and synthesis.

Methods: Series of projects and activities to support and advance measurement using the DASH Outcome Measure and the *QuickDASH*. The project involves support of translations, manuals, and manuscripts on these instruments.

Results: The DASH Manual was completed and has now been released on our website. Work is underway on a paper on the literature review and measurement properties of the DASH. The *QuickDASH* Systematic Review of Measurement Properties is in progress and is anticipated to be completed by the spring of 2012. The benchmarking of DASH scores was completed, and a manuscript has been accepted for publication. Data has been extracted on cross cultural adaptation of DASH, and a draft manuscript is planned for 2012. Work on the Rasch/IRT for the DASH, and modeling is in progress. Work will also continue on the Confirmatory Factor Analysis (CFA) model and Factor analysis. Work has also started on examining DASH as an indicator of "Recovery", and how to use it against other indicators of coping with ongoing disability.

Researchers: Dorcas Beaton (Institute Coordinator), Carol Kennedy, Claire Bombardier, Kim Cullen, Peter Subrata, Philip Kiff, Quenby Mahood, Sheilah Hogg-Johnson, Peter Smith (Monash University), Sherra Solway (Centre for Addiction and Mental Health)

Stakeholder Involvement: Consultation with clients, clinicians, educators, professional organizations, regulatory bodies and researchers will continue to occur throughout development and fulfillment of project.

Potential Audiences and Significance: The DASH is now available in 30 languages. 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 WSIB. Orthopaedic implant manufacturers have contacted the Institute regarding the use of the DASH in trials of new products. Several providers of outcome measurement database have also contacted the Institute for the use of the DASH/*QuickDASH*. Anyone interested in outcome measurements that reflect client's perspective could be a potential user of DASH. The manual has enjoyed equal popularity and utility.

Publications:

Beaton DE, van Eerd D, Smith PM, van der Velde G, Cullen K, Kennedy CA, Hogg-Johnson S. Minimal change is sensitive, less specific to recovery: A diagnostic testing approach to interpretability. *Journal of Clinical Epidemiology* 2011; 64(5): 487-496.

Kennedy CA, Beaton DE, Solway S, McConnell S, Bombardier C. Disabilities of the Arm, Shoulder and Hand (DASH). The DASH/*QuickDASH* Outcome Measure User's Manual, 3rd Edition. Toronto, ON: IWH, 2011.

Foundation Programs	87
WSIB Data Routine Statistics (0845)	88
Development of an Instrument Database and Questionnaire Design Tools (0835)	89
Data Dictionary (0301)	90
Keyword Project (0311).....	91
Integrated Information Database (0307)	92
Methodological Developments in Systematic Reviews (0951)	93
Participatory Ergonomic Tool Development (3100)	94
Clinical Systematic Reviews (3105).....	95
A Systematic Review of the Quality and Types of Performance Measures Used to Assess KTE Implementation (3110).....	96
Systematic Review: Prognostic Factors for Low Back Pain (3115)	97

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 & 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.

2011 Quick Statistics

Completed projects (5)

Ongoing projects (5)

New projects (0)

Papers published or in press (2)

Peer review papers submitted (1)

Presentations of results (5)

External grants awarded (4)

WSIB Data Routine Statistics (0845)

Project Status: Ongoing

Introduction: The Workplace Safety & Insurance Board of Ontario routinely collects claims-based data for administrative and reporting purposes. Through a special research agreement with the WSIB, the Institute for Work & Health can access and use much of the WSIB routinely collected data for research purposes.

Objectives:

- To continually develop and maintain expertise in the data holdings of the WSIB.
- To aid Institute researchers by providing information on the data holdings and their potential use for research projects.
- To respond to ad hoc requests for data extractions required for project planning purposes, etc.
- To develop internal capacity to use WSIB data and maintain three staff who can extract data.
- To develop set of core competencies regarding WSIB data.
- To position IWH to provide assistance to external researchers (work involving IWH, WSIB RAC, WSIB Privacy Office).

Methods: The methods change depending upon the request. Data extractions largely involve creating SAS programs which tap data stored in a number of large files stored either on a mainframe computer or on tape.

Results: A feasibility agreement was prepared for labour market re-entry data. Revisions were made to the data dictionary documenting the WSIB file layouts and included an update to current variable formats and names. Wiki redesign was undertaken with added content documenting the WSIB data resources.

Researchers: Sheilah Hogg-Johnson (Institute Coordinator), Amber Bielecky, Arold Davilmar, Hyunmi Lee, Peter Subrata, Peter Smith (Monash University)

Stakeholder Involvement: WSIB through our research and master agreements; possible external researchers from universities, CREs, etc.

Potential Audiences and Significance: This IWH research activity is largely of interest to internal Institute colleagues, but has potential interest to WSIB stakeholders also. Data extractions will be conducted solely for Institute researchers as per our research agreement with the WSIB.

Development of an Instrument Database and Questionnaire Design Tools (0835)

Project Status: Completed

Introduction: Several questionnaire instruments appear in Institute studies time and time again (e.g., SF-36, DASH, Chronic Pain Grade, Job Content Questionnaire, Effort-Reward Instrument). The purpose of this project is to create Microsoft Access modules for the most commonly used questionnaires which can be used for a variety of purposes such as data entry (when the data are collected via pencil and paper), Computer Assisted Telephone Interviewing (CATI), direct data collection in clinical settings etc. To date 47 instruments have been created for the questionnaire modules.

Objectives:

- To develop multi-purpose data entry modules for the most commonly used questionnaire instruments at IWH.
- To develop tools for use in designing data entry by allowing research staff to copy the instruments to another database.
- To develop a review section for the instruments, including: the conceptual basis in developing the instrument, an operational description of the instrument (format and scoring), its' psychometric properties (responsiveness, reliability and validity), IWH staffs' experience with using the instrument in their research, and the original and related bibliographic references.

Methods: We will be using Access 2000 Database with Visual Basic programming language.

Results: We created forms and entered data for the Operational Performance Metric. We updated the toolbar with a command to print a hardcopy of the questionnaires.

Researchers: Michael Swift (Institute Coordinator), Sheilah Hogg-Johnson

Stakeholder Involvement: External Researchers.

Potential Audiences and Significance: The data entry aspects of the proposed system will largely be of interest to other researchers at IWH.

Data Dictionary (0301)

Project Status: Ongoing

Introduction: The Data Dictionary project is an attempt to create a searchable catalogue that documents the tools, resources and information on areas of research at the Institute. Staff initiating research at the Institute will be able to access this information, thereby limiting duplication of effort. Information will typically include the concept, definition, data access (if applicable), previous IWH work, and links to other sources of information on the concept. A beta version of limited information had been completed.

Objectives:

- To identify areas and subjects where specific researchers at the Institute may contribute information.
- To create a template for the presentation of information within the Data Dictionary.
- To display this information and together with IWH staff, work towards agreement on the structure of the Data Dictionary (i.e., how best to categorize the information within it).
- To cross reference information where appropriate.
- To maintain the dictionary.

Methods: First, we will build an inventory of internal and external microdata holdings used for IWH research. Then, we will classify all microdata holdings with respect to documentation and storage needs. A set of rules/guidelines for documenting/storing pre-analytic and analytic datasets will be developed. An investigation of available software solutions for creating and maintaining documentation will be undertaken and a suitable software selected. This will take into account the ongoing use of the wiki for capturing WSIB data knowledge and the current IWH initiative for knowledge management. Finally, staff will be educated on the software and rules/guidelines for documenting microdata holdings and pre-analytic and analytic datasets.

Results: A draft inventory of internal microdata holdings was completed. A framework for classifying data (titled “Levels of Data Framework”) was created. A list of the different types of data documentation was generated. An informal review of software solutions for storing data documentation was conducted, and the Wiki was selected. The Wiki for WSIB data documentation and knowledge was revived, restructured with added content. New software apps for the wiki were explored and a new vehicle selected. A small number of staff received basic training on the use of the Wiki. The structure of the wiki was expanded to allow for the eventual addition of other data sources (besides WSIB). A standard process for creating, naming and setting permissions on T drive was developed, documented and communicated to staff. A standard process for storing and accessing Statistics Canada DLI data sources was developed, documented and communicated to staff.

Researchers: Sheilah Hogg-Johnson (Institute Coordinator), Amber Bielecky, Arold Davilmar, Grant Yao, Jacob Etches, Michael Swift, Paolo Maselli, Peter Smith (Monash University)

Stakeholder Involvement: Ministry of Labour Data Diagnostic Unit.

Potential Audiences and Significance: Largely of internal interest, but there may be some specialized interest with data users within MoL and WSIB.

Keyword Project (0311)

Project Status: Completed

Introduction: The keyword project is an attempt to create a common nomenclature for describing content of IWH research projects. This nomenclature would be used for a variety of projects including: the web, Refman, working papers. It would be generated using MeSH vocabulary and tailored to suit IWH's unique research foci.

Objectives:

- To identify a frequency of terms that represent our work at the IWH.
- To get a consensus agreement on the structure of the tree.
- To flush out the tree and develop layers which would be dependent on the various uses.
- Cross reference the tree structure.

Methods: We will develop a set of terms for the IWH web search engine. We will tag all material on the website. We will also tag all other material within the IWH e.g., Refman, Projects. We will edit and maintain all material.

Results: We keyworded all IWH publications in order that they are using the web-based nomenclature. We searched terms for the web and will continue to monitor and edit our internal terms accordingly. We developed a list of synonyms for our website search engine and for our internal Refman database.

Researchers: Quenby Mahood (Institute Coordinator), Dwayne Van Eerd, Emma Irvin, Michael Swift, Philip Kiff, Sara Morassaei

Stakeholder Involvement: Stakeholder involvement will occur through search terms entered into the new website and any feedback we may receive on our advanced search feature options on the new IWH website, ensuring our research is easily located on our website.

Potential Audiences and Significance: This project is primarily focused on compiling and facilitating access to information within the IWH based on a common structured language. The product should be of interest to internal staff only, but would greatly assist us in responding to external requests for information from stakeholders.

Integrated Information Database (0307)

Project Status: Completed

Introduction: The genesis of this project was the need to streamline the accountability reporting of project accomplishments and activity plans for internal and external audiences. An initial review of the requirements indicated that many of the same data elements and information were used across different reports. A comprehensive database that contained all of these information items and could easily be manipulated to allow for customization was proposed. The integrated information database was conceived as a tool that could reduce repetition in data gathering, increase efficiency and accuracy in reporting and improve overall project tracking and management. This project was initiated in 2001 and now comprises three phases. The first phase was the tracking of time spent on individual projects and included linking the 'hours' part of the database with the Institute's secure budget and accounting system. The second phase encompassed all elements of detailed project descriptions. Two databases were created to meet the needs of each phase: Staff Hours Reporting Database, developed by Dylan Maccarone, for the first objective and the IID Database, developed by Michael Swift, for the second objective. The third phase contained CV type information on Institute staff and affiliates and was included in the IID Database. The present systems are in the ongoing maintenance phase of the database life cycle.

Objectives:

- To develop an efficient computer-based tool for collecting information on project and staff activity.
- To create a central electronic repository of all project related information.
- To improve the efficiency of project reporting.
- To improve the overall tracking and management of project activities and milestones.

Methods: We will build and test a multi-user databases using MS-Access 2000 Database in consultation with users.

Results: We updated the data programs according to needs of the Administrative Coordinator of Research Operations at the IWH. We maintained data by periodically running compact and repair modules. We maintained the deletion and addition of staff members within the database.

Researchers: Michael Swift (Institute Coordinator), Dylan Maccarone, Emma Irvin, Linda Harlowe

Stakeholder Involvement: External researchers.

Potential Audiences and Significance: The development of the database itself will primarily be of interest to other research organizations who face similar reporting challenges as IWH.

Methodological Developments in Systematic Reviews (0951)

Project Status: Ongoing

Introduction: As part of the IWH's commitment to continuously improve the field of (SR) methodology, we propose to undertake the following methods projects:

- A - Meta-Analyses of Prevalence
- B - Prevention Review Methodology: Evaluation of Non-clinical Interventions
- C - Methods Workshops: Quality Appraisal tools
- D - Stakeholder Development in Prevention Reviews
- E - Literature Search Strategies for Grey Literature

Objectives:

- To do a SR of meta-analysis of prevalence studies published in last 5 years for health conditions.
- To publish a paper intended to underline the challenges and solutions of adapting the established systematic review methodology to non-clinical literature.
- To run workshops to discuss aspects of the systematic review methods; the next workshop will be to discuss Quality Appraisal tools.
- To discuss the model of stakeholder engagement with two provinces and associated benefits.
- To systematically search and review relevant grey literature on the process and implementation of participatory ergonomics interventions in workplaces.
- To explore and document various methods of searching and obtaining grey literature on the topic of participatory ergonomics (PE) interventions.
- To provide recommendations about the use of grey literature in systematic review methods.

Methods: The IWH Systematic Review protocol usually includes the following steps: 1. Develop question, 2. Conduct literature search, 3. Identify relevant publications, 4. Quality appraisal, 5. Data extraction, 6. Evidence synthesis.

Results: As discussion paper was submitted to a trade journal. We provided SR methods training in Brussels. We also presented on SR methods at the Cochrane Colloquium. A manuscript on the inclusion of grey papers was completed and submitted for peer review.

Researchers: Emma Irvin (Institute Coordinator), Andrea Furlan, Ben Amick, Dwayne Van Eerd, Jason Busse, Kim Cullen, Quenby Mahood, Tesha Slack, Angela Mailis-Gagnon (Toronto Western Hospital), Jill Hayden (Dalhousie University), Fatima Lakha (Toronto Western Hospital)

Potential Audiences and Significance: The methods groups of the Cochrane Colloquium and other researchers conducting systematic reviews would be interested in the results of this program.

Publication:

Cullen K, Franche R-L, Clarke J, Irvin E. The role of organizational factors in workplace-based return to work interventions: A systematic review. Submitted: Disability & Rehabilitation.

Furlan AD, Chaparro LE, Irvin E, Mailis-Gagnon A. A comparison between enriched and non-enriched enrollment randomized withdrawal trials of opioids for chronic non-cancer pain. Pain Research & Management 2011; 16(5): 337-351.

Presentations:

Irvin E, Van Eerd D, Mahood Q, Slack T. Searching far and wide for occupational prevention literature: Where do we go to find relevant studies? 19-22 Oct 2011; Madrid, Spain: 19th Cochrane Colloquium.

Reardon R, Wepler C, Irvin E, Allen M, Buckley N. Panel Discussion: Guideline development: Overcoming challenges of limited evidence and implementation at a national level. 3-5 Apr 2011; Vancouver, BC: CADTH Symposium 2011.

Participatory Ergonomic Tool Development (3100)

Project Status: Ongoing

Introduction: Musculoskeletal disorders and injuries (MSDs) are a leading cause of lost time injury claims and lost productivity in Canadian workplaces. This places a significant burden on the health of Canadians and therefore on the healthcare and compensation systems. The physical risk factors for MSDs can be reduced through improved ergonomics. Ergonomics is the scientific discipline concerned with the understanding of interactions among humans and other elements of a system, and the profession that applies theory, principles, data and methods to design in order to optimize human well-being and overall system performance (IEA). One emerging approach to ergonomic interventions is to engage workers in the process of identifying and solving ergonomic risks – called participatory ergonomics (PE). PE interventions are effective in reducing MSDs and their impact. PE entails including employees in hazard identification, solution development and solution implementation.

Objectives:

- To work with our educationally influential (EI) networks in healthcare and ergonomics and other stakeholders.
- To develop and evaluate the development process for a PE tool that could be used by health & safety practitioners to initiate PE programs for workplaces.
- To disseminate and evaluate the uptake of the PE tool.

Methods: The study will be an open cohort followed for 12 months with data collection via online surveys at baseline, 3, 6 and 9 months. Study participants will be recruited in to the cohort for the first 6 months, so there is at least 3 months of follow-up possible for each participant. The cohort will consist of all stakeholders from British Columbia who download the PE guide from a host website.

Results: We met with the advisory committee and generated a workplan and identified a stakeholder network. We prepared evaluation materials and secured ethics for the project. Another meeting was held with the advisory committee to review stakeholder participation and discuss follow-up survey questions. We began data analysis steps. The participant list was updated and we met with the advisory committee to discuss any new dissemination and to provide an update on data collected to date. Data collection and analysis is currently ongoing.

Researchers: Dwayne Van Eerd (Principal Investigator), Cindy Moser, Donald Cole, Emma Irvin, Philip Kiff, Tesha Slack, Judy Village (University of British Columbia), Shane Dixon (University of Waterloo)

Stakeholder Involvement: In Ontario, kinesiology educationally influential (EI) group, ergonomist EIs, occupational therapist EIs plus additional stakeholders from the PE process and implementation systematic review will be consulted for various tool development and implementation steps. In addition stakeholders identified during the systematic review from British Columbia and Manitoba (representing similar groups as those in Ontario) will be consulted during various stages.

Potential Audiences and Significance: Practitioner stakeholders (such as ergonomists, kinesiologists, OTs, etc) suggested that the PE SR findings be developed into a tool. The WSIB, employers, and labour groups will be interested in improved MSD prevention interventions that such a tool would facilitate. Furthermore KT practitioners and knowledge dissemination organizations will be interested in our approach.

Funding:

Van Eerd D, Keown K, Cole DC, Irvin E, Amick BC. Dissemination and uptake of a participatory ergonomics tool for workplaces. WorkSafeBC: \$44,925 (2010-2011)

Clinical Systematic Reviews (3105)

Project Status: Ongoing

Introduction: While some disability can be explained by objective medical findings, many claims cannot and are defined by symptoms such as chronic pain or chronic fatigue. These latter disorders are sometimes grouped under labels such as functional somatic syndromes or medically unexplained syndromes, and the lack of clear targets for intervention presents a substantial challenge for assigning clinical intervention.

Objectives:

- To complete a series of narrative and systematic reviews and, when possible, meta-analysis of therapies for various medically unexplained syndromes.

Methods: We will explore all therapies for fibromyalgia that have been tested in randomized controlled trials and use Bayesian mixed treatment comparison methods (adjusted indirect comparisons) to complement the direct comparisons of the relative effects of competing interventions in randomized trials.

Results: For the Fibromyalgia Review, we are awaiting a CIHR funding decision. For the Temporomandibular Joint Syndrome Review, we completed the literature search, and citation screening for inclusion/exclusion criteria, and we abstracted data from included studies. A manuscript was prepared for submission to peer review. For the Fibromyalgia Review, we completed the literature search and citation screening for inclusion/exclusion criteria. Data abstraction is currently ongoing.

Researchers: Jason Busse (Principal Investigator), Ivan Steenstra, Joanna Liu, Quenby Mahood, and different groups of researchers depending on the review.

Stakeholder Involvement: The Institute for Work & Health will support these reviews with library services to conduct literature searches and retrieve articles, and through KTE to assist in the dissemination of research findings. We have met with our Knowledge Users before starting the review to optimize our research question.

Potential Audiences and Significance: The impact of medically unexplained syndromes on disability management is substantial, and the results of the intended reviews will be relevant to the WSIB, private disability insurers, clinicians and patients.

Publication:

Mollon B, Bhandari M, Busse JW, Einhorn TA. Clinical application of electrical stimulation to long bone healing: Exploring the evidence. Accepted: US Musculoskeletal Review.

Funding:

Busse J, Keown K, Soric R, Klatt I, Wilson L, Guyatt G, Montori V. Management of fibromyalgia: a systematic review of randomized controlled trials. CIHR: \$97,234 (2010-2011)

A Systematic Review of the Quality and Types of Performance Measures Used to Assess KTE Implementation (3110)

Project Status: Completed

Introduction: Knowledge transfer and exchange (KTE) is a burgeoning organizational practice at research institutions worldwide. Funders and policy makers demand to know whether their investments are making a difference. However, the effectiveness of current KTE practices has not been routinely or consistently evaluated. KTE practitioners note the need to evaluate both how well plans are being implemented and the impact of these plans, to be able to improve KTE practices. The paucity of valid and reliable tools may be one reason for this lack of evaluation. As the concept of knowledge to action moves to the forefront in the research community, a common set of quality tools will provide opportunities to consistently evaluate the effectiveness and impact of KTE implementation.

Objectives:

- To systematically search and review the KTE literature across contexts, outcomes, KTE implementation processes.
- To answer the research question: Are there reliable and valid tools to apply in the assessment of KTE implementation and its impact?

Methods: This systematic review followed the IWH Systematic Review protocol, which included the following steps: 1. Develop question, 2. Conduct literature search, 3. Identify relevant publications, 4. Quality appraisal, 5. Data extraction, 6. Evidence synthesis.

Results: We completed the final project report. As well, we completed the write-up of a manuscript on the findings of the KTE systematic review for submission to peer review.

Researchers: Dwayne Van Eerd (Principal Investigator), Ben Amick, Cindy Moser, Donald Cole, Emma Irvin, Jane Brenneman Gibson, Joanna Liu, Quenby Mahood, Sara Morassaei, Shanti Raktoe, Tesha Slack, Andreas Laupacis (St. Michael's Hospital), David Clements (Canadian Health Services Research), Dee Kramer (University of Waterloo), John Garcia (Cancer Care Ontario), Kiera Keown (CIHR), Rhoda Reardon (College of Physicians and Surgeons)

Stakeholder Involvement: The decision makers (who represented the stakeholders for this project) were updated quarterly throughout the project. In addition, we identified and met with KTE practitioner stakeholders at a separate meeting during the study year.

Potential Audiences and Significance: A summary of this project will be produced using a four-page "Sharing Best Evidence" format and will be made available on the IWH website and via our quarterly newsletter. Stakeholders from the CHSRF and CPSO have already indicated that websites and resources of their institutions will be available to assist in dissemination. We will also update the IWH KTE workbook "From Research to Practice" (Reardon, Lavis, Gibson; 2006) and it is available on the IWH website.

Presentations:

Van Eerd D, Cole DC, Keown K, Irvin E, Kramer D, Brenneman Gibson J, Kohn M, Mahood Q, Slack T, Amick BC, Phipps D, Garcia J, Morassaei S. A systematic review of the quality and types of instruments used to assess KTE implementation and impact. 19-22 Oct 2011; Madrid, Spain: 19th Cochrane Colloquium.

Van Eerd D, Irvin E, Gibson J, Keown K, Kramer D, Slack T. Stakeholder meeting: Knowledge transfer and exchange practices: A systematic review. 15 Feb 2011; Toronto, Ontario.

Funding:

Van Eerd D, Reardon R, Clements D, Laupacis A, Amick BC, Irvin E, Brenneman Gibson J, Keown K, Cole DC, Garcia J. KTE Practices: A systematic review of the quality and types of performance measures used to assess KTE implementation effectiveness and impact. CIHR: \$100,000 (2009-2010)

Systematic Review: Prognostic Factors for Low Back Pain (3115)

Project Status: Completed

Introduction: If a worker hurts his/her back, many people want to know how long it will take before he/she returns to work (RTW). Interpretation of the vast body of studies on prognostic factors for delayed RTW is difficult. The amount of information can be quite overwhelming to the actual users of scientific knowledge. Making inferences about the prognosis of RTW from these studies is difficult and this has led to much confusion. We will study the set of determinants that influence the likelihood of a RTW in case of sick leave or disability benefits due to low back pain. Based on the International Classification of Functioning, Disability and Health we distinguish between factors related to LBP, to the worker, to the job and to the psychosocial environment that influence duration of an episode of being off work. In 2005, we published a systematic review that has been cited by 26 papers since then and has been used by policymakers to inform their decisions.

Objectives:

- To assess the evidence on factors that predict duration of time away from work in workers in the beginning of a LBP related episode of time away from work.

Methods: The search strategies to identify relevant studies are influenced by those advocated by the Cochrane Collaboration and by Haynes et al. We will use an updated search strategy in PubMed, EMBASE and PsycINFO from inception of each database to the present, extracting those references already reviewed in the 2005 systematic review search. The references and citations of all relevant articles and recently published review articles will be screened for additional publications. Two reviewers will independently select studies meeting the same inclusion and exclusion criteria as the 2005 review. Two reviewers will score the quality of included studies.

Results: We finished extracting data from included studies, analysed the data, and performed a meta-analysis. A draft version of the report was completed. We held webinars and workshops with stakeholders. We analysed the feedback from the workshops. We also presented at the EPICOH scientific conference in Oxford, UK. A final report was completed.

Researchers: Ivan Steenstra (Principal Investigator), Carol Kennedy, Emma Irvin, Kristina Buccat, Linda De Bruin, Quenby Mahood, Sheilah Hogg-Johnson

Stakeholder Involvement: Clinicians, Worker's Compensation Board of Manitoba.

Potential Audiences and Significance: Clinicians, researchers, employers.

Presentation:

Steenstra I, Kennedy C. Prognostic factors for time away from work due to acute low back pain. Two workshops held on April 6, 2011 at the School of Medical Rehabilitation, University of Manitoba, Winnipeg.

Funding:

Steenstra I, Irvin E, Mahood Q, Hogg-Johnson S. Prognostic factors for the time away from work in workers away from work due to acute low back pain, an update of a systematic review. Manitoba Workers Compensation Board: \$40,361 (2010-2011)

Knowledge Transfer & Exchange	101
<u>Stakeholder/Audience Relationships and Exchanges</u>	
Disability Managers Network (0638)	102
Clinical Networks (0617)	103
Prevention Partners Networks (0640)	104
Workplace Parties Networks (0612)	105
Vulnerable Workers (0619)	106
Issue Briefings (0611)	107
<u>Capacity Building</u>	
KTE Advisory Committee (0646)	108
Tool Development and Dissemination (0636).....	109
Tracking KTE/Evaluation (0629)	110
KTE Partnerships (0652).....	111
Workshop (0643).....	112
<u>Developing New Guides, Tools, Communication Technologies and Techniques</u>	
Corporate Communications (0690)	113
[Consolidates: Internal Communications (0622), Web Development (0630), Alf Nachemson Memorial Lectureship (0645), Outreach (650), Media Relations (0655), At Work (0660), IWH Annual Report (0665)]	

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 web site, 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 different 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.

Disability Managers Network (0638)

Project Status: Ongoing

Introduction: The "Seven Principles for Successful Return to Work (RTW)" continues to be an effective evidence guide with significant web activity. In 2011, KTE continued to support the Multi-morbidity, Depression and Pain in the Workplace study of Canadian Nurses led by Renee Louise Franche. We coordinated focus groups in Ontario and assisted in developing summaries and other products (as appropriate from the research. KTE will continue to support strategic collaborations with the Ontario Workplace Safety and Insurance Board.

Objectives:

- To facilitate knowledge exchange among IWH researchers and individuals who are involved in the practice of disability management in Ontario.
- To facilitate the dissemination of research findings to the community of disability management practitioners in Ontario.
- To invite members to participate in/ provide advice on IWH research projects, and participate in IWH events (e.g., workshops, seminars).
- To provide KTE support for research projects with messages for RTW audiences.

Methods: Support stakeholder meetings for research projects e.g., multi-morbidity study. Interview disability managers and develop project plan to create network of disability managers and expand our contact list. Highlight completed research articles on RTW in IWH newsletter.

Results: An At Work article was published in 2011. This was forwarded to key stakeholders who participated in the study. Another At Work article on labour market re-entry was prepared in 2011 and will be released in the spring of 2012. IWH research alerts were sent to members of 60 Summits beginning in the summer of 2011 and continued each quarter. The invitation list and draft terms of reference was developed for the new disability managers network. Over 300 invitations were sent for the new disability managers network and approximately 70 people accepted this invitation. Finally, recent IWH research on return to work was featured in meetings with educational influentials networks (chiropractors, kinesiologists and ergonomists).

Researchers: Ron Saunders (Project Leader), Carol Kennedy, Cindy Moser, Jane Brenneman Gibson, Kristina Buccat

Stakeholder Involvement: HSA consultants, workplace parties, disability managers, health care and nursing organizations, Office of the Employer Adviser, Office of the Worker Adviser, Injured Worker Consultants, Ontario Network of Injured Workers Groups, Workers United, OSACH, OHSAA and Hospital Employees' Union, 60 Summits Group

Potential Audiences and Significance: Players in the RTW continuum (workplace parties, insurers, clinical care providers and disability managers, health care providers and nursing organizations, injured workers) will receive RTW messages and be linked to discuss successful RTW.

Clinical Networks (0617)

Project Status: Ongoing

Introduction: Many clinical provider groups deliver care to populations of interest to IWH (e.g., workers with musculoskeletal disorders). Some practice outside the more traditional clinical settings and focus on the work/health interface. We have targeted these groups as potential audiences for Institute research messages, as providers who work within, or in close association with, workplaces (in primary/secondary prevention roles and/or return to work, delivering treatment and/or disability management) including family physicians (MDs), physiotherapists (PT), kinesiologists (Kin), occupational therapists (OT), chiropractors (Chiro) and ergonomists (Ergo). Many IWH research messages are relevant to these groups (management of back pain, disability management and RTW). Equally, these groups possess a practice expertise and knowledge that is useful and relevant to IWH. This project builds knowledge transfer & exchange infrastructure that can be used over time. Fundamental to this project are partnerships developed with professional bodies who represent or regulate these disciplines. These partners 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). We have identified EIs across the province in the disciplines describe in the previous paragraph. Each of these groups has been convened to seek their cooperation in an ongoing role as “knowledge broker”. Specifically, we are establishing 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.

Objectives:

- To plan and implement annual face-to-face contact with each discipline group.
- To plan and implement projects to bring EIs into IWH's work.
- To disseminate monthly research alerts to all EI groups.
- To remain active contributors to association trade publications.

Methods: We will meet annually with EIs. We will increase the number of articles submitted to professional journals and newsletters. We will evaluate EI interaction via the OT EI network.

Results: IWH research alerts were sent each month in 2011. We held an OT/PT event in the spring of 2011. We held a Chiropractors EI event in the fall of 2011. We also held a Kinesiologists/Ergonomists EI event in the fall of 2011.

Researchers: Ron Saunders (Project Leader), Jane Brenneman Gibson, Carol Kennedy

Stakeholder Involvement: Clinicians/practitioners, professional bodies (associations/regulatory colleges), guidelines advisory committee.

Potential Audiences and Significance: PTs, OTs, Kins, Ergos, and Chiros. 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, website etc.

Prevention Partners Networks (0640)

Project Status: Ongoing

Introduction: KTE continued to build relationships with the prevention partner community through vehicles like the Health and Safety Association Liaison Committee (HSALC). Members of the Centres of Research Excellence (CREs) and the Occupational Cancer Research Centre (OCRC) continued as full partners in the HSALC. The "Research Alerts" also continued in 2011. Capacity building in the use of evidence in programming and planning continued through the review of evidence from research organizations. This regular committee work was supplemented with workshops open to the broader health and safety community.

Objectives:

- To continue to build relationships with prevention partners to take research evidence to Ontario workplaces.
- To continue to develop opportunities for our prevention partners to participate in the research process and review their experience with this participation.
- To coordinate IWH input into the Prevention Partners Conference and assist with research posters.
- To assist IWH researchers to develop and deliver a Measurement workshop geared in part to this audience.

Methods: We will continue to utilize HSA networks for dissemination of IWH research and guides. We will collect feedback on "Research Alerts". We will participate in the Research Exchange Series of the Centre for Health and Safety Innovation (CHSI).

Results: The HSALC met quarterly in 2011. IWH research alerts were distributed monthly. A presentation by B Amick was given on the leading indicators project in the Research Exchange Series. In 2011, we made a decision not to hold a measurement workshop. As well, we completed planning for IWH presentations at CHSI in the winter of 2012.

Researchers: Ron Saunders (Project Leader), Cindy Moser, Greer Palloo, Jane Brenneman Gibson, Kristina Buccat, Sara Macdonald, Desre Kramer (University of Waterloo), Janet Brown (CRE-OD)

Stakeholder Involvement: HSA Community, MOL, WSIB, CRE-MSD, CRE-OD, IWH researchers.

Potential Audiences and Significance: HSA consultants, OSHCO Membership, MOL, CREs, and the WSIB are audiences that can utilize research evidence in their programs with Ontario employers.

Workplace Parties Networks (0612)

Project Status: Completed

Introduction: As workplace parties are priority audiences for IWH research, this project will explore ways to reach employers and organized labour through intermediaries and direct communication. The focus in 2011 will be to expand our contacts with organizations that are in regular contact with employers and organized labour.

Objectives:

- To disseminate twice per year to employers through safety group contacts.
- To review possible ways to strengthen our links to organized labour.
- To assist IWH researchers in linking with workplace parties for specific IWH research projects.
- To continue to utilize HSA networks as conduit for research to workplaces.

Methods: We will continue relationship building via in-person meetings. We will determine a process for building an employer network.

Results: We made contact with safety groups, however, the safety groups declined to participate in a new network.

Researchers: Ron Saunders (Project Leader), Carol Kennedy, Greer Palloo, Jane Brenneman Gibson, Kristina Buccat

Stakeholder Involvement: Workplace parties (employers, organized labour).

Potential Audiences and Significance: Employers, and organized labour, workers.

Vulnerable Workers (0619)

Project Status: Ongoing

Introduction: IWH research has contributed to evidence showing that vulnerable populations, including immigrants, older workers and new workers, have higher than average workplace injury rates. IWH research has also shown that vulnerable workers have difficulty navigating the OHS and workers' compensation systems. IWH is also exploring the relationship between new/growing forms of work (such as temporary work) and the risk of work injury.

Objectives:

- To work with scientists on individual research projects to involve stakeholders as appropriate and to disseminate research messages as they are developed.
- To develop and implement a formal strategy for transfer of messages to immigrant, new and older workers, as these findings become available.

Methods: In 2011, the key focus was on developing a user-friendly toolkit for use by immigrant settlement agencies to inform newcomers of OHS and workers' compensation rights and responsibilities. Feedback from the focus group sessions after pilot testing of a draft kit will be used to inform design of the products

Results: The KTE communications team edited the Prevention is the Best Medicine toolkit text and designed the layout to create a user-friendly kit with 11 components, all posted on a single web page. KTE was active in the dissemination of the kit to many stakeholders (and to provincial and federal government departments). A presentation was given in fall of 2011 to a working group on awareness training. R Saunders worked with a team led by P Smith on the development of a conceptual framework for vulnerability to work injury and illness. A preliminary framework was developed.

Researchers: Ron Saunders (Project Leader), Jane Brenneman Gibson, Sara Macdonald

Stakeholder Involvement: Focus groups held at Skills for Change, a settlement agency in Toronto that provides job search and ESL workshops for newcomers.

Potential Audiences and Significance: Policy makers including MoL, MOHLTC, WSIB, HSAs, HRDC, other WCBs as well as those involved in program development/marketing and awareness campaigns for new and young workers. Immigrant worker organizations and advocates, and settlement agencies.

Issue Briefings (0611)

Project Status: Ongoing

Introduction: Research findings of the Institute for Work & Health often have implications for decision-makers in government, the WSIB, and other OSHCO partners, and for employers, labour groups, and clinicians. In this project, Institute staff identify findings that ought to be of particular interest to policy-makers in government and at the WSIB and prepare brief documents (3-5 pages) that outline the research findings and their implications, in plain language. The Five Year Strategic Plan of the IWH indicates that “We will provide our audiences with opportunities to increase their knowledge about research evidence, using methods tailored to meet the specific needs of stakeholder groups.” This project is an example of the development of a tailored form of knowledge translation.

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 publish one Issue Briefing each quarter, to consult key stakeholders on future topics, and to broaden the distribution of notices about newly published Issue Briefings.

Methods: The work involves briefly summarizing, in plain language, research findings on topics of interest to the policy community and identify implications for decision-makers. Issue Briefings are designed to give readers a quick overview of key findings on a topic, and to stimulate a continuing conversation on the issues examined. While they do not attempt to be systematic or comprehensive in their review of the relevant literature, they do pay attention to the quality of the research. They also consider existing reviews of the literature when available.

Results: The Issue Briefing on benefits adequacy was delayed to allow more time for stakeholder briefings. A plan for external consultations on Issue Briefings was developed, but a decision was made to defer. Some organizations (e.g., CCOHS, U of T Ctr for IR/HR) are now regularly approached to post links to Issue Briefings. Two Issue Briefings were published in 2011 – one on benefits adequacy and another on no-lost-time claims. The evaluation of Issue Briefings was deferred. The next four topics for upcoming Issue Briefings were identified by the IWH Executive Committee. The release of the Issue Briefing on claims in the recession was delayed to Feb 2012.

Researchers: Ron Saunders (Project Leader), Cameron Mustard, Cindy Moser, Jane Brenneman Gibson, Philip Kiff

Stakeholder Involvement: Advance copies of Issue Briefings are sent to the Chief Strategy Officer at WSIB. 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 HSA Liaison Committee, the CCOHS, the Industrial Relations Centre at U of T, and several key Ontario stakeholders. The individuals are invited to post the link to Issue Briefings on their organizations’ websites and/or bulletins.

Potential Audiences and Significance: Issue Briefings are designed to be of interest to policy officials and OHS professionals.

KTE Advisory Committee (0646)

Project Status: Ongoing

Introduction: The KTE Advisory Committee forms part of the accountability framework for KTE by providing expert advice on our KTE activities challenges and accomplishments.

Objectives:

- To obtain expert advice for KTE at IWH to enhance the quality and effectiveness of the programs.
- To continue committee member renewal.
- To balance input from SAC on the measuring the impact of KTE strategies with that from KTEAC on the practice of KTE.

Methods: We will obtain input on KTE projects from expert committee members.

Results: Our membership to the KTE advisory committee was renewed in 2011. We prepared all meeting materials and held the event on June 29, 2011. A report from the meeting was prepared and distributed. A briefing note was prepared for the Board of Directors (BoD) and presented at the BoD meeting in the fall of 2011. Finally, we renewed our membership to the KTE advisory committee for 2012.

Researchers: Ron Saunders (Project Leader), Cindy Moser, Greer Palloo, Jane Brenneman Gibson, Kristina Buccat, Philip Kiff

Stakeholder Involvement: KTEAC Chair, KTEAC members, Internal Committee, IWH Executive.

Potential Audiences and Significance: KTE community, IWH researchers, IWH Executive, IWH Board of Directors.

Tool Development and Dissemination (0636)

Project Status: Ongoing

Introduction: Stakeholders have told us that they need “tools” to help them apply research findings in the workplace. Research in knowledge transfer has also shown the advantage of having evidence-based tools (e.g., Ergonomics Blueprint, BackGuide, Physician Toolkit, Seven Principles of RTW). As research continues to develop and mature at the Institute, there will be a need for additional tools to meet the needs of the Institute’s stakeholders and other interested audiences.

Objectives:

- To continue to look for new opportunities for tool development. e.g., from the systematic reviews.
- To update, repackage and market current tools within IWH toolkit as needed.
- 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.
- To disseminate and document the uptake of the PE guide across British Columbia and evaluate use of the PE guide with respect to initiating and intent to initiate PE programs in workplaces.

Methods: We will revise and update forms to enable automation of DASH User Profile and Intent to Translate forms posted on DASH website. We will use information garnered from research and surveys to revise DASH Manual and to update FAQ pages on website. We will review user profile form information submitted to determine requests for free or commercial use. We will perform quality control checks on the DASH database to ensure items in the database are accurately entered and reflective of user submissions/requests. Also, we will collaborate with the Smart Planner video development company, and the Manitoba and Ontario advisory committee members to create tutorials. For the Participatory Ergonomics guide, we will work with known stakeholders and we will disseminate the PE guide widely in British Columbia via email and website. Those who download the guide will be asked to consent to being contacted in the future. This open cohort will continue for one year with data collection at 1, 3, 6, and 9 months. Data regarding guide use will be collected.

Results: The DASH translation process was monitored and coordinated on an ongoing basis. All databases and the website were monitored and updated on an ongoing basis. A DASH e-Bulletin was finalized and produced. New DASH website was moved into Drupal. DASH manual revision was completed. The DASH commercial licence categories and fee structure were reviewed and revised.

A cost-benefit analysis workshop was presented to WSPS manufacturing safety groups in spring of 2011. Work continued on moving the website into Drupal. Filming at five worksites was completed. A version of video chapters was sent to advisory committee members. Video tutorial chapters are complete. Videos and penultimate Manitoba software was sent to funder for final review. Software testing is ongoing.

The PE guide was made available through stakeholder contacts and direct emails and the WorkSafeBC website link. WorkSafeBC also provided a link in an email update sent broadly to stakeholders. PE guide dissemination is ongoing and data collection continues using Qualtrix. The link to the PE study is no longer on WorkSafeBC website; however, it has been moved to its archives. As of November, we have 699 baseline downloads and 510 (73%) who have consented to participate. 1 month follow-up: 177 of 493 (36%) completed. 3 month follow-up: 131 of 475 (28%) completed. 6 month follow-up: 82 of 386 (21%) completed. 9 month follow-up: 28 of 180 (16%) completed. Data collection will continue to April 2012.

Researchers: Greer Palloo, Jane Brenneman Gibson, Ron Saunders Kristina Buccat, Carol Kennedy, Philip Kiff, Sara MacDonald, Cynthia Neilson, Cindy Moser, Megan Mueller, Dwayne Van Eerd

Stakeholder Involvement: HSA community, workplace parties, clinicians.

Potential Audiences and Significance: Workplace parties, clinicians, health and safety professionals/practitioners.

Tracking KTE/Evaluation (0629)

Project Status: Ongoing

Introduction: Consistent with the IWH Five Year Strategic Plan, KTE has identified activities and indicators to be measured. In 2011, KTE continued to track specific indicators. KTE also continued to gather information from key stakeholders and get their feedback about the accessibility, applicability and usability of research/KTE products. In addition, evidence from the KTE systematic review on measuring the impact of KTE to update the type of tracking/monitoring will be utilized.

Objectives:

- To continue to track KTE indicators that are part of Five Year Strategic Review.
- To continue to track stakeholder engagement in systematic reviews and other research activities.
- To continue to track dissemination activities, publications and trade media related to systematic prevention reviews.
- To determine if these tracking tools provide a good basis for broader application to KTE activities with stakeholders.
- To revise tracking or other measures based on results of KTE systematic reviews.

Methods: We will develop and monitor tracking systems.

Results: We contributed to the development of the Contact Relations Manager (CRM). We also tracked stakeholder participants in key meetings. We identified opportunities to use recently published tools for self-evaluation of KTE at IWH. The preliminary planning for self-evaluation of KTE at IWH was completed. A plenary presentation (led by D Van Eerd) was given on the plan for self-evaluation of KTE at IWH.

Researchers: Ron Saunders (Project Leader), Cindy Moser, Dwayne Van Eerd, Emma Irvin, Jane Brenneman Gibson, Kristina Buccat

Stakeholder Involvement: Funding agencies, systematic review stakeholders, project stakeholders.

Potential Audiences and Significance: This project will be significant to IWH staff as needed information about stakeholders will be more readily available. It will provide a basis from which to determine what other information we should be collecting about our KTE activities.

KTE Partnerships (0652)

Project Status: Ongoing

Introduction: This project focuses on establishing partnerships with other KTE practitioners as part of our capacity building as a unit and team. The Ontario KTE Community of Practice (KTE C of P) will continue in 2012 and several of IWH KTE staff are members. We will continue to profile the IWH KTE work at appropriate conferences and workshops.

Objectives:

- To attend (and occasionally host) seminars/webinars offered by the Ontario KTE Community of Practice.
- To use the KTE Community of Practice as a venue to share research evidence and best practices on what works in KTE.
- To present IWH KTE work at appropriate conferences.

Methods: We will participate in the KTE Community of Practice and host KTE Hub meetings.

Results: We participated in the Community of Practice events throughout 2011. We hosted the KTE Hub meeting each quarter. We shared the results of the KTE systematic review using the Sharing Best Evidence summary published in the spring of 2011. The update of the KTE workbook was postponed, pending full staffing of Knowledge Transfer Associate complement.

Researchers: Ron Saunders (Project Leader), Cindy Moser, Jane Brenneman Gibson

Stakeholder Involvement: KTE Community in GTA, KTE Hub members (IWH, CRE-MSD, CRE-OD, OCRC).

Potential Audiences and Significance: KTE practitioners, KTE researchers, CREs.

Workshop (0643)

Project Status: Ongoing

Introduction: As part of the 2008-2012 Strategic Plan, IWH committed to building capacity in our audiences to understand, use and conduct research through a series of workshops. 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-and-a-half-days since. We also aim to offer a measurement workshop. This workshop is designed to provide participants with tools and knowledge to identify measures that can provide the best estimate of a given concept in their clinical work or research.

Objectives:

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

Methods: The format of the Systematic Review workshop combines a series of short lectures and interactive exercises.

Results: A Systematic Review workshop was held in Toronto on June 8-10, 2011. A second Systematic Review workshop was held in Toronto on November 16-18, 2011.

Researchers: Ron Saunders (Project Leader), Ben Amick, Dwayne Van Eerd, Emma Irvin, Ivan Steenstra, Jane Brenneman Gibson, Kristina Buccat, Sheilah Hogg-Johnson, Peter Smith (Monash University)

Stakeholder Involvement: Participants in the workshop 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 will be of particular interest to health-care professional students, educators, clinicians, researchers, insurers and policy makers. In addition, members of the WSIB have and continue to show interest in attending the workshop as part of our Prevention Systematic Review initiative.

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, 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 findings.
- 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.

Methods: We will monitor and complete communication functions on an ongoing basis. We will develop a new contact management system.

Results: IWH e-alert was sent out each quarter. The communications report for the Board of Directors was prepared for each quarter. Monthly imports of new contacts (e.g., from e-alert sign-ups) were entered into the CRM each quarter. Weekly preparation/distribution of thisweek@iwh was completed, and regular updates of website and innie were completed each quarter. A draft of the strategic communications plan was shared with KTE Advisory Committee. We updated the CRM with new Annual Report contacts and used CRM for Annual Report distribution. A Communications Committee meeting was held on September 8 and December 9, 2011. A new design for thisweek was developed.

Researchers: Ron Saunders (Project Leader), Cindy Moser, Greer Palloo, Kristina Buccat, Lyudmila Mansurova, Megan Mueller, Phil Kiff

Stakeholder Involvement: As required.

Potential Audiences and Significance: All external stakeholders.

2011 Accomplishments

Publications

Journal Articles: Peer Reviewed	116
Journal Articles: Forthcoming.....	121
Journal Articles: Submitted	123
Books/Chapters.....	125
Books/Chapter: Forthcoming	126
Other Papers, Unpublished Reports and Reviews	127

External Scientific/Academic Presentations/Conferences

International	128
National	130
Local and Provincial	131
Educational, Professional, Policy and other Presentations	132
IWH Plenaries	133

Funding and Awards

Research Project Funding – Awarded	135
Research Project Funding – Pending	137
Research Personnel Funding & Other Awards	137

Staff and Collaborators

IWH Staff – 2011	139
Research/Professional Collaborations and Networks, Appointments and Offices	142
Teaching, Educational and Service Activities	147
Adjunct Scientists	156
Glossary	163

Publications 2011

Ahn H, Kreder H, Mahomed N, Beaton DE, Wright JG. Empirically derived maximal acceptable wait time for surgery to treat adolescent idiopathic scoliosis. *Canadian Medical Association Journal* 2011; 183(9):E565-70. [2011-076]

Ayeni OR, Busse JW, Bhandari M. Using extracorporeal shock-wave therapy for healing long-bone non-unions. *Clinical Journal of Sport Medicine* 2011; 21(1):74-75. [2011-027]

Barbosa-Branco A, Souza WR, Steenstra IA. Incidence of work and non-work related disability claims in Brazil. *American Journal of Industrial Medicine* 2011; 54(11):858-871. [2010-089]

Beaton DE, van Eerd D, Smith P, van der Velde G, Cullen K, Kennedy CA, Hogg-Johnson S. Minimal change is sensitive, less specific to recovery: a diagnostic testing approach to interpretability. *Journal of Clinical Epidemiology* 2011; 64(5): 487-496.

Berolo S, Wells R, Amick BC. Musculoskeletal symptoms among mobile hand-held device users and their relationship to device use: A preliminary study in a Canadian university population. *Applied Ergonomics* 2011;42(2): 371-378. [2010-074]

Bombardier C, Evans CJ, Katz JN, Mardekian J, Zlateva G, Simon LS. Further qualification of a therapeutic responder index for patients with chronic low back pain. *Journal of Rheumatology* 2011; 38(2): 362-369. [2010-088]

Borkhoff CM, Wieland, ML, Myasoedova E, Ahmad Z, Welch V, Hawker GA, et al. (with Beaton DE, Bombardier C) Reaching those most in need: A scoping review of interventions to improve health care quality for disadvantaged populations with osteoarthritis. *Arthritis Care & Research* 2011; 63(1):39-52. [2010-067]

Breslin FC, Morassaei S, Wood M, Mustard CA. Assessing occupational health and safety of young workers who use youth employment centers. *American Journal of Industrial Medicine* 2011; 54(4):325-337 (Project 423: Young Workers Employment Centres) [2010-018]

Breslin FC, Smith PM, Moore I. Examining the decline in lost-time claim rates across age groups in Ontario between 1991 and 2007. *Occupational & Environmental Medicine* 2011; 68(11): 813-817.

Brouwer S, Franche RL, Hogg-Johnson S, Lee H, Krause N, Shaw WS. Return-to-work self-efficacy: development and validation of a scale in claimants with musculoskeletal disorders. *Journal of Occupational Rehabilitation* 2011; 21(2): 244-258.

Brown S, Hawker G, Beaton DE, Colantonio A. Long-term musculoskeletal complaints after traumatic brain injury. *Brain Injury* 2011; 25(5):453-461. [2011-077]

Buchbinder R, Batterham R, Elsworth G, Dionne CE, Irvin E, and Osborne RH. A validity-driven approach to the understanding of the personal and societal burden of low back pain: development of a conceptual and measurement model. *Arthritis Research and Therapy* 2011; 13(5):R152. [2011-100]

Busse JW. Interpreting the outcomes of orthopaedic trials. *Advances in Orthopaedics* 2011; 2(4): 141-147. [2010-066]

Busse JW, Jim J, Jacobs C, Ngo T, Rodine R, Torrance D, et al. Attitudes toward chiropractic: An analysis of written comments from a survey of North American orthopedic surgeons. *Chiropractic and Manual Therapies* 2011; 19(1): 25. [2011-097]

Busse JW, Dolinschi R, Clark A, Scott L, Hogg-Johnson S, Amick BC, et al. (with Cole DC) Attitudes towards disability management: a survey of employees returning to work and their supervisors. *Work* 2011; 4(2): 143-151. [2010-036] P237

Busse JW, Walji R, Wilson K. Parents experiences discussion pediatric vaccination: A survey of Canadian naturopathic patients. *PLoS ONE* 6(8): e22737. [2011-088]

Cadarette SM, Jaglal SB, Raman-Wilms L, Beaton DE, Paterson JM. Osteoporosis quality indicators using healthcare utilization data. *Osteoporosis International* 2011; 22(5): 1335-1342 [2010-061]

Cancelliere C, Cassidy JD, Ammendolia C, and Cote P. Are workplace health promotion programs effective at improving presenteeism in workers? A systematic review and best evidence synthesis of the literature. *BMC Public Health* 2011; 11(1):395. [2011-052]

Cole DC, Chen C, Hogg-Johnson S, Van Eerd D, Mazumder A, Wells RP; Worksite Upper Extremity Research Group. Multivariate, longitudinal analysis of the impact of changes in office work environments on surface electromyography measures. *International Archives of Occupational and Environmental Health* 2011 [Epub ahead of print]

Davis AM, Perruccio AV, Ibrahim S, Hogg-Johnson S, Wong R, Streiner DL, Beaton DE, et al. The trajectory of recovery and the inter-relationships of symptoms, activity and participation in the first year following total hip and knee replacement. *Osteoarthritis Cartilage* 2011; 19(12):1413-1421. [2011-042]

Dionne CE, Le Sage N, Franche RL, Dorval M, Bombardier C, Deyo RA. Five questions predicted long-term, severe, back-related functional limitations: Evidence from three large prospective studies. *Journal of Clinical Epidemiology* 2011; 64(1):54-66. [2011-113]

Franche RL, Murray E, Ibrahim S, Smith PM, Carnide N, Côté P, Gibson J, and Koehoorn M. Examining the impact of worker and workplace factors on prolonged work absences among Canadian nurses. *Journal of Occupational and Environmental Medicine* 2011; 53(8): 919-927. (P134) [2011-014].

Furlan AD. Evidence for interferential current to treat musculoskeletal pain remains weak. *Clinical Journal of Sport Medicine* 2011; 21(3):278-279. [2011-028]

Furlan AD, Chaparro LE, Irvin E, Mailis-Gagnon A. A comparison between enriched and non-enriched enrollment randomized withdrawal trials of opioids for chronic non-cancer pain. *Pain Research and Management* 2011; 16(5): 337-351. [2011-034]

Gignac MA, Backman CL, Kaptein S, Lacaille D, Beaton DE, Hofstetter C, Badley EM. Tension at the borders: perceptions of role overload, conflict, strain and facilitation in work, family and health roles among employed individuals with arthritis. *Rheumatology (Oxford)*. 2012; 51(2): 324-332.

Gignac MA, Cao X, Tang K, Beaton DE. Examination of arthritis-related workplace activity limitations and intermittent disability over four-and-a-half years and its relationship to job modifications and outcomes. *Arthritis Care & Research* 2011; 63(7):953-962. [2011-000].

Griffith LE, Shannon HS, Wells RP, Walter SD, Cole DC, Côté P, Frank J, Hogg-Johnson S, Langlois LE. Individual Participant Data Meta-Analysis of Mechanical Workplace Risk Factors and Low Back Pain. *American Journal of Public Health*. 2012; 102(2): 309-318.

Griffith LE, Wells R, Shannon HS, Walter SD, Cole DC, Cote P, Frank J, Hogg-Johnson S, Langlois LE. Translation of mechanical exposure in the workplace into common metrics for meta-analysis: A reliability and validity study. *Occupational and Environmental Medicine* 2011; 68(8):605-610. [2011-074]

Hogg-Johnson S, Cole DC, Lee H, Beaton DE, Kennedy C, Subrata P. Changes in physiotherapy utilization in one workforce: Implications for accessibility among Canadian working-age adults. *Healthcare Policy* 2011; 6(3):93-108. (Project 430: Star/SONG) [2005-087]

Jamal S, Alibhai SM, Badley EM, Bombardier C. Time to treatment for new patients with rheumatoid arthritis in a major metropolitan city. *Journal of Rheumatology* 2011; 38(7): 1282-1288. [2011-057]

Keelan J, Wilson K, Attaran A, Busse JW, Krahn M, McGeer A. Designing a no-fault vaccine-injury compensation programme for Canada: Lessons learned from an international analysis of programmes. *Munk School Briefings* 2011; 1-41. [2011-029]

Keelan J, Wilson K; on behalf of the No-fault Compensation for Vaccine-Related Injuries Working Group [Attaran A, Busse JW, Kelan J, Krahn M, McGeer A, Upshur R, Wilson K]. A no-fault approach to vaccine-related injuries: Why Canada should implement a national no-fault compensation program. *Munk School Briefings*. 2011; February: 1-41. [2011-089]

Kennedy CA, Beaton DE, Warmington K, Shupak R, Jones C, Hogg-Johnson S. Prescription for education: Development, evaluation, and implementation of a successful interprofessional education program for adults with inflammatory arthritis. *Journal of Rheumatology* 2011; 38(10): 2247-2257. (Generic) [2010-049].

Koehoorn M, McLeod CB, Fan J, Mcgrail KM, Barer ML, Cote P, Hogg-Johnson S. Do private clinics or expedited fees reduce disability duration for injured workers following knee surgery? *Healthcare Policy* 2011; 7(1):55-70. [2011-102]

Kosny A, MacEachen E, Ferrier S, Chambers L. The role of health care providers in long term and complicated workers' compensation claims. *Journal of Occupational Rehabilitation* 2011; 21(4): 582-590. (Project 244) [2010-046]

Kosny A, MacEachen E, Lifshen M, Smith PM, Jafri GJ, Neilson C, Pugliese D, Shields J. Delicate dances: immigrant workers' experiences of injury reporting and claim filing. *Ethnicity & Health* 2011 [Epub ahead of print]

Kulkarni AV, Aziz B, Shams I, Busse JW. Author self-citation in the clinical general medicine literature. *PLoS ONE*. 2011. 6(6): e20885. doi:10.1371/journal.pone.0020885 [2009-151]

Kurdyak PA, Chong A, Gnam WH, Goering P, Alter DA. Depression and self-reported functional status: impact on mortality following acute myocardial infarction. *Journal of Evaluation in Clinical Practice* 2011; 17(3):444-451. [2010-063]

LaMontagne AD, Smith PM, Louie AM, Quinlan M, Ostry AS, Shoveller J. Psychosocial and other working conditions: variation by employment arrangement in a sample of working Australians. *American Journal of Industrial Medicine* 2012; 55(2): 93-106.

MacEachen E, Kosny A, Ferrier S, Lippel K, Neilson C, Franche RL, Pugliese D. The 'ability' paradigm in vocational rehabilitation: challenges in an Ontario injured worker retraining program. *Journal of Occupational Rehabilitation* 2012; 22(1): 105-117.

Machado PM, Koevoets R, Bombardier C, van der Heijde DM. The value of magnetic resonance imaging and ultrasound in undifferentiated arthritis: A systematic review. *Journal of Rheumatology* 2011; 87 (Suppl): 31-37. [2011-023]

Marsh D, Akesson K, Beaton DE, Bogoch ER, Boonen S, Brandi ML, McLellan AR, Mitchell PJ, Sale JE, Wahl DA; IOF CSA Fracture Working Group. Coordinator-based systems for secondary prevention in fragility fracture patients. *Osteoporosis International* 2011; 22(7):2051-2065. [2011-080]

- Moore IC, Tompa E. Understanding changes over time in workers' compensation claim rates using time series analytical techniques. *Occupational and Environmental Medicine* 2011; 68(11): 837-841. [2010-073]
- Morassaei S, Smith PM. Examining the relationship between psychosocial working conditions, physical work demands, and leisure time physical activity in Canada. *Journal of Occupational and Environmental Medicine*. 2011; 53(10): 1099-1105. (Project 448: Health and Labour Market Trajectories & RDC) [2009-053]
- Mustard CA, Chambers A, McLeod C, Bielecky A, Smith PM. Comparison of data sources for the surveillance of work injury. *Occupational & Environmental Medicine* 2012 [Epub ahead of print]
- Novak CB, Anastakis DJ, Beaton DE, Mackinnon SE, Katz J. Biomedical and psychosocial factors associated with disability after peripheral nerve injury. *Journal of Bone and Joint Surgery (American)* 2011; 93(10):929-936. [2011-081]
- Orozco FA, Cole DC, Ibrahim S, and Wanigaratne S. Health promotion outcomes associated with a community-based program to reduce pesticide-related risks among small farm households. *Health Promotion International* 2011; 26(4): 441-446. [2011-011]
- Pennick V. Informing your practice with evidence-where to find it, how to understand it. Part 1. *Ontario Occupational Health Nurses Assoc* 2011; 30(1): 21-22. [2011-087]
- Perruccio AV, Davis AM, Hogg-Johnson S, Badley EM. Importance of self-rated health and mental well-being in predicting health outcomes following total joint replacement surgery for osteoarthritis. *Arthritis Care & Research* 2011; 63(7):973-981. [2011-013]
- Riva JJ, Crombeen AM, Rycroft JE, Donkers Ainsworth KE, Gissler TP, Burnie SJ, Busse JW. Interprofessional education for medical students in clinical settings: a practical guide for an elective half-day. *J Can Chiropr Assoc* 2011; 55: 168-73. [2011-090]
- Robson LS, Macdonald S, Gray GC, Van Eerd DL, Bigelow PL. A descriptive study of public sector organizations providing OHS auditing services to workplaces: implications for audit reliability and validity. *Safety Science* 2012; 50: 181-189 (Project 267: Audit tools) [2010-057]
- Rosella LC, Manuel DG, Burchill C, Stukel TA, Roos L, Mustard CA, et al. A population-based prediction algorithm for the development of diabetes: Development and validation of the diabetes population risk tool). *Journal of Epidemiology & Community Health* 2011; 65(7): 613-620. [2007-153]
- Roy JS, MacDermid JC, Amick BC, Shannon H, McMurtry R, Roth JH, Grewal R, Tang K, Beaton DE. Validity and responsiveness of presenteeism scales in chronic work-related upper extremity disorders. *Physical Therapy* 2011; 91(2): 254-266. [2011-002]
- Rueda S, Bayoumi A, Raboud J, Mustard CA, Lavis JN, Rourke S. Employment status is associated with both physical and mental health quality of life in HIV/AIDS. *AIDS Care* 2011; 23(4): 435-443 [2010-010]
- Rueda S, Chambers L, Wilson M, Mustard C, Rourke SB, Bayoumi A, Raboud J, Lavis J. Association of returning to work with better health in working-aged adults: a systematic review. *American Journal of Public Health* 2012; 102(3): 541-556.
- Sale JE, Beaton DE, Posen J, Elliot-Gibson V, Bogoch E. Systematic review on interventions to improve osteoporosis investigation and treatment in fragility fracture patients. *Osteoporosis International* 2011; 22(7):2067-82. [2011-082]

- Sale JE, Gignac MA, Hawker G, Frankel L, Beaton DE, Bogoch E, Elliot-Gibson V. Decision to take osteoporosis medication in patients who have had a fracture and are 'high' risk for future fracture: a qualitative study. *BMC Musculoskeletal Disorders* 2011; 12:92. [2011-083]
- Scott-Marshall H, Tompa E. The health consequences of precarious employment experiences. *Work* 2011; 38(4): 369-382. (Project 486: Contingent Work; RDC) [2008-069]
- Smith PM, Bielecky A. The impact of changes in job strain and its components on the risk of depression. *American Journal of Public Health* 2012; 102(2): 352-358.
- Smith PM, Bielecky A, Frank J. Intervention research on working conditions and mental health: persistent challenges, new directions and opportunities to integrate research agendas. *Healthcare Papers*. 2011; 11(Special):67-72. [2011-053]
- Smith PM, Chen C, Hogg-Johnson S, Mustard CA, Tompa E. Trends in the health care use and expenditures associated with no-lost-time claims in Ontario: 1991 to 2006. *Journal of Occupational & Environmental Medicine* 2011; 53(2):211-217. P419 [2010-050]
- Smith P, Hogg-Johnson S, Mustard C, Chen C, Tompa E. Comparing the risk factors associated with serious versus and less serious work-related injuries in Ontario between 1991 and 2006. *American Journal of Industrial Medicine* 2012; 55(1): 84-91. (Project 419) [2011-091]
- Smith PM, Morassaei S, Mustard C. Examining changes in reported work conditions in Quebec, Ontario and Saskatchewan between 1994 and 2003-05. *Canadian Journal of Public Health*. 2011; 102(2): 127-132.
- Sorensen G, Landsbergis P, Hammer L, Amick BC, Linnan L, Yancey A, et al. Preventing chronic disease at the workplace: A workshop report and recommendations. *American Journal of Public Health* 2011; 101 (Suppl 1): S196-S207. [2010-100]
- Sujic R, Gignac MA, Cockerill R, Beaton DE. A review of patient-centred post-fracture interventions in the context of theories of health behaviour change. *Osteoporosis International* 2011; 22(8):2213-24. [2011-030]
- Sun X, Briel M, Busse JW, You JJ, Akl EA, Mejza F, et al. The influence of study characteristics on reporting of subgroup analyses in randomized controlled trials: A systematic review. *British Medical Journal* 2011; 342:d1569. [2010-071]
- Tang K, Beaton DE, Boonen A, Gignac MAM, Bombardier C. Measures of work disability and productivity. *Arthritis Care & Research* 2011; 63(S11): S337-S349. [2011-085]
- Tang K, Beaton DE, Gignac MA, Bombardier C. Rasch analysis informed modifications to the Work Instability Scale for Rheumatoid Arthritis for use in work-related upper limb disorders. *Journal of Clinical Epidemiology* 2011; 64(11): 1242-1245 [2011-004]
- Tang K and the Canadian Arthritis Network Work Productivity Group. Disease-related differential item functioning in the work instability scale for rheumatoid arthritis: converging results from three methods. *Arthritis Care and Research*. 2011; 63(8):1159-1169. [2011-075]
- Tang K, Escorpizo R, Beaton DE, Bombardier C, Lacaille D, Zhang W, Anis AH, et al. Measuring the impact of arthritis on worker Productivity: perspectives, methodologic issues, and contextual factors. *Journal of Rheumatology* 2011; 38(8):1776-1790. [2011-003]
- Tang K, MacDermid JC, Amick BC, Beaton DE. The 11-item Workplace Organizational Policies and Practices Questionnaire (OPP-11): examination of its construct validity, factor structure, and predictive

validity in injured workers with upper-limb disorders. *American Journal of Industrial Medicine* 2011; 54(11): 834-846. [2011-086]

Tjulin A, Maceachen E, Ekberg K. Exploring the meaning of early contact in return-to-work from workplace actors' perspective. *Disability & Rehabilitation* 2011; 33(2): 137-145.

van der Velde G, Cote P, Bayoumi AM, Cassidy JD, Boyle E, Shearer HM. Protocol for an economic evaluation alongside the University Health Network whiplash intervention trial: cost-effectiveness of education and activation, a rehabilitation program, and the legislated standard of care for acute whiplash injury in Ontario. *BMC Public Health* 2011; 11(1):594. [2011-015]

Van Eerd D, Côté P, Kristman V, Rezai M, Hogg-Johnson S, Vidmar M, Beaton DE. The course of work absenteeism involving neck pain. A cohort study of Ontario lost-time claimants. *Spine* 2011; 36(12):977-982. (Project 370: Occupational Neck Pain) [2009-140]

Van Eerd D, Hogg-Johnson S, Cole DC, Wells R, Mazumder A. Comparison of occupational exposure methods relevant to musculoskeletal disorders: Worker-workstation interaction in an office environment. *Journal of Electromyography & Kinesiology* 2012; 22(2): 176-185.

Vissers MM, Bussmann JB, Verhaar JA, Arends LR, Furlan AD, Reijman M. Recovery of physical functioning after total hip arthroplasty: systematic review and meta-analysis of the literature. *Physical Therapy* 2011; 91(5):615-629. [2011-032]

Waugh EJ, Woodside DB, Beaton DE, Coté P, Hawker GA. Effects of exercise on bone mass in young women with anorexia nervosa. *Medicine and Science in Sports and Exercise* 2011; 43(5):755-763. [2011-033]

FORTHCOMING:

Abma FI, Amick BC, Brouwer S, van der Klink J, Bültmann U. The cross-cultural adaptation of the Work Role Functioning Questionnaire to Dutch. *Forthcoming: Work: A Journal of Prevention, Assessment and Rehabilitation*. [2012-007]

Abma FI, van der Klink JJ, Terwee CB, Amick BC, Bültmann U. Evaluation of the measurement properties of self-reported health-related work-functioning instruments among workers with common mental disorders. *Forthcoming: Scandinavian Journal of Work, Environment & Health* 2011. [2011-117]

Akl EA, Sun X, Busse JW, Johnston BC, Briel M, Mulla S, et al. Specific instructions for estimating unclearly reported blinding status in randomized trials were reliable and valid. *Journal of Clinical Epidemiology* 2011; [Epub ahead of print]. [2011-092]

Amick BC, Menendez CC, Bazzani L, Robertson M, DeRango K, Rooney T, Moore A. A field intervention examining the impact of an office ergonomics training and a highly adjustable chair on visual symptoms in a public sector organization. *Forthcoming: Applied Ergonomics*. 2011; [Epub ahead of print]. [2011-111]

Ammendolia C, Stuber K, de Bruin LK, Furlan AD, Kennedy CA, Rampersaud R, Steenstra IA, Pennick V. Non-operative treatment for lumbar spinal stenosis with neurogenic claudication: A systematic review. *Forthcoming: Spine* [2011-040]

Busse JW, Bhandari M, Ferreira-González I, Montori VM, Guyatt GH. The use and interpretation of composite endpoints in orthopedic trials. *Forthcoming: Journal of Bone and Joint Surgery [Am]*. [2011-093]

Chaumont Menendez C, Amick BC, Bazzani L, Robertson M, DeRango K, Rooney T, et al. A replicated field intervention study evaluating the impact of a highly adjustable chair and office ergonomics training on visual symptoms. *Forthcoming: Applied Ergonomics*. [2012-008]

- Cole DC, Chen C, Hogg-Johnson S, Van Eerd D, Mazumder A, Wells RP. Multivariate, longitudinal analysis of the impact of changes in office work environments on surface electromyography measures. *International Archives of Occupational and Environmental Health* 2011; [Epub ahead of print]. (Project 430) [2011-041]
- Furlan AD, Gnam WH, Carnide N, Irvin E, Amick BC, DeRango K, McMaster R, et al. (with Cullen K, Slack T) Systematic review of intervention practices for depression in the workplace. *Forthcoming: Journal of Occupational Rehabilitation* (Project 3120: Depression in the workplace) [2011-043]
- Gignac MA, Backman CL, Kaptein S, Lacaille D, Beaton DE, Hofstetter C, Badley EM. Tension at the borders: perceptions of role overload, conflict, strain and facilitation in work, family and health roles among employed individuals with arthritis. *Forthcoming: Rheumatology* 2011. [2011-114]
- Griffith LE, Shannon HS, Wells RP, Walter SD, Cole DC, Cote P, Frank J, Hogg-Johnson S, Langlois LE. Individual participant data meta-analysis of mechanical workplace risk factors and low back pain. *Forthcoming: American Journal of Public Health* [2011-103].
- Guyatt GH, Oxman AD, Karanicolas P, Vist G, Santesso N, Kunz R, et al. (with Busse JW) GRADE Guidelines 10. Preparing Summary of Findings (SoF) Tables and Evidence Profiles. *Forthcoming: Journal of Clinical Epidemiology*. [2011-001]
- Guyatt GH, Oxman AD, Vist G, Santesso N, Kunz R, Helfand M, et al. (with Busse JW) GRADE Guidelines 12: Preparing Summary of Findings (SoF) Tables – binary outcomes. *Forthcoming: Journal of Clinical Epidemiology*. [2011-094]
- Hoang-Kim A, Schemitsch E, Bhandari M, Kulkarni AV, Beaton DE. Outcome assessment in hip fracture: evaluation of the practicality of commonly-used outcomes in hip fracture studies. *Archives of Orthopaedic and Trauma Surgery* 2011 [Epub] [2011-115]
- Inrig T, Amey B, Borthwick C, Beaton DE. Validity and reliability of the Fear-Avoidance Beliefs Questionnaire (FABQ) in workers with upper extremity injuries. *Journal of Occupational Rehabilitation*. 2011; [Epub ahead of print]. [2011-084]
- Jaglal SB, Donescu OS, Bansod V, Laprade J, Thorpe K, Hawker G, et al. (with Beaton DE). Impact of a centralized osteoporosis coordinator on post-fracture osteoporosis management: a cluster randomized trial. *Osteoporosis International* 2011 [Epub] [2011-078]
- Kalsi-Ryan S, Beaton DE, Curt A, Duff S, Popovic M, Rudhe C, Fehlings M, Verrier M. The Graded Redefined Assessment of Strength Sensibility and Prehension (GRASSP) - Reliability and Validity. *Journal of Neurotrauma* 2011 [Epub] [2011-079]
- King T, Severin C, Van Eerd D, Cole DC, Amick BC, Beaton DE, Steenstra I. A randomized control trial on the effectiveness of an alternative mouse on self-reported pain. *Forthcoming: Applied Ergonomics* (Project 129: VDU Workers) [2010-094]
- Kosny A, Lifshen M. A national scan of employment standards, occupational health & safety and workers' compensation resources for new immigrants to Canada. *Forthcoming: Canadian Journal of Public Health* [2011-036]
- Lippel K, MacEachen E, Werhun N, Saunders R, Kosny A, Mansfield L, Carrasco C, Pugliese D. Legal protections governing occupational health and safety and workers' compensation of temporary employment agency workers in Canada: reflections on regulatory effectiveness. *Forthcoming: Policy and Practice in Work and Health*. [2011-106]

MacEachen E, Kosny A, Ferrier S, Lippel K, Neilson C, Franche RL, Pugliese D. The 'ability' paradigm in vocational rehabilitation: Challenges in an Ontario injured worker retraining program. *Journal of Occupational Rehabilitation* [epub ahead of print] [2011-104]

Martino R, Beaton DE, Diamant NE. Patients', caregivers' and clinicians views about medical consequences related to oropharyngeal dysphagia. *Forthcoming: Journal of Clinical Epidemiology* [2009-023]

Ramsay JT, Smith PM, Thompson A, O'Campo P, Nisenbaum R, Watson P, et al. Evaluating perceptions of the effectiveness of the Community Advisory Panel model for enhancing service delivery to marginalized populations. *Forthcoming: Public Health Nursing*. [2011-037]

Robson LS, Stephenson C, Schulte P, Amick BC, Irvin E, Eggerth DE, Chan S, Bielecky A, Wang AM. A systematic review of the effectiveness of training for the protection of workers. *Forthcoming: Scandinavian Journal of Work, Environment and Health (Project 975)* [2009-141]

Soklaridis S, Cassidy JD, van der Velde G, Hogg-Johnston S, Tompa E. The economic cost of return-to-work: The employer's perspective. *Forthcoming: Work: A Journal of Prevention, Assessment and Rehabilitation (Project 172: Economic Perspectives on RTW Clinical Trial)* [2010-084].

Tolusso D, Wang X. Some properties of the randomized play the winner rule. *Forthcoming: The Journal of Statistical Theory and Applications*. [2009-139]

Utterback DF, Schnorr TM, Silverstein BA, Spieler E, Leamon TB, Amick BC. Occupational health and safety surveillance and research using workers' compensation data. *Forthcoming: Journal of Occupational and Environmental Medicine* [Epub ahead of print] [2012-006]

SUBMITTED:

Akl EA, Briel M, You JJ, Sun X, Johnston BC, Busse JW, et al. LOST to follow-up Information in Trials (LOST-IT): the potential impact on the estimates of treatment effect. *Submitted: BMJ* [2011-095]

Bhandari M, Busse JW, Kulkarni AV, Devereaux PJ, Leece P, Bajammal S, Heels-Ansdell D, Guyatt GH. Influence of authorship order and corresponding author on perceptions of authors' contributions. *Submitted: Journal of Clinical Epidemiology* [2011-096]

Bielecky A, Mustard CA, Breslin FC. Predictors of occupational and non-occupational injury in early adulthood. *Submitted: Injury Prevention* [2009-077]

Boyle M, Hong S, Georgiades K, Duku E, Racine Y, Mustard CA. Ontario child health study following 2001, Evaluation of sample loss. *Submitted: Child Development (Project 755)* [2003-013]

Breslin FC. The prevalence of mental health conditions among Canadian college and university students. *Submitted: Journal of American College Health (Project 423)* [2009-090]

Breslin FC. The prevalence of mood and anxiety disorders and hazardous drinking among Canadian college/university students. *Submitted: Chronic Diseases in Canada (Project 423: Young Workers Using Employment Centres)* [2010-041]

Côté P, Yang X, Kristman V, Hogg-Johnson S, Vidmar M, Van Eerd D, Beaton DE. Health care utilization for patients identified with occupational neck pain. (Project 370: Occupational Neck Pain) [2007-048]

Davis AM, Ibrahim S, Hogg-Johnson S, Perruccio AV, Streiner D and Badley EM on behalf of the ICF working group. The relationships of the components of the International Classification of Disability, Functioning and Health framework: Implications from longitudinal data in people with hip and knee replacement. *Submitted to: Social Science and Medicine* [2011-105]

Dollard MF, Taylor AW, Hall GB, Winefield TH, Gill TK, LaMontagne AD, Bakker A, Mustard CA. Cohort profile: The Australian Workplace Barometer (AWB). Submitted: *International Journal of Epidemiology*. [2010-009]

Etches J, Mustard CA. Education and mortality in Canada: Mediation by behavioural and material factors. Submitted: *Journal of Epidemiology and Community Health* (Project 461: Mortality follow up) WP: 278 [2004-027]

Femke A, Amick BC, Brouwer S, van der Klink J, Bultmann U. The cross-cultural adaptation of the work role functioning questionnaire to Dutch. Submitted: *European Journal of Public Health* [2010-033] (Project: Generic)

Ibrahim S, Breslin FC, Hogg-Johnson S. Job strain and trajectories of activity limitation and depression in a longitudinal Canadian National sample. Submitted: *Occupational Health Psychology* (Project 309: Work Stressors and Mental Health) [2008-035]

Kim I-H, Muntaner C, Carrasco C, Ibrahim SA. A dynamic pattern in declining new immigrants' health advantage by gender and ethnicity: Results from a Canada-wide longitudinal new immigrants study. Submitted: *Social Science & Medicine*. [2010-083]

Lim J, Manuel D, Mustard CA. Population impact of breast cancer risk reduction strategies in Canadian women. Submitted: *American Journal of Epidemiology* [2006-161]

MacEachen E, Kosny A, Ferrier S, Lippel K, Neilson C, Franche R-L, Pugliese D. What is choice? Rhetoric and conditions of choice in a vocational retraining program. Submitted: *Sociology of Health and Illness* (Project 247) [2011-009]

Mazumder A, Breslin FC. Development of a scale to assess work safety beliefs among adolescent workers. Submitted: *Journal of Occupational Health Psychology* (Project 451: Work injuries and teens; RDC) [2008-064]

Menendez C, Amick BC, Jenkins M, Caroom C, Robertson M, Geer F, et al. A validation study comparing two self-reported upper extremity symptom surveys with clinical examinations for upper extremity musculoskeletal disorders. Submitted: *Work: A Journal of Prevention, Assessment and Rehabilitation*. [2010-034]

Mollon B, Bhandari M, Busse JW, Einhorn TA. Clinical application of electrical stimulation to long bone healing: Exploring the evidence. Submitted: *US Musculoskeletal Review* [2009-119]

Morassaei S, Breslin FC, Shen M, Smith PM. The Role of Job Tenure and Risk for Work Injury: Examining Claim Rates in Ontario, Canada over a 10-Year Period, 1999-2008. Submitted: *Occupational & Environmental Medicine*.

Murray E, France R-L, Ibrahim S, Smith PM, Carnide N, Côté P, Gibson J, Guzmán J, Mustard CA. Pain-related work interference is a key factor in a worker/workplace model of work absence duration due to musculoskeletal conditions in Canadian nurses. Submitted: *European Journal of Pain*. (Project 0134) [2011-044]

Perruccio AV, Ibrahim S, Hogg-Johnson S, and Badley EM on behalf of the ICF working group. Using the International Classification of Disability, Functioning and Health to inform patient outcome: Implications from longitudinal data. Submitted: *Social Science and Medicine* [2010-082]

Scott-Marshall HK, Fang M, Morassaei S, Tompa E. Marital formation in individuals with work-related permanent impairment. Submitted: *Disability and Health Journal* (Project 406: WSIB lost-time injuries) [2011-039]

Shulte F, Smith PM, Beaton DE, Dewey D, Barrera M. Social adjustment in pediatric brain tumor survivors: evaluating the psychometric properties of assessment tools. Submitted: Journal of Pediatric Psychology. [2011-035]

Skakon J, MacEachen E. How does leader stress affect employee stress? Results from a qualitative study. Submitted: Journal of Health Education and Behaviour (Project 144) [2007-108]

Skakon J, MacEachen E, Labriola M. The effect of cultural management on manager and employee stress - Results from a qualitative study. Submitted: European Journal of Work and Organizational Psychology [2009-148]

Smith B, Smith PM, Etches J, Mustard CA et al. Does inconsistency between educational attainment and occupational skill requirement increase risk of all-cause mortality? Evidence from the Canadian Census Mortality Follow-up Study (1991-2001). (Project 0461) [2011-069]

Steenstra IA, Lee H, de Vroome E, Hogg-Johnson S, Bongers PM. Return to work outcome measure: a measurement approach. Submitted: Journal of Occupational Rehabilitation [2010-096]

Sun X, Briel M, Busse JW, et al. Subgroup Analysis of Trials is Rarely Easy (SATIRE): A study protocol for a systematic review to characterize the analysis, reporting, and claim of subgroup effects. Submitted: Trials [2009-020]

Tam E, Furlan AD. Transdermal lidocaine and ketamine for neuropathic pain: A retrospective chart review. [2010-072]

Tompa E, Scott-Marshall HK, Fang M, Mustard CA. Comparative benefits adequacy and equity of three Canadian workers' compensation programs for long-term disability. Submitted to: Can Public Policy (Project 406: WSIB lost-time injuries, IWH Working Paper #350) [2010-022].

Tompa E, Scott-Marshall H, de Oliveira C, Fang M. Does permanent impairment from workplace accident increase the risk of marital breakup? Submitted: Social Indicators Research (Project 406: WSIB lost-time injuries) [2006-061]

Tullar J, Brewer S, Amick BC, Irvin E, Mahood Q, Pompeii L, Wang A, et al. (with Van Eerd D) Interventions in healthcare settings to protect musculoskeletal health: A systematic review literature description. Submitted: Special Edition of the Journal of Occupational Rehabilitation (Project 971: SR - MSDs in upper extremity disorders) [2009-046]

Tullar J, Amick BC, Brewer S, Diamond P, Kelder S, Harrist R. The effect of the sacred vocation program on injury: a controlled longitudinal evaluation of hospital employees. Submitted: New England Journal of Medicine. [2010-035]

Van Eerd D, Hogg-Johnson S, Mazumder A, Cole D, Wells R, Moore R. Task exposures in an office environment: a comparison of methods. Submitted: Ergonomics (Project 430: Star/SONG Project) [2003-047]

BOOKS/CHAPTERS:

Kosny, A. Work and health in non-profit organizations. In: Handbook of Stress in the Occupations, Edward Elgar (UK). [2011-007]

Loisel P, Anema H, MacEachen E, Pransky G, editors. Managing Work Disability in the 21st Century. Springer Press. Accepted [2010-081]

BOOKS/CHAPTERS FORTHCOMING:

Amick BC, Hogg-Johnson S. Managing prevention with leading and lagging indicators in the workers' compensation system. In: Utterback D, Russer J, editors. *Using Workers' Compensation Data for Occupational Injury and Illness Prevention*. NIOSH/BLS Publication (In press)

Ammendolia C, Furlan AD, Imamura M, Irvin E, Van Tulder M. (2011) Chapter 20: Needle acupuncture. In: Dagenais S, Haldeman S, editors. *Evidence-Based Management of Low Back Pain*. St. Louis: Elsevier Mosby.

Brewer S, Tullar J, Amick BC. Using employee records: Pitfalls and opportunities. In: Utterback D, Russer J, editors. *Using Workers' Compensation Data for Occupational Injury and Illness Prevention*. NIOSH/BLS Publication (In press)

Busse JW, Mills EJ, Dennis R, Robinson V, Tugwell P. Chapter 6.10. Clinical Epidemiology. In: *The Oxford Textbook of Public Health*, 5th ed. Oxford University Press, New York: In press. [2009-071]

Dryden T, Furlan AD, Imamura M, Irvin E. Chapter 12: Massage for low back pain. In: Moyer CA, Dryden T, editors. *Integrating Massage Therapy Research and Practice*. Champaign, Illinois: Human Kinetics. (Project 670) [2010-054]

Furlan AD, Pennick V, Ammendolia C, Hayden J. Conservative treatments for chronic non-specific low-back pain. In Bhandari M, editor. *Evidence-based Orthopaedics*. BMJ Publishing: In press. [2011-005]

Hogg-Johnson SA, MacEachen E. Chapter 9: Methodological issues in work disability prevention. In: Loisel P, Anema, editors. *Handbook of Work Disability: Prevention and Management*. Springer. (Project 144: work disability prevention) [2011-048]

Imamura M, Furlan AD, Dryden T, Irvin E. (2011) Chapter 16: Massage Therapy. In Dagenais and Haldeman: *Evidence-Based Management of Low Back Pain*. St. Louis: Elsevier Mosby

Kennedy CA, Beaton DE, Solway S, McConnell S, Bombardier C. Disabilities of the Arm, Shoulder and Hand (DASH). *The DASH/QuickDASH Outcome Measure User's Manual*, Third Edition. Toronto, Ontario: Institute for Work & Health, 2011. (Project 425: DASH) [2009-089]

Kosny A. Work and health in non-profit organizations. In: Elgar E, editor. *Handbook of Stress in the Occupations (UK)* [2011-047]

Loisel P, Anema H, MacEachen E, Pransky G, editors. *Managing work disability in the 21st century*. Springer Press [2010-081]

MacEachen E, Polzer J. Governing worker productivity and health through flexibility and resilience. In: J Polzer, E Power (eds) *Risky Subjects, Healthy Citizens: Studies in Canadian Governmentality* [2010-047]

Steenstra I, Busse J and Hogg-Johnson S. Chapter 16: Specific disorder-linked determinants - musculoskeletal disorders. In: Loisel P, Anema, editors. *Handbook of Work Disability: Prevention and Management*. Springer. (Project144: work disability prevention) [2011-049]

Tompa E, Lund J, Yabroff R. Chapter 7: Health economics and cancer survivorship. In: Feuerstein E, Ganz P, editors. *Quality Health Care for Cancer Survivors* [2009-095]

Tompa E, Lund J, Yabroff R. 2011. Chapter 15: Economics Matters in Cancer Survivorship. In: Feuerstein E, Ganz P, editors. *Quality Health Care for Cancer Survivors*. [2010-103]

van der Velde G. Non-operative management of whiplash-associated disorders. In: Bhandari M, editor. *Evidence-based Orthopedics*; Wiley-Blackwell, Oxford, UK (Generic) [2010-030]

van der Velde G. Non-operative management of non-specific (mechanical) neck pain. In: Bhandari M, editor. Evidence-based Orthopedics; Wiley-Blackwell, Oxford, UK (Generic) [2010-085]

Wiersma E, Chesser SA. Chapter 14: Bridging community and long-term care settings. In: Gibson H, Singleton J, editors. Leisure, Aging and Well-Being. [In Press] [2011-006]

OTHER PAPERS, UNPUBLISHED REPORTS AND REVIEWS:

Bombardier C, Hawker G, Mosher D. The impact of arthritis in Canada: Today and the next 30 years. Toronto: Arthritis Alliance of Canada; 2011.[2011-107]

De Bruin L. Depressive symptoms as a prognostic factor for LBP and RTW: Update of a systematic review. Toronto, ON: IWH.

Furlan AD, Reardon R, Weppler C. Canadian guideline for safe and effective use of opioids for chronic non-cancer pain. <http://nationalpaincentre.mcmaster.ca/opioid/>

Gensby U, Lund T, Kowalski K, Saidj M, Jørgensen A-M, Filges T, Irvin E, Amick BC, Labriola M. Workplace Disability Management Programs Promoting Return-to-Work. Campbell Systematic Reviews.

Kosny A, Lifshen M. Review of safety resources for recent immigrants entering the Canadian workforce. Toronto, ON: IWH

MacEachen E, Cardoso S, Kosny A, Mansfield L, Keown K. (July 2011). Red Flags/Green Lights: A multiple stakeholder evaluation of the uses of a Return-to-Work Problems Guide. Toronto, ON: Institute for Work & Health. P2130 [2011-108]

Mailis-Gagnon A, Lakha F, Furlan AD, Nicholson K, Yegneswaran B, Sabatowski R. Systematic review of the effects of opioids on driving and cognitive/psychomotor performance. (Project: Generic) [2010-069]

Saunders R. The increasing share of work-related injuries registered as no-lost-time claims in Ontario, 1991-2006. IWH Issue Briefing, August 2011.

Smith PM, Mustard CA, Hogg-Johnson SA. Examining changes in injuries submitted as no-lost-time claims in Ontario between 1991 and 2005. Final Report to the WSIB RAC (#07016)

Smith PM, Hogg-Johnson S, Mustard CA, Chen C, and Tompa E. Comparing the risk factors associated with serious versus and less serious work-related injuries in Ontario between 1991 and 2006. American Journal of Industrial Medicine 2011; [Epub ahead of print]. P419 [2011-091]

Subrata P, Bigelow P, Van Eerd D, Krepostman S, Kalcevich C, Hunt S, McKean C. Pain, physical effort, work limitations in the electric and utilities sector. (Project 233: PE in Electrical and Utilities; WP#349)

Tompa E, Mustard CA, Koehoorn M, Scott-Marshall H, Fang M, Chen C. WorkSafeBC study report 1: The impact of Bill 49 on benefits adequacy and equity. Submitted: WorkSafeBC (Project 418: Adequacy and Equity of BC WC Benefits) [2010-078]

Tompa E, Scott-Marshall H, Fang M, Mustard CA. Comparative benefits adequacy and equity of three Canadian workers' compensation programs for long term disability. (P406: WSIB Lost Time; WP# 350)

Van Eerd D, Cole D, Keown K, Irvin E, Kramer D, Gibson JB, Kohn MK, Mahood Q, Slack T, Amick BC, Phipps D, Garcia J, Morassaei S. Report on knowledge transfer and exchange practices: a systematic review of the quality and types of instruments used to assess KTE implementation and impact. Toronto, Institute for Work & Health: 2011. [2011-020]

External Scientific & Academic Presentations/Conferences 2011

International

Beaton DE. Worker productivity. 25-28 May 2011; London, UK: Annual European Congress on Rheumatology.

Breslin FC, Ibrahim S, Smith PM, Shankardass K, Amick BC. Geographic variation in work related repetitive strain injuries in Canada by gender. 19-22 May 2011; Orlando, FL: 9th International Conference on Occupational Stress and Health - Work, Stress, and Health 2011 Work and Well-Being in an Economic Context APA-NIOSH Conference. (Generic)

Breslin FC, Ibrahim S, Smith PM, Mustard CA, Amick III BC, Shankardass K. Work injuries and their demographic, psychosocial, and contextual correlates among Canadian men and women. 19-22 May 2011, Orlando, Florida: Work, Stress and Health 2011.

Breslin FC (chair). Methods and systems for evaluating health behaviours and planning worksite health promotion activities (Paper Panel Session). 17-21 May 2011; Orlando, FL: 9th International Conference on Occupational Stress and Health - Work, Stress, and Health 2011-Work and Well-Being in an Economic Context. APA-NIOSH Conference. (Project: Generic).

Buchbinder R, Osborne RH, Dionne CE, Irvin E, Batterham R. Workshop: International consensus, refinement and validation of the new measure of burden of back pain questionnaire (BP-Quest). 15-18 Mar 2011; Melbourne, Australia: Melbourne International Forum XI -Primary Care Research on Low Back Pain. (Generic)

Carnide N, Côté P, Furlan A, Hogg-Johnson S, Irvin E, King T, Van Eerd D (co-authors in alphabetical order). Early prescription opioid use for musculoskeletal disorders and work: A critical review of the literature. 7-9 Sep 2011; Oxford, UK: 22nd International Conference on Epidemiology in Occupational Health (EPICOH). (Project 670: Evidence Based Practice)

Etches J, Mustard CA, Ruseckaite R, Collie A. Repeat workers' compensation claims. A prospective analysis in Ontario Canada and Victoria Australia. 14-15 Nov 2011; Hopkinton, Massachusetts: Workers Compensation Research Group.

Hogg-Johnson S, Cole DC, Tompa E, Smith PM, Amick BC, Mustard CA. A randomized controlled trial of targeted occupational health and safety consultation or inspection in Ontario workplaces. 18-20 Oct 2011; Morgantown, Virginia; National Occupational Injury Symposium.

Ibrahim S, Smith PM, Côté P. Work stressors and multi-morbidity using three Canadian national samples. 19-22 May 2011; Orlando, FL: 9th International Conference on Occupational Stress and Health - Work, Stress, and Health 2011 Work and Well-Being in an Economic Context APA-NIOSH. (Generic)

Ibrahim S, Smith P. The impact of work stress and work schedule on health- behaviors: analyses using longitudinal Canadian national sample. 19-22 May 2011; Orlando, FL: 9th International Conference on Occupational Stress and Health - Work, Stress, and Health 2011 Work and Well-Being in an Economic Context APA-NIOSH Conference. (Generic)

Kennedy CA, Warmington K, Soever L, Passalent, Lineker S, Thomas, Lundon K, Shupak R, Schneider R. POSTER: Advanced Clinician Practitioner in Arthritis Care (ACPAC) Program-Trained Therapists in Ontario: Impact on system integration and change. 11-15 Feb 2011; Cancun, Mexico: 2nd Mexican-Canadian Congress of Rheumatology

Kennedy CA, Warmington K, Soever L, Passalent, Lineker S, Thomas, Lundon K, Shupak R, Schneider R. POSTER: Advanced Clinician Practitioner in Arthritis Care (ACPAC) Program-Trained Therapists in

Ontario: Impact on system integration and change. 20-23 Jun 2011; Amsterdam, Holland: 16th International WCPT (World Congress for Physical Therapists)

Kunz R, Schandelmaier S, Burkhardt SCA, Ebrahim J, Zumbunn T, Guyatt GH, Busse JW. Case management in private and social insurances: The evidence [Case Management in Versicherungen: die Evidenzlage]. 24 Mar 2011; Olten, Switzerland: Annual meeting of Swiss Insurance Medicine (SIM): Challenges in achieving return to work [SIM-Tagung 2011: Stolpersteine der beruflichen Wiedereingliederung]

Lippel K, MacEachen E, Werhun N, Saunders R, Kosny A, Mansfield L. Temporary employment agency work in Ontario: Regulatory challenges for workers' compensation and OHS. 10 Jun 2011; Deakin University, Australia: International Symposium on Regulating OHS for Precarious Workers.

MacEachen E, Kosny A, Ferrier S, Lippel K, Neilson C, Franche R-L, Pugliese D. "It's your choice ...but your benefits are dependent on your cooperation": Rhetoric and tensions around the concept of 'choice' in a vocational retraining program. 9-12 May 2011; Athens, Greece: 5th Annual International Conference on Sociology (Project 247)

Smith PM, Mustard CA, Glazier R, Hong L. The relationship between labour market conditions and the onset of hypertension among a cohort of Ontarians: examining differences by gender. 7-9 Sep 2011; Oxford, UK: 22nd International Conference on Epidemiology in Occupational Health.

Rueda S, Bekele T, Rourke SB, Lavis J, Raboud J, Bayomi A, Husbands W, Mustard CA. Job search motives, competencies and constraints are associated with job-search intensity, which in turn predicts reemployment success in people with HIV. 17-20 Jul 2011; Rome, Italy: 6th IAS Conference on HIV Pathogenesis, Treatment and Prevention.

Rueda S, Bekele T, Rourke SB, Lavis J, Raboud J, Bayomi A, Husbands W, Mustard CA. Income only partially explains the relationship between employment and lower depressive symptoms in HIV: the return-to-work cohort study. 17-20 Jul 2011; Rome, Italy: 6th IAS Conference on HIV Pathogenesis, Treatment and Prevention.

Schandelmaier S, Burkhardt SCA, Ebrahim S, Zumbunn T, Guyatt GH, DeBoer WEL, Busse JW, Kunz R. Integrating patients on sick leave back into work: A Systematic Review and Meta-Analysis on case management. Presented orally at the annual meeting of the Swiss Society of General Internal Medicine. Lausanne, Switzerland. May 11, 2011.

Smith PM, Mustard CA, Glazier R, Hong L. The relationship between labour market conditions and the onset of hypertension among a cohort of Ontarians: examining differences by gender. 7-9 Sep 2011; Oxford, UK: 22nd International Conference on Epidemiology in Occupational Health.

van der Velde G, Schieir O, Hincapié C, Coté P, Hogg-Johnson S, Paulden M, Krahn M. Economic evaluation of the most commonly used non-surgical treatments for neck pain in Canada: A cost-utility analysis. 10-13 Jul 2011; Toronto, Canada: International Health Economics Association (iHEA) 8th World Congress. (Generic)

van der Velde G, Hincapié C, Schieir O, Coté P, Hogg-Johnson S, Paulden M, Krahn M. Poster: Relative cost-effectiveness of the most common nonsurgical treatments for neck pain. 24 May 2011; Baltimore, United States: 16th International Meeting of the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) (Generic)

Warmington K, Kennedy CA, Lundon K, Rozmovits L, Lineker S, Shupak R, Schneider R. Poster: Advanced Clinician Practitioner in Arthritis Care (ACPAC) program graduates: Perceptions of practitioner roles and role utilization within the healthcare system. 11-15 Feb 2011; Cancun, Mexico: 2nd Mexican-Canadian Congress of Rheumatology

Warmington K, Kennedy CA, Lundon K, Rozmovits L, Lineker S, Shupak R, Schneider R. Poster: Advanced Clinician Practitioner in Arthritis Care (ACPAC) program graduates: Perceptions of practitioner roles and role utilization within the healthcare system. 20-23 Jun 2011; Amsterdam, Holland: 16th International WCPT (World Congress for Physical Therapists)

Warmington K, Kennedy CA, Lineker S, Soever L, Passalent L, Lundon K, Shupak R, Schneider R. Patient satisfaction with care received from Advanced Clinician Practitioner in Arthritis Care (ACPAC) program-trained therapists. 20-23 Jun 2011; Amsterdam, Holland: 16th International WCPT (World Congress for Physical Therapists)

National

Amick BA, Swift MA, Hogg-Johnson SA. A pilot study to examine some psychometric properties of a measure to assess organizational occupational health and safety performance: The Organizational Performance Metric (OPM). 18-20 Oct 2011; Morgantown, West Virginia: 2011 National Occupational Injury Research Symposium. (Project: 1105 Leading Indicators)

Busse JW, Jacobs C, Ngo T, Rodine R, Torrance D, Jim J, Kulkarni AV, Petrisor B, Drew B, Bhandari M. Attitudes towards chiropractic: a survey of North American orthopaedic surgeons. 18 Feb 2011; American Academy of Orthopaedic Surgeons (AAOS) meeting.

Busse JW, Çanga A, Riva JJ, Viggiani D, Dilauro M, Kapend PI, Harvey M-P, Pagé I, Moore A, Gauthier CA, Price DJ. Attitudes towards Chiropractic: A Survey of Canadian Family Physicians. 3-5 Nov 2011; Montreal, QC: Family Medicine Forum. (Generic)

Etches J, Mustard CA. Socio-economic inequality in AIDS deaths before and after HAART in Canada. 21-24 Jun 2011; Montreal, QC: 3rd North American Congress of Epidemiology. (Project 461)

Furlan AD, Wilson G. Applying the NOUGG Guidelines. 11-12 Mar 2011: Vancouver, BC: 24th Annual Pain and Suffering Symposium of The Foundation of Medical Excellence (US).

Furlan AD, Egener B. Respecting our own and patients' boundaries. 11-12 Mar 2011; Vancouver, BC: 24th Annual Pain and Suffering Symposium of The Foundation of Medical Excellence (US).

Furlan AD. The Canadian Guideline for Safe and Effective Use of Opioids for Chronic Non-Cancer Pain. 11-12 Mar 2011; Vancouver, BC: 24th Annual Pain and Suffering Symposium of The Foundation of Medical Excellence (US).

Furlan AD. Reading between the lines, the new breed of pain studies. 8-11 Jun 2011; Victoria, BC: Canadian Association of Physical Medicine and Rehabilitation.

Hincapié C, Schieir O, Coté P, Hogg-Johnson S, Krahn M, van der Velde G. A cost-utility analysis of common non-surgical neck pain treatments. 19-20 Jun 2011; Montreal, QC: 2011 National Student Conference of the Canadian Society for Epidemiology and Biostatistics Student Caucus. (Project 122: Decision Modeling & Economic Evaluation-Neck Pain)

MacEachen E. A guide to challenging return-to-work situations. 16 Feb 2011; Webinar for Canadian Centre for Occupational Health and Safety. (Project 247)

Mustard CA, Bielecky A, Etches J, Wilkins R, Tjepkema M, Amick BC, Smith PM, Aronson KJ. Mortality following unemployment in Canada, 1991-2001. 21-24 Jun 2011; Montreal, QC: 3rd North American Congress of Epidemiology. (Project 0461)

Robson LS, Stephenson CM, Schulte PA, Amick BC, Irvin E, Eggerth DE, et al. (with Bielecky A, Cullen K) A systematic review of the effectiveness of occupational health and safety training for the protection of

workers. 18-20 Oct 2011; Morgantown, West Virginia: National Occupational Injury Research Symposium. (Project 975: SR: Evaluating Education & Training)

Schieir C, Hincapié S, Hogg-Johnson S, Coté P, Krahn M, van der Velde G. A Cost-utility analysis of common non-surgical neck pain Treatments. 21-24 Jun 2011; Montréal, QC: 3rd North American Congress of Epidemiology. (Project 122: Decision Modeling)

Tang K. Measuring the impact of arthritis on work: outcomes perspective, emerging measurement issues, and contextual factors. 29 Oct 2011; Gatineau, QC: Canadian Arthritis Network Annual Scientific Conference: Patient-oriented outcomes symposium.

Local and Provincial

Kennedy C. Perceptions of Advanced Clinician Practitioner in Arthritis Care (ACPAC) Program-trained Practitioners: Roles and Role Utilization within the Ontario Healthcare System". 21 Jun 2011: The Breakfast of Our Champions, St. Michael's Hospital, LKSI. (Project: Generic)

Kosny A. Immigrant experiences after a work-related injury. Reviewing prevention and compensation – What's in it for workers? 31 Mar 2011; Toronto, ON: JOINT Health and Safety Teach-in: RAACWI and OHCOW Academic Research Collaboration.

Kosny A, Lifshen M. Immigrant workers' experiences of injury reporting and claim filing. May 2011; Toronto, ON: RAACWI Community Forum Injured Worker Consultants.

Kosny A. Immigrant workers' experience after work-related injury and illness. 16 May 2011; Toronto, ON: Scientific Advisory Committee, Institute for Work & Health.

Macdonald S, Gibson J, Tompa E, Maccarone D, Keown K, Dubey A, Irvin E, Amick BC. The Health & Safety Smart Planner software: A cost benefit analysis workshop for Occupational Health & Safety. 11 Feb 2011; Mississauga, ON: Print & Chemical Network Meeting, CHSI.

Macdonald S, Tompa E, Maccarone D, Keown K, Dubey A, Irvin E, Amick BC. The Health & Safety Smart Planner software: Measuring outcomes of your health & safety interventions. 4 Mar 2011; Toronto, ON: Health & Safety Liaison Committee Meeting, IWH.

MacEachen E. Employers and return to work: What are some challenges and how can they be managed? 20 Jan 2011; Toronto, ON: Office of the Employer Adviser Annual Meeting.

MacEachen E. A consideration of the new draft work reintegration policies. 11 Jan 2011; Toronto, ON: RAACWI Community Forum.

MacEachen E. (Keynote speaker). Disability and work integration: What are key issues? Institut de readaptation en déficience physique de Québec (IRDQP) Social and Work Integration Conference. 19 May 2011; Quebec City, PQ: (Project 247) [2011-009]

MacEachen E. Research to action in return to work. Reviewing Prevention and Compensation – What's in it for workers? 31 Mar 2011; Toronto, ON: JOINT Health and Safety Teach-in: The Research Action Alliance on the Consequences of Work Injury (RAACWI) and Labour OHCOW Academic Research Collaboration (LOARC).

MacEachen E. A guide to challenging return-to-work situations. 16 Feb 2011; Toronto, ON: Webinar for Canadian Centre for Occupational Health and Safety.

MacEachen E. Red Flags/Green Lights: A multi-stakeholder evaluation of the uses of a return to work problems guide: 5-minute update. 16 May 2011; Toronto, ON: Scientific Advisory Committee, Institute for Work and Health.

MacEachen E. Understanding the management of injury prevention and return to work in temporary work agencies. 16 May 2011; Toronto, ON: Scientific Advisory Committee, Institute for Work and Health.

Mustard CA. The health effects of precarious employment. 25 Oct 2011; Toronto, ON: CLC/CCPA Research Meeting.

Mustard CA, Chambers A, Bielecky A, Smith PM. Emergency department visits for the treatment of work-related injury and illness in Ontario. 18 Oct 2011.

Tam E, Furlan AD. Transdermal lidocaine and ketamine for neuropathic pain. A retrospective chart review. 16 Apr 2011; Niagara Falls, ON: Annual Conference of the Canadian Pain Society.

Tompa E, Mustard CA. Impact of the NEER experience rating programs on compensation claim rates. Ontario Workplace Safety & Insurance Board. Toronto, Ontario. June 28, 2011.

Tugalev O, Allen M, Furlan AD. Survey of knowledge, attitudes and behaviours among Ontario psychiatrists regarding use of opioids for chronic pain. 16 Apr 2011; Niagara Falls, ON: Annual Conference of the Canadian Pain Society.

Educational, Professional, Policy and other Presentations

Furlan AD. Opioids in chronic pain: Evidence review, guidelines, challenges, tools, Q&A. Academic detailing advanced workshop – Focus on opioids for chronic non-cancer pain. 24 Jan 2011; Saskatoon, SK: Hosted by RxFiles Academic Detailing.

Furlan AD. The Opioid Manager: A tool for physicians using opioids for chronic non-cancer pain. 1 Mar 2011; Webcast: Journal Club of the International Society of Physical and Rehabilitation Medicine.

Furlan AD. The complex pain patient. 17 Feb 2011; Toronto, ON: Peer Mentor Meeting and CME Group of the University of Toronto Division of Psychiatry.

Furlan AD. Opioids in chronic pain: Evidence review, guidelines, challenges and tools. 3 Mar 2011; Toronto, ON: Sunnybrook Health Sciences Centre Clinical Pharmacology Rounds.

Furlan AD. Ontario community workshops for improved opioid use. 20 Apr 2011; Barrie, ON: Community Workshop.

Furlan AD. Ontario community workshops for improved opioid use. 27 Apr 2011; Kitchener – Waterloo, ON: Community Workshop.

Furlan AD. Update on the National Opioid Use Guideline Group. 5 Mar 2011; Halifax, NS: Nova Scotia Chronic Pain Collaborative Care Network Annual Workshop.

Furlan AD. New Canadian guideline for use of opioids for non-cancer chronic pain by National Opioid Use Guideline Group (NOUGG). 29 Mar 2011; Ontario Medical Association 131st Annual General Meeting.

Macdonald S, Gibson J, Tompa E, Maccarone D, Keown K, Dubey A, Irvin E, Amick BC. The Health & Safety Smart Planner software: A cost benefit analysis workshop for Occupational Health & Safety. 11 Feb 2011; Mississauga, ON: Print & Chemical Network Meeting, CHSI. (Project 0218)

Macdonald S, Tompa E, Maccarone D, Keown K, Dubey A, Irvin E, Amick BC. How stakeholders help us create tools from research: The Health & Safety Smart Planner. 29 Jun 2011; Toronto, ON: KTE Advisory Committee.

Mustard CA. Shift work and breast cancer risk: Summary of a symposium on the health effects of shift work. 8 Jun 2011; Sudbury, ON: Ontario Nurses' Association Provincial Membership Meeting. (Project 1170)

Mustard CA. Perspectives on occupational health and safety strategy. 28 Apr 2011; Mexico City, Mexico: 2011 International Social Security Week.

Mustard CA. Health & Safety Smart Planner. 21-22 Mar 2011; Saskatoon, SK: WCB Compensation Institute. (Project 0218)

Mustard CA. Return to Work. 21-22 Mar 2011; Saskatoon, SK: WCB Compensation Institute.

Riva JJ, Busse JW, Wong JJ, Brunarski DJ, Chan A, Lobo RA, Aptekman M, Gupta A. Poster: Consideration of chronic pain in trials of exercise for diabetes: A systematic review of randomized controlled trials. 8 Jun 2011; Toronto, ON: Trillium Primary Health Care Research Day.

IWH Plenaries

December

Plastics and breast cancer: A lens on women working in the auto sector (December 13, 2011)
Anne Rochon Ford, Executive Director, Canadian Women's Health Network

November

Race, poverty and precariousness: Understanding the racialization of poverty in Canada (Nov 8, 2011)
Dr. Grace-Edward Galabuzi, Associate Professor, Politics and Public Administration, Ryerson University

October

The impact of job strain on the risk of depression (October 25, 2011)
Dr. Peter Smith, Scientist, Institute for Work & Health

Work injury risk by time of day in Ontario (October 18, 2011)
Dr. Cam Mustard, President and Senior Scientist; and Andrea Chambers, PhD Student and Research Assistant, Institute for Work & Health

September

Regulatory action against bullying and harassment in the workplace in an international perspective: From research to policy (September 27, 2011)
Katherine Lippel, Canada Research Chair on Occupational Health and Safety Law, University of Ottawa

July

An economic evaluation of distance lifestyle counselling among overweight employees (July 12, 2011)
Marieke F. van Wier, VU University Medical Center, Amsterdam

June

Developing an Ontario strategy to prevent MSDs due to manual materials handling: Lessons learned from Australia (June 28, 2011)
Jean Mangharam, Human Factors & Ergonomics Team, WorkSafe

Western Australia Labour force participation and health in people living with HIV (June 14, 2011)
Sergio Rueda, Ontario HIV Treatment Network

Breast cancer and shift work: mechanisms and measurement (June 13, 2011)
Lin Fritschi, Western Australian Institute for Medical Research in Perth, Western Australia

May

Does radiating spinal pain determine future work disability? (May 31, 2011)
Dr. Vicki Kristman, University of Toronto

Corporate social responsibility - The business case and self-regulation: Do they really work in achieving workplace safety? (May 10, 2011)
Susan Hart, Memorial University

A national scan of safety resources for recent immigrants entering the Canadian workforce (May 3, 2011)
Dr. Agnieszka Kosny and Marni Lifshen, Institute for Work & Health

April

Health care and WSIB challenges for temporary foreign workers (April 26, 2011)
Janet McLaughlin, International Migration Research Centre, Wilfred Laurier University

Job acquisition for people with severe mental disorders enrolled in supported employment programs (April 13, 2011)
Dr. Marc Corbière, Associate Professor, University of Sherbrooke School of Rehabilitation

March

Effect of case management on time to return to work: A systematic review and meta-analysis (March 29, 2011) Dr. Jason Busse, Institute for Work & Health

Determinants of nurses' use of facial protective equipment (March 22, 2011)
Kathryn Nichol, Senior Policy Advisor, Ministry of Labour

Systematic review on depression in the workplace (March 1, 2011)
Dr. Andrea Furlan and Dr. William Gnam, Institute for Work & Health

February

Repeat workers' compensation claims - who is at risk? (February 22, 2011)
Dr. Alex Collie, Chief Research Officer, Institute for Safety, Compensation and Recovery Research (ISCR)

January

Health-care workers who experience mental health issues: "It's not OK to be not OK" (January 25, 2011)
Sandra Moll, School of Rehabilitation Science, McMaster University

The role of organizational policies and practices in return to work: Findings from the readiness for return-to-work cohort (January 18, 2011)
Dr. Benjamin Amick, Institute for Work & Health

Mortality following unemployment in Canada, 1991-2001 (January 11, 2011)
Dr. Cameron Mustard, Institute for Work & Health

2011 Funded Grants

Research Project Funding - Awarded

Amick BC, Hogg-Johnson S, Gimeno D, Habeck R, Hunt A. Evaluating the effectiveness of OHS program elements in the wholesale retail trade. CDC: \$7,260 (IWH portion) (2011-2012) Project 1215

Amick BC, Robson LS, Hogg-Johnson S, Van Eerd D, Smith PM. Validation of an Ontario prevention system leading indicator. WSIB RAC: \$249,982 (2012-2014) Project 1230

Furlan AD, Carnide N, Gibson J, Irvin E, Van Eerd D. A systematic review of long term use of opioids for chronic non-cancer pain. CIHR: \$77,986 (2011-2012) Project 3125

Hogg-Johnson S, Carnide N, Furlan A, Koehoorn M, Côté P. Early opioid prescriptions for work-related MSK disorders of the back: understanding utilization patterns, determinants & impact on work disability. WorkSafe BC: \$64,855 (2011-2013) Project 2170

Hogg-Johnson S, Côté P, Carnide N, Furlan A, Koehoorn M. Early opioid prescriptions for work-related MSK disorders of the low back: understanding utilization patterns, determinants and impact on work disability. CIHR: \$66,576 (2011-2013) Project 2170

Hogg-Johnson S, Côté P, Carnide N, Furlan A, Koehoorn M. Early opioid prescriptions for work-related MSK disorders of the back: understanding utilization patterns, determinants & impact on work disability. WSIB: \$64,009-declined funding (2011-2013) Project 2170

Mustard CA, Smith PM, Saunders R, McLeod C. Improved methods for work surveillance in Ontario. WSIB RAC: \$170,140 (2 years)

Robson L, Amick BC, Pagell M, Mansfield M, Shannon H, Hogg-Johnson S, Tompa E. Further exploration of breakthrough change in OHS performance. WSIB RAC: 180,360 (2 years).

Saunders R, Myers K, Robson LS, Breslin FC. Assessing the feasibility of developing, implementing and evaluating an occupational health and safety training program that would embed curriculum for enhancing literacy and other essential skills. WSIB RAC Development Grant: \$29,100 (2012-2013) Project 1225

Smith PM, Breslin FC, LaMontagne A, Saunders R, Tompa E. Developing a conceptual framework for understanding and measuring occupational health and safety vulnerability. CIHR: \$173,795 (2012-2014) Project 1240

Smith PM, Hogg-Johnson S, Mustard CA. Examining individual and workplace factors which differentiate injuries that result in wage replacement from those that do not. WSIB RAC: \$60,450 (1 year) Project 2175

Smith PM, Saunders R, LaMontagne AD. Developing a framework for understanding and measuring occupational health and safety vulnerability. ISCRR: \$49,653 (1 year)

Steenstra I, Irvin E, Mahood Q, Hogg-Johnson S, Busse J, Van Eerd D, Friesen M, Oranye N. Prognostic factors for time away from work in workers with chronic low back pain. WCB Manitoba: \$119,332 (2012-2014) Project 3115

Tompa E, Scott-Marshall H, Ballantyne P, Saunders R, Hogg-Johnson S. Work injury and poverty: Investigating prevalence across programs and over time. WSIB RAC: \$88,160 (2 years) Project 2180

Non-IWH Research Funding – Awarded

Badley E, Gignac M, Hogg-Johnson S, Peruccio A. In sickness or in health? How well are the baby boomers aging compared to older generations: an analysis of age, period and cohort effects. CIHR: \$99,967 (2011-2013)

Bultmann U, Amick BC. Work functioning among cancer survivors. Dutch Cancer Foundation: 439,100 Euro (4 years)

Busse JW, Bhandari M, Guyatt GH, Schemitsch EH, Sanders D. A prospective multicentre randomized controlled trial to evaluate therapeutic ultrasound in the treatment of tibial fractures. (CIHR) TRUST \$449,102 and Smith & Nephew \$1,576,367 (Total \$2,025,469 from 2007-2011)

Busse JW, Gauthier CA, Price D, Moore A, Riva J. A survey of Canadian family physician's attitudes towards chiropractic. Ontario Chiropractic Association \$2,500 (2010-2011)

Dennerlein J, Cavallari J, Amick BC. Randomized controlled trial of whole body vibration intervention in truck drivers. NIOSH: \$81,805 (4 years).

Gignac MAM, Backman C, Lacaille D, Beaton DE, Badley EM. Striking a balance: Health and employment outcomes related to role overload and role balance among people with arthritis. (CIHR) \$357,564 (2010- 2013)

Hunt C, Breslin FC. Bridging the safety gap for post-secondary student workers. WSIB RAC: \$69,453 (2010-2011)

Jaglal S, Hogg-Johnson S, Beaton DE. An examination of fragility fractures that occur in Ontario workplaces. WSIB RAC: \$26,159 (2010-2011)

Kramer D, Barwick M, Brenneman Gibson J, Bullock H. Sustaining a knowledge transfer and exchange community of practice: Linking science and practice. CIHR: \$19,398 (1 year)

Kramer D, Bigelow P, Aversa T, McMillan K, Naqvi S, Steenstra I, Van Eerd D, Wells R. Evaluation of a workplace-level MSD-prevention knowledge transfer intervention, and the creation of an on-line MSD prevention planning tool. WSIB RAC: \$134,292 (2 years)

Loisel P, Breslin FC, Hogg-Johnson S, MacEachen E, Tompa E, et al. CIHR Strategic Training Program in Work Disability Prevention. CIHR: \$1,950,000 (2009-2015)

Riva J, Busse JW, Konisberg E, Howard M, Chan A, Maheu T. Proposal to explore the impact of a brief exposure to complementary and alternative medicine on McMaster undergraduate medical students. Centre for Leadership in Learning \$96,150 (2010-2011)

Salbach N, Brooks D, O'Brien K, Martino R, Irvin E, Howe J. Quality and clinical utility of functional walk tests among people with stroke: a systematic review. CIHR Knowledge Synthesis Grant: \$95,794 (2010-2011)

Sorensen G, Amick BC, et al. Harvard School of Public Health Center for Work, Health and Wellbeing. NIOSH: \$6,540,213 (\$63,000 at IWH) (2011-2016)

Wells R, McMillan K, Kramer D, Bigelow P, Naqvi S, Steenstra I. Developing and evaluating a workplace-level MSD physical risk factor survey: A researcher-labour collaborative project. WSIB RAC: \$83,947 (2 years)

Pending

Furlan AD, Kennedy C, MacEachen E, Van Eerd D, Buckley N, Allen A, Cooper L, Gromala D, MacDougall P, Sumpton J, Flannery J . My Opioid Manager - A tool for patients with chronic non-cancer pain considering treatment with opioids. CIHR: \$200,000(2 years)

Furlan AD, Wickens C, Mann R, Campos J, Sproule B, Hebert D, Naglie G. The effects of prescribed opioid analgesics on driving. Physician's Services Inc (PSI) Foundation: \$130,000 (2 years)

Furlan A, Amick B, Bombardier C. Reardon R. My Opioid Manager - A point of care tool for patients with chronic non-cancer pain considering opioids. CIHR: New Investigator (5 years)

Kristman V, Shaw W, Loisel P, Amick BC, Boot C, Tulusso D, Hogg-Johnson S. A supervisor training program for work disability prevention: a cluster randomized controlled trial. CIHR: \$346,380 (3 years)

Laberge M, MacEachen E, Vazina N. Program to support research and development in special education. Education Quebec: \$75,000.

Mustard CA, Amick BC, Van Eerd D. Organizational change to protect worker health. CIHR: \$134,850 (3 years)

Steenstra I, Amick BC, Busse JW, Furlan AD, Hogg-Johnson S, Tulusso D. Predicting successful return to work in worker on disability due to low back pain. CIHR: \$518,442 (5 years)

Non-IWH Research Funding – Pending

Dunstan D, MacEachen E. The personal helpers and mentors service model: How does it support recovery from mental illness in rural Australia? Australian Research Council Linkage Project: \$355,656 (3 years)

Koehoorn M, Hogg-Johnson S, Lippel K, McLeod C. Gender, sex and work injury, illness and disability. CIHR: \$566,221 (3 years)

Taskila T, Grunfeld E, Louise L, MacEachen E, Powell T. Improving return to work in people with acquired brain injury through participation in evidence based vocational rehabilitation program. National Institute for Health Research: \$420,639 (2.5 years)

Research Personnel Funding & Other Awards

Busse JW. CIHR New Investigator Award 2008-2012: Trial to re-evaluate ultrasound in the treatment of tibial fractures.

Carnide N. Vanier Canada Graduate Scholarship 2010-2013. CIHR: Analgesic prescriptions for work-related musculoskeletal disorders: Understanding utilization patterns, determinants, and impact on work disability.

Smith PM. CIHR New Investigator Award 2008-2012: Examining labour market changes and their consequences on injury and illness in Canada: A focused examination of their effects on recent immigrants.

Tang K. CIHR PhD Fellowship 2010-2014.

Institute for Work & Health Staff – 2011

* denotes staff no longer at the IWH

Research

Amick, Ben; PhD, Scientific Director
Ammendolia, Carlo, DC, PhD, Associate Scientist
Beaton, Dorcas; BScOT, MSc, PhD, Scientist
Bombardier, Claire; MD, FRCP(C) Senior Scientist
Breslin, Curtis; PhD, Scientist
Busse, Jason; DC, PhD, Scientist
Canga, Albana; BA, Administrative Assistant
Cardoso, Siobhan; BA, Research Associate
Carnide, Nancy; MSc, Research Associate, PhD Student
Chambers, Andrea; PhD Student
Chen, Cynthia; MSc, Research Associate, Analyst
Chesser, Stephanie; MA, Research Associate
Cole, Donald; MD, DOHS, MSc, FRCPC(C), Senior Scientist
Couban, Rachel; MA MIS, Library Technician
Cullen, Kim; MSc, Research Associate, PhD Student
Davilmar, Arold; MSc, Research Associate, Analyst
De Bruin, Linda; MA, Research Associate
Dolinschi, Roman; MSc, Research Associate, Analyst*
Ebrahim, Shanil; PhD Student
Etches, Jacob; PhD, Post-Doctoral Fellow
Fang, Miao; MSc, Research Associate, Analyst
Furlan, Andrea; MD, PhD, Scientist
Harlowe, Linda; Research Operations Administrative Coordinator
Heath, Charmaine; Dip. Business Administration, Administrative Assistant
Hogg-Johnson, Sheilah; PhD, Senior Scientist
Ibrahim, Selahadin; MSc, Associate Scientist
Irvin, Emma; BA, Director, Research Operations
Kalcevich, Christina; MA, Research Associate*
Kelly, Allison; Dip. S.T. Administrative Editorial Assistant
Kennedy Yee, Carol; MSc, Research Associate
Khorasanchian, Hamid; Systems Support*
King, Trevor; BA, MA, Project Coordinator
Kosny, Agnieszka; PhD, Scientist
Lee, Hyunmi; MSc, Programmer Analyst

Lever, Bev; MSW, MHSc, Liaison Partner Relations*

Liao, Qing; MSc, Research Associate, Analyst

Lifshen, Marni; MA, Project Coordinator

Liu, Joanna; BA, Diploma Library and Information Technology, Library Technician

MacEachen, Ellen; PhD, Scientist

Mahood, Quenby; BA, Manager, Library Services

Mansfield, Liz; PhD, Research Associate

Mansurova, Lyudmila, BSc, Administrative Assistant

Maselli, Paolo; Network Administrator/Systems Analyst

Morassaei, Sara; BSc, Research Operations Coordinator

Padkapayeva, Kathy BA; Administrative Assistant

Pennick, Victoria; RN, BScN, MHSc, Managing Editor, Cochrane Back Review Group, Education & Training Co-ordinator *

Petch, Jeremy; Research Associate

Pugliese, Diana; BA, Administrative and Research Assistant *

Raktoe, Shanti; BSc, Administrative Assistant

Robson, Lynda; PhD, Associate Scientist

Sarnocinska-Hart, Anna; MA, Economics, Research Associate

Scott-Marshall, Heather; PhD, Post-Doctoral Fellow

Severin, Colette; MSc, Project Coordinator

Shen, Enqing; MSc, Analyst/Research Assistant*

Slack, Tesha; MSc, Project Coordinator*

Smith, Brendan, PhD Student

Smith, Peter; PhD, Scientist

South, Harriet, BA, Administrative Assistant

Steenstra, Ivan; PhD, Associate Scientist

Subrata, Peter; MSc, Research Associate

Swift, Michael; MSc, Research Associate, Data Manager/Programmer

Tang, Ken; PhD Student

Tolusso, David; PhD, Associate Scientist

Tompa, Emile; MBA, PhD, Scientist

Van Eerd, Dwayne; MSc (Kin), MSc (HRM), Associate Scientist, PhD Student

Yao, Grant; BComm, Network Administrator/Systems Analyst

Yeung, Natalie; Research Assistant

Knowledge Transfer & Exchange

Brenneman Gibson, Jane; BSc, MCISc, Director, Knowledge Transfer & Exchange*

Buccat, Kristina; Dip. Radio and Television Production, Administrative Assistant

Kiff, Philip; MA, Web & Design Coordinator

Macdonald, Sara; QEHS Management Diploma, Research Associate

Moser, Cindy; BA, Communications Manager

Mueller, Megan; BA, Communications Associate

Neilson, Cynthia; MSc, KTE Associate*

Palloo, Greer; BSc, Information & Events Coordinator

Russo, Katherine; Dip. Journalism, Communications Associate *

Saunders, Ron; PhD, Senior Scientist, Director of Knowledge Transfer and Exchange

Corporate Services

Cicinelli, Mary; BA, CHRP, Director, Human Resources & Corporate Services

Maccarone, Dylan; Accounting Clerk

Mustard, Cameron; ScD, President, Senior Scientist

Sir, Cathy; CMA, Manager, Financial Services

Research/Professional Collaborations and Networks, Appointments and Offices 2011

AMICK, Benjamin

Member: NIOSH Board of Scientific Councillors
Member: American Public Health Association
Member: American Society for Safety Engineers
Member: Human Factors and Ergonomics Society
Member, Steering Committee, Second Conference on Workers Compensation as a Surveillance Tool
Member, International Review Panel for the Institute for Compensation and Rehabilitation Research
Member, Editorial Board of Journal of Occupational Rehabilitation

AMMENDOLIA, Carlo

Member: Canadian Chiropractic Association
Member: Ontario Chiropractic Association
Member: Canadian Memorial Chiropractic College Governors' Club
Member: Canadian Chiropractic Research Foundation Allocating Committee
Member: Canadian Chiropractic Rehabilitation Sciences
Member: Ontario Acupuncture Council
Member: KTE Hub Steering Committee
Member: Steering Committee OSCHO Disability Prevention/RTW Project for HSAs

BEATON, Dorcas

Chair: Meeting Planning, Policy and Evaluation committee at ISOQOL
Chair: Outcome Measures in Rheumatology (OMERACT)
Founding Member: Canadian Society of Hand Therapists
Member: American Society of Shoulder and Elbow Therapists, Member of Research Committee,
Member: Canadian Association of Occupational Therapists
Member: College of Occupational Therapists of Ontario
Member: Upper Extremity Collaborative Group (IWH, American Academy of Orthopaedic Surgeons)
Member: The Arthritis Society of Canada, Medical Advisory Committee
Member: International Society of Quality of Life Research
Member: American Society for Bone and Mineral Research (ASBMR)
Member: Associate Rheumatology Health Professional (ARHP)
Member: Canadian Arthritis Network (CAN) - Training and Education committee

BOMBARDIER, Claire

Fellow: Royal College of Physicians of Canada F.R.C.P.(C)
Member: Advisory Board, SONORA Study, Abbott Pharmaceutical Company, 2000 –
Member: AMGEN - Kineret Registry Steering Committee, 2002 –
Member: Merck -Etoricoxib Outcomes Study Steering Committee, 2002 –
Member: Merck Frosst Rheumatology Medical Advisory Council (MEDAC), 2002 –
Member: AMGEN Global Advisory Board in Inflammation, 2003 –
Member: COX-2 International Lifecycle Advisory Board, 2004 –
Member: Canadian Arthritis Network - Research Management Committee, 2005 –
Chair: Aleve Advisory Board (Bayer), 2006 –
Member: CORRONA Board of Directors, 2007 –
Member: Advisory Board, WHO International Task Force on Neck Pain, 1999 –
Member: American Federation for Clinical Research (AFCR)
Member: Canadian Society for Clinical Investigation (CSCI)
Member: Society for Medical Decision Making (SMDM)
Member: Canadian Rheumatism Society (CRS)
Member: American Public Health Association (APHA)
Member: American Rheumatism Association (ARA)
Member: Canadian Medical Association (CMA)

BRENNEMAN GIBSON, Jane

Member: Planning Committee Ontario KTE Community of Practice
Chair: HSA Liaison Committee
Chair: KTE Hub Steering Committee
Member: College of Audiologists and Speech-Language Pathologists of Ontario

BRESLIN, Curtis

Member: Ontario College of Psychologists
Member: Canadian Psychological Association
Professor, Seneca College Applied Arts and Technology, School of English and Liberal Studies
Member: Work Disability Prevention CIHR Strategic Training Program, University of Toronto

BUSSE, Jason

Certified Fellow of the American Board of Disability Analysts
Consultant: ATF Canada Corp; Prisma Health Canada Inc.
Member: Canadian Chiropractic Association
Member: Canadian Chiropractic Protective Association
Member: Canadian Chiropractic Research Association
Member: Canadian Pain Society
Member: College of Chiropractors of Ontario
Member: CLARITY (Clinical Advances through Research and Information Translation)
Member: Ontario Chiropractic Association
Member: Vocational Rehabilitation Association of Canada
Member: Medical Reform Group of Ontario

CARRASCO, Christine

Member: Women's College Hospital Network for the Uninsured
Member: IUHPE Student and Early Career Network (ISECN), International Union for Health Promotion and Education

CARNIDE, Nancy

Member: Canadian Association for Research on Work and Health
Member: Canadian Society for Epidemiology and Biostatistics
Member: International Society for Pharmacoepidemiology

COLE, Donald

Fellow: Royal College of Physicians and Surgeons of Canada, in Occupational Medicine and Community Medicine
Head: Agriculture and Human Health Division of the International Potato Center
Member: Canadian Association for Research on Work & Health
Member: Canadian & Ontario Public Health Associations
Member: Canadian Society of International Health
Member: Centre for the Environmental Steering Committee
Member: International Society for Environmental Epidemiology

COUBAN, Rachel

Member: Ontario Library Association (OLA), Ontario Health Library Associations (OHLA)

DAVILMAR, Arold

Member: American Society of Clinical Oncology

DOLINSCHI, Roman

Member: Canadian Pension & Benefits Institute

FURLAN, Andrea

Staff Physician: Medicine, St. Joseph's Health Centre, Toronto

Staff Physician: Physiatry, Toronto Rehabilitation Institute
Adjunct Scientist: Research, Toronto Rehabilitation Institute
Assistant Professor: Department of Medicine, Division of Physiatry, University of Toronto
Member: Residency Program Committee, University of Toronto, Division of Physiatry
Member: International Society of Physical & Rehabilitation Medicine (ISPRM) Educational Committee
Member: WSIB Drug Advisory Committee
Member: Editorial Board of the Cochrane Back Review Group
Member: Canadian Medical Association
Member: Ontario Medical Association
Member: Canadian Association of Physical Medicine and Rehabilitation
Member: Canadian Pain Society
Member: International Association for the Study of Pain
Member: Educational Committee, International Society of Physical and Rehabilitation Medicine
Member: Canadian Academy of Pain Medicine

HOGG-JOHNSON, Sheilah

Member: Statistical Society of Canada
Professional Statistician: Statistical Society of Canada
Member: Admissions Committee, Work Disability Prevention CIHR Work Disability Training Program
Member: Canadian Association for Research on Work and Health
Member: Workers' Compensation Research Group

IBRAHIM, Selahadin

Member: Statistical Society of Canada
Professional Statistician: Statistical Society of Canada

IRVIN, Emma

Member: Publishing Policy Group of the Cochrane Collaboration
Convenor: Cochrane Library Users Group

KENNEDY, Carol

Member: College of Physiotherapists of Ontario

KOSNY, Agnieszka

Executive Committee: Canadian Association for Research on Work and Health
Facilitator: Qualitative Journal Club

MACEACHEN, Ellen

President, Board of Directors, Canadian Association for Research on Work and Health
Member: Program Executive Committee, Work Disability Prevention CIHR Strategic Training Program, University of Toronto
Member: Program Advisory Committee, Work Disability Prevention CIHR Strategic Training Program, University of Toronto
Fellow: Steering Committee, Centre for Critical Qualitative Health Research, University of Toronto
Associate Editor, Editorial Board, Journal of Occupational Rehabilitation
Member: Canadian Association for Research on Work and Health
Member: Canadian Anthropology and Sociology Association
Member: British Sociological Association
Member: IWH Qualitative Journal Club
Member: RAACWI-WSIB Return to Work Blue Sky Group
Member: Conference Scientific Organising Committee, Canadian Association for Research on Work and Health

MAHOOD, Quenby

Member: Special Libraries Association, 2011 –

MOSER, Cindy

Member: International Association of Business Communicators (IABC)

MUSTARD, Cam

Member: Research Advisory Council, WSIB of Ontario, 2001 –
Member: Occupational Health and Safety Council of Ontario, 2002 –
Member: Passport to Safety Standards and Advisory Board, 2002 –
Member: Occupational Health and Safety Council of Ontario, 2002 –
Member: Steering Committee, Toronto Region Research Data Centre, 2005 –
Member: Steering Committee: Toronto Region Research Data Centre, 2005 –
Member: Health Reports Editorial Board, Statistics Canada, 2007 –
Member: Scientific Visitors Advisory Board, Liberty Mutual Research Institute for Safety, 2007 –
Affiliate: Centre for Health Services and Policy Research, University of British Columbia, 2008 –
Member: Scientific Advisory Committee, INTERxVENT Canada, 2008 –
Member: Advisory Board International Journal of Social Security and Workers Compensation, 2008 –
Member: Performance Measurement Peer Review Panel, OHQC, 2008 –
Member: Board of Advisors, RAND Center for Health and Safety in the Workplace, 2008 –
Member: Board of Directors, Ontario Neurotrauma Foundation, 2008-2011
Member: Editorial Advisory Board, Longwoods Review
Member: Expert Advisory Committee, Canadian Health Examination Survey, Statistics Canada
Vice-President: Board of the International Social Security Association (ISSA) Research Section

NEILSON, Cynthia

Ontario Federation of Teachers

Member: Canadian Association for Research on Work and Health

PENNICK, Victoria

Member: College of Nurses of Ontario

Member: Registered Nurses Association of Ontario

Member: Canadian College of Health Service Executives

ROBSON, Lynda

Member: Canadian Association for Research on Work and Health

Member: Canadian Evaluation Society

SAUNDERS, Ron

Member: American Economic Association

Member: Advisory Committee for the Satellite Account of Non-profit Institutions and Volunteering

Member: Canadian Association for Research on Work and Health

Member: Community & Healthcare Advisory Council, Public Services Health & Safety Association

Member: Education and Culture Advisory Council, Public Services Health & Safety Association

Member: Centre for Workplace Skills' Experts' Network

SCOTT-MARSHALL, Heather

Member: Canadian Association for Research on Work and Health

SEVERIN, Colette

Member: Canadian Public Health Association

SMITH, Peter

Member: Public Health Association of Australia

Member: Special Interest Group on Injury Prevention

Member: Canadian Association for Research on Work & Health

Member: Technical Committee: Canadian Standards Association, Review Injury Coding System

Member: Data and Performance Measurement Sub-Committee, Ministry of Labour Expert Panel

STEENSTRA, Ivan

Member: Workers' Compensation Research Group

Member: Dutch Society of Epidemiology (VVE)

Member: Dutch Society for Human Movement Sciences (VvBN)

Member: Scientific Committee, 3rd ICOH International Conference on Psychosocial Factors at Work

TANG, Ken

Member: College of Physiotherapists of Ontario

TOLUSSO, David

Member: Statistical Society of Canada

Member: Workers' Compensation Research Group

TOMPA, Emile

Member: Canadian Association for Research on Work and Health

Member: Workers' Compensation Research Group

Member: International Health Economics Association

Mentorship Committee, Work Disability Prevention CIHR Strategic Training Program, University of Toronto

Member: Editorial Board, Journal of Occupational Rehabilitation

van der VELDE, Gabrielle

Member: Canadian Chiropractic Association

Member: Ontario Chiropractic Association

Member: International Society of Quality of Life Research

Member: Society for Medical Decision Making

Teaching, Educational and Service Activities

AMICK, Ben

Teaching/Educational Role

Society and Health; Social Epidemiology/Social Justice; Research Design and Analysis in Behavioural Sciences, University of Texas School of Public Health, 2010 –

Professor: Behavioural Sciences, Epidemiology and Occupational Safety and Health, University of Texas Health Science Centre, 2007 –

Service Activities

Ad-Hoc Reviewer: Workers Compensation Board, British Columbia

Ad-Hoc Reviewer: Workers Compensation Research Advisory Committee

Ad-Hoc Reviewer: Workers Compensation Board, Saskatchewan

Ad-Hoc Reviewer: Marsden Foundation, New Zealand, 2010 –

Editorial Board: Journal of Occupational Rehabilitation, 2010 –

AMMENDOLIA, Carlo

Teaching/Educational Role

Assistant Professor: Dept Health Policy Management and Evaluation (HPME), University of Toronto

Tutor: Controlled Clinical Trials Graduate Course (HPME)

Lecturer: Introduction to Clinical Epidemiology (HPME)

Lecturer: Canadian Memorial Chiropractic College

Lecturer/instructor: Rheumatology Residents/Fellows, Mount Sinai Hospital

Service Activities

Reviewer: Canadian Chiropractic Association Journal

Reviewer: The Spine Journal

Reviewer: Spine

BEATON, Dorcas

Teaching/Educational Role

Scientist and Director: Mobility Program Clinical Research Unit, St. Michael's Hospital, Toronto

Associate Professor: Department of Occupational Sciences and Occupational Therapy, Faculty of Medicine, University of Toronto

Full Member: School of Graduate Studies (SGS), Graduate Department of Rehabilitation Sciences, University of Toronto, Ontario; Institute of Health Policy, Management and Evaluation, Clinical Epidemiology Program, University of Toronto, Ontario.

Lecturer: Advanced Measurement course, University of Toronto

Coordinator and lecturer: Introduction to Measurement, University of Toronto

Lecturer: Advanced Quantitative Methods in Epidemiology, University of Toronto

Lecturer: Research Methods for Rehabilitation Science, University of Toronto

Service Activities

Grant Committees: CIHR, The Arthritis Society, Hospital for Sick Children Foundation, SSHRC, WSIB Research Advisory Council

Journal Referee: Journal of Clinical Epidemiology, Medical Care, JAMA, International Journal of Epidemiology, Quality of Life Research, Spine, Journal of Rheumatology, Journal of Shoulder and Elbow Surgery, Journal of Bone and Joint Surgery

BOMBARDIER, Claire

Teaching/Educational Role

Co-Scientific Director: Canadian Arthritis Network (CAN)

Director: Division of Rheumatology, University of Toronto
Director: Clinical Decision Making and Health Care, Toronto General Research Institute
Staff Physician: Rheumatic Disease Unit, Mount Sinai Hospital, Toronto
Professor: Medicine/Health Administration, University of Toronto
Guest Professor: University of Toronto, MSc, HAD 5302: Measurement in Clinical Research
Guest Lecturer: University of Toronto, Clinical Epidemiology Students - PhD Thesis Course
Instructor: IWH Systematic Reviews Workshop
MSc Thesis Supervisor: Bindee Kuriya, Roberta Berard, Wanruchada Katchamart
PhD Thesis Supervisor: Joel Gagnier
Post Doctoral Fellowship Supervisor: Carine Salliot, Judith Trudeau, Edith Villeneuve (co-supervisor)
Member: School of Graduate Studies, Division of Community Health, University of Toronto
Member: School of Graduate Studies, Institute of Medical Science, University of Toronto

Service Activities

Chair: Government of Canada, Canada Research Chair in Knowledge Transfer for Musculoskeletal Care, Tier I Award – Renewal 2009-2016
Member: Multidisciplinary Clinical Research Center in Musculoskeletal Diseases
Member: Canadian Arthritis Network Disease Management Core Instrument Committee@, 2001 –
Chair, Data Safety and Monitoring Board (DSMB) “Study to Prospectively Evaluate Reamed Intramedullary Nails in Tibial Shaft Fractures Trial” (SPRINT). National Institute of Musculoskeletal and Skin Diseases (NIAMS), 2002 –
Member: Multidisciplinary Clinical Research Center in Musculoskeletal Diseases (MCRC) Scientific Advisory Board, Dartmouth Medical School, 2003 –
Member, Canadian Council of Academic Rheumatologists (CCAR) [as Director, Division of Rheumatology, University of Toronto] 2003 –
Team Leader, Effectiveness Task Force, 2004 –
Member: Journal of Clinical Epidemiology Policy Advisory Board, 2004 –
Member: Pfizer - OSCARE Scientific Committee Meeting 2004 –
Member: American Pain Society Clinical Guidelines Project – Low Back Pain Panel 2005 –
Member: Canadian Rheumatology Association (CRA) Therapeutics Committee “Creating Canadian Guidelines for Treatment of Rheumatoid Arthritis [RA]”, 2005 –
Member: Expert Task Force “Recommendations for the use of Biological (and Nonbiological) Agents in the Treatment of Rheumatoid Arthritis” for American College of Rheumatology (ACR), 2006 –
Chair (International): Abbott 3E Initiative in Rheumatology – Phase III, 2008 –
UCBeyond Rheumatoid Arthritis Scholarship Program, Toronto Arthritis Society, 2008 –
Member: Alliance for the Canadian Arthritis Program (ACAP) Government Relations Committee [as CAN representative] 11/2007-current; Business Case Steering Committee 2008 –
Panellist: American Pain Society Clinical Guidelines Project – Low Back Pain, 2005 –
Review Committee: Best Research on Low Back Pain Commission de la santé et de la sécurité du travail
Editorial Boards: American Journal of Medicine; Arthritis Care and Research
Co-ordinating Editor: Cochrane Collaboration Back Review Group, Joint Bone Spine, International Edition; Nature Clinical Practice Rheumatology Journal Advisory Board; Journal of Clinical Epidemiology Advisory Board, 2004 –
Journal Referee: Annals of Internal Medicine; Annals of Rheumatic Disease; Arthritis and Rheumatism; Arthritis, Care and Research; Canadian Medical Association Journal; JAMA; Journal of Rheumatology; Journal of Clinical Epidemiology; Journal of the Society for Medical Decision Making; Medical Care; New England Journal of Medicine

BRENNEMAN GIBSON, Jane

Teaching/Educational Role

Host: Ministry of Labour students and Mary Grace Borges Strategic Planning Coordinator

BRESLIN, Curtis

Teaching/Educational Role

Associate Professor: Dalla Lana School of Public Health, University of Toronto
Member: School of Graduate Studies, University of Toronto
PhD Thesis Co-supervisor: Andrea Chambers, Safer Needle Regulation in Ontario, 2010 –
Guest Lecturer: CHL 5804, Health Behavior Change, University of Toronto
Co-supervisor for Post-doctoral fellow, Marie Laberge

Service Activities

Editorial Board: Journal of Occupational Health Psychology
Reviewer: Social Science and Medicine Journal; American Journal of Industrial Medicine; Occupational & Environmental Medicine

BUSSE, Jason

Teaching/Educational Role

Assistant Professor: Clinical Epidemiology & Biostatistics, McMaster University, 2008 –

Service Activities

Editorial Board: Journal of Occupational Health Psychology
Editorial Board: Journal of the Canadian Chiropractic Association
Grant Reviewer: Sick Kids Foundation
Journal Referee: Annals of Internal Medicine; Archives of Medical Research; British Journal of Sports Medicine; British Medical Journal; Canadian Medical Association Journal; Journal of the American Medical Association; Journal of General Internal Medicine; Journal of Manipulative and Physiological Therapeutics; Journal of the Canadian Chiropractic Association; Medical Care; Vaccine; Social Science and Medicine

CARRASCO, Christine

Teaching/Educational Role

Guest Lecturer, CHL5801 (Health Promotion), “Conducting Scoping Reviews”, Dalla Lana School of Public Health, University of Toronto
Guest Lecturer, NUR1028 (Introduction to Qualitative Research), “Body-Map Storytelling as a Qualitative Research Tool”, Lawrence S. Bloomberg Faculty of Nursing, University of Toronto
Case Study Facilitator, Global Health Longitudinal Course, Undergraduate Medical Programme, Faculty of Medicine, University of Toronto

CARNIDE, Nancy

Teaching/Educational Role

Teaching Assistant: Human Biology Department, University of Toronto

Service Activities

Senior Editor: Health Science Inquiry
Journal Referee: BMC Public Health; Journal of Occupational and Environmental Medicine
Conference Abstract Reviewer: Third North American Congress of Epidemiology
Committee Member: Curriculum Review Committee, Epidemiology Division, Dalla Lana School of Public Health, University of Toronto

COLE, Donald

Teaching/Educational Role

Associate Graduate Faculty: Kinesiology, University of Waterloo, 1997 –
Full Member: School of Graduate Studies, University of Toronto, 2004 –
Member: Doctoral and MHS Selection Committees, PHS Epidemiology Program
Member: Program Committee, Community Medicine Residency Program, University of Toronto, 2001–
Co-Instructor: Epidemiology II, University of Toronto, 2003 –

Lead Instructor: Global Health Research Methods, University of Toronto, 2003 –
PhD Thesis Supervision (relevant): Dwayne Van Eerd (2007–). Epidemiology, University of Toronto
PhD Doctoral Committees (relevant): Lauren Griffith. Meta-analysis of biomechanical risk factors for back pain. Epidemiology, University of Toronto: 2003 –

Service Activities

Grant Committees: L'institut de recherche en santé et en sécurité du travail Québec; Fonds de Recherches en Santé du Québec; CIHR
External Grant Reviews: CIHR, Michael Smith Foundation, Social Sciences and Humanities Research Council
Journal Referee: American Journal of Epidemiology; American Journal of Industrial Medicine; American Journal of Preventive Medicine; Applied Ergonomics; Canadian Medical Association Journal; Chronic Disease in Canada; Injury Prevention; International Archives of Occupational and Environmental Health; Journal of Occupational and Environmental Medicine; Occupational and Environmental Medicine; Social Science and Medicine

ETCHES, Jacob

Service Activities

Assistant IWH Research Ethics Co-ordinator
Assistant IWH Privacy Agreement Co-ordinator
Journal Referee: International Journal of Epidemiology, Journal of Health Economics

FURLAN, Andrea

Teaching/Educational Role

Assistant Professor: Department of Medicine, Faculty of Medicine, University of Toronto
Staff Physician: Musculoskeletal Program, Toronto Rehabilitation Institute – Hillcrest Centre
Instructor: IWH Systematic Reviews Workshop
PhD Thesis Committee Member: N Carnide, University of Toronto

Undergraduate teaching:

Member of Panel Discussion on Opioids for Chronic Pain. The University of Toronto Centre for the Study of Pain (UTCSP) Interfaculty Undergraduate Pain Curriculum

Post-Graduate

Complex Regional Pain Syndrome, Residents of Physiatry, University of Toronto
Myofascial Pain Syndrome, Residents of Physiatry, University of Toronto
Low Back Pain, Residents of Rheumatology, University of Toronto

Continuing Medical Education

Presented the Canadian Opioid Guideline to various groups in 2011:

Local meetings:

1. Peer Mentor Meeting and CME Group of the University of Toronto, Division of Physiatry
2. CPSO Methadone Prescribers Conference
3. Toronto Rehab Complex Injuries Occupational Rehabilitation (CIOR)
4. Toronto Rehab Pain Management Conference
5. Bridgepoint Health – Medical Staff Association
6. Toronto Rehab Medical and Dental Staff Association
7. ICES/CEU Conjoint Evaluative Sciences Rounds
8. Ontario Medical Association – 131st Annual General Meeting – Chronic Pain Scientific Session
9. Ontario Community Workshop in Barrie ON
10. Ontario Community Workshop in Kitchener-Waterloo ON
11. Workshop for Ontario Psychiatrists at Toronto Rehab
12. Sunnybrook Health Sciences Centre Clinical Pharmacology Rounds
13. Internal Plenary, Institute for Work & Health
14. Mild Traumatic Brain Injury Challenges and Controversies Conference – Toronto
15. Rehabilitation of Complex Patients: A primer for family physicians (Toronto Rehab)

National meetings:

1. Plenary session of the 59th Annual Scientific Meeting of the CAPMR – Victoria BC
2. Keynote lecture at the 2011 Annual Conference of the Canadian Pain Society
3. Plenary session at the Nova Scotia Chronic Pain Collaborative Care Network
4. Plenary session at the Academic Detailing Advanced Workshop, Saskatoon SK

International meetings:

1. Foro Internacional de Medicina del Dolor y Paliativa – Mexico
2. 24th Annual Pain and Suffering Symposium of the Foundation for Medical Excellence US

Service Activities

Journal Referee: Cochrane Collaboration Back Review Group, American J Phys Med Rehab, CNS Drugs, Pain Management, Pain Research & Management, Postgraduate Medicine. Grant Reviewer:

Member: CIHR review panel Knowledge Synthesis Grant

Member: CIHR review panel Catalyst Grant: Prevention and Treatment of Illicit Substance Use

Member: CIHR review panel Knowledge Synthesis Grant: Prevention and Treatment of Illicit Substance Abuse

HOGG-JOHNSON, Sheila

Teaching/Educational Role

Assistant Professor: Public Health Sciences, Faculty of Medicine, University of Toronto, 1995 –

Assistant Professor: Health, Policy, Management and Evaluation, University of Toronto, 2001–

Core Faculty Member: Graduate Program in Clinical Epidemiology and Health Services Research, University of Toronto, 1998 –

Chair Mentor: CIHR Work Disability Training Program

Instructor: Qualitative and Quantitative Methods Workshop, CIHR Work Disability Training Program

Teaching: CHL 7001 Advanced Quantitative Methods in Epidemiology, Module on Survival Analysis – Extending the COX Model/Advanced Methods in Epidemiology - Survival Analysis. University of Toronto

Instructor: Privacy Policy Training, IWH

PhD Thesis Committee Member: Gayane Hovhannisyan, Ken Tang, Orit Schieir

PhD Thesis Supervisor: Nancy Carnide,

Service Activities

Journal Referee: Canadian Medical Association Journal, Occupational and Environmental Medicine, Scandinavian Journal of Work, Environment and Health. BMC Musculoskeletal, American Journal of Public Health

Special Consultant to the Editorial Board: The Spine Journal

Assistant Editorial Board: European Spine Journal

Editorial Board: Journal of Occupational Rehabilitation

IBRAHIM, Selahadin

Teaching/Educational Role

Lecturer: Public Health Sciences, Faculty of Medicine, University of Toronto, 2002 –

Teaching: Module on Exploratory and Confirmatory Factor Analysis – Path Analysis and Structural Equation Modeling, CHL 7001 Advanced Quantitative Methods in Epidemiology, University of Toronto.

IRVIN, Emma

Teaching/Educational Role

Instructor: IWH Systematic Reviews Workshop

Instructor: Privacy Policy Training

Instructor: Systematic Reviews Course, University of Toronto, Health Policy, Management and Evaluation Graduate Program

Seminar Series: Workplace-based RTW. School of Occupational & Public Health, Ryerson University

Service Activities

Convenor: Cochrane Library User Group Meeting; Freiburg, Germany: XVI Cochrane Colloquium

KENNEDY, Carol

Teaching/Educational Role

Lecturer: Physical Therapy, University of Toronto: 1996 –

Service Activities

Patient Safety Champion: College of Physiotherapists of Ontario, 2010 –
Arthritis Health Professionals Association, Research Committee, 2008 –

KOSNY, Agnieszka

Teaching/Educational Role

Instructor: Women and Health. Institute for Gender Studies and Women's Studies, University of Toronto
Co-Instructor, Occupational Health and Safety, Labour Studies/Health Studies, McMaster University

Service Activities

Reviewer: Journal of Occupational Rehabilitation, Disability and Rehabilitation

MACEACHEN, Ellen

Teaching/Educational Role

Assistant Professor (Status): School of Public Health Sciences, University of Toronto
Chair Mentor: Work Disability Prevention CIHR Strategic Training Program, University of Toronto
Post-doctoral supervisor, Marie Laberge, Institute for Work & Health
PhD Thesis committee member: Dana Howse, Dalla Lana School of Public Health, University of Toronto
PhD Thesis committee member: Ida Seing, Linkoping University, Sweden
PhD Thesis committee member, Sara Saunders, McGill University
Mentor, Debra Dunstan, PhD, University of New England, Australia. CIHR WDP Program, Scientific Communication. Topic: *Co-workers' perspectives on their role in the workplace rehabilitation of physically injured workers.*
Mentor, Karin Maiwald, PhD candidate, Maastricht University, Netherlands. WDP 921 Scientific Communication I and WDP 941 Knowledge Exchange Activity I: *Organizing employee involvement to develop policy on work reintegration and return to work.*
Mentor, Marie Laberge, PhD, Postdoctoral fellow, Institute for Work & Health, WDP Knowledge Exchange Activity: *Knowledge exchange session for stakeholders and teachers involved in the Co-op program Training for a Semi-skilled Trade*
Mentor, Bettina Hague, PhD, Post-doctoral researcher, University of Copenhagen, Denmark. WDP 921: Scientific Communication I: *When the meaning of work frames the meaning of life: The significance of work to Danish cancer patients while in a treatment programme.*
Instructor: CHL5122H. Qualitative Research Practice, Dalla Lana School of Public Health, University of Toronto, 2005 –
Instructor, IRE2715H Occupational Health and Safety, Centre for Industrial Relations and Human Resources
Instructor: Methodology in Work Disability Prevention, Work Disability Prevention CIHR Strategic Training Program, University of Toronto, 2003 –
Faculty Tutor, CHL5004H. Introduction to Public Health Sciences
Guest Lecturer, Labour Studies 3D03 Occupational Health and Safety, McMaster University

Service Activities

Chair, SSHRC Review Committee. Dalla Lana School of Public Health, University of Toronto
Chair, Methodological Challenges Symposium Planning Committee, Work Disability Prevention CIHR Strategic Training Program

Member: Program Executive Committee, Work Disability Prevention CIHR Strategic Training Program, University of Toronto

Member: IWH Plenary Committee

Member, Abstract Review Committee, 2nd Scientific Conference on Work Disability Prevention and Integration (WDPI), Groningen, The Netherlands.

Reviewer: Journal of Occupational Rehabilitation, Industrial Relations, Psycho Oncology, Pain

MAHOOD, Quenby

Teaching/Educational Role

Instructor: IWH Systematic Reviews Workshop

Instructor: Literature Searching. HAD 5302 [tutorial]: Measurement in Clinical Research; Dept of Health, Policy, Management and Evaluation. University of Toronto. January 26, 2011

MUSTARD, Cam

Teaching/Educational Role

Professor: Public Health Sciences, University of Toronto, July 2002 –

University of Toronto Dalla Lana School of Public Health

Review Panel Member: Comparative Program in Health and Society, Munk Centre for International Studies, University of Toronto

Service Activities

Chair: Strategic Teams in Applied Injury Research Review Committee, CIHR

Member: Scientific Visitors Advisory Board, Liberty Mutual Research Institute for Safety, 2007 –

Member: Ontario Health Quality Council Performance Measurement Advisory Board, 2007 –

Member: Health Reports Editorial Board, Statistics Canada, 2007 –

Member: Fellowship Award Panel, Comparative Program on Health and Society, Munk Centre for International Studies, University of Toronto, 2004 –

Member, CIHR Michael Smith Prize in Health Research Review Committee, CIHR

Member: Board of Directors, Ontario Neurotrauma Foundation, 2008 – 2011

Member: Board of Advisors, RAND Center for Health and Safety in the Workplace, 2008 –

Reviewer: Policy Research Program, Department of Health, United Kingdom

Promotion Review, Faculty of Medicine, University of Toronto

Journal Referee: Editorial Advisory Board, Longwoods Review; Journal of Epidemiology and Community Health; Health Services Research Journal; American Journal of Public Health; Medical Care; Injury Prevention; Journal of Psychosomatic Research; Social Science and Medicine; Health Reports; HealthCare Policy; Canadian Medical Association

PENNICK, Victoria

Teaching/Educational Role

Lecturer: Dalla Lana School of Public Health, Faculty of Medicine, University of Toronto, 2005 –

Mentor/Tutor: CHL5418 – Scientific Overviews in Epidemiology and Public Health, Dalla Lana School of Public Health, University of Toronto, 2008 –

Member: Course Planning Committee, Determinants of Community Health Course, Faculty of Medicine, University of Toronto, 1992 –

Tutor: Putting the person at the centre. University of Toronto Centre for the Study of Pain - Interfaculty Pain Curriculum, 2003 –

Marking Student presentations: Determinants of Community Health Course (Years 1 & 2), Faculty of Medicine, University of Toronto, 1992 –

Service Activities

Reviewer: Cochrane Pain, Palliative and Supportive Care Review Group

Reviewer: Canadian Physiotherapy Association Grants

Reviewer: Nova Scotia Health Research Foundation: Knowledge Transfer/Exchange Grants
Reviewer: Chiropractic & Osteopathy, BioMed Central

ROBSON, Lynda

Teaching/Educational Role

Guest Lecturer: OHS 810 – Seminars, School of Occupational and Public Health, Ryerson University

Service Activities

Grant Reviewer: Institution of Occupational Safety and Health (UK) Health and Safety in a Changing World Programme; National Institute for Health (UK) Research Evaluation, Trials and Studies

Coordinating Centre – Public Health Research Programmes,

Reviewer: American Journal of Industrial Medicine, Online Occupational Health & Safety Journal, Safety Science

Presenter to JHSC and IRS Working Groups of the MOL Expert Advisory Panel

Presenter to the Awareness Training Working Group, Health and Safety Review Project Secretariat, Ministry of Labour

IWH Joint Health and Safety Committee

SAUNDERS, Ron

Teaching/Educational Role

Associate Professor: School of Public Policy and Governance, University of Toronto (co-instructor for CHL 5308, Tools and Approaches for Public Health Policy Analysis and Evaluation)

Service Activities

Scientific Officer: Expert Panel reviewing Ontario OHS Prevention & Enforcement System

Ad hoc Reviewer: Centre for Workplace Skills

Ad hoc Reviewer: Carthy Foundation

Reviewer: WorksafeBC

IWH Plenary Committee

SCOTT-MARSHALL, Heather

Teaching/Educational Role

Assistant Professor (Status Only): Dalla Lana School of Public Health, University of Toronto

Service Activities

Journal Referee: Social Science and Medicine

Reviewer: Reports and Knowledge Products: National Collaborating Centre for Determinants of Health

STEENSTRA, Ivan

Teaching/Educational Role

Mentor: Esther van Kleef MSc Student Management, Policy-Analysis and Entrepreneurship in Healthcare VU University, Amsterdam, The Netherlands

Committee Member: Rhysa Leyshon PhD Candidate, School of Rehabilitation Sciences, University of Western Ontario

Service Activities

Reviewer: Spine and Occupational and Environmental Medicine, BioMed Central

Participant: CIHR Work Disability Program

SMITH, Peter

Teaching

Coordinator: Introduction to Measurement, University of Toronto
Co-Course Coordinator/Course Instructor: Measurement in Clinical Research, Health Policy, Management and Evaluation, Population Perspectives for Epidemiology, University of Toronto
Lecturer: Advanced Quantitative Methods in Epidemiology, Dalla Lana School of Public Health, University of Toronto

Service Activities

Reviewer: BMC Public Health; European Journal of Public Health; Journal of Psychosomatic Research; Research Quarterly for Exercise and Sport; Social Forces, Social Science and Medicine, Occupational Medicine, Critical Public Health, CMAJ
Scientific Officer: CIHR Strategic Teams in Applied Injury Research Panel.
Committee Member: Jas Chahal, MSc, Department of Health Policy Management and Evaluation, University of Toronto and Brendan Smith, PhD (Epidemiology), Dalla Lana School of Public Health, University of Toronto
Technical Committee: Canadian Standards Association
Working Group Member: Data and Performance Measurement Sub-committee, Ministry of Labour Expert Advisory Panel

TANG, Ken

Service Activities

Journal Reviewer: BioMed Central Health Services Research, Journal of Rheumatology, Arthritis Care & Research, General Hospital Psychiatry, Spine, Journal of Clinical Epidemiology

TOLUSSO, David

Teaching/Educational Role

Assistant Professor: Dalla Lana School of Public Health, University of Toronto, 2009 –

Service Activities

Reviewer: Statistics in Medicine; The Journal of Statistical Planning and Inference and Quantitative Finance; Canadian Journal of Statistics; Social Science and Medicine
Journal Referee: Quantitative Finance

TOMPA, Emile

Teaching/Educational Role

Adjunct Assistant Professor: Public Health Sciences, University of Toronto. 2004 –
Adjunct Assistant Professor: Economics, McMaster University, 2001 –
Post-doctoral Mentor for Moore I, funded by a Workers WSIB-RAC grant, 2009-2011
Post-doctoral Mentor for Scott-Marshall, funded by a SSHRC CURA, 2011-2013
Co-Instructor, Advanced Topics in Health Economics, McMaster University, 2011

Service Activities

Health Education Research, 2011
Workers' Compensation Research Institute Report, 2011
Journal of Marriage and the Family, 2011
Evaluation Review, 2011
Journal of Occupational Rehabilitation, 2011
Workers Compensation Research Institute, Fall 2011
ZonMw, The Netherlands Organization for Health Research, Spring 2011
Rand Institute for Justice, Report Reviewer, Fall 2011
Workers' Compensation Research Institute, Report Reviewer, Fall 2011

Adjunct Scientists

Dr. Peri Ballantyne – Assistant Professor, Department of Sociology, Trent University (since 2001)

Peri Ballantyne is an assistant professor in the Department of Sociology at Trent University in Peterborough, Canada. Her research interests include examining the social determinants of health such as work, retirement, income security, gender and age. She is also involved in health behaviour studies such as how people make decisions about medication and how those with chronic illness use the health-care system.

Dr. Philip Bigelow – Associate Professor, Department of Health Studies and Gerontology, University of Waterloo (since 2008)

Philip Bigelow is an associate professor in the Department of Health Studies and Gerontology at the University of Waterloo, 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 had 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. Cécile Boot – Senior Scientist, Department of Public and Occupational Health, VU University, Amsterdam, The Netherlands (since 2011)

Cécile RL Boot, PhD, is a senior scientist at 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 currently supervising a number of PhD projects on rheumatoid arthritis, low back pain, hand eczema, stress-related disorders and worksite health promotion. 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. Ute Bültmann – Associate Professor, Department of Health Sciences, University Medical Center Groningen, University of Groningen, The Netherlands (since 2007)

Ute Bültmann is an associate professor in the Department of Health Sciences at the University Medical Center in Groningen (UMCG), the Netherlands. Her research interests include the epidemiology of work and health, the impact of the psychosocial work environment on workers' health including mental health, and the prevention of work disability. She is involved in collaborative projects on work and health in Denmark and Canada.

Dr. Linda J. Carroll – Associate Professor, Department of Public Health Sciences, University of Alberta, Canada (since 2004)

Linda Carroll is an associate professor of epidemiology in the Department of Public Health Sciences at the University of Alberta in Edmonton. She holds a Health Scholar Award from the Alberta Heritage Foundation for Medical Research. Her research focuses on psychological aspects of musculoskeletal disorders, with an emphasis on examining the interface between depression, coping, chronic pain disability and recovery from soft-tissue injuries.

Alan Clayton – Adjunct appointment, Institute for Safety, Compensation and Recovery Research (ISCR), Melbourne, Australia (since 2011)

Mr Clayton, based in Melbourne Australia, is a lawyer by profession who currently is the principal of a consulting firm providing advice and research services in the areas of workers' compensation, occupational rehabilitation and occupational health and safety regulation. In his career, he has held a

number of staff positions in workers' compensation agencies in the Australia state of Victoria. He has also been an active scholar, with academic publications and conference proceedings on a range of topics in the area of the effectiveness of policy instruments in the protection of the health of workers. More recently, Mr Clayton has accepted an adjunct appointment with the Institute for Safety, Compensation and Recovery Research (ISCRR), hosted by Monash University and funded by WorkSafe Victoria and the Transport Accident Corporation. In this role, Mr Clayton will have responsibilities for developing collaborations with research agencies outside the state of Victoria.

Dr. J. David Cassidy – Senior Scientist, Division of Outcomes and Population Health, Toronto Western Hospital Research Institute (since 2001)

J. David Cassidy is director of Centre of Research Expertise in Improved Disability Outcomes (CREIDO) and a senior scientist in the Division Health Care and Outcomes Research at the Toronto Western Research Institute. He is also a professor of epidemiology at the Dalla Lana School of Public Health at the University of Toronto. Cassidy's research interests include musculoskeletal and injury epidemiology, as well as evidence-based health care.

Dr. Anthony (Tony) Culyer – Ontario Chair in Health Policy and System Design, HPME, University of Toronto (since 2007)

Tony Culyer has taught at more than a dozen universities around the world. He currently holds the Ontario Chair in Health Policy and System Design at the University of Toronto. He holds an honorary doctorate in economics from the Stockholm School of Economics. He is the founding co-editor of the Journal of Health Economics and has been on the boards of journals of health economics, medicine, medical ethics, social science and medical law. He was the vice-chair of the National Institute for Health and Clinical Excellence in London, England, and was IWH's chief scientist from 2003 to 2006.

Dr. Kelly Joseph DeRango – DeRango & Associates, LLC, Kalamazoo, MI (since 2009)

Kelly DeRango is an economist and President of his company DeRango Associates. He has a background in economics and political science, earning a PhD at University of Wisconsin, Madison, May 2000. DeRango is a Visiting Professor at Kalamazoo College in Michigan. From 1999-2007, he worked as a Research Fellow at the Upjohn Institute for Employment Research (Kalamazoo, Michigan). He has worked on several cost-effectiveness assessments of ergonomic interventions and has a continued interest in collaborating on these issues.

Dr. Joan Eakin – Professor, Department of Public Health Sciences, Faculty of Medicine, University of Toronto (since 2001)

Joan Eakin is a sociologist and qualitative research methodologist in the Dalla Lana School of Public Health at the University of Toronto. Her research focuses on work and health, particularly the relationship between health and the social relations of work. Most of her research has centred on prevention and return to work in small workplaces. Current/recent studies include home health-care work, return to work policy and practice, front-line service work in Ontario's Workplace Safety and Insurance Board, physicians' role in compensation.

Dr. Renée-Louise Franche – Researcher, Solid Organ Transplant Unit, Vancouver General Hospital, B.C. (since 2008)

Renée-Louise works at the Solid Organ Transplant Unit, Vancouver General Hospital, Vancouver, BC. She is an adjunct professor at the Faculty of Health Sciences, Simon Fraser University, and the School of Public Health at the University of British Columbia. She is also an adjunct professor, Dalla Lana School of Public Health, University of Toronto. Her research focuses on developing a better understanding of how worker, workplace, insurer, and health-care factors contribute to safe, sustainable and healthy return to

work following injury or ill health. She also conducts evaluations of work disability prevention interventions.

Dr. Monique Gignac – Scientist, Division of Outcomes & Population Health, Toronto Western Hospital (since 2003)

Monique Gignac is a senior scientist with the Toronto Western Research Institute at the University Health Network in Toronto. She is also an associate professor in the Dalla Lana School of Public Health at the University of Toronto and co-scientific director of the Canadian Arthritis Network. Dr. Gignac is a social psychologist who studies coping and adaptation to chronic stress, especially working with a chronic illness and disability.

Dr. David Gimeno – Associate Professor, Division of Occupational and Environmental Health Sciences, University of Texas School of Public Health (since 2008)

Dr Gimeno is also an honorary senior research associate in the Department of Epidemiology & Public Health at University College London, UK. His research focuses on occupational and social epidemiology, with emphasis on the measurement of employment status, work organizational exposures and workers' health and health-related productivity, social inequalities in health and aging, and the use of multi-level statistical models. He is involved in collaborative projects on work and health in Spain and several Latin American countries.

Dr. William Gnam

Dr. William Gnam is a physician, health economist and research scientist with the Health Systems Research and Consulting Unit at the Centre for Addiction and Mental Health in Toronto.

Dr. Gnam is also a lecturer in the Department of Psychiatry at the University of Toronto. His background is in medicine (psychiatry) and health policy, and his current research interests include psychiatric disability and workers' compensation. Gnam is currently completing a PhD in health policy (with an economics concentration) from Harvard University.

Dr. Jaime Guzmán – Scientific and Medical Director for Disability Prevention, Occupational Health & Safety Agency for Healthcare in BC (since 2006)

Jaime Guzmán is chief scientific and medical director for the Occupational Health and Safety Agency for Healthcare in British Columbia. He is also assistant clinical professor of medicine at the University of British Columbia. His research interests relate to preventing disability in people with musculoskeletal injuries. His most recent publications deal with how to obtain sustainable disability prevention through collaborative action and how to best integrate the perspectives of different stakeholders into research.

Dr. Jill Hayden – Assistant Professor, Dalhousie University (since 2007)

Jill Hayden is an assistant professor in the Department of Community Health & Epidemiology, Dalhousie University, 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. C. Gail Hepburn – Assistant Professor, Department of Psychology, University of Lethbridge (since 2004)

Gail Hepburn is an assistant professor in the Department of Psychology at the University of Lethbridge in Alberta. She also holds an associate graduate faculty appointment in the Department of Psychology at the University of Guelph. Gail 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. Linn Holness – Director, Gage Occupational and Environmental Health Unit (since 2001)

Linn Holness is director of the Centre for Research Expertise in Occupational Disease (CREOD), which is based at St. Michael's Hospital in Toronto. She is an associate professor in the Departments of Public Health Sciences; Medicine; and Health Policy, Management and Evaluation at the University of Toronto. Her main research interests are occupational skin and lung disease, occupational health services program delivery and workplace health and safety issues.

Dr. Bonnie Kirsh – Associate Professor, Department of Occupational Therapy, University of Toronto (since 2006)

Bonnie Kirsh is an associate professor in the Department of Occupational Science and Occupational Therapy at the University of Toronto, with cross appointments to the Graduate Department of Rehabilitation Science and the Department of Psychiatry. She conducts research in community mental health and employment, and has investigated Canadian principles and practices in work integration for people with mental illness. Kirsh is currently studying the mental health and well-being of injured workers in Ontario.

Dr. Mieke Koehoorn – Assistant Professor, Department of Health Care & Epidemiology, University of British Columbia (since 2004)

Mieke Koehoorn is an assistant professor in the Department of Health Care and Epidemiology, University of British Columbia (UBC) and a Michael Smith Foundation for Health Research Scholar. She also holds an appointment with the School of Occupational and Environmental Hygiene at UBC. Her research interests focus on the epidemiology of work-related musculoskeletal injuries, in particular among health-care workers. Koehoorn also conducts research on the relationship between work organization and the health of health-care workers, and the epidemiology of injuries among young workers.

Dr. (Desre) Dee Kramer – Associate Director, Networks & KTE, Centre for Research Expertise in Musculoskeletal Disorders (CRE-MSD), University of Waterloo (since 2005)

Dee Kramer is associate director at the Centre of Research Expertise for the Prevention of Musculoskeletal Disorders (CRE-MSD) at the University of Waterloo. She is a research assistant professor in the Department of Kinesiology at the University of Waterloo. Her research interests are in knowledge transfer, diffusion of innovation, adult education, and organizational change in the construction, transportation, electrical utilities and manufacturing sectors. She is an adjunct professor in the School of Occupational and Public Health at Ryerson University. She teaches courses within Ryerson's certificate program in occupational health and safety.

Dr. Louise Lemieux-Charles – Associate Professor and Chair, Department of Health Policy, Management & Evaluation, University of Toronto (since 2000)

Louise Lemieux-Charles is chair of the Department of Health Policy, Management and Evaluation at the University of Toronto. She is involved in several research projects examining issues of evidence and decision-making in health-care organizations and management of organizational and team performance. Her research interests are in the areas of performance management, health human resource management, organizational learning, knowledge transfer and organization of health systems.

Dr. Katherine Lippel – Chair on Occupational Health and Safety Law, Law Faculty, University of Ottawa (since 2006)

Katherine Lippel is a professor in the Faculty of Law at the University of Ottawa and holds the Canada Research Chair on Occupational Health and Safety Law. Lippel specializes in legal issues relating to occupational health and safety and workers' compensation and has authored several articles and books in this area. Her research interests include work and mental health; health effects of compensation systems; policy, precarious employment and occupational health; women's occupational health; and regulatory issues in occupational health and safety.

Dr. Christopher McLeod – Associate of the Centre for Health Services and Policy Research at the University of British Columbia (since 2009)

Chris McLeod is a Postdoctoral Fellow in the College for Interdisciplinary Studies, Associate Faculty, School of Population and Public Health, and an Associate of the Centre for Health Services and Policy Research at the University of British Columbia. Dr. McLeod has a Masters in economics from McMaster University and PhD in population and public health from the University of British Columbia. Dr. McLeod has extensive experience conducting research on occupational health and safety policy in British Columbia and has expertise with the WorkSafeBC claims data and firm-level measures. He is a key research member of a research partnership that UBC has had with WorkSafeBC for the past six years that seeks to develop and use WorkSafeBC data in conducting policy relevant OHS research. More broadly, Dr. McLeod is developing a research program focussed on understanding whether and how societal and institutional factors matter in reducing work-related health inequities.

Dr. Carles Muntaner – Chair in Psychiatry and Addictions Nursing Research, Social Policy and Prevention Research Department, CAMH (since 2004)

Carles Muntaner is the Psychiatry and Addictions Nursing Research Chair, Social Equity and Health Section at the Centre for Addiction and Mental Health (CAMH). He is also professor of nursing, public health sciences and psychiatry at the University of Toronto. Muntaner's research focuses around social class, politics, work organization and health within a global perspective. He is the recipient of the Wade Hampton Frost award of the American Public Health Association and a chair of the Employment Conditions HUB of the WHO Commission on Social Determinants of Health.

Dr. W. Patrick Neumann – Associate Professor, Department of Mechanical and Industrial Engineering, Ryerson University (since 2006)

Patrick Neumann is an assistant professor in the Department of Mechanical and Industrial Engineering at Ryerson University in Toronto. Neumann has been engaged in both epidemiological studies of low-back pain in the auto sector and in ergonomic intervention research. Dr. Neumann's research now focuses on improving work systems, system design, and designing work systems that are both highly competitive and humanly sustainable work systems through improved design processes and the development of human factors simulation tools.

Dr. Aleck Ostry – Tier 2 Canada Research Chair in the Social Determinants of Community Health, University of Victoria (since 2003)

Aleck Ostry is an assistant professor in the Faculty of Social Sciences at the University of Victoria. He is a Canada Research Chair (Tier 2) in the Social Determinants of Community Health and Michael Smith Foundation for Health Research Scholar. Ostry conducts research on the social determinants of health with a focus on workplace health, nutrition policy and health, and rural and northern health.

Dr. Glenn Pransky – Director, Center for Disability Research, Liberty Mutual Research Center for Safety & Health (since 2001)

Glenn Pransky is director of the Center for Disability Research at the Liberty Mutual Research Center for Safety and Health in the United States. He holds appointments at the University of Massachusetts in its medical school and School of Public Health, as well as the Harvard School of Public Health's Department of Occupational and Environmental Health. His research interests are in disability and outcome measurement, particularly for work-related musculoskeletal disorders.

Dr. Robert Reville – Director, RAND Institute for Civil Justice (ICJ) (since 2003)

Robert Reville is director of the RAND Institute for Civil Justice (ICJ). He holds a PhD in economics from Brown University. As a labour economist, he has a national reputation in the United States on workers'

compensation policy and the impact of disability on employment. He has written extensively on workers' compensation in California, New Mexico and other states. Reville is a member of the Board of Scientific Counsellors of the National Institute for Occupational Safety and Health (NIOSH)

Dr. Harry Shannon – Professor, Program in Occupational Health and Environmental Medicine, McMaster University (since 2004)

Harry Shannon trained in the United Kingdom in mathematics and statistics. He is a professor in the Department of Clinical Epidemiology & Biostatistics at McMaster University, where he has been a faculty member since 1977. He also holds an appointment in public health sciences at the University of Toronto. He is a past president of the Canadian Association for Research on Work and Health (CARWH), and has published extensively in this field. Shannon's research interests include musculoskeletal and other work-related injuries and the relationship between work stress, workplace organization, and health and safety.

Dr. Nancy Theberge – Professor, Department of Kinesiology, University of Waterloo (since 2003)

Nancy Theberge is a professor in the Departments of Kinesiology and Sociology at the University of Waterloo. She teaches courses in the sociology of health; work and health; and social aspects of injuries in sport and work. Theberge conducts research on participatory ergonomics (PE) and the social factors related to successful implementation of PE programs. She has a related research program on the professional practices of ergonomists and human factors engineers.

Dr. Gabrielle van der Velde – Scientist, Toronto Health Economics & Technology Assessment Collaborative (since 2008)

Gabrielle van der Velde is a scientist at the Toronto Health Economics and Technology Assessment (THETA) Collaborative, and a scientific associate in the Division of Decision Making and Health Care Research, Toronto General Research Institute, University Health Network. Her work at THETA focuses on health technology assessment, including systematic review, meta-analysis and economic evaluation. Her research expertise also includes the measurement of health-related quality-of-life, including Rasch analysis of health instruments and valuation of health for economic evaluation.

Dr. Maurits van Tulder – Epidemiologist, Institute for Research in Extramural Medicine and Vrije Universiteit Medical Centre, The Netherlands (since 2003)

Maurits van Tulder is an epidemiologist at the Department of Health Sciences and the EMGO Institute of the VU University in Amsterdam, the Netherlands. He is also co-editor of the Cochrane Collaboration Back Review Group. van Tulder is the author of many scientific papers in peer-reviewed scientific journals and has written several books and book chapters. His interests are in evidence-based practice and include trials, systematic reviews and economic evaluations of diagnostic and therapeutic interventions for musculoskeletal disorders. He also participated in or chaired several guideline committees on back pain.

Dr. Richard Wells – Professor, Department of Kinesiology, University of Waterloo (since 2001)

Richard Wells is a professor in the Department of Kinesiology at the University of Waterloo (UW) and director of the Centre of Research Expertise in Musculoskeletal Disorders (CRE-MSD). He is also the director of UW's Ergonomics & Safety Consulting Service, which is an information dissemination and consulting centre. He specializes in applied mechanics as it applies to human function and injury. For the last decade, his main research and training interests have been work-related musculoskeletal disorders of the upper-extremity and low back in industrial and office settings.

Glossary

A	ACE	Association of Canadian Ergonomists
	ACPAC	Advanced Clinician Practitioner in Arthritis Care
	ACR	American College of Rheumatology
	ALBP	Acute Low Back Pain
	AMA	American Medical Association
	APA	American Psychological Association
	ARHP	Association of Rheumatology Health Professionals
	AWCBC	Association of Workers' Compensation Boards of Canada
B	BRG	Cochrane Back Review Group (CCBRG) or Cochrane Collaboration Back Review Group)
C	CAMH	Centre for Addiction & Mental Health
	CARWH	Canadian Association for Research on Work and Health
	CCA	Canadian Chiropractic Association
	CCHS	Canadian Community Health Survey
	CCOHS	Canadian Centre for Occupational Health and Safety
	CHSRF	Canadian Health Services Research Foundation
	CIAR	Canadian Institute for Advanced Research
	CIHR	Canadian Institutes of Health Research
	CLUG	Cochrane Library Users' Group
	CMA	Canadian Medical Association
	CMCC	Canadian Memorial Chiropractic College
	COA	Canadian Orthopaedic Association
	CPA	Canadian Physiotherapy Association
	CPHA	Canadian Public Health Association
	CPHI	Canadian Population Health Initiative
	CPRN	Canadian Research Policy Networks
	CPSO	College of Physicians and Surgeons of Ontario
	CRE-OD	Centre for Research Excellence – Occupational Disease
	CRE-IDO	Centre for Research Expertise in Improved Disability Outcomes
	CRE-MSD	Centre for Research Excellence – Musculoskeletal Disorders
CSAO	Construction Safety Association of Ontario	
CSEB	Canadian Society for Epidemiology and Biostatistics	
CURA	Community-University Research Alliance	
D	DASH	Disabilities of the Arm, Shoulder and Hand
E	EBP	Evidence-based Practice
	EI	Educational Influential
	EPICOH	Epidemiology in Occupational Health
	EUSA	Electrical & Utilities Safety Association
H	HCHSA	Health Care Health & Safety Association
	HCP	Health Care Provider
	HRDC	Human Resources Development of Canada
	HSALC	Health and Safety Association Liaison Committee
	HSAs	Health and Safety Associations
	HWP	Healthy Workplace
	HWW	Health Work & Wellness Conference
I	IAPA	Industrial Accident Prevention Association
	ICES	Institute for Clinical Evaluative Sciences
	ICOH	International Commission of Occupational Health

	ILO INCLEN IPPH	International Labour Organization International Clinical Epidemiology Network Institute of Population and Public Health (CIHR)
J	JCQ JHSC	Job Content Questionnaire Joint Health and Safety Committee
K	KTE KTEAC KTE C of P	Knowledge, Transfer & Exchange Knowledge, Transfer & Exchange Advisory Committee KTE Community of Practice
L	LAD LBP LTD	Longitudinal Administrative Databank Low-back pain Long Term Disability
M	MOH-LTC MOL MSK	Ministry of Health and Long Term Care Ministry of Labour Musculoskeletal
N	NCE NHS NIH NICE NIOSH NLSCY NOIRS NORA NPHS	Networks of Centres of Excellence National Health Service The National Institutes of Health National Institute for Clinical Excellence National Institute for Occupational Safety and Health (USA) National Longitudinal Survey of Children and Youth National Occupational Injury Research Symposium (USA) National Occupational Research Agenda National Population Health Survey
O	OCHS OEA OEMAC OFL OHA OHCOW OHIP OHN OKA ONA OOHNA OSSA	Ontario Child Health Study Office of the Employer Adviser Occupational & Environmental Medical Association of Canada Ontario Federation of Labour Ontario Hospital Association Occupational Health Clinic for Ontario Workers Ontario Health Insurance Plan Occupational Health Nurse Ontario Kinesiology Association Ontario Nurses Association Ontario Occupational Health Nurses Association Ontario Service Safety Alliance
P	PHS POCKET PSHSA	Public Health Sciences, University of Toronto Physicians of Ontario Collaborating for Knowledge Exchange & Transfer Public Services Health & Safety Association
Q	QoLR	Quality of Life Research
R	RFP RNAO RPNAO RSI RTW	Request for Proposals Registered Nurses Association of Ontario Registered Practical Nurses Association of Ontario Repetitive Strain Injury Return-to-work
S	SAC SLID	Scientific Advisory Committee Survey of Income & Labour Dynamics

	SR	Systematic Review
	SRC	Systems Review Committee
	SSHRC	Social Sciences and Humanities Research Council of Canada
T	TENS	Transcutaneous electrical nerve stimulation
U	UE	Upper Extremity
	UHN	University Health Network
W	WCB	Workers' Compensation Board
	WMSDs	Work-related Musculoskeletal Disorders
	WSIB	Workplace Safety & Insurance Board
	WSN	Workplace Safety North
	WSPS	Workplace Safety & Prevention Services
	WSIB/RAC	Workplace Safety & Insurance Board Research Advisory Council