



INSTITUTE
FOR WORK & HEALTH
INSTITUT DE RECHERCHE
SUR LE TRAVAIL ET
LA SANTÉ

2004 Accomplishments Report

Research, Knowledge Transfer & Exchange and Activities

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Introduction to the 2004 Accomplishments Report on Research and Knowledge Transfer & Exchange

The Institute for Work & Health is an independent not-for-profit organization whose mission is to conduct and share research with workers, labour, employers and policy-makers to promote, protect and improve the health of working people. The Institute has three corporate functions: Research, Knowledge Transfer & Exchange (KTE), and Corporate Services. In this report we focus on the activities of the Research and KTE functions.

Our research involves a transdisciplinary approach to a range of occupational health and safety matters, particularly the prevention of injury and disability, the effectiveness of treatment modalities, and factors influencing the safety, timeliness and permanence of return to work. We have a special interest in work-related musculoskeletal conditions (which constitute approximately 70 per cent of disability compensation claims involving time lost from injury) and have acquired considerable expertise in this field. We also investigate broader matters such as labour market experiences and their population health consequences, and conduct research on the design of disability compensation schemes and their behavioural consequences.

The goal of our KTE activity is to place research knowledge in the hands of key decision makers in a timely, accessible and useful manner. We use a range of strategies to accomplish this and collaborate with partners in the Ontario prevention system and with a wide range of other health and safety stakeholders - workplace parties (labour and employers), clinicians, and policy-makers.

Since 1990 we have provided research and other evidence-based products to inform and assist clinicians, policymakers, employers, labour and other researchers. We also provide evidence to support the policy development processes of federal and provincial institutions 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.

Research at the Institute

The Institute's Research Department is organized in four Programs: the Population/Workforce Program, the Workplace Studies Program, the Health Services Research Program, and the Data and Information Systems Program. These programs exist primarily for internal organizational purposes. Each comprises a set of projects organized into cross cutting themes. These themes bring together research topics and methods that have substantial elements in common.

The research section of this report is organized according to this structure. Each of the programs is described briefly, followed by a description of program themes and projects.

Program	Population/Workforce Studies	Themes	Behavioural consequences of insurance and regulation
			Labour market experiences and health
Program	Workplace Studies	Theme	(The thematic structure of this Program is under review)
Program	Health Services Research	Themes	Measurement of health and function
			Epidemiology of disability
			Evidence-based practice
			Prevention of work disability
Program	Data and Information Systems	Theme	Statistical methods and data tools

This year we have identified two or three major projects in each theme to highlight in this report. These projects have been selected either because they are nearing completion and have significant findings to report, or they represent an important new initiative. For the remainder of the projects in the research theme, we have provided only a brief description and a research contact should you have a particular interest.

Knowledge Transfer & Exchange at the Institute

The Institute considers Knowledge Transfer & Exchange (KTE) to be a process by which relevant research information is made available and accessible for practice, planning and policy-making through interactive engagement with stakeholders. Stakeholders are frequently involved early in the research process to provide researchers with audience intelligence to help shape the research questions and provide information about the context in which research results are likely to be used. Stakeholders may also be involved while the research is under way and at the message extraction stage when the research has been completed. The target audiences for the Institute include policymakers (e.g., federal and provincial governments, third party payers such as WSIB), workplace parties (labour and employers) and clinicians.

The KTE process is supported by user-friendly materials and a corporate communications strategy that enhances both the Institute's ability to communicate effectively with its stakeholders and its ability to receive their messages about content, timeliness and applicability. The communication tools include our corporate newsletters, the IWH website, media relations, special events and the promotion of specific products such as booklets and workshops. In addition KTE actively builds our audiences' capacity to understand and use research evidence in their own programming, planning and decision-making.

This year the KTE section of the Activity Plan is structured in two ways. To provide an integrated picture of how KTE is linked to the research of the Institute, a short KTE summary follows the description of research projects in each program. In addition there is a separate KTE section that describes our networks, communication and capacity building activities.

Presentations, Publications, Awards and Collaborators & Staff

This third section reports on 2004 publications, presentations, grants and awards, and provides 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 section of the report also lists all IWH staff in 2004, as well as IWH adjunct scientists who have contributed to our activities in the past year.

Population Workforce Studies

The focus of research in the Population/Workforce Studies program is on upstream issues (e.g., labour-market experiences over the life course and their relationship to health). The research methodologies employed often entail the analysis of complex longitudinal surveys. In recent years we have built up a multi-disciplinary team of researchers with expertise in the analysis of large, longitudinal datasets and in advanced analytic techniques.

The nature of the research undertaken in the Population/Workforce Studies program is inherently multi-disciplinary. Accordingly, many of our projects involve collaborative work with scientists associated with other research programs at the Institute. A number of projects involve collaborative work with researchers based at universities, research centres, and other organizations across Canada and the United States. We are actively seeking to expand these cross-discipline, cross-organization collaborations.

Over the past year the Population/Workforce Studies program continued to pursue two broad research themes: 1) behavioral consequences of insurance and regulation and, 2) labour market experiences and health. Under the first theme, we investigate the design features of workers' compensation systems and occupational health and safety regulation and their behavioral consequences for employers, workers, insurers, and health-care providers. Under the second theme, we investigate the relationship between upstream labour-market experiences related to the availability and nature of work, such as job insecurity and work stress, and their downstream health consequences. We also investigate the reciprocal relationship, whereby health status influences labour-market experiences.

Behavioural Consequences of Insurance and Regulation

Over the last two decades, workers' compensation jurisdictions across North America have experienced substantial declines in injury claim rates, yet in many of these jurisdictions, the costs of workers' compensation and other disability insurance programs have steadily increased. The goal of this research theme is to identify factors driving these trends, and to understand the relative impact of prevention incentives offered to workplaces in the design of insurance programs and by occupational health and safety regulation. These are important policy questions that warrant critical research attention to support evidence-based policy development.

Providing adequate and equitable benefits to workers who experience a work-related injury, while simultaneously providing affordable insurance to employers, is a fundamental social objective of the historic compromise that gave rise to workers' compensation insurance. Fulfilling this objective is a complex and challenging task. Researchers and policy-makers have much to learn about designing programs that provide incentives for employers, workers and other stakeholders to give appropriate attention to prevention, effective and optimal care, and timely and safe return-to-work. Responding to this policy challenge, Institute scientists have established a comprehensive research program on the behavioural consequences of insurance and regulation.

One of the major projects in this theme and one which we are highlighting in this report is an examination of the post-accident income sources and amounts for individuals who have sustained permanent impairment due to a work-related accident in Ontario. We have assessed the adequacy and equity of two long-term disability income loss compensation programs: one in existence prior to 1990 in which compensation was based on the degree of permanent impairment; and the other in existence since 1990 in which compensation is based on loss of earnings capacity.

A second project highlighted in this theme is a recently completed comprehensive and systematic review of the research literature on the consequences of experience rating and occupational health and safety inspection and enforcement for workplace health and safety practices.

Project Titles:

<i>WSIB Lost-time Injuries and Income Sources Post-injury</i>	9
Understanding Disability Insurance in Canada: Issues and Research Opportunities	11
Systematic Review of the Literature on Workers' Compensation System and Occupational Health and Safety Features and their Consequences for Work-related Injury Experiences	12
The Impact of Experience Rating and Occupational Health and Safety on Claims Experiences in Ontario	13
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WSIB Lost-time Injuries and Income Sources Post-injury

Overview: There is a need for better understanding of the adequacy and equity of income-loss compensation when individuals sustain permanent impairment due to a workplace accident. This project focuses on two key matters. First, the success of injured workers in re-entering the labour force and recouping at least a fraction of their earnings, and the characteristics determining success. Second, the adequacy and equity of replaced lost earnings.

The first phase of the project focuses on Ontario, in particular looking at the adequacy and equity of income benefits under two different permanent benefit programs. It will also examine changes in family and individual income and family formation/dissolution patterns after injury. Currently, we have completed the analysis of the data on adequacy and equity in the Ontario programs and have initiated additional analyses to examine post-accident income sources and amounts at the family level, and family formation/dissolution patterns. In the second phase we will investigate the post-accident earnings experiences of individuals sustaining a temporary work disability arising from a work-related accident. In the third phase we will investigate cross-jurisdictional differences in program adequacy and equity for a similar population using data from British Columbia and possibly several U.S. jurisdictions.



Emile Tompa

Results: The results to date relate to the adequacy and equity of two long term disability income loss programs in Ontario, one in existence prior to 1990, based on degree of permanent impairment sustained by the worker (PD), and the other which came into effect after 1990, based on future loss of earnings capacity (FEL/NEL).

We found that the pre-1990 impairment-based system was neither as adequate nor as equitable as the post-1990 dual awards program. Specifically, the FEL/NEL program was closer to reaching the target of restoring 90% of pre-accident earnings overall, and provided higher levels of replacement rates for older individuals (individuals older than 35 in the accident year). However, this older age group had lower replacement rates in both the PD and FEL/NEL programs. This was partly due to the fact that they had higher pre-accident earnings than the younger group but received lower levels of benefits. It is not possible to determine why this was the case from the data, since benefit determination is based on earnings capacity, whereas what we observe is actual earnings.

In summary, the study showed that when 90% wage replacement (after taxes) is used as a measure of adequacy, benefits were less than adequate for the pre-1990 claimants over 35 years of age. Wage replacement rates were between 57% and 75 % of pre-accident earnings. For workers who sustained permanent disability after 1990, the program benefits were closer to the 90% replacement target (71% to 85%) but were still less than fully adequate for claimants over 35.

Following discussion of these results with the WSIB in 2004, the Institute has initiated a consultation process with stakeholders to share these findings. Although the PD program would have been less costly to operate in the post-1990 period in terms of core benefits, it is generally agreed that these benefits were inadequate and inequitable, and hence required supplemental benefits. The costs of remedying the short-falls of core benefits through supplementary benefits under the PD program will be significantly higher than the costs of the FEL/NEL program, and would still potentially be less adequate according to our analysis of claimants from the two programs. Overall, no aspect of the PD program reviewed in this study (i.e., earnings recovery, benefits adequacy and equity, and program cost) out-performed the FEL/NEL program.

Impact: The importance of this type of analysis is underscored by a recent award of a three year grant to Institute researchers from the National Institute for Occupational Safety and Health. The work is viewed as highly significant as it attempts to answer questions about earnings loss post-accident and the impact of workers' compensation policies on the lives of injured workers. Based also on this work, Institute researchers have been invited to undertake a research design project to evaluate the changes in the benefits policy including permanent disability benefits in the British Columbia workers' compensation system.

The findings from all of these initiatives will be of interest to representatives of workers, representatives of employers and to benefits policy staff in provincial and federal social protection programs. The comparison of benefit adequacy and equity will be of interest to disability insurance providers across Canada and internationally.

Researchers: Emile Tompa (Co-ordinator), Cam Mustard, Sandra Sinclair, Chris Kenaszchuk, Marjan Vidmar, Scott Trevithick, Sudipa Bhattacharyya

Stakeholder Involvement: Linda Jolley (WSIB) and Steve Mantis (Canadian Injured Workers Alliance) since inception. A working group of senior WSIB members was formed in 2002: Judy Geary, John Slinger, Richard Allingham, Joe Sgro, and Robert Dean. Robert Reville, IWH Adjunct Scientist (RAND) has also provided helpful comments at several points during the project.

Presentations:

Tompa E, Mustard C, Sinclair S, Vidmar M. The impact of permanent impairment on labour-market earnings post-accident. April 2002; Institute for Work & Health Internal Plenary Series.

Tompa E, Mustard C, Sinclair S, Vidmar M. The impact of permanent impairment on labour-market earnings post-accident. May 2002; Institute for Work & Health Research Advisory Committee Meeting.

Tompa E, Mustard C, Sinclair S, Reville B, Boden L, Biddle J. Permanent partial disability in Canada and the US: comparative international research. March 2003; Institute for Work & Health Scientific Advisory Committee Meetings.

Tompa E, Mustard C, Sinclair S, Trevithick S, Vidmar M. Post-accident earnings and benefits adequacy and equity of Ontario workers sustaining a permanent impairment from workplace accidents. May 2003; Vancouver, BC: Research Consultation with the Workplace Safety and Insurance Board.

Tompa E, Mustard C, Sinclair S, Trevithick S, Vidmar M. Post-accident earnings and benefits adequacy and equity of Ontario workers sustaining a permanent impairment from workplace accidents. March 2004; Phoenix, USA: Annual Meeting of the Workers' Compensation Research Group.

Tompa E, Mustard C, Sinclair S, Trevithick S, Vidmar M. Post-accident earnings and benefits adequacy and equity of Ontario workers sustaining a permanent impairment from workplace accidents. Dec 2004; Rome, Italy: 6th International Congress on Work Injury.

Publications:

Tompa E, Mustard CA, Sinclair S, Trevithick S, Vidmar M. (2003) Post-accident earnings and benefits adequacy and equity of Ontario workers sustaining a permanent impairment from workplace accidents. (IWH Working Paper #210)

Tompa E, Mustard CA, Sinclair S, Trevithick S, Vidmar M. (2003) Post-accident earnings and benefits adequacy and equity: an evaluation of the pre-1990 Ontario permanent disability program. (IWH Working Paper #210A)

Tompa E, Mustard CA, Sinclair S, Trevithick S, Vidmar M. (2003) Post-accident earnings and benefits adequacy and equity: an evaluation of the post-1990 Ontario permanent disability program. (IWH Working Paper #210B)

External Funding:

Tompa E, Mustard CA, Sinclair S. Post-accident earnings and benefits adequacy and equity. NIOSH \$150,000 US; 2004-2006.

Understanding Disability Insurance in Canada: Issues and Research Opportunities

In Canada, the provision of income insurance for labour market earning losses arising from disability in working-age populations is provided by five primary sources (i.e., Canada Pension disability benefits, employment insurance disability benefits, workers' compensation, employer funded and self funded long term disability insurance). Unlike those of other countries of the Organization for Economic Co-operation and Development (OECD) economies, in Canada these programs are poorly integrated. They have different definitions of disability, differing conditions for eligibility and duration of entitlement, and different levels of benefit generosity. There are profound deficits in our understanding of the economic circumstances of disabled working-age adults, especially information on the change in household economic well-being following the onset of disability. There is only limited information currently available in Canada on the demographic or occupational characteristics that influence the probability of eligibility for specific insurance programs. Additionally, there is very limited information on the consequences to economic well-being arising from work disability. To understand better the nature of disability income in Canada, this project will develop:

- ▶ Empirical estimates of the cause-specific incidence of disability in working-age Canadians integrated with estimates of source/amount of disability insurance benefits received.
- ▶ Empirical simulation, and models of the impact of an aging labour force, longer duration of labour force participation and the relaxation of mandatory retirement on expected expenditures for disability insurance benefits.

Research Lead: Cam Mustard

Status: Ongoing

External Funding: Mustard CA. Predictors of the incidence of disability income insurance among Ontario labour force participants, 1994-2004. Ontario WSIB RAC: \$161,000; 2004-2006.

Systematic Review of the Literature on Workers' Compensation System and Occupational Health and Safety Features and their Consequences for Work-related Injury Experiences

Overview: In late 2003 we completed a systematic literature review of the empirical research on workers' compensation system design features and their consequences for injury experiences. The review focused on initiatives directed at employer behaviour such as experience rating, insurance options, and occupational health and safety regulation enforcement. The results were shared with the WSIB, Ontario Ministry of Labour and other policy-makers during this past year. A second phase, in 2005, will disseminate results to workers' compensation boards across Canada and the United States and ministries/departments of labour in the USA and internationally. The existing working paper has been revised and submitted to the Journal of Human Resources; a second paper on the innovative methods used in this review is to be submitted to the Journal of Clinical Epidemiology; and a third on policy issues will be submitted to the Journal of Occupational and Environmental Medicine.

Results: This review summarized more than 50 quality studies and yielded "moderate" evidence that the degree of experience rating reduces the frequency and/or severity of injuries. There was no evidence of general and specific deterrence of thorough inspections or general deterrence of citations/penalties. However, there was strong evidence that actual citations and penalties reduce frequency and/or severity of injuries.

Impact: In 2004 several Canadian provincial ministries of labour indicated that they were finding this report of value in policy/program development. The Ontario Ministry of Labour which was coincidentally undertaking a policy review of the inspectorate function in this province subsequently announced a significant increase in the number of inspectors (200) who audit workplaces for compliance with occupational health and safety standards. The review found limited evidence that inspections without penalty or enforcement resulted in the frequency or severity of workplace injuries. However, there was strong evidence in the international literature that the imposition of orders, citations or fines following inspections did result in a reduction in both frequency and/or severity of injuries.

This literature synthesis is the first in this field to date. It is expected to be of particular interest to policymakers in workers' compensation boards, others working with disability compensation programs and employment-income replacement programs, health services researchers and program administrators, and researchers interested in methodological issues related to investigating program design effects. The broader dissemination of these findings planned for 2005 lays the ground work for future research and knowledge exchange as part of the Institute's ongoing interest in the consequences of policy and regulation.

Researchers: Emile Tompa (Co-ordinator), Scott Trevithick, C. McLeod (University of British Columbia)

Stakeholder Involvement: This project was initiated after discussions with Ron Lovelock, Marianne Levitsky and Kathryn Woodcock of the WSIB.

Presentations:

Tompa E, Trevithick S, McLeod C. A systematic review of the prevention incentives of insurance and regulatory mechanisms for occupational health and safety. Accepted: May 2005; Vancouver, Canada: Canadian Association of Research on Work and Health.

Tompa E, Trevithick S, McLeod C. A systematic review of the prevention incentives of insurance and regulatory mechanisms for occupational health and safety. March 2005; Hamilton, ON: Occupational Health, Hygiene and Toxicology Rounds.

Tompa E, Trevithick S, McLeod C. A systematic review of the prevention incentives of insurance and regulatory mechanism for occupational health and safety. March 2004; Toronto, ON: IWH Scientific Advisory Committee Meetings.

Tompa E, Trevithick S, McLeod C. A systematic review of the prevention incentives of insurance and regulatory mechanism for occupational health and safety. Jan 2004; Toronto, ON: Research Consultation with the Workplace Safety and Insurance Board.

Tompa E, Trevithick S, McLeod C. A systematic review of the prevention incentives of insurance and regulatory mechanism for occupational health and safety. May 2003; Toronto, ON: Institute for Work & Health Plenary Series.

Publications:

Tompa E, Trevithick S, McLeod C. (2003) A systematic review of the prevention incentives of insurance and regulatory mechanism for occupational health and safety. Submitted: Journal of Human Resources (IWH Working Paper #213)

The Working Paper can be found at: http://www.iwh.on.ca/products/wp_order.php

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

A system of experience rated workers' compensation premiums (NEER and CAD-7) was phased in over the 1980s in Ontario. Subsequently, the injury claim rates for both lost-time and no-lost-time claims decreased suggesting that the programs might have had an impact on employer behaviour. Theoretically, a link between a company's claims history and the premiums paid for coverage provides an incentive to increase safety efforts but to what degree the observed trend in claim rates is attributable to the introduction of experience rating has been unclear and controversial. A decrease in claim rates has also been observed over this time period in other jurisdictions, suggesting that the phenomenon might, at least partially, be driven by cross-jurisdictional forces and not solely by within-jurisdiction policy changes. The phasing-in of experience rating in Ontario provides an interesting natural experiment to test the relationship between experience rating and claim rates. Data for this project will be taken from three sources: WSIB administrative records on firms and their claims activity, Ministry of Labour's administrative records on occupational health and safety regulation enforcement activity, and the Workplace and Employee Survey (WES). The latter will be the source of information on the characteristics of firms that is not available in the two administrative data sources. We propose to assess whether the degree of experience rating is correlated with injury experiences at the industry level, after controlling for other characteristics of relevance; and whether it is correlated with specific aspects of injury experiences such as the frequency, duration and nature of injuries. We also plan to investigate the impact of OHS regulation enforcement on injury experiences.

Research Lead: Emile Tompa

Status: Ongoing

Five Country Comparison on Declining Workers' Compensation Injury Rates

Over the past ten years a common trend in the decline of workers' compensation injury rates has been observed across many of the industrialized countries. As a result of an initial meeting in Melbourne in March 2001, the Institute and WSIB researchers have taken the lead in consolidating research papers from the United States, Germany, Denmark, Australia and Canada to form a comparative analysis. The initial presentation of this analysis provided the background documentation for a workshop at the 6th International Congress on Work Injuries: Prevention, Rehabilitation, and Compensation December 2004.

Research Lead: Sandra Sinclair

Status: Completed

Injured Workers' Outreach Services

In October 2002, the WSIB Board of Directors established pilot funding for injured workers' outreach services (IWOS), a new body whose role was to develop a systematic network of injured worker peer support services across Ontario. The IWOS mandate is to provide support and counseling services not available to workers elsewhere. An evaluation of this pilot program was conducted by the Institute in 2004 at the request of the WSIB. Findings from the study indicate that workers who join the groups have complex and unresolved compensation and health situations. They represent the segment of WSIB clients who pose the greatest proportional costs to the system. Further research on this group of workers is expected to lead to better methods of support for injured workers as well as greater efficiency in the use of WSIB resources for all groups of workers, whether they have straightforward or complex claims situations.

Research Lead: Ellen MacEachen

Status: Completed

Labour Market Experiences and Health

Two broad dimensions of labour market activity characterize this theme: work availability and the nature of work. Availability includes such phenomena as employment and unemployment, working time and job security. The nature of work relates to the actual work done: such elements as job characteristics, position in firm or occupational hierarchy and other organizational characteristics. Global economic integration and rapid technological change have brought about many changes in labour markets, including changes in these two broad dimensions, as employers adopt arrangements like “flexible staffing” and/or vary the size/number of task-related demands on workers.

Some project teams within the theme include colleagues from outside the Institute (for example, from Statistics Canada, McMaster University, Queen’s University, University of Texas and University of British Columbia). Virtually all projects have extensive stakeholder involvement at most stages from conception onwards. Stakeholder partners include Health Canada, Statistics Canada, provincial ministries of health and labour, health authorities and other provincial and community-based organizations.

The range of the research on the theme is broad. Much of it is supported by external funding. Some is initially directed at the development of databases in order that they can be more usefully used to address policy questions; other strands investigate phenomena and test hypotheses. The research portfolio includes pioneering work using longitudinal databases (e.g., to understand the empirical links between occupation working experiences, earned income and transfers on the one hand and mortality/life expectation and measures of health status on the other); equally pioneering work relates to young people (e.g., the influence of childhood health status on early adult role performance at home and work, work-related injury rates amongst adolescents and high school students, and the correlates of injuries occurring to young workers). The results of two of our studies of this population are highlighted below. Another area of considerable emphasis this past year has been our work on precarious employment. We have completed the first phase of a multi-year study and highlight the results in this report.

Project Titles:

<i>Work Injuries and Teens / Incidence and Correlates of Lost-time Claims Among Adolescents and Young Adults in Ontario and British Columbia</i>	17
Systematic Review of Risk Factors for Work Injury Among Youth	20
Work and Work-related Injuries Among High School Students in British Columbia	20
Early Childhood Determinants of Success in the Transition to Adult Social Roles in a Cohort of Canadian Children	21
<i>Underemployment and Contingent Work</i>	21
Precarious Employment and People with Disabilities	24

Ten-year Mortality Follow-up for Occupations in the 1991 Canadian Census	25
Longitudinal Administrative Database (LAD) Mortality Linkage	25
Health and Labour Market Trajectories	26
Analytic Methods for Population-based Health and Health Care Resource Allocation	26
Social Inequalities in Mental Illnesses in the Canadian Community Health Survey Cycle 1.2	27
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Work Injuries and Teens /Prevalence and Determinants of Work-related Injuries Among Young Workers in Ontario & British Columbia

Overview: A growing body of research suggests that both the incidence rates and the types of occupational injuries in young workers (i.e., workers 12 to 19 years of age) are different from those in adults. A number of environmental and individual factors may account for this. Young workers occupy a particular niche in the North American labour market that is characterized by part-time, temporary work, and concentration in particular jobs and industries. In addition, developmental factors may play a more prominent role in young workers' risk. The Institute has several research projects underway on work injuries and youth. The long-term goal of this research program is to facilitate Canada's ability to formulate evidence-based policies for the prevention of work injuries among adolescents and young adults.

In one project we have been using Ontario and British Columbia workers' compensation claims to examine the individual, work situation and community factors which may influence the risk of compensated work injuries among young workers and to look at cross-jurisdictional comparisons. In a second project, we are analyzing secondary data at a national level from relevant Canadian population-based surveys (i.e., National Population Health Survey (NPHS), Canadian Community Health Survey (CCHS), National Longitudinal Survey of Children and Youth (NLSCY), Survey of Labour Income Dynamics (SLID) to identify the risk and protective factors to develop a conceptual model of youth work injury risk. Our quantitative analyses in this project includes identifying individual, job, and geographic correlates of injury rates and determining whether the correlates for other youth unintentional injuries (e.g., sports) are comparable to those of work injuries. We are also interested in prospectively examining the relationship between work experience and work injury (i.e., inexperience increases injury risk) and the post-injury earnings losses of young people injured at work. Planned qualitative research which recently received funding from the U.S. National Institute for Occupational Safety and Health (NIOSH) will provide deeper understanding of the forces that constrain and propel the way young workers comprehend their jobs and work safety. In particular we wish to summarize their understandings of work safety and their practices, identify the interactional (relations with supervisors, co-workers, and parents), material (physical work hazards), and organizational (employment conditions) factors which account for young workers' understandings and practices and to examine how gender roles affect the meaning of work and work safety.



Curtis Breslin

Results: From our analysis of the Ontario and British Columbia workers' compensation claims data we found that lost-time claim rates decline as length of job tenure increases for all ages. For example, workers in the first month on the job were more than five times as likely to have a lost time claim than workers who have been in their current job for more than one year. With regard to time trends, we found that the rate of decline in lost-time claim rates for young workers as their tenure on the job increased generally paralleled that of their adult counterparts over 1990-2003, though gender differences were observed.

From our analysis to date on national data our examination of correlates of work and non-work injuries among youth shows that geographic regions with high work injury rates also have higher non-work injury rates even after accounting for other determinants. These findings highlight potentially important contextual factors for unintended injuries.

Impact: The results of these projects will be of interest to policy-makers and administrative/managerial audiences. There is a great deal of interest among large private and public sector employers in protecting youth at work and preventing work-related injury.

Researchers: Curtis Breslin (Co-ordinator), Peter Smith, Cam Mustard, Ellen MacEachen, Emile Tompa, Jason Pole, Ryan Zhao, Anjali Mazumder, Sheilah Hogg-Johnson; B. Amick, IWH Adjunct Scientist (University of Texas)

Stakeholder Involvement in Project Development: B. Kusiak (Ministry of Labour), S. Boychuk (WSIB)

Publications:

Breslin FC, Smith P. Baptism of fire: The relationship between job tenure and lost-time claim rates among adolescent, young adult, and adult workers. (IWH Working paper #216) Accepted: Occupational and Environmental Medicine. (Project #408)

Breslin FC, Amick BC. (2003) Work injuries and youth: An application of the labour market and health framework. (IWH Working Paper #217)

Breslin FC, Adlai E. (2003) Part-time work and adolescents: The moderating effecting of school SES on alcohol use. (IWH Working Paper #188)

Breslin FC, Koehoorn M, Smith P, Manno M. Age-related differences in work injuries and permanent impairment: A comparison of workers' compensation claims among adolescents, young adults, and adults. Accepted: Occupational and Environmental Medicine.

Breslin FC, Smith P. Age-related differences in work injuries: A multi-variate, population-based study. (IWH Working Paper #227) Submitted: American Journal of Industrial Medicine. (Project # 451)

Breslin FC, Smith P. Youth and work injuries: How do provinces compare? (IWH Working Paper #260) Submitted: Canadian Medical Association Journal. (Project # 451)

Presentations:

Breslin FC. Occupational health, hygiene, and toxicology rounds. Nov 2004; Hamilton, ON: McMaster University. (Project #408)

Breslin FC. Young people and work injury: Towards the next generation of prevention approaches. Nov 2004; Hamilton, ON: McMaster University. (Project #408)

Breslin FC, Smith P, Tompa E. Young workers in the 1990's: Did their risk of work injury decline as much as adults? Nov 2004; Washington, DC: 132nd Annual Meeting of the American Public Health Association. (Project #408)

Lipskie T, Breslin FC. Poster: A descriptive analysis of young worker injuries using surveillance data from the Canadian Hospitals Injury Reporting and Prevention Program (CHIRPP). Oct 2004; Ottawa, ON: Health Canada Departmental Science Forum. (Project #451)

Breslin FC, Smith P, Mustard C, Etches J. Regional differences in the incidence of work injury and non-work injury among Canadian adolescents. Oct 2004; Melbourne, Australia: 17th International Symposium on Epidemiology in Occupational Health. (Project #451)

Breslin FC. Youth work injuries: Current and future research. Oct 2004; Orangeville, ON: Interdisciplinary Capacity Enhancement (ICE) Team Injury Symposium. (Project #451)

Koehoorn M, Breslin FC, Xu F. Investigating the long term consequences of injuries among young workers. Oct 2004; Melbourne, Australia: 17th International Symposium on Epidemiology in Occupational Health. (Project # 408)

Breslin FC, Smith P, Tompa E. Age-related differences in lost-time claim rates. Sept 2004; Dresden, Germany: 2nd Meeting of Working on Safety. (Project #408)

Breslin FC. Jugendarbeits Schultz in Kanada. Aug 2004; Dortmund, Germany: Federal Institute for Occupational Safety and Health. (Project #451)

Breslin FC, Smith P, Etches J, Mustard C. Regional variation in work and non-work injuries among Canadian youth. June 2004; Vienna, Austria: 7th World Conference on Injury Prevention and Safety Promotion. (Project #451)

Breslin FC. Young people and work injuries: Using the SLID to help us understand this health problem. May 2004; Ottawa, ON: Income Statistics Division, Statistics Canada. (Project #451)

Breslin FC. Young people and work injury: Towards the next generation of prevention approaches. May 2004; Ottawa, ON: Cross-Canada Young Worker Advisory Committee (Project #408)

Breslin FC, Smith P. Age-related differences in work injury: Multivariate analyses of a population-based survey. Nov 2003; San Francisco, CA: 131st Annual Meeting of the American Public Health Association. (Project #451)

Breslin FC, Smith P. Baptism of fire: The relationship between job tenure and lost-time claim rates among adolescent, young adult, and adult workers. Oct 2003; Montreal, PQ: 2nd National Symposium of the Canadian Association of Research on Work and Health. (Project #408)

Breslin FC, Lipske T. Poster: A preliminary analysis of work-related injuries among youth treated in emergency departments. May 2003; Vancouver, BC: 3rd World Congress of Child and Youth Health.

Breslin FC, Smith P. Influence of household SES on youth working in manual occupations. Nov 2002; Philadelphia, PA: The 130th Conference of the American Public Health Association. (Project #451)

Breslin FC, Smith PE. Work injuries among Canadian workers: Is there an inverse relationship with age? May 2002; Montreal, PQ: The 6th World Conference of Injury Prevention and Control. (Project #451)

External Funding:

Breslin FC, Tompa E, Amick B, Hogg-Johnson SA. Work injury and young people: A prospective study. NIOSH 2004-2005. (\$100,000). (Project #451)

Breslin FC, Koehoorn M, Mustard C, Hogg-Johnson S. Incidence and correlates of lost-time claims among adolescents and young adults in Ontario and British Columbia. WSIB/RAC grant: \$147,844; 2002-2004. (Project #408)

Breslin FC, Smith P, Koehoorn M, Vidmar M. Prevalence and determinants of work-related injuries among young workers. WISB/RAC: \$138,000; 2002-2004.

Systematic Review of Risk Factors for Work Injury Among Youth

A growing body of recent research attempts to explain why young people (i.e., adolescents 15 to 19 years old) have a high risk of work injuries. Though many correlates of work injuries have been identified, there has been no systematic review of the literature to assess the empirical strength of individual and work-related risk factors. This is one of the systematic reviews being undertaken in 2005 as part of an IWH pilot project funded by WSIB to focus on reviews of the literature in the area of workplace prevention.

Research Lead: Curtis Breslin

Status: Ongoing

External Funding: Breslin FC. Systematic Review: Risk factors for work injury among youth. McMaster University: Institutional Capacity Enhancement (ICE) pilot project grant: \$13,325.

Work and Work-related Injuries Among High School Students in British Columbia

The British Columbia High School Study is a multi-wave survey of smoking behaviour in high school students. Questions on work and work-related injuries included in this existing survey will invite self-reported information on patterns of work (e.g., types of jobs and work hours) and work-related injury rates among high school students. This will help us better understand work-related injury in this young population. A second wave of the survey will be administered to approximately 6,250 students using data other than workers' compensation claim information.

This study was a cross-sectional survey design. A new 2-page section on work patterns and work-related injuries has been included in an existing survey of health behaviours among adolescents. The new section has items to measure work for pay, types of work, hours of work, work-related injury, type of injury, and injury consequences. This data will be used to calculate injury rates and investigate risk factors for work-related injuries (demographic/socioeconomic, occupational, geographic). Linkage with the other variables included on the survey will also allow us to further explore the relationship between injury risk and measures of stress, social networks and self-esteem.

Research Lead: Mieke Koehoorn

Status: Ongoing

External Funding: Koehoorn M, Breslin FC. Youth at work: B.C. high school survey on work-related injuries. Workers' Compensation Board of British Columbia: \$50,215; 2004-2006 (Administered at UBC)

Early Childhood Determinants of Success in the Transition to Adult Social Roles in a Cohort of Canadian Children

Few cohort studies have measured emotional, physical and behavioural health during childhood and followed these children into adulthood. Very little information is available concerning the implications of childhood health and behavioural status for adult role function, especially labour-force participation. The Ontario Child Health Study (OCHS) was established in 1983, enrolling 3,200 Ontario children between the ages of 4-16. This cohort was re-surveyed in childhood, in 1987 and again in early adulthood in 2000 (at ages 21-33).

This program plans to describe attainment and performance in three major adult role domains: worker, parent and partner and to estimate the strength of association between the potential predictors of adult role function and attainment and performance. The study will also examine the potential predictors of adult role function including adult health status and a series of childhood attributes and experiences at three distinct levels: community-level socioeconomic factors, family structural and functional characteristics and the health and functioning of the individual child.

With the availability of the third wave (2000) in 2003, descriptive analyses of the three waves of the OCHS (1983, 1987 and 2000) commenced in that year. In 2004, three analytic projects have been completed: 1) childhood and early adult predictors of the risk of unintentional injury, 2) childhood and early adult predictors of the risk of incident back pain and 3) the effects of childhood health status on intergenerational socioeconomic mobility. The latter two projects were designed to replicate analyses reported by the National Child Development Study in the United Kingdom.

Research Lead: Cam Mustard

Status: Ongoing

External Funding: MRC: \$1,452,700: Feb. 1999-Dec. 2002 (Administered at McMaster University)
CPHI: \$415,200: Feb. 2001 - March 2002 (Administered at IWH)
CIHR: \$ 304,000: Jan. 2003 - Feb. 2004 (Administered at McMaster University)
CIHR: \$360,682: 2002-2005 (Administered at McMaster University)

Underemployment and Contingent Work

Overview: The key question in this multi-year study concerns the health consequences of precarious employment experiences. In the first phase of this research initiative, we developed a detailed conceptual model and applied it to short-term exposures of non-standard work, proxies for the dimensions of precariousness, and measures of under-employment. In the continuation of our principal hypothesis is that individuals are more likely to experience adverse health outcomes in response to more frequent or chronic exposure to contingent work arrangements than persons not experiencing chronic exposure, even after controlling for prior health levels. Additionally, chronic exposure to precarious employment experiences is expected to result in health consequences for individuals in specific social locations (specifically women, older individuals, single parents, visible minorities, and individuals with little formal education) than for their counterparts (men, younger individuals, parents living with their spouse, non-visible minorities, and individuals with higher levels of education).

This project will use two existing longitudinal health and labour market surveys from Statistics Canada: the Canadian National Population Health Survey (NPHS), and the Canadian Survey of Labour and Income Dynamics (SLID).

Results: (Phase One)

Labour Market Trends

The prevalence of non-standard work in the Canadian labour market is rising for both men and women, particularly among youth (17 to 24) and the older (55 to 64) age groups, with women and youth having the longest durations of exposure to non-standard work. The increase in non-standard work is driven by rising rates of part-time work, own account self-employment and multiple job holding. In contrast, rates of short tenure work have remained fairly stable over time.

Modelling Results

Overall, non-standard work is not a significant predictor of low health level nor transitions to worse health. Our analyses found a general pattern of marginal/weak health effects arising from short-term exposure but no statistically significant relationship between within-year duration of exposure to non-standard work and any of the health outcome measures.

Several proxies of work-related precariousness show significant associations with health outcomes, although the pattern of these findings varies according to age and gender. For example, working a substantial number of unpaid overtime hours, experiencing no increase in earnings, and having low labour-market earnings, all significantly affected health across gender-age groups for two or more of the outcome measures. These results emphasize the detrimental health effects of lack of control over work processes and inadequate income and benefits. Several other proxies had a similar impact on health (manual occupation, low job status, no pension), but were significant for only some gender-age groups. Some proxies had no significant impact (e.g., short-tenure work, irregular schedule, low family income). Additionally, we found that some proxies (e.g., no union coverage, small firm) were associated with better health.

Clearly, the latter findings as well as mixed results obtained for other proxies (e.g., low decision authority, substantial overtime hours, involuntary part-time work) warrant further investigation, particularly in the context of more prolonged and/or repeated exposure to such experiences. In general, exposures of one year or less to precarious employment experiences may simply not be long enough to have significant detrimental health consequences. Lastly, some forms of under-employment appear to affect health for some groups. Hours under-employment appears to be negatively related to general health and long-term disability for some gender-age groups, whereas earnings under-employment only negatively affects certain sub-populations within gender-age groups. This latter finding reinforces our interest in investigating the health effects of precarious employment experiences among more vulnerable populations.

Impact: The knowledge from this research will be relevant for policy-makers at workers' compensation boards, provincial ministries of labour, and HRDC in relation to: the provision of employment insurance benefits; the provision of health and pension related work benefits; work-related disability policy; employment standards; and the relative mix between private and public disability insurance coverage. A comprehensive research transfer strategy has been planned with the assistance of our Knowledge Transfer & Exchange department. Part of the strategy will include developing key messages targeted to stakeholder audiences. There are a number of publications arising from this work to date. A core paper entitled *Precarious Employment Experiences and Their Health Consequences: Towards a Theoretical Framework*, has been completed. Collaborative work with Dr. Michael Polanyi on labour-market flexibility and worker insecurity has resulted in a publication in *Work* and another publication as a book

chapter. Heather Scott, PhD candidate on this topic has published the first chapter of her thesis, entitled *Re-conceptualizing the Nature and Health Consequences of Work-related Insecurity for the New Economy*.

The core trends paper is entitled *Work-related Precariousness: Canadian Trends and Policy Implications*. Another working paper is complete and submission to Canadian Public Policy is planned in early 2005. A second trends paper entitled *Precarious Employment and People with Disabilities* is a working paper and a forthcoming chapter in *Precarious Employment*, edited by Dr. Vosko. Several papers modeling the health outcomes of precarious employment have been completed or are near completion. Two papers, one entitled *the Health Consequences of Precarious Employment Experiences*, and the second entitled *the Health Consequences of Underemployment* have been submitted to Social Science and Medicine and the Journal of Health and Social Behaviour, respectively. A third paper entitled *Precarious Employment Experiences and Functional Health* is a working paper and is to be submitted to the International Journal of Health Services in early 2005.

There were several presentations of these results at academic conferences in 2004, and others are planned for 2005. Four staffing/human resources/work and health newsletters have cited the work and a feature-length presentation is planned for 2005 in InFocus, an Institute for Work & Health newsletter feature insert. We have also commissioned the writing of a technical summary of the five completed papers, which is to be posted on the Institute's web site. Development of key messages and a round table discussion with stakeholders is planned for 2005.

Researchers: Emile Tompa (Co-ordinator), Roman Dolinschi, Heather Scott, Scott Trevithick, Sudipa Bhattacharyya, Chris Kenaszchuk

Stakeholder Involvement: Summary discussion document being prepared. Engage Ministry of Labour (MOL), WSIB, Human Resources Development of Canada (HRDC), Toronto Organization for Fair Employment (TOFE) in discussions.

Presentations:

Tompa E, Scott H, Trevithick S. Precarious employment and people with disabilities. Sept 2003; North York, ON: York University Workshop: Precarious Employment in the Canadian Labour Market.

Publications:

Dolinschi R, Trevithick S, Scott HK, Bhattacharyya S. Non-standard work forms and arrangements and work-related precariousness: Canadian trends, 1976-2002. (IWH Working Paper #281)

Scott H, Tompa E, Trevithick S. The health consequences of under-employment. (IWH Working Paper #274) Submitted: Social Science and Medicine

Tompa E, Trevithick S, Scott H, Dolinschi R, Bhattacharyya S. Precarious employment experiences and their health consequences: Towards a theoretical framework. (IWH Working Paper #232) Submitted: Work and Stress

Tompa E, Scott H, Trevithick S. (2004) Precarious employment and people with disabilities. (IWH Working Paper # 240) In: L.F. Vosko (Ed) Precarious Employment in the Canadian Labour Market.

Dolinschi R, Tompa E, Bhattacharyya S. (2004) Precarious employment experiences and functional health. (IWH Working Paper #273)

Tompa E, Scott H, Dolinschi R, Trevithick S, Bhattacharyya S. (2004) The health consequences of precarious employment experiences. (IWH Working Paper #268)

External Funding:

Tompa E, Lavis JN, Mustard CA. The health and safety consequences of under-employment and contingent work. CIHR: \$134,643; 2002-2004.

Tompa E, Lavis JN, Mustard CA. The health and safety consequences of under-employment and contingent work. WSIB Research Advisory Council: \$13,643; 2002-2004. (Top-up to CIHR funding)

Tompa E, Mustard CA, Muntaner C. The health consequences of under-employment and contingent work. CIHR grant renewal (Re-submitted March 2005).

Precarious Employment and People with Disabilities

This study investigated the historical and current work-related experience of particular vulnerable groups, especially people with disabilities, women and minorities in Canada. Over the past two decades important changes have occurred in policy. Coinciding with these developments is a series of economic shifts resulting from globalization, trade competition and technological innovation that have produced fundamental changes in the labour market and in the structure of employment relationships. We shall be seeking to reveal the experiences of vulnerable populations in this changing environment. The groups are those least likely to be able to adapt, or adapt quickly, to changing circumstances and for whom the consequences of global changes may be catastrophic.

Using cross-sectional time series data analyses of employment experiences of people with disabilities as compared to women and people of colour based on data from the Labour-market Activity Survey and the Survey of Labour and Income Dynamics, we found that people with disabilities experience more work-related precariousness than other groups, and their labour-market experiences have not improved over that last decade. They are particularly vulnerable to downturns in the economy and experience more unemployment and out-of-labour force spells than people without disabilities. They are also more likely to be employed in non-standard work, have low earnings, rely on social assistance, and live below the poverty line. The result of this research form the basis of a chapter in a research report on precarious employment supported by a Community-University Research Alliance (CURA) initiative.

Research Lead: Emile Tompa

Status: Ongoing

Ten-year Mortality Follow-up for Occupations in the 1991 Canadian Census

The relationship between life expectancy and occupation has been poorly described in Canada relative to what has been learned through surveillance and monitoring efforts in other OECD countries. There is increasing evidence that the cumulative impact of labour market experiences influences the initiation and progression of chronic disease processes. This research program uses a new population-based longitudinal person-oriented database formed by Statistics Canada from the linkage of existing administrative data sets. The resulting database will consist of records for approximately 4.5 million persons, with approximately 45 million years of follow-up. Approximately 300,000 deaths are expected to occur in this sample over the study's ten year follow-up period. The linkage to be undertaken by this project will complement the limited Canadian occupational mortality surveillance data currently available. In addition, through the integration of job exposure matrix information from health interview surveys in Canada, mortality risk in relation to position in the occupational hierarchy and in relation to adverse occupational psychosocial and physical work exposures will be estimated. These estimates are currently unavailable.

Research Lead: Cam Mustard

Status: Ongoing

External Funding: Mustard CA, Aronson K, Wilkins R. Mortality by occupation in Canada: a ten-year follow-up of a 15% sample of the 1991 census. CIHR: \$152,479; 2003-2006. Originally funded by CPHI: \$406,000; 2001-2004 (At Statistics Canada)

Longitudinal Administrative Database (LAD) Mortality Linkage

The Longitudinal Administrative Database (LAD) is a 20% sample of Canadian tax filers from 1982 to the present. It contains detailed information about income components, family relationships and geography. For some unknown percentage of the individuals in the database, information on living/dead status is captured. However, there is no cause-of-death information. Linkage of the LAD to the Canadian Mortality Database will improve coverage on living/dead status and add cause-of-death information to the file.

The objective of this project is to estimate the magnitude of mortality risk associated with labour market income and social welfare transfers over a minimum ten year follow-up period in a 20% sample of Canadian residents aged 30-79 at baseline. We will devote considerable attention to examining geographic differences across Canada in all-cause mortality risk and premature mortality risk, relative to the cumulative labour market income and social welfare transfers over a minimum ten year follow-up period. Descriptive analyses will examine all-cause mortality and premature mortality; a) by level of labour market income; b) by the dynamics of labour market income, and c) by the prevalence of income from social welfare transfers. We will examine the consistency of findings across geographic areas of the country. Finally, within the limits of the measures available to this study, risk estimates will be adjusted for evidence of health selection, where declines in health status may precede changes in income and which may separately, influence the risk of mortality.

Research Lead: Cam Mustard

Status: Ongoing

External Funding: Mustard CA, Tompa E, Manuel D. Canadian trends in socioeconomic inequalities in avoidable mortality:1985-2002. CIHR: \$180,000; 2005 - 2007.

Health and Labour Market Trajectories

Over the past four 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 Workplace Employee Survey (WES). Each of these surveys contains detailed information on health status, disability status, labour market entry, labour market exit and labour market trajectories. In this program we plan to estimate the longitudinal patterns of employment tenure in the Canadian labour force and develop new methods of measuring changes in working conditions. We propose to estimate the extent to which changes in employment tenure and working conditions are associated with subsequent changes in health status and health behaviours and which changes in health status and health behaviours are associated with subsequent changes in employment tenure and working conditions. We will also test the consistency of reporting across gender, and different measures of socioeconomic status (education, household income etc.).

The work under this project has to date concentrated on two measurement issues: the first has been how best to measure occupational position and discrepancies between occupational attainment and personal educational potential; and the second has been the measurement of change over time. We have found that people with high levels of education who worked in an occupation which required lower skill levels had an increased probability of declines in self-rated health over the four-year study period. In contrast, respondents with lower levels of education had similar probabilities of decline in self-rated health regardless of education attainment suggesting that other factors in the social environment may play a larger role in health declines within this educational group.

Research Lead: Cam Mustard

Status: Ongoing

Analytic Methods for Population-based Health and Health Care Resource Allocation

This three year research project concluded in 2004. We developed methods for assessing the contribution of primary and secondary prevention interventions by applying population-based analytic planning methods that estimate the absolute impact of interventions on population health. The objectives of the study were to estimate the impact of medical and non-medical interventions on population health status and to develop and validate population attributable risk methods as an analytic tool, based on the use of secondary sources of health data and information for health impact assessment.

We also wanted to determine how policy-makers use and interpret planning methods that integrate the health impact assessment of medical and non-medical interventions with consequences for health.

The program focused on the development of macro-simulation methods, integrating population exposure estimates and exposure-disease risk estimates to model estimated impacts on population health. Data sources have included national health interview surveys, administrative health care utilization data, empirical estimates of exposure-disease relationships and empirical estimates of health intervention efficacy.

We have made estimates of the impact of different clinical guideline standards for statin therapy in the prevention of cardiovascular disease on population mortality, have estimated the population-attributable risk of smoking at the regional level in Ontario and have examined methodological issues in population-attributable risk methods. In addition, we have simulated the consequences of clinically effective interventions on socio-economic health gradients in the Canadian population. The research team is developing plans for future work focused on the modeling of the incidence of non-insulin dependent diabetes in the Canadian population and the effects of a range of clinical interventions on disease burden.

Research Lead: Cam Mustard

Status: Completed

External Funding: Canadian Population Health Initiative to the Institute for Clinical Evaluative Sciences: \$605,000: June 2001 - Dec 2004 (Administered at ICES)

Social Inequalities in Mental Illnesses in the Canadian Community Health Survey Cycle 1.2

Using the 1996/97 Canadian National Population Health Survey (NPHS) the cost of depression and distress were estimated to be \$14.4 billion in 1996. The etiology of mental illnesses is complex and poorly understood. Work-related psychosocial factors are one set of factors implicated in the onset and progression of mental illnesses. The Canadian Community Health Survey (CCHS) Cycle 2.1 (n~30,000) is the first Canadian survey to measure several mental illnesses (depression, distress, mania, panic disorder, social phobia, substance abuse, eating disorders, agoraphobia), work stressors, non-work social support and other socio-demographic variables at the national level. Using the CCHS, this study investigates the association between mental illnesses and work characteristics across occupational/income/educational categories. Although cross-sectional, it will shed some light on the possible factors that link social position to mental illnesses.

Research Lead: Selahadin Ibrahim

Status: Ongoing

Knowledge Transfer & Exchange in Population Workforce Studies

Project Title: Linking with Policymakers

Introduction: One of the goals of KTE is to find effective ways to make IWH research evidence available to inform policy development. Decision-makers in the policy field include insurers, provincial and federal ministries of labour and health. KTE works closely with the Office of the President in this work.

Two bodies of work were ready for dissemination in 2004: findings from the work on youth injury and a literature review on experience rating programs and occupational health and safety regulatory practices. While the research on youth injury is ongoing, the topic has been identified by many stakeholders as a priority, and dissemination efforts to date have attempted to respond to this need.

Objectives:

- ▶ To develop messages and strategies for maturing research.
- ▶ To identify the key contacts in the policy audiences for each.
- ▶ To continue to support KTE initiatives with ongoing communications/media relations initiatives.
- ▶ To support policy initiatives led from the President's Office.

Messages:

Young workers: The first month on the job poses the highest risk of injury for all new workers, including young workers.

Effectiveness of experience rating: There is moderate evidence that the degree of experience rating reduces the frequency and/or severity of injuries.

Occupational health and safety (OHS) regulatory practices: When orders and fines are imposed on a firm as the result of an inspection, the frequency and severity of injuries are reduced.

Audiences: Policymakers including Ministry of Labour (MOL), WSIB, Health and Safety Associations, other Worker Compensation Boards.

Summary of Accomplishments:

Young Workers: The KTE work had primarily a communications focus (supporting Curtis Breslin in presentation development) as well as ongoing response to various stakeholders interested in the research findings to support their program or policy development. These include requests from the IAPA, MOL, and WSIB. Findings were used to inform the new youth injury program being developed at IAPA.

Effectiveness of Experience Rating and Occupational Health and Safety Regulatory Practices: The Office of the President arranged briefings with MOL staff and senior management of WSIB. Representatives from Ministries of Labour across Canada reported that the findings from this review have proved valuable in current policy/program developments.

Other Activities: Disseminated findings of P. Smith, C. Mustard paper on injury rates through media release which generated a number of interviews and media stories.

Team: Office of President, Kathy Knowles Chapeskie, Robin Kells, Jane Brenneman Gibson, Melissa Cohen, Emile Tompa.

Workplace Studies Program

The goals of the workplace studies program are to understand the determinants of workplace health and well-being and to demonstrate effective methods to improve outcomes in specific work settings. In the course of the past year there have been four key staff developments with important consequences for the structure of this Program. Dr. Donald Cole (Senior Scientist) has reduced his time commitment to the Institute in order to assume, as a newly appointed tenured member of faculty, more teaching responsibilities in the Department of Public Health Sciences at the University of Toronto. Dr. Cole led the Workplace Intervention Studies theme within this program. Dr. Harry Shannon's longstanding position as a Senior Scientist has been converted to an Adjunct Scientist appointment as he focuses his attention increasingly on related developments at McMaster University. Dr. Shannon led the Work Organization theme within the program. Dr. Gail Hepburn, a full time organizational psychologist recruited to the Institute in 2000 from Queen's University, left for an academic appointment in Alberta in June 2004. Finally, Dr. Dov Zohar (Visiting Scientist) will complete his two year secondment from his home institution in Israel in the summer of 2005. As a result of these changes, the two themes (Workplace Intervention Studies and Work Organization) that previously comprised this Program have been amalgamated under the provisionally consolidated theme "Workplace Studies". In the course of the coming year the members of the Program will review the portfolio of work, assess elements for termination and/or addition and develop a defined thematic structure for the program. The developments will be led by Dr. Philip Bigelow, who joined the Institute in the summer of 2004 and Dr. Ellen MacEachen, the current Mustard Post-Doctoral Fellow at the Institute. Together they have assumed responsibility for joint chairing of this Program. Dr. John Frank will also play a supporting role in the research development of the Program. We anticipate that Dr. MacEachen will officially join the scientific staff at the end of her Mustard Fellowship.

Workplace Studies

The range of research topics included in the theme is very broad and the teams that work on them frequently include members beyond the Institute. For example, the continuing Star-SONG work has members, in addition to those from IWH staff, from Mount Sinai Hospital, the Liberty Mutual Research Centre for Health and Safety, McMaster University, University of Texas, University of Waterloo University of Regina and York University.

The character of the work within the new theme may be described in the following way. Some projects are directed essentially at understanding processes that have impact on health and safety in the workplace (e.g., the way in which informal interests of managers interact with the legal and policy environment in ‘new economy’ workplaces, the impact of transformational leadership on musculoskeletal disorders and injuries, the behaviour of not-for-profit organizations in respect of occupational health and safety). Several projects focus on the *evaluation of the effectiveness* of particular workplace interventions including preventing RSI in the newspaper industry, a project which is highlighted in this report. Other evaluation projects include cost-effectiveness of overhead patient lifting devices in hospitals, effectiveness of participatory ergonomics systems, and effectiveness of systems of inspection in preventing musculoskeletal disorders. Others are *systematic reviews* of entire literatures (e.g., again, participatory ergonomics, occupational health and safety management systems). This includes the majority of the work which will be undertaken through the auspices of the four year pilot funding provided by WSIB for the Institute to focus on systematic reviews of the workplace prevention literature. The results of two of these reviews are highlighted here. Yet other projects focus on *methodology* (e.g., development of appropriate methods of economic evaluation of workplace interventions); and one project concerns the implementability and evaluation of an entire organizational approach to health and safety at work – the ‘safety climate’ and its rolling out from individuals forms/plants to entire industries.

The main audiences for the research reported here are workplace parties such as consultants and ergonomists working for health & safety associations, management and labour, and ergonomists and kinesiologists in general. By combining research evidence with the experience of labour and management, we hope to maximize the relevance, timeliness and implementability of the research.

Project Titles:

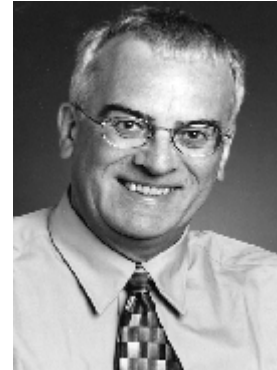
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Systematic Prevention Reviews

The Institute has recently been actively building relationships with Prevention System agencies and organizations in Ontario. Through these partnerships, we often hear that potential research users want more evidence about the effectiveness of interventions for protecting workers' health and that, even when adequate research evidence exists, it is often hard to access, difficult to understand and is not always presented in language and formats suited to non-scientific audiences.

In response, IWH has established a group dedicated to performing systematic reviews of relevant evidence from research studies in the area of workplace injury and illness prevention. This initiative has four years of pilot funding support from the Workplace Safety and Insurance Board (WSIB). The Institute will be consulting regularly with workplace parties to identify priority topics in workplace health protection that might be suitable for review. Our systematic review team also monitors developments in the international research literature on workplace health protection looking for further timely and relevant topics for review. A specialist team of researchers then identifies all the potentially relevant literature, assesses its quality and empirical reliability, and synthesizes and summarizes the evidence in ways that make it accessible to non-scientific readerships and audiences.



Anthony Culyer

In 2004 we completed a review on the effectiveness of participatory ergonomics and a review on occupational health and safety management systems. These topics were developed in consultation with Prevention System stakeholders. A brief description of each is presented below.

Occupational Health & Safety Management Systems Systematic Review

Occupational health and safety management systems (OHSMSs) have developed considerably over the last 20 years and are now quite prevalent. There is, however, no common understanding in the literature of what is meant by an "OHSMS" and little is known about the effectiveness of these systems on employee health and safety and on relevant economic outcomes. A systematic review of the literature was undertaken to see what existing research had found about the effectiveness of OHSMSs.

For the purposes of this review the team developed the following definition of an OHSMS:

An OHSMS is the integrated set of organizational elements involved in the continuous cycle of planning, implementation, evaluation, and continual improvement, directed toward the abatement of occupational hazards in the workplace. Such elements include, but are not limited to, organizations' OHS-relevant policies, goals and objectives, decision-making structures and practices, technical resources, accountability structures and practices, communication practices, hazard identification practices, training practices, hazard controls, quality assurance practices, evaluation practices, and organizational learning practices.



Lynda Robson

The review team set out to investigate three key questions:

- ▶ the relative effectiveness of mandatory and voluntary OHSMSs on employee health and safety and on associated economic outcomes;
- ▶ the facilitators and barriers to the adoption and the effectiveness of OHSMSs;
- ▶ the evidence on the cost-effectiveness of OHSMSs.

Results: The review focused on the published, peer-reviewed literature in order to concentrate on high-quality studies. Of the 4807 titles and abstracts reviewed only nine met the pre-established relevance and study quality criteria. Moreover, these proved to be of only a “moderate” quality. There were also reasons to suspect that publication bias might account for the consistently positive findings in these studies.

Effectiveness

Voluntary OHSMSs

Four quality studies involving voluntary OHSMS interventions reported positive findings. While the outcomes measured varied among the studies, the findings included increased implementation over time, better safety climates, increased hazard reporting by employees, more organizational action taken on occupational and health issues and decreased workers' compensation premiums. It is likely that the size of the observed declines in premium rates (23 and 52 percent) would be considered as significant by stakeholders.

Mandatory OHSMSs

All five studies involving mandatory OHSMSs reported positive findings. Some found increased OHSMS implementation over time. Others found that an OHSMS improved how workers perceived their physical and psychosocial working environments. It also appeared to increase workers' participation in health and safety activities, and led to reduced rates of lost-time injury and increases in productivity. It is likely that the size of the observed changes in OHSMS implementation and injury rate would be considered as significant by stakeholders.

Barriers/Facilitators & Cost Effectiveness

No studies were found comparing voluntary and mandatory OHSMS interventions directly. No good quality studies were found looking at facilitators of and barriers to OHSMS implementation or effectiveness, nor did we find studies estimating the cost of implementing OHSMSs.

Impact: Many countries, including Canada, are in the process of developing management standards for occupational health and safety, so a better understanding of the impact of these systems is timely. This synthesis of the best evidence available showed consistently positive effects in workplaces for voluntary and mandatory OHSMSs. However, the absolute number of studies producing these results was small, and the quality of the studies was not high. There is uncertainty about the applicability of these (overseas) results to Canadian workplaces. As a result the team concluded that there is insufficient evidence in the published, peer-reviewed literature on the effectiveness of OHSMSs to make firm recommendations either for or against OHSMSs. This is not to say that such systems are ineffective or undesirable, but rather to caution against excessive enthusiasm on the basis of existing research.

The review identified a number of gaps in the research. The most important was the lack of research whose explicit purpose was to study the effectiveness of voluntary and mandatory OHSMSs on employee health and safety and economic outcomes. The research designs used in the selected studies were not rigorous enough to produce great confidence in the findings. This lack of high-quality studies may reflect, at least in part, how difficult it is to carry out applied research in workplaces.

The review team recommends more support for:

- ▶ studies examining the effectiveness or cost-effectiveness of OHSMSs;
- ▶ research aimed at identifying facilitators of and barriers to OHSMS implementation and effectiveness.

The usefulness of research in this field would be greatly enhanced if stronger research designs were employed. The review team also recommends that future reviewers of OHSMSs should seek evidence from sources outside the peer-reviewed, published literature.

Researchers: Lynda Robson (Co-Principal Investigator), Tony Culyer (Co-Principal Investigator), Amber Bielecky, Philip Bigelow, Judy Clarke, Kim Cullen, Colette Severin, Emma Irvin, Quenby Mahood, Doreen Day

Stakeholder Involvement in Project Development: Stakeholders indicated an interest in receiving results of a systematic review of the evidence in this field.

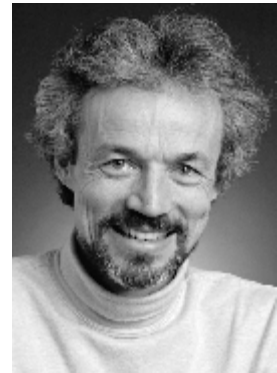
Publications:

Robson LS, Clarke J, Cullen K, Bielecky A, Severin C, Bigelow P, Irvin E, Culyer AJ, Mahood Q. The effectiveness of occupational health and safety management systems: A systematic review. Toronto: Institute for Work & Health; 2004. (Project #215)

Summary Report can be found at: http://www.iwh.on.ca/products/images/IWH_OHSMS.pdf

Participatory Ergonomics Effectiveness Systematic Review

Overview: Work-related musculoskeletal disorders (MSD) are a major source of illness and disability throughout the industrialized world. Even though many of these conditions may be preventable, they continue to have widespread negative effects on workers, employers and insurers. There is evidence that inappropriate design of workplaces and work processes contributes significantly to the development and chronicity of common MSDs. By improving ergonomic aspects of work and workplaces, it may be possible to prevent or reduce these disorders and increase productivity. Since the early 1990s, workplace participatory ergonomics (PE) interventions have received a lot of attention and there have been an increasing number of studies in the scientific literature that examine PE approaches. While the prerequisites and benefits of PE programs have previously been extensively described, a synthesis of the evidence of the effectiveness of these interventions, particularly with respect to health outcomes, had not been carried.



Donald Cole

Our objectives in conducting this systematic review were:

- ▶ to provide a comprehensive summary of the effectiveness of workplace-based PE interventions in improving health outcomes by reviewing the quantitative literature; and
- ▶ to assess the methodological strengths and weakness of the existing quantitative studies, and provide recommendations to guide future research initiatives.

Results: More than 400 titles and abstracts were reviewed, of which our systematic review found ten that met our criteria for relevance and quality. Nine of these reported that PE interventions had positive effects on health outcomes. One study concluded that no change in workers' health outcomes could be attributed to the PE intervention. The studies contained a wide spectrum of health outcome measures. They described a variety of ergonomic changes that were identified and implemented as a result of the PE intervention. Most of the changes focused on improving the physical design of equipment and workplaces though some involved changing job tasks, job teams or how work was organized. Others involved formulating new policies or specific health and safety training.

Despite research methods and reporting that differed widely across the studies, the review team assigned a level of "partial evidence" in favour of PE interventions as a way to improve health outcomes. There was partial evidence that:

- ▶ PE interventions had a small, positive impact on musculoskeletal symptoms.
- ▶ PE interventions had a positive impact in reducing injuries and workers' compensation claims. (The size of this impact varied and should be characterized more clearly in future research.)
- ▶ PE interventions had a positive impact on lost days from work or sickness absence. (Again, the size of this effect requires more precise definition).

A number of key facilitators and barriers to the participatory ergonomic process were noted:

Facilitators included: active participation and acceptance of the team members by workers, senior and middle management, and union representatives (where applicable); the availability of an ergonomic expert, as either an active team member or an external advisor; access to adequate resources.

Barriers included: lack of acceptance and resources; instability within the workplace or negative economic conditions (such as recession) affecting the specific industry sector.

Impact: The generally positive findings which emerged from this review support the use of PE interventions. Given the evidence linking workplace exposures to the burden of MSD in working populations, we should continue to practice methods proven to reduce the burden. We accordingly recommend that PE interventions be implemented in workplaces as one means of reducing the burden of work-related MSDs among Canadian workers.

The methodological strengths and weaknesses of the existing literature on PE interventions and their relationship to health outcomes were examined in detail. This allowed us to develop a set of recommendations aimed at improving the design and evaluation of future research.

Researchers: Donald Cole, Irina Rivilis (Co-ordinator), Dwayne Van Eerd, Kim Cullen, Emma Irvin, Quenby Mahood, Dee Kramer

Stakeholder Involvement in Project Development: Jonathan Tyson of the Pulp and Paper Health & Safety Association, Dave Robertson, Canadian Auto Workers, and Richard Wells from the University of Waterloo.

Presentations:

Cole DC, Rivilis I, Cullen K, Van Eerd D, Tyson J, Irvin E, Kramer D, Mahood Q. Workplace-based participatory ergonomic interventions: A systematic review of the quantitative literature on effectiveness. (Project #950)

Rivilis I, Cole DC, Frazer M, Kerr M, Ibrahim S, Wells R. Evaluating the effectiveness of a participatory ergonomic intervention aimed at improving musculoskeletal health. Nov 2004; Toronto, ON: WSIB-RAC, Solutions for Workplace Change Conference. (Project #950)

Cullen K, Van Eerd D, Cole DC, Rivilis I, Irvin E, Kramer D, Tyson J, Mahood Q. Workplace-based participatory ergonomic interventions: A systematic review of the quantitative literature on effectiveness. May 2005; Vancouver, BC: Canadian Association for Research on Work and Health (CARWH). (Project #950)

Publications:

Cole DC, Rivilis I, Van Eerd D, Cullen K, Irvin E, Kramer D. Effectiveness of participatory ergonomic interventions, a systematic review. Toronto: Institute for Work & Health; 2004. (Project #950)

Summary Report can be found at: http://www.iwh.on.ca/products/images/IWH_partergo_sum_web.pdf

WMSD: Evaluating Interventions Among Office Workers

Overview: Workplace parties have expressed considerable interest in evidence of effectiveness of workplace programs designed to prevent and limit work-related musculoskeletal disorders of the neck and upper limb (WMSD). In 1995 IWH researchers were invited by the workplace parties in a large Toronto newspaper to undertake research to assist them in addressing an increasing incidence of repetitive strain injuries and workers' compensation claims. In conducting this research we sought to capture both the breadth of change occurring at the newspaper and to focus on certain aspects of work with particular observational, methodological and analytical tools. We employed a mixed methods longitudinal, evaluation design to improve the strength and validity of our findings. Each component of the evaluation included methods and measures to capture both intermediate and longer term outcomes associated with the strategies developed by the workplace parties to control WMSD.

The final phase of this multi-year collaborative project with the Star-SONG workplace partners aims to assess the impact of this joint labour-management directed program on primary, secondary and tertiary prevention of WMSD among Star office workers.

However our over all goals also included:

- ▶ evaluating an enhanced workplace surveillance system for risk factors and symptoms of WMSD.
- ▶ monitoring baseline levels of symptoms, function, work performance limitations and self-efficacy among those reporting WMSD to the occupational health centre and receiving worksite interventions and clinical treatments funded by the workplace.
- ▶ modelling changes in rates of sickness absence, rates of health care utilization and associated costs for WMSD across company organizational units and across groups of employees reporting different levels of risk factors.

We developed intensive physical exposure and work disability measures on subsets of the workforce: task diaries, live observations, video recording, and surface EMG measures for the former; work limitation measures among employees attending the on-site occupational health unit for the latter.

We also used active surveillance strategies to better document prevalence of symptoms and risk factors in the workforce and work limitations among those seeking care over time and the use of standardized pain and health-related quality of life questionnaires to improve understanding of the clinical course of WMSD in the workplace. These data became part of a computerized database through which trends in symptoms and risk factors could be analyzed and fed back to the newspapers RSI Committee.

We focused on one departmental initiative as both a physical change, with new workstations, and a work organization change, with new cross-functional teams being formed. A cross-sectional survey of employees undergoing reorganization and job-matched participants from other sections not undergoing the organizational change was conducted just before the change and compared with results in the follow-up survey of the entire workforce.

A workforce-wide follow-up cross-sectional survey conducted in 2001 was a key component to permit assessment of changes in self-reported measures of knowledge, WMSD risk factors, symptoms, and disability from before to after RSI Program implementation. Administrative data trend analysis permitted comparisons of injury incidence, health care utilization, and associated costs across three periods: prior to research activity (1992-1994); during etiological research activity (1995-1997); and during the RSI Program implementation phase (1998-2000). Finally, qualitative documentation and analysis sought to document participants' experiences of workplace organizational changes and clarify the nature of RSI

Program interventions. Participation in joint labour-management RSI Committee meetings, solicitation and review of key documents, key informant interviews, and individual participant interviews were used to better understand implementation, note unintended program effects and interpret the quantitative results.

Results: An important aim was to document the interventions undertaken by workplace parties. Through participation in RSI Committee meetings we observed the development of an innovative Ergonomic Policy with combined primary and secondary prevention components and hypothesized that implementation might result in reduction in WMSD risk factors and improvement of symptoms. Over five years, 1091 Ergonomic Reports/Workstation Assessments were completed by over 40 trained assessors, proactively reaching 881 employees as part of an active hazard and symptom surveillance program. The latter included 138 employees that were not reached in any of our survey activity, although 56% (459) of Q4 2001 survey respondents did report workstation assessments. The surveillance system met a number of the important criteria for such systems, including utility through a wide range of improvements either directly made, planned or improved as a result of these assessments.

Special RSI/WMSD training sessions were held in all departments midway through this study, with 58% of Q4 2001 survey respondents remembering these sessions and another 11% indicating that they received training on RSI/WMSD as part of their orientation. Further, 72% of Q4 respondents with pain reported being engaged in a wide variety of active efforts to respond to pain, including: doing exercises (65%), making posture changes (59%), seeing a health practitioner (57%), reporting their pain to the workplace (40%), educating themselves (38%) and using relaxation techniques (31%).

From administrative data, we noted substantial increases in health care utilization, particularly physiotherapy services promoted by the RSI Program. Over time, these physiotherapy services were reaching employees with WMSD earlier than had been the norm prior to their introduction. MSK-related drug utilization and particularly costs of NSAIDs also increased through the intervention period, though we had hoped to demonstrate reductions in costs over time. This hoped for reduction was observed in workers' compensation claim-related absence (to zero new lost-time claims in 2001) but nowhere else due to a combination of meeting previously unmet needs for physiotherapy and escalating costs associated with changing drug availability and prescribing patterns.

Interviews and survey data gave us a clear sense of considerable changes in awareness, knowledge and attitudes towards RSI/WMSD during the period of research. Ninety percent of Q4 2001 survey respondents felt that The Toronto Star RSI Program had completely to moderately ensured that all employees were informed about RSIs. Compared to our earlier 1996 survey we observed important changes in knowledge on RSI/WMSD. Further, 85% of Q4 respondents completely to moderately agreed that the RSI Program "promoted continuous improvement in the technology and management practices to control exposure to workplace risk factors that can cause RSI" and 74% agreed or strongly agreed (vs. 64% in 1996) that Toronto Star management were supportive in dealing with RSI. Nevertheless, the proportion of workers who indicated that their immediate supervisor was aware and concerned about RSI and the proportion of respondents who disagreed that "I can take breaks when I want to" was unchanged from 1997 to 2001 (28%). The interviews helped provide explanations where little change occurred. As one manager said, "productivity is really important here. You have to be always available on your phone. And all their incentives [are] based on how much you are producing." Similarly, changes were not as apparent in proactive technology choices and job design as RSI Committee members and researchers had hoped for, due to the limited mandate of the RSI Committee and a range of sectoral, company and departmental level constraints.

This theme recurred in our assessment of changes in physical and psychological risk factors for WMSD and WMSD symptoms among employees who underwent a move and reorganization process into teams. Among a small group of predominantly advertising employees undergoing direct measures, we noted reduced extreme mouse positions (horizontal and vertical), fewer monitors to the side with less head rotation, and fewer extreme head tilts, the last despite monitor heights being generally higher. Among the psychosocial factors, fewer task variables changed than expected, though increases in keyboard time and post-reorganization mousing time were positively associated with changes in employee pain. Informal information collected while contacting workers during the intensive exposure and formal interviews with those in teams and not in teams suggested that, in practice, employees' jobs had changed little except for increased use of computers through introduction of new software.

The RSI Program was associated with some positive changes in self-reported exposures to physical and psychological risk factors for WMSD and a concomitant reduction in the self-reported period severity but not prevalence of WMSD-related symptoms. Overall the proportion reporting equipment inside a preferred location increased between 1996 and 2001 from 56% to 72% for the keyboard and 17% to 61% for the mouse. Increased use of computer (27%) and addition of mouse (36%), and increased mean hours of use of keyboard (extra 40 min.) and mouse (extra 56 min.) among users was also reported. Time sitting more than two hours continuously increased by 9% to 33% of 2001 respondents. Improved was social support at work (not RSI related) but unchanged were other risk factors including psychological workload, decision latitude, the extent to which employees' ideas were listened to and the extent of employees' participation in decision making. Sixty-eight percent of 2001 survey respondents reported having pain/other symptoms in the last year, similar to 1996 respondents. Forty percent of these reported their pain to the workplace, particularly if they considered pain a problem or had greater disability and poorer work function scores.

Among a cohort that participated in the 1996 and 2001 surveys more got better than worse, even though those who remained in the cohort were worse at baseline than those that did not continue. They had fewer wrist/hand (-6%), more shoulder (+7%), and more neck (+12%) pain. In 2001, the majority reported that their pain was aggravated by work (yes, 57%; to some extent, 34%).

In path analyses on the cohort, RSI training and job task changes were both associated with significant ($p < 0.1$) increases in decision latitude and reductions in disability, after taking account of demographic confounders (gender and age). Perhaps training gave employees some support to adjust their workload or work rhythm, taking breaks as needed and assuming more control over the process of their work.

Of additional interest is that men were more likely than women to report decreases in decision latitude but increases in management support for RSI and persistence in use of poorer types of telephones (e.g., hand held rather than receiver head phone). Nevertheless, it remains hard to interpret such change over time in causal terms, with post-hoc explanations taking root to understand the relationships. At least, in the way we carried out modelling, different kinds of variables along the path are not conflated, nor can confounding by the usual demographic variables be a big problem. Such difficulty teasing out both intervention effects and directions in causality are unfortunately related to the complexity of relationships and practices in the workplace.

Impact: In our discussion of these results with labour and management of the company, they clearly articulated the different workplace pressures. During the period, the business thrived despite competitive pressures and major technological and organizational change occurred. In many ways, the fact that RSI/WMSD got marginally better and not worse is a testament to the commitment of the workplace parties, the extent to which they did implement the Ergonomic Policy, and their understanding that dealing with RSI/WMSD is a long term proposition. Some RSI Committee members see the need to not only

maintain their activities but also push upstream into influencing technology change and job design.

Researchers: Donald Cole (Principal Investigator), Sheilah Hogg-Johnson, Dorcas Beaton, Harry Shannon, Sue Ferrier (Co-ordinator), Michael Swift, Hyunmi Lee, Peter Subrata, Carol Kennedy, Dwayne Van Eerd, Paul Bryan, M. Manno (Mount Sinai Hospital), M. Polanyi (University of Regina), R. Wells (University of Waterloo), A. Moore (York University) plus Adjunct Scientist Consultants B. Amick (University of Texas) and G. Pransky (Liberty Mutual Research Center for Health & Safety).

Stakeholder Involvement: Toronto Star and Southern Ontario Newspaper Guild extensively involved in on-site work and intervention formulation and implementation.

Project Status: Ongoing in 2005.

External Funding: Funding from National Institutes of Health/NIOSH \$393,354 U.S. (1999-2002) The Toronto Star and SONG jointly contributed \$118,062.

Presentations:

Moore A, Wells R, Van Eerd D, Banina M, Cole DC, Hogg-Johnson S. Poster: Separation and summation of EMG recordings by task using video records. July 2003; International Society of BioMechanics.

Lee H, Hogg-Johnson S, Cole DC. The trends of MSK-related drug utilization using administrative data: one way of the evaluation of workplace research/interventions (1992 to 2001). June 2003; Halifax, NS: Canadian Society for Epidemiology and Biostatistics Biennial Meeting.

Cole DC. Individual factors and musculoskeletal disorders. May 2003; Columbus, Ohio: The "State-of-the-Art Research (STAR) Symposium: Perspectives on musculoskeletal disorder causation and control."

Cole DC, Polanyi MFP, and the Worksite Upper Extremity Research Group. Collaborative workplace research on repetitive strain injury (RSI). Mar 2003; Toronto, ON: Work, Stress and Health Work.

Cole, DC. et al. Update on RSI at The Toronto Star. Nov 2002; Toronto, ON: Southern Ontario Newspapers Guild Executive and Toronto Star Management meeting.

Publications:

Polanyi MF, Cole DC, Ferrier S, Facey M, and the Worksite Upper Extremity Research Group. (2005) Paddling upstream: a contextual analysis of a worksite intervention to reduce upper limb musculoskeletal disorders. (IWH Working Paper #192) *Applied Ergonomics* 2005; 36: 231-239.

Beech-Hawley L, Wells R, Cole DC, and the Worksite Upper Extremity Group. A multi-method approach to assessing deadlines and workload variation among newspaper workers. *Work* 2004; 23(1): 43-58.

Polanyi MF, Cole DC. (2003) Towards research-informed multi-stakeholder action on complex workplace health issues: Reflections on two WMSD interventions. In: T.J. Sullivan & J.W. Frank (Eds) *Preventing Work-Related Disability: New Views*. London, England: Taylor & Francis, pp 125-142.

Swift M, Cole DC, Hogg-Johnson S. (2003) Development of an ergonomic assessment workplace monitoring program. (IWH Working Paper #245)

Cole DC, Wells RP, and the Worksite Upper Extremity Research Group. Interventions for musculoskeletal disorders in computer-intense office work: a framework for evaluation. *Work & Stress* 2002; 16(2):95-106.

Cole DC, Manno M, Beaton DE, Swift M. Transitions in self-reported musculoskeletal pain and interference with activities among newspaper workers. *Journal of Occupational Rehabilitation* 2002; 12(3):163-174.

Workplace Musculoskeletal Health Intervention Research Program

The burden of workplace-associated injury, particularly musculoskeletal disorders, has been attributed to both the physical and the social characteristics of work settings. Differences in burden occur both across jobs/sectors and across genders. Workplace parties (union and management representatives) and insurers have urged researchers to work with them on interventions to reduce this burden. Some of the major perceived barriers to the implementation of ergonomics programs or to healthier organizational design are a lack of interest in research evidence or, among those who are interested, a lack of sufficient rigorous and persuasive intervention research.

The WHIR program was originally designed to improve understanding of the factors influencing the success of workplace interventions for reducing the burden of musculoskeletal disorders through systematic evaluations of the effectiveness of diverse workplace interventions. These evaluations were to be designed with workplace parties and tailored to their specific needs and interests. Long-term follow-up was planned in workplaces working with system partners or participating in assessments or demonstration projects with eventual comparisons across intervention experience being anticipated.

Following a pilot study, for which there was an extremely limited response to recruitment of workplaces, we modified our original design and are now addressing these issues through a suite of smaller projects partnering with several Health and Safety Associations and other partners, and with those workplaces willing to share information on interventions underway or to participate in pro-active workplace intervention research. The newly established Centre of Research Expertise - MSD (CRE- MSD) at the University of Waterloo has provided seed funding for these smaller projects. A peer reviewed grant proposal will be developed with other workplace partners for a larger project on the role of work disability management programs.

Research Lead: Donald Cole

Status: Ongoing

Preventing Occupational Injury, Illness and Disability: What Works and How Do We Know? – A Prevention Discussion Paper for Ontario's Occupational Health and Safety Stakeholders

Current dialogue between the IWH, the WSIB and the HSAs in Ontario confirms a widespread commitment to prevention of adverse occupational health outcomes. However, (and to oversimplify somewhat) there is rather limited knowledge among the staff in these organizations of the sorts of preventive measures (primary and secondary) there are, whether there is scientific evidence concerning the extent to which commonly used occupational preventive measures “work” or “don’t work” and how to access and evaluate the quality of that evidence.

This “discussion paper” puts forth the following ideas or themes:

- ▶ An introduction to an emerging ‘theme’ in OH&S - the importance of integrated prevention efforts that utilize a spectrum of approaches with a variety of stakeholders that target both primary and secondary prevention initiatives.
- ▶ The need to build on the strengths of traditional primary and secondary prevention strategies, merging these to create a more effective strategy.
- ▶ Many factors contribute to workplace injury, illness and disability, so "multiple solutions, operating in synergy" will be necessary.
- ▶ Before anyone can agree on which prevention strategies work and which do not, there must be a shared understanding of what constitutes "effectiveness".
- ▶ Any useful prevention strategy requires building relationships between researchers and stakeholders. This will help produce "relevant research that is readily taken up and applied to improve occupational health and safety".

A summary of the paper can be found at: <http://www.iwh.on.ca/archive/pdfs/Prevention.pdf>

Research Lead: John Frank

Status: Completed

Methodologies for the Economic Evaluation of Workplace Interventions

Workplace parties have expressed ongoing interest in the ‘business case’ for workplace interventions to reduce the burden of injury and illness. In addition, policy-makers have solicited literature reviews and sought a greater emphasis on economic evaluation. The focus of this project will be to develop a coherent framework and enhanced methods for economic evaluation of workplace interventions for health and safety. An environmental scan/methods paper will be undertaken through work on project #228 (Evaluation and Sustainability of Ergonomic Interventions). This project will be used to develop capacity through internal and external team building with plans to hold an international workshop in 2006 on methods and application of economic evaluation as applied to workplace interventions.

Research Lead: Emile Tompa

Status: Ongoing

Evaluation and Sustainability of Ergonomic Interventions

Ergonomic programs are being introduced and recommended as a prevention strategy for musculoskeletal disorders. The purpose of this project is to increase our understanding of the benefits of workplace participatory ergonomic intervention prevention programs for work-related musculoskeletal disorders. We have recruited four sets of matched lines/plants from our previous studies. In each intervention plant we formed and facilitated a participatory ergonomics team over a period of 10-20 months. We have arranged to continue monitoring these locations. We have a wide range of measures including questionnaires and, in the intervention plants, observations, video analysis, interviews and field notes. Organizations need evaluation tools and ways of sustaining such ergonomic programs. Through our earlier work, we have developed a framework and measures for assessing the process and outcomes of the intervention. The proposed next phase of the research program will continue the monitoring the workplace after we withdraw from facilitating the team, thus assessing the sustainability of the ergonomic change team and its activities.

Research Leads: Donald Cole, Emile Tompa

Status: Ongoing

External Funding: Wells R, Cole DC, Tompa E, Naqvi S, Frazer M, Theberge N. Evaluation and sustainability of ergonomic interventions. WSIB: \$149,175; 2004-2006 (Administered at University of Waterloo)

Evaluation of CSST Inspector Mandated Interventions for WMSD in Quebec Priority Sector Workplaces

The evidence for the effectiveness of workplace interventions for reduction of work-related musculoskeletal disorders (WMSD) burden in workplaces remains inconclusive. A recent systematic review conducted at IWH found that inspector orders and enforcement could reduce injuries. One randomized controlled trial of a brief inspector-led ergonomic intervention has been conducted in Australia but its generalizability to other jurisdictions and its impact on subsequent incidence of WMSD and lost-time costs remains unevaluated. The Quebec Health and Safety Council (CSST) has asked the Institute for Research on Safety & Health at Work (IRSST) to evaluate the impact of their inspector led response to new cases of WMSD or to poor WMSD incidence profiles based on workers' compensation lost time data. IWH has been asked to cooperate in the research to promote sharing of experiences with workplace intervention evaluations for WMSD.

Research Lead: Donald Cole

Status: Ongoing

Safety Climate: Measurement, Intervention, and Evaluation in a Manufacturing Setting

Safety precautions often entail a modest but immediate cost in terms of slower pace or personal discomfort. When the likelihood of injury is small, the expected utility of unsafe behaviour may exceed that of safe behaviour for both workers and management. Safety 'climate' refers to employees' shared understanding of their organization's safety policies, procedures, and practices and, ultimately, their understanding of safety as a priority in their organization. Occupational health and safety research has been dominated by medical and engineering approaches although social and behavioural factors contribute substantially to occupational injuries and disorders. A positive safety climate is one factor capable of tipping the balance in favour of safe behaviour by creating an environment where safe behaviour is considered a high priority. If first-line supervisors and workers realize that management attends to safety performance as much as to speed and quality, their expected utilities and safety performance should change accordingly. The project will involve the design, implementation and evaluation of safety climate intervention workshops with supervisory-level employees. The research team will collect questionnaire survey data, conduct observations of the behavioural safety of work units, as well as collect reports of minor injuries requiring first aid.

Research Lead: Gail Hepburn

Status: Discontinued due to management change at the plant.

Nova Scotia Safety Climate

Safety climate research suggests ways of integrating several bodies of literature into a comprehensive assessment and intervention program. Building on the commitment and active involvement of Nova Scotia's WCB, this project will include gradual program development (plant-level to industry-level to province-level) over the course of three years. The short-term objective is an intensive safety-climate intervention in firms targeted as a result of their poor safety record (validation phase). The longer-term objective is to develop and implement industry-level monitoring and intervention strategy based on the safety-climate framework.

Research Lead: Dov Zohar

Status: Ongoing

External Funding: WCB - Nova Scotia and Trenton Works

Measuring Stress at Work for Prevention, Reduction or Control

An apparent paradox of modern work cultures is that while workers have become increasing repositories of advanced intellectual capital (in contrast to the mainly manual skills of the past) they have also increasingly fallen victim to stress-related conditions originating in the workplace. Current understanding of the determinants of stress-related disease underlines the breadth of their sources and the many pathways through which they can have their impact. This project measured key aspects of stress at work, identifying the stressors and their consequences for health-related quality of life. We developed a set of tools to measure various aspects of work stress and related issues which would allow workplaces to benchmark their organizations relative to Canadian norms.

An employee questionnaire containing questions from the National Population Health Survey (NPHS) was developed; these were intended to measure work-related stressors, other stressors, mental distress, job satisfaction, and health care use. Over 4600 employees were surveyed over a 2 ½ year period by occupational medicine staff at the large company. Data were analyzed by comparing actual stress indicator values for groups of employees (i.e., departments, genders, age groups, salary/hourly groups) against predicted values. Predicted values were determined from NPHS-based regression equations that regressed indicator values on gender, age group, education, and job-based socio-economic group. Data collected from one open-ended question was summarized according to themes in its content.

We found most indicators for the organization were below the Canadian norm. Psychological distress was furthest below the norm, with psychological demands, general health and chronic stressors also considerably below the norm. The pattern was generally the same across sub-groups. Among responses to the open-ended question, “too much work/insufficient staff” was most frequent and “problems with leadership or supervisor” was next most frequent. These results were presented to the senior management and occupational medicine teams.

Research Leads: Harry Shannon, Lynda Robson

Status: Completed

Healthy Workplace Scorecard for Hospitals

Inspired by the popularity of performance scorecards for managing organizations and guiding them towards new goals, this project aimed to develop an analogous tool for occupational health and safety. This is being developed for the health care sector initially, using a survey instrument as the source of scorecard indicators.

The content of the survey instrument was developed based on the quality of work life issues raised in recent literature reviews for the health care sector, the healthy workplace performance measurement framework, and feedback from the St. Joseph’s Health Centre (SJHC) Quality of Work Life Committee.

The survey was administered by a third-party organization, which used three mailings to all SJHC employees. The participation rate in the survey was 40%. Both a report document and several presentations were delivered to the organization. Quantitative results were reported back to the organization using occupational and department sub-groups. As well, at the request of the organization, a ranking of indicators was undertaken by subtracting the percentage of respondents giving unfavourable responses from those giving favourable responses for each indicator. The content of qualitative data gathered in the survey was analyzed according to its themes. The qualitative findings were largely consistent with the quantitative findings regarding priority issues.

Research Lead: Lynda Robson

Status: Completed

Work Organization and Well-being Among Executive-level Employee Members of the Association of Professional Executives (APEX) of the Public Service of Canada

Fairness in workplace procedures and the frequency and degree of aggression in workplace cultures are relatively unexplored characteristics of 'learning organizations'. In 1994 the Public Service of Canada experienced the beginning of dramatic organizational change: departments were downsized, reorganized or eliminated; executive level employees were required to 'manage' such changes, e.g., informing staff they were to be laid off or reassigned, leading the newly formed departments. In 1997, due to concerns about the health of this group, a study was conducted examining the work environment and health of the executive population. The current project is a follow-up to this 1997 survey. In response to their comments on the early survey and ongoing conversations with the executive group, this study incorporates more detailed measures of justice/fairness and aggression in the workplace in order to assess the extent to which these factors affect the public service as a 'learning organization'.

Research Lead: Gail Hepburn

Status: This project was discontinued with the departure of Principal Investigator Gail Hepburn in spring 2004.

Manager Commitment in New Economy Organizations

This study explores how the inherent flexibility of current occupational health and safety policy functions in the context of 'new economy' work organizations, which are also very flexible. Work organizations are increasingly fluid with downsizing, out-sourcing, joint ventures, and alliances and with tenuous, insecure labour relations. How do these organizations *actually implement* health and safety systems when their own organizational structures are precarious? How do current occupational health policy and laws function in this context? Through this qualitative research will explore the meaning of managerial '*commitment*' in workplaces, and examine how decision-makers in new economy workplaces *form* and *implement* health and safety systems.

Research Lead: Ellen MacEachen

Status: Ongoing

External Funding: MacEachen E. Work organization and health in new economy workplaces. SSHRC Postdoctoral Fellowship: 2004-2006.

Prospective Nursing Care Model

The nurse practice environment is a key determinant of nurses' health and job satisfaction and may also be a major contributor to quality of patient care. Additionally, results from the Ontario site of a large international survey on nurse practice and patient outcomes suggest that hospital restructuring may have had a negative effect on several important elements of nurse well-being, which include measures of burnout and job satisfaction. However, this was a one-time cross-sectional survey, which is inherently unsuited to rigorous examination of an essentially dynamic process. In order to create an evidence-base for judgements about the links between the practice environment and nursing practice we are taking advantage of a unique "natural experiment" wherein three newly merged hospitals have all adopted a new professional nursing practice model. We are conducting a longitudinal evaluation of this new common practice model, with special emphasis on its potential impact on nurse well-being, organizational climate,

and the quality of patient care.

Three main research questions will be addressed in this study are: 1) What are the effects of introducing a new model for nursing care on nurse work stress and nurse well being? 2) What are the effects of introducing the new nursing care model on organizational climate, at both the unit and hospital (site) levels? 3) What are the effects of introducing the new nursing care model on quality of patient care?

A quasi-experimental (before-after) study design is being used with baseline measures taken (by self-report survey) before model implementation and again at one-year and two-years post implementation. We also have a small qualitative sub-study following groups of other nurses and health professionals to assess impact of new model outside of the survey context. To date, 817 nurses have been surveyed (response rate just above 60%) and 907 patients (40%).

Research Lead: Mickey Kerr

Status: Ongoing

External Funding: Kerr MS, Lemire Rodger G, Laschinger HK, Hepburn CG, Mayrand-Leclerc M, Gilbert J, O'Brien-Pallas L. Adopting a common nursing practice model across a recently merged multi-site hospital. CHSRF: \$438,722; 2002-2005 (Administered at University of Western Ontario)

The Impact of Multiple Roles on Health and Health Behaviours in Parents of Young Children

The impact of parental stress, occupational stress, and their interaction on mental health has received considerable attention in the past decade. However, little is known about the impact of multiple roles such as parental and occupational activity on health and health risk behaviours, particularly among parents of very young children. This longitudinal multi-site study examines the impact of multiple roles on health risk behaviours, psychological health, and physical health perception of healthcare workers and their partners, using three waves of data collection. A special emphasis is placed on women before, during, and after taking a maternity leave from work. This approach will assess pre-existing workplace and home factors as determinants of health and of health risk behaviours. There were three data collection points for the maternity group and two for the comparison group.

One set of analyses showed that the association between work conditions and depressive symptomatology is partly explained by increased negative work-to-family spillover. Furthermore, the impact of having young children on depressive symptoms is explained by a decrease in positive family-to-work spillover. A second set of analyses show that positive family to work spillover is associated with good sleep quality after controlling for age, physical health, depressive symptomatology and number of children.

Research Lead: Renée-Louise Franche

Status: Ongoing

External Funding: Franche R-L, Minore B, Musrd CA, Feldberg G, Stewart D. The impact of multiple roles and gender role beliefs on health and health risk behaviours in parents of young children. SSHRC: \$198,600; 2001-2003 extended to Sept. 2005

The Logic of Practice: An Ethnographic Study of WSIB Front-line Service Work with Small Businesses

Front-line WSIB staff play a critical role in the execution and outcomes of institutional policies, strategies and programs. Yet, there is remarkably little scientific understanding of this key junction of the occupational health and safety (OHS) system: the interface between the administrative apparatus and the users/clients. This junction is particularly significant in relation to small workplaces which engage directly with front-line service providers and have few other intermediaries between themselves and the WSIB.

The project aims to generate an empirically based understanding of how front-line WSIB staff working in the small business sector actually conceive and accomplish their work and to draw out the implication of their practices for the OHS system, workers and employers. Specifically, we seek to describe and explain, from a sociological perspective, the work of three groups of service workers: claims adjudicators, customer service representatives, and nurse case managers.

Research Lead: Joan Eakin (IWH Adjunct Scientist, University of Toronto)

Status: Ongoing

External Funding: Eakin JM, MacEachen E, Clarke J. The logic of practice: An ethnographic study of front-line service work with small businesses in Ontario's workplace health insurance agency. WSIB RAC; \$52,691; 2004-2006 (Administered at University of Toronto)

Are Non-profit Organizations Healthy Workplaces? Working Conditions and Occupational Health and Safety of Paid Employees and Volunteers

The non-profit sector (NPS) includes 7.5 million volunteers and employs over 1.6 million Canadians. In spite of this, little is known about workers, organizations and working conditions in the NPS. Provincial and federal governments, aiming to contain spending and reduce deficits, have shifted the delivery of many social services to the NPS. In part, this transfer entails governments establishing contracts with nonprofit organizations (NPOs) for the provision of social and health services. Work once done by unionized civil servants is devolved to a sector that mostly uses low paid, non-unionized or free labour. Service contracts with public agencies and other short term grants have largely replaced long term 'core' funding. Non-profit organizations face increasing competition, accountability and reporting requirements as a result of changes in the structure of funding.

These changes may have considerable consequences on working conditions in NPOs, as well as on the health of volunteers and employees. Although most NPOs employ paid staff and volunteers they are rarely viewed as workplaces by researchers and policy-makers. There is a lack of research on the occupational health and safety (OHS) issues affecting the NPS. Given increased workloads and financial pressures, are organizations able to provide safe and healthy work environments?

This research is designed to examine psycho-social and physical conditions in nonprofit social service organizations and to explore how the new economic order (government downloading, changes in funding, pressure to marketize, etc.) impact working conditions.

Research Leads: Agnieszka (Iggy) Kosny (PhD Candidate), Joan Eakin (IWH Adjunct Scientist, University of Toronto)

Status: Ongoing

External Funding: Kosny I. Are non-profit organizations healthy workplaces. National Network on Environments and Women's Health (NNEWH): \$29,925; 2004-2005.

Knowledge Transfer & Exchange in Workplace Studies

Project Title: Workplace Musculoskeletal Health Intervention Research

Introduction: Integral to the KTE plan for the WHIR project was the idea that research should be built on solid partnerships with key stakeholders. This participatory process aids in the transfer and utilization of research knowledge and ensures that tools and strategies are sensitive to the needs of the target audience.

Objectives:

- ▶ To incorporate stakeholder and audience input early in the research process.
- ▶ To discuss how specific audiences can be involved in the research process.
- ▶ To assist researchers in adapting the research agenda to the priorities of the stakeholders.
- ▶ To have stakeholders use the research (conceptual use, instrumental use, strategic use).

Messages:

- ▶ “A participatory approach to ergonomics is a good way to achieve sustainable and effective workplace change”.
- ▶ “Involving supervisors, healthcare professionals, and disability prevention consultants in negotiation with injured workers will facilitate their successful return-to-work”.

Audiences: Steering committee members on the WHIR project (WSIB, Ministry of Labour, IAPA, and Canadian Auto Workers (CAW)). Research participants within the WHIR research projects (IAPA, CAW, OHCOW, EUSA, and OSSA)

Summary of Accomplishments

Engaging the Stakeholders:

- ▶ Multiple meetings were held (over 25) to discuss the research project, determine the initial understanding of the project, and achieve commitment to be more involved.
- ▶ 12 meetings were held with consultants and ergonomists to discuss their participation as interveners in the research. 19 meetings or presentations took place with the identified wider audience (manufacturing and service sectors).

Keeping Audiences Informed: The research project directions have been shared through:

- ▶ Two articles for *At Work* and two articles for an *Ounce of Prevention*.
- ▶ Two Bulletins that stakeholders disseminated to their mailing lists.
- ▶ Workshops to discuss the research and collaboration (WSIB stakeholders, ergonomists and consultants, and the WHIR Steering Committee).
- ▶ Presentations were given (two to the Ministry of Health).

Results:

- ▶ The researchers changed their research design and approach in a number of ways to accommodate the realities of the consultants’ interactions with workplaces. These have been noted in the report to CIHR, a poster for the WSIB-RAC conference, and in a journal article to be submitted to Science Communication.
- ▶ Through this collaboration new projects and directions have been initiated. Five research studies have been designed with stakeholder participation.
- ▶ Stakeholder organizations (OHCOW, EUSA, and IAPA) have changed their consulting models based previous IWH research.

Team: Dee Kramer, WHIR Research Team (Donald Cole, PI), Kathy Knowles Chapeskie

Health Services Research

The Health Services Research Group uses qualitative and quantitative methods to create and synthesize evidence on the course and management of the more burdensome work-relevant health conditions (including soft tissue injury, chronic pain and depression) Their research seeks ways to reduce the burden that these conditions pose to individual workers, employers, insurers and society. The research is made useful through an exchange with relevant audiences including clinicians, employers, workers, insurers, policy-makers and the general public which enables both evidence-based decision-making and a program of research that is informed by 'real world' experience.

The program includes four themes: Measurement of Health and Function; the Epidemiology of Disability; Evidence-based Practice; and Prevention of Work Disability.

Measurement of Health and Function

Studying the etiology, burden, likely course and treatment of a musculoskeletal disorder presents substantial challenges of measurement. The pathology of a musculoskeletal disorder, whether a structural lesion or an inflammatory mechanism, is frequently difficult to diagnose. Conceptual frameworks for the classification of the disorder lack consistency. Finally, the measurement of pain and functional limitation arising from these disorders requires imaginative and innovative approaches to assessment. Over the past 15 years the Institute for Work & Health has continued to make original contributions to both the conceptualization of musculoskeletal disorders and the measurement of functional deficit.

In 2004, IWH researchers participated in an international invitational symposium at the Prevention of Work-related Musculoskeletal Disorders Conference (PREMUS) on classification systems for musculoskeletal disorders. The symposium led to the establishment of an international collaboration, including IWH researchers, who will be developing a database of all current MSK classifications systems starting with upper extremity disorders. The ultimate goal of this initiative is for researchers and clinicians to come to agreement on a single classification system which would facilitate more accurate communication on the prevalence on different MSK disorders and on appropriate and effective treatment interventions.

Work to develop and test a shorter version of the internationally accepted measurement tool the DASH (developed by IWH researchers in collaborations with the American Academy of Orthopedic Surgeons) resulted in dissemination in 2004 of the *QuickDASH* an 11-item version of the questionnaire. The DASH is now available in 14 languages/dialects with six additional translations underway. The *QuickDASH* promises to be equally useful to clinicians and clinical researchers as indicated by the recent decision of the WSIB Program of Care for Upper Extremity Conditions to include the *QuickDASH* as the standard assessment instrument for this new evidenced-based clinical program for injured workers.

One new development in this theme is the emergence of a series of linked research initiatives which are aimed at improving our ability to measure the impact of an injury or illness on work productivity through self-reported instruments. Building on research already underway in a WSIB funded upper extremity clinic IWH scientists have recently received funding support through the Canadian Arthritis Network to investigate a series of measures of work disability. Their research on measuring the impact of health status limitation has caught the attention of international researchers interested in measuring important constructs in clinical trials. A number of local research dissemination initiatives to the clinical community planned for 2005. The developments in measuring the impact of injury and illness are highlighted in this report.

Project Titles:

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Physiotherapy Practice Patterns and Outcomes for the Treatment of Soft Tissue Injuries of the Shoulder	59
How Are You Now? Testing a Model of Recovery from the Patient's Perspective One Year After a Traumatic Fracture of an Extremity	59
The Validation of a Classification System for Work-Related Disorders of the Shoulder and Elbow	60

The Measurement of Work Disability/Disability at Work

The cornerstone of managing the burden of a disease is an understanding of its impact on people's lives and of its course over time. An abundance of research has shown how arthritis affects people's employability and it is also clear that people with arthritis are more likely to leave their jobs than those without arthritis. However, this is only part of the picture. A less recognized, yet increasingly important burden of arthritis arises from the disability people experience at work. This can take the form of difficulties with workplace tasks and activities, having to alter career aspirations or change jobs, difficulties with co-workers, and having to make decisions whether to disclose one's condition and uncertainty about the future.



Dorcas Beaton

This project includes five elements described below, all of which are aimed at improving our ability to measure the impact of limitations of 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 may be markers for changes in productivity and/or precursors to disability resulting in work absence, and they 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 and between different local, national and international networks of researchers interested in the measurement of work disability. Our objectives are to understand the development and measurement properties of extant measures of work disability and work productivity and to conduct a comparison of different measures of at-work disability. We will make recommendations about the role of self-report measures of work disability in workplace studies at IWH and in the broader community.



Claire Bombardier

1) Injured Workers Study: 130 injured workers attending a WSIB specialty clinic for shoulder and/or elbow disorders were recruited to compare four different measures of work disability. Measurement properties were tested and the workers' preferences sought on the measures.

2) Arthritis Study: Bombardier and Beaton secured funding through the Canadian Arthritis Network (CAN) to compare measures of work-disability. Concurrently they will compare touch-screen versus pencil and paper data collection in a clinical setting, and the effect on measurement properties. The extended study will include a longitudinal follow up of these workers to six months. Data collection will be at two centres in Toronto and one in Vancouver (Dr. D. Lacaille).

3) OMERACT Initiative: Focusing on findings from 1&2 above, Bombardier and Beaton will present issues in the measurement of work disability at OMERACT 2005. This is an international group researching the measurement of important constructs in clinical trials in arthritis.

4) CAN-IWH SSR. Based on a proposal by Bombardier and Mustard, funds have been book-marked by the CAN for a SSR initiative in work disability. This service-oriented funding program is designed to facilitate research dissemination to the CAN community. In 2005 two initiatives will be undertaken: a workshop co-sponsored by CAN and IWH focusing on the measurement of work productivity; and sharing of information with CAN investigators on factors influencing successful return to work led by Renée-Louise Franche. Both these initiative have high level coordination and infrastructure support from the IWH.

5) Community versus clinical work disability in arthritis. In 2005 Co-PI's Beaton, Bombardier and Gignac will apply for funding to extend two studies of work disability: a community based cohort, and the tertiary clinic-based cohort. We propose to look at the longitudinal measurement properties and the best way to use these outcomes in a longitudinal manner (change scores, trajectories), the usual course of work disability in persons with arthritis, and predictors of current work disability, and shifts in work disability over a one year period.

Impact: A thorough understanding of work disability and the level of production lost from injured/ill workers in the workplace, including the optimal measurement of this construct, will be of particular interest to researchers, employers, employees, insurers, the pharmaceutical industry, disability managers and clinicians. This set of projects brings together researchers with expertise in the impact of arthritis on employment and in the measurement of outcomes. They are also affiliated with international initiatives on the measurement of work productivity (i.e., OMERACT 8Work Productivity Working Group) and as such have established avenues to translate their research findings to the Canadian and international audiences.

Researchers: Dorcas Beaton, Claire Bombardier, S. Solway (University Health Network), Sheilah Hogg-Johnson, Anusha Raj, R. Richards (WSIB Specialty Clinic), Emma Irvin, B. Amick, IWH Adjunct Scientist (University of Texas), S. Pitts (OT Student), Cam Mustard, M. Gignac (ACREU, IWH), D. Lacaille (Vancouver, B.C.), P. Tugwell (OMERACT Mentor), M. Haase (Netherlands - OMERACT, non-work participation), D. Veale (Ireland - OMERACT economic appraisal).

Measurement Methodology Studies

This is a group of studies/projects which focus on measurement issues rather than answering an applied research question. Studies include investigating best methods for using a given questionnaire; the application of item response theory to improve the calibration of an instrument; the application of cluster analysis to longitudinal data; meaning and measurement of responsiveness and other measurement properties (reliability, validity); the integration of e-health and technology into measurement. There is overlap with other projects as data gathered from other studies is often used in measurement methodology work. However, the focus here is on the measurement issues.

In particular we are focusing on understanding of the meaning of “therapists’ expectations of recovery”; developing new ways to describe change and recovery (measurement of adaptation, measurement of when pain is a problem); and understanding of responsiveness and minimal clinically important difference.

Research Lead: Dorcas Beaton

Status: Ongoing

Development and Testing of the DASH

This multi-year project involves the development and ongoing testing of the DASH, a 30-item self-completed questionnaire of upper-limb disability and symptoms, designed at IWH in collaboration with the American Academy of Orthopaedic Surgeons (AAOS). The DASH can be used as an outcome measure for people with any disorder of the upper limb and is now in use world-wide in 13 languages. In 2003 the 11-item QuickDASH was released. 2004, saw specific testing of the QuickDASH in clinical and research settings. The 2nd edition of the DASH User's Manual, was published in 2002, as an all encompassing guide to the DASH outcome measure and contains documentation on how to use the DASH. The DASH instruments and summary documents are available at <http://www.dash.iwh.on.ca>.

Research Lead: Dorcas Beaton

Status: Ongoing

Physiotherapy Practice Patterns and Outcomes for the Treatment of Soft Tissue Injuries of the Shoulder

This is a joint project with the College of Physiotherapists of Ontario (CPO), initiated in 1999 as part of the CPO's ongoing quality assurance program. The purpose of the project was: 1) to describe physiotherapy practice patterns and outcomes in Ontario for shoulder tendinopathies using the DASH outcome measure and 2) to conduct specific measurement-related testing of the DASH within this context. The main objectives of the CPO project (prognosis, description of the course) have been successfully completed and delivered in a technical document to the CPO and posted on the Institute's website (http://www.iwh.on.ca/archive/pdfs/CPO_final.pdf). The remainder of the project will focus on measurement.

Research Lead: Dorcas Beaton

Status: Ongoing

How Are You Now? Testing a Model of Recovery from the Patient's Perspective One Year After a Traumatic Fracture of an Extremity

This project is testing a model of recovery, from a patient's perspective in working-aged patients one to two years after a fracture that required operative fixation. The model includes functional status and changes in health state as indicators of "being better". It also includes indicators of adaptations or shifts in personal values and goals which can lead a patient to say they are better when they may still have residual effects of the disorder. Approximately 250 patients have been recruited from St. Michael's Hospital, and from Sunnybrook and Women's Health Sciences Centre.

The results suggest that patients and their surgeons have differing views of recovery. X-ray healing did not always correlated with patient perceptions of recovery - in both directions and sometimes the patient was better despite a sub-optimal clinical result. Alternate paths to recovery have been verified. Along with a biomedical path of "disease resolution" a second path exists which reflects a more adaptive path through coping or coping efficacy.

Research Lead: Dorcas Beaton

Status: Ongoing

Validation of a Classification System for Work-Related Disorders of the Shoulder and Elbow

Work-related musculoskeletal disorders of the shoulder and elbow are common, costly and complicated disorders. The WSIB has established a specialty clinic where experts assess workers with these disorders to determine the worker's likely course and optimal care. A classification system would help with this task if it could predict those workers likely to have a good or bad outcome. We have now developed a classification system which subdivides clinic attenders into four subgroups. The purpose of our present study is to test how well the classification system works, by reproducing it in a different group of workers and seeing if it will predict outcomes two to three years after initial clinic visit. A computer system will be set up so the patient data, in the form of a summary report and prognostic subgroup classification, will be immediately available to clinicians for their assessment.

This is a large scale study focusing on four objectives. The first is to compare workers attending the shoulder and elbow specialty clinic to those with similar claims in the province of Ontario. This is done using administrative data. The second objective is to determine the one year outcome of workers after their 2001 specialty clinic visit, using a telephone survey. We will link their responses to the baseline questionnaire, and also to WSIB administrative data. Predictive models will be used to determine the factors predictive of better outcomes following a clinic visit. The third objective is to describe the new cohort of workers going through the clinic at this point in time (n=200 after March 2004). Cluster analysis will be used to verify the pattern of pain and disability that workers are presenting when they come through clinic. Previous research found three typical patterns which we will verify. The fourth objective is to move the questionnaire from a research tool to a combined research and clinical tool by generating automatic forms that are delivered to the clinicians in time for their assessment of the worker.

Research Lead: Dorcas Beaton

Status: Ongoing

External Funding: Beaton DE, Richards RR, Hogg-Johnson S. The validation of a classification system for work-related disorders of the shoulder and elbow. WSIB RAC: \$179,655; 2002-2004 (Administered at St. Michael's Hospital)

Epidemiology of Disability

A changing economic environment arising from global economic integration brings with it new opportunities and threats to the workforce. The health of Canada's workforce is an important factor affecting the productivity of the Canadian economy. As a result, increasing importance will be placed on research that aims to understand the factors that lead to disability at work and the role of therapeutic interventions in minimizing disability and restoring function.

Understanding the etiology of disability resulting from musculoskeletal disorders, the largest single cause of work disability in Canada, is a challenging research frontier, requiring the collaborative insights of epidemiology and clinical sciences. To understand the prospects for restoration of function, it is necessary to understand the impact of clinical management on musculoskeletal disorder – both at the level of the effectiveness of therapeutic innovations and at the level of the organization and delivery of health services.

There are several ongoing studies within this theme which focus on the effectiveness (and in some cases cost-effectiveness) of interventions in the management of work relevant musculoskeletal disorders. One study undertaken with colleagues at Arizona State University addresses the issue of cost- effectiveness of chiropractic versus medical care in returning workers with occupational low back pain to work.

Project Titles:

<i>Development of a Prospective Cohort Study of Individuals with Musculoskeletal Conditions /The Relationship Between Impairment, Activity Limitations, Participation Restrictions and Markers of Recovery in Individuals with MSK Disorders: A Validation Study of Two Conceptual Frameworks</i>	62
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Development of a Prospective Cohort Study of Individuals with Musculoskeletal Conditions / The Relationship Between Impairment, Activity Limitations, Participation Restrictions and Markers of Recovery in Individuals with MSK Disorders: A Validation Study of Two Conceptual Frameworks

Overview: Musculoskeletal disorders are a leading cause of disability and health care utilization in Canada. For most individuals the course of musculoskeletal disorders is episodic, but a significant proportion of this population suffers from recurrent episodes of chronic disability. Despite improvements in our understanding of musculoskeletal disorders, defining and measuring "recovery" from these disorders remains problematic.

It is generally understood that there are a number of factors - both physical and psychosocial - that contribute to the development of chronicity. The ability to develop a model that will predict, with certainty, what these factors are and perhaps how they can be altered, will be an important tool for allocating resources across the system, one which will be welcomed by health care practitioners, researchers, insurers and employers. In preparation for designing a cohort study to improve our understanding of the course, determinants and consequences of MSK pain in the population, we have undertaken a series of analyses on existing data sources to inform the hypotheses to be tested in a longitudinal study.



Pierre Côté

Our objectives with an initial set of analyses was to describe the incidence and course of musculoskeletal pain in the populations, advancing our understanding of the etiology and prognosis of musculoskeletal pain and the impact of back and neck pain on the health-related quality of life. In a second set of analyses we were interested in determining whether the construct of "resolution of the disorder" mediates the relationship between impairments, activity limitations, participation restrictions and self-assessment of recovery and to determine whether the indirect relationship between impairments, activity limitations, participation restrictions and self-assessment of recovery is mediated by the construct of "readjustment/redefinition" among subjects who do not experience a resolution of their disorder. The available data sources include the Saskatchewan Health and Back Pain Survey, A Study of Outcomes Assessment of Treatment and Rehabilitation after Traffic Injuries in Saskatchewan and the Arizona State University Healthy Back Study.

We initiated this work using two of the data sets from Saskatchewan. With the data from a population-based cohort study of 1,100 randomly selected Saskatchewan adults who were initially surveyed by mail about their general health and back pain in September 1995 and followed-up six and 12 months later we addressed the questions of etiology and prognosis of back and neck pain.

Using data from the Arizona State University Healthy Back Study, we describe patterns of work and work disability experienced by injured workers during the first year after onset of back pain to determine if the evidence supports a model of occupational back pain characterized by episodes of remission and exacerbation. Data came from a sample of 1,931 workers who filed claims for occupational back injuries with one of five national employers between 1999 and 2002. Workers were interviewed at onset, and at one, six, and twelve months after injury. We describe the frequency distribution of employment patterns, and conditional transition probabilities at each interview.

We used a cohort of Saskatchewan residents who sustained musculoskeletal injuries in a traffic collision to address the questions on recovery and test whether resolution of the disorder and coping mediates the

relationship between physical/psychological impairment and activity limitations, and recovery. We included subjects who sustained a motor vehicle injury between 1997 and 1999 and reported pain that was at least moderate in intensity. Measures of impairment (pain intensity in 10 locations), depression and activity limitations were obtained at six-week post-collision. The outcome, self-reported recovery, was measured at three months post-collision. Mediators (resolution of impairment, resolution of activity limitation and coping) were measured at the three month follow-up. We built two distinct structural equation models to quantify the direct and indirect relationship between impairment, activity limitations and recovery.

Results: *Etiology and Prognosis*

The age and gender standardized annual incidence of neck pain is 14.6% (95 % confidence interval: 11.3, 17.9). Each year, 0.6% (95 % confidence interval: 0.0-1.1) of the population develops disabling neck pain. The annual rate of resolution of neck pain is 36.6% (95 % confidence interval: 32.7, 40.5) and another 32.7% (95 % confidence interval: 25.5, 39.9) report improvement. Among subjects with prevalent neck pain at baseline, 37.3% (95 % confidence interval: 33.4, 41.2) report persistent problems and 9.9% (95 % confidence interval: 7.4, 12.5) experience an aggravation during follow-up. Finally, 22.8% (95 % confidence interval: 16.4, 29.3) of those with prevalent neck pain at baseline report a recurrent episode. Women are more likely than men to develop neck pain (Incidence Rate Ratio=1.67, 95% confidence interval 1.08-2.60); more likely to suffer from persistent neck problems (Incidence Rate Ratio=1.19, 95% confidence interval 1.03-1.38) and less likely to experience resolution (Incidence Rate Ratio=0.75, 95% confidence interval 0.63-0.88).

The cumulative incidence of low back pain was 18.6%, (95% confidence interval 14.2-23.0). Most LBP episodes were mild. Only 1.0% (95% confidence interval 0.0-2.2) developed intense and 0.4% (95% confidence interval 0.0-1.0) developed disabling LBP. Resolution occurred in 26.8% (95% confidence interval 23.7-30.0), and 40.2% (95% confidence interval 36.7-43.8) of episodes persisted. The severity of LBP increased for 14.2% (95% confidence interval 11.5-16.8) and improved for 36.1% (95% confidence interval 29.7-42.2). Of those that recovered, 28.7% (95% confidence interval 21.2-36.2) had a recurrence within six months, and 82.4% of it was mild LBP. Younger subjects were less likely to have persistent LBP (incidence rate ratio 0.88, 95% confidence interval 0.80-0.97) and more likely to have resolution (incidence rate ratio 1.26, 95% confidence interval 1.02-1.56).

Data from the Arizona State University Study suggest four basic patterns of return to work: (1) no work absence; (2) single absence, return and stay; (3) multiple spells of absence; (4) not yet return to work. There is considerable movement among patterns even within the group of apparently low-severity injuries. Among workers who report no work absence at one month, there is an 18% transition probability to spells of work absence by six months. Among those who report no work absence at one and six months, there is a 17% transition probability to absence spells by one year. Conversely, we observe efforts to return to work even among those with apparently high-severity injuries: Among those who have not returned at one month, only 29% have not returned at one year, but among those who have not returned at six months 69% have not returned at one year. The vast majority of injured workers (97%) make some attempt to return to work. IMPLICATIONS: A return to work is a poor indicator of the resolution of occupational back pain, but a work absence extending six months after onset is a strong indicator of permanent work disability. The evidence suggests that researchers and clinicians must look beyond the first return to work in designing strategies to minimize the disability burden associated with occupational back pain.

Recovery

One model used resolution of impairment (n=1,244) as a mediator and the other used resolution of activity limitations (n=1,209). Results suggest that the effects of impairment and depression are mediated by resolution of impairment, resolution of activity limitations and passive, but not active coping. In the first model (Fit: CFI=0.91; TLI=0.89), the standardized coefficient for the indirect effect of impairment

through resolution and coping was -0.16 ($p < 0.01$) and -0.07 ($p < 0.05$) for activity limitations. The effect of depression (standardized coefficient = -0.15; $p < 0.01$) was mediated through passive coping. The standardized coefficient for the direct effect of resolution of impairment on recovery was 0.34 ($p < 0.001$) while the indirect effect through passive coping was 0.14. Results were similar for the second model. In conclusion, resolution and coping mediate the relationship between impairment, depression and activity limitations and self-reported recovery.

Impact: These results have provided background information which has assisted in the development of a multi-year multi-centered proposal for a longitudinal cohort study to further examine the course, determinants, recovery and consequences of MSK in the Canadian population.

Researchers: Pierre Côté (Co-ordinator), Claire Bombardier, Dorcas Beaton, Jill Hayden, Sheilah Hogg-Johnson, Carol Kennedy, Renée-Louise Franche.

Stakeholder Involvement: Clinicians (medical doctors, chiropractors, physiotherapists, occupational therapists); Researchers (epidemiologists, clinical epidemiologists, biostatisticians); further involvement TBD.

Presentations:

Carroll LJ, Cassidy JK, Côté P, Mercado AC. Back Pain: How do depression and coping fit in? Seminars in Bone and Joint Health/Biomedical Engineering, University of Alberta and University of Calgary Video Seminar Series, Edmonton, Alberta. Dec 2004.

Côté P. The relationship between impairment, activity limitations, participation restriction and markers of recovery in individuals with musculoskeletal disorders: A validation study of two conceptual frameworks. Nov 2004; IWH Plenary.

Carroll LJ, Mercado AC, Cassidy JD, Côté P. Passive coping is a risk factor for disabling neck or low back pain. Oct 2004; Edmonton, Alberta: 7th International Forum on Primary Care Research on Low Back Pain.

Johnson WG, Côté P, Baldwin ML. The course of occupational back pain: Looking beyond the first return to work. Oct 2004; Modena, Italy: International Commission on Occupational Health.

Côté P, Baldwin M, Johnson WG. La lombalgie professionnelle: son pronostique depend-il du type de mode de prise en charge. June 2004; Bordeaux, France: XXVIIIe Congrès National de Médecine et Santé au Travail.

Cassidy JD, Côté P. Back pain in the population: A challenge for clinicians, scientists and policy-makers. April 2004; Toronto, ON: Arthritis Community Research & Evaluation Unit (ACREU) Rounds, Toronto Western Hospital, University Health Network.

Côté P, Hogg-Johnson S, Cassidy JD, Carroll LJ, Frank JW, Bombardier C. The impact of early patterns of care on the recovery of whiplash injuries: A population-based cohort study. Nov 2003; Regina, SK: Saskatchewan Government Insurance.

Côté P, Cassidy JD. Back pain in the population: A challenge for clinicians, scientists and policy-makers. Nov 2003; Toronto, ON: University of Toronto Rheumatic Disease Unit, Intra-city Conference.

Côté P. System influences on the recovery of whiplash injuries. Achieving excellence through collaboration: Best rehabilitation outcomes. Oct 2003; Toronto, ON.

Côté P, Cassidy JD, Carroll LJ, Kristman V. The incidence and course of neck pain in the Saskatchewan population. June 2003; Halifax, NS: Canadian Society for Epidemiology and Biostatistics Biennial Meeting.

Cassidy JD, Carroll LJ, Côté P, Kristman V. The course of low back pain in the general population. June 2003; Halifax, NS: Canadian Society for Epidemiology and Biostatistics Biennial Meeting.

Côté P. The epidemiology and prognosis of non-specific neck pain, whiplash and occupational neck injuries. May 2003; Orlando, Florida: World Federation of Chiropractic 7th Biennial Congress.

Cassidy JD, Carroll L, Côté P, Kristman V. The course of low back pain in the general population. May 2003; Linköping, Sweden: Forum VI for Primary Care Research on Low Back Pain.

Carroll L, Cassidy JD, Côté P. Depression as a risk factor for onset of troublesome spinal pain. May 2003; Linköping, Sweden: Forum VI for Primary Care Research on Low Back Pain.

Kristman V, Côté P. The epidemiology of neck pain. April 2003; Toronto, ON: Canadian Society of Chiropractic Evaluators and Canadian Memorial Chiropractic College Conference: Whiplash and Neck Pain: Research, Guidelines, and Legislation.

Côté P. Clinical iatrogenesis and chronic whiplash: Illusion or reality? Jan 2003; Toronto, ON: WSIB RAC Grand Rounds.

Publications:

Cassidy JD, Côté P, Carroll LJ, Kristman V. The incidence and course of low back pain in the general population: A population-based cohort study. (Accepted: Spine)

Mercado AC, Carroll L, Cassidy JD, Côté P. Passive coping as a risk factor for disabling neck or low back pain. (Accepted: Pain)

Côté P, Baldwin ML, Johnson WG. Early patterns of care for occupational back pain. Spine 2005; 30:581-587.

Côté P, Cassidy JD, Carroll LJ, Kristman V. The annual incidence and course of neck pain in the general population: A population-based cohort study. Pain 2004; 112: 267-273.

Carroll LJ, Cassidy JD, Côté P. Depression is common after whiplash injury: The incidence, timing and course of depression after whiplash. Submitted: Spine (IWH Working Paper #272)

Carroll LJ, Cassidy JD, Côté P. Depression as a risk factor for onset of troublesome neck and low back pain. Pain. 2004; 107: 134-139.

Carroll LJ, Cassidy JD, Côté P. Factors associated with onset of an episode of depressive symptoms in the general population. J Clin Epi 2003; 56:651-658.

Cassidy JD, Carroll LJ, Côté P, Berglund A, Nygren A. Population-based, inception cohort study of traffic injuries in Saskatchewan: an analysis of post-traumatic low back pain. Spine 2003; 28:1002-1009.

Côté P, Cassidy JD, Carroll LJ. The epidemiology of neck pain in Saskatchewan: What have we learned in the past five years? *Journal of the Canadian Chiropractic Association*.2003; 47:284-290.

Côté P, Cassidy JD, Carroll LJ, Kristman V. (2003) The course of neck pain in the general population. Submitted: *Arthritis and Rheumatism (IWH Working Paper #225)*

Research Lead: Pierre Côté

Status: Ongoing

External Funding: Côté P, Beaton DE, Cassidy JD, Carroll LJ, Bombardier C, Hogg-Johnson S. The relationship between impairment, activity limitations, participation restriction and markers of recovery in individuals with musculoskeletal disorders: A validation study of two conceptual frameworks. *CIHR*: \$74,580; 2004-2006 .

The Arizona State University Healthy Back Study: A Study of the Cost Effectiveness of Chiropractic vs. Medical Care in Returning Injured Workers with Occupational Low Back Pain to Work

The relative cost-effectiveness of chiropractic and medical approaches for the treatment of occupational low back pain has been debated for many years. To date, research is inconclusive as to what type of primary care is most cost-effective. No study has yet combined rigorous economics and epidemiological methods to clarify this issue. This study will estimate the cost-effectiveness of chiropractic versus medical care in returning injured workers with occupational low back pain to work

The Arizona State University (ASU) Healthy Back Study is a prospective cohort study of injured workers who file workers' compensation claims for occupational back pain. The study population includes nearly 200,000 workers from five U.S. employers spread over 37 States. The employers are: America West Airlines, American Medical Response, The Earthgrains Co. (now part of Sara Lee Corporation Baking Division), Maricopa County, and Marriott International, Inc. We established recruitment protocols specific to each employer to assure timely notifications of all work-related back injuries. The notification data include worker's demographic characteristics, occupation, and a description of the worker's injury. Injured workers who agreed to participate in the survey were contacted by telephone and a baseline interview was conducted as soon as possible. Follow-up interviews were conducted at one, six, and twelve months after onset.

Results to date show that eight percent of workers who were interviewed within the first 90 days after making a workers' compensation claim did not receive care. Injury severity, gender, occupation, and employer were significant predictors of the decision to seek care. Almost 90 percent of workers who received care were treated by medical doctors, often in combination with physical therapists or chiropractors. Age, occupation, injury severity, and whether the employer or worker chose the initial health care provider were associated with the choice of provider. Employers selected providers for 73 percent of injured workers who received care. Medical doctors were the providers most often chosen by both employers and workers, but workers were more likely than employers to select chiropractors.

Research Lead: Pierre Côté

Status: Ongoing

External Funding: National Chiropractic Mutual Insurance Company (Administered at Arizona State University)

Modifiable Personal and Environmental Factors in Back Pain Disability: A Consensus Using Delphi and Q-card Methodologies

Recent research results and the World Health Organization's advice are changing the way we see disability. Disability is no longer seen as the end stage of disease injury, it is a process that can be prevented by acting on certain personal and environmental factors. The factors associated with the development of disability in people with back pain (low back, upper back and neck) can be described as risk factors, prognostic factors, causal factors or predictive factors depending on when they are assessed and the researcher's background and approach. The International Classification of Functioning, Disability and Health (ICF) calls for their re-framing as personal and environmental factors that modulate disability (the impact of back pain on the person's activities and participation).

To guide disability prevention interventions and policies this project will use consensus methods (Delphi and Q-card) to ask researchers, care providers, workers, employers and insurance representatives to take a critical look at the existing studies to identify the factors that have the largest impact and are easiest to modify as well as the factors where consensus is not possible and thus require the most research?

A total of 32 factors were initially included ranging from fears and recovery expectations, to workstation layout and lifting devices, to litigation and disability benefits. Thirty-three panel members from North America, Australia and Europe have been asked to reach consensus (via a 3- round Delphi process) on the factors' relative ranking according to impact and modifiability. Impact is defined as the size of the expected improvement in participation if the factor could be modified for a usual population of people with back pain. Modifiability is defined as the likely amount of time and resources required to actually change the factor. Final results of the panel are expected in Spring 2005.

Research Lead: Jaime Guzman

Status: Ongoing

External Funding: Guzman J. What are the key modifiable personal and environmental factors that prevent disability in people with back pain? A consensus using Delphi and Q-card methodologies. WSIB RAC; \$29,504; 2004.

The Bone and Joint Decade 2000-2010 Task Force on Neck Pain and Its Associated Disorders

Neck pain is a common source of pain and disability in the industrialised world. Although several treatments are available for neck pain, there is a lack of consensus about the relative effectiveness of these therapies. This international project, started in 1999, includes a suite of studies, designed to answer different research questions. Several Institute staff are participating as members of the Task Force Scientific Secretariat (TFSS) (which has Canadian, U.S. and Swedish participation) as well as the Task Force Advisory Group (TFAG). The TFAG also has additional international representatives from Brazil, France, Australia and Switzerland. The objectives of this study are:

- ▶ to conduct a systematic literature review on the epidemiology, diagnosis, treatment (benefit and harm) and prognosis of neck pain;
- ▶ to determine the risks of stroke associated with manipulation and the risks of gastrointestinal events associated with non-steroidal anti-inflammatory medication;
- ▶ to conduct a decision analysis study of patient preference with regard to the most common treatment for neck pain. See: Decision Analysis of Non-surgical Treatments for Neck Pain;
- ▶ to develop clinical guidelines for the treatment of neck pain.

Research Lead: Pierre Côté

Status: Ongoing

External Funding: Canadian Chiropractic Protection Association and National Chiropractic Mutual Insurance Company: \$3,000,000. (Administered at the University of Alberta)

Description of WSIB Lost Time Claims for Occupational Neck Pain

Much attention has been given to occupational back pain and upper extremity conditions. Oftentimes, neck complaints are grouped with either back complaints or upper extremity complaints. In this project, we will focus on neck complaints as a separate entity. We designed a cohort study of Ontario injured workers who made a claim to the Ontario WSIB between 1997-1998. WSIB claims and health care billings data will be obtained for a period from one-year prior and two years after the date of injury. The WSIB data will be linked to the Ontario Ministry of Health (OHIP) data for the same period. The linked data will include demographic information, injury data, duration of claim, employer data, co-morbidities, and health care utilization data. Definitions of occupational neck pain (ONP) will be developed based on clinical criteria obtained through consensus of experienced clinicians using the part of body (head, neck and shoulder) and nature of injury (sprains and strains, occupational injury unspecified, and inflammation) codes recorded in the WSIB database.

Our objectives are to:

- ▶ develop a methodology to define and identify ONP claims from the WSIB databases;
- ▶ determine the prevalence and incidence of ONP claims in Ontario;
- ▶ determine the administrative course of ONP claims and identify the predictors of duration of wage replacement benefits in a cohort of injured workers who made a claim to the Ontario WSIB in 1997-1998;

- ▶ describe the health care utilization of claimants with ONP as they transit through the acute, subacute and chronic phases of their injury;
- ▶ determine whether the implementation of the *Workplace Safety and Insurance Act* (Bill 99, 1998) was associated with a change in the administrative course and health care utilization for ONP claims in Ontario.

This study will provide us with a broad description of the problem of ONP in Ontario and the information that is necessary to develop secondary prevention strategies that may help reduce the burden of disability related to neck injuries.

Research Lead: Pierre Côté

Status: Ongoing

External Funding: Côté P, Hogg-Johnson S, Bombardier C, Beaton DE. The epidemiology and primary care utilization for occupational neck pain in Ontario. Special Chiropractic Research Fund, Ontario Chiropractic Association and Ontario Ministry of Health and Long Term Care Special Chiropractic Research Fund: \$139,950; 2002-2004.

Decision Analysis of Non-surgical Treatments for Neck Pain

The personal and economic impact of neck pain is expected to worsen with the aging population. There is little agreement on the best treatment for chronic neck pain. Publicized cases of complications associated with drug and manual treatments have renewed concerns about the safety of commonly used treatments. A comprehensive overview of the benefits and risks of neck pain treatments is needed for clinicians and for policy-makers deciding on resource allocation.

We are performing a decision analysis of neck pain treatments to address this need. Preferences (utilities, values) for health outcomes associated with neck pain and its treatments are being elicited from neck pain patients. To date 95 neck pain patients in California and Southern Ontario have been enrolled. Estimates of treatment effectiveness and complication rates are being identified by systematic literature reviews performed by the Bone and Joint Decade 2000-2010 Task Force on Neck Pain. The course of neck pain in patients who sought, but did not receive treatment from their neck pain will be estimated from existing data from the Saskatchewan Health and Back Survey using propensity scores to adjust for confounding. This analysis will provide baseline rates which will be altered by estimates of treatment effects. Finally, these data (preferences, treatment effectiveness and complication rates, course of neck pain) will be incorporated into a Markov decision analytic model to compare the impact of non-surgical neck pain treatments on the course of neck pain.

Research Lead: Gabrielle van der Velde (Co-ordinator, PhD Candidate), Sheilah Hogg-Johnson

Status: Ongoing

External Funding: van der Velde G, Hogg-Johnson S, Kahn M, Maetzel A, Nagle G. Utility values for health state outcomes to two conservative treatments for neck pain (non-steroidal anti-inflammatory drugs and cervical spinal manipulation) obtained from a sample of neck pain patients and the general public: a pilot study. Ministry of Health and Long Term Care/Ontario Chiropractic Association Special Chiropractic Research Fund: \$48,490; 2002-2004; \$58,400; 2004-2005.

van der Velde G. CIHR Post-doctoral Fellowship Award. A cost-effectiveness decision analysis of non-surgical treatments for non-specific neck pain. 2002-2005.

van der Velde G. The Bone and Joint Decade 2000-2010 Task Force on Neck Pain and Its Associated Disorders: \$35,000; 2004-2005.

Studying the Health of Health Care Workers

Overview: This is a retrospective (1991-2000) database linkage study of health care workers in the B.C. acute care sector. We have created an integrated database to facilitate a better understanding of the health of health care workers and to encourage changes to promote worker health. The first involved the construction of the comprehensive database linking data from medical services, hospitalization, workers' compensation, and extended health benefits/long term disability data sources via agreements with data stewards. Additional data on hospital-level indicators of workload available through the Ministry of Health were linked by hospital of employment codes.

The database was used in Phase II of the project to construct profiles of health and health care utilization for the study population and describe differences in health and health care utilization outcomes across demographic (age, genders, SES status), occupation/hospital (size of hospital, teaching/non-teaching, workload indicators such as number of procedures/admissions), and geographic variables and evaluate to what extent these differences vary or remain the same across the 10-year study period. Our Phase III analysis will allow us to describe mental health and musculoskeletal health trajectories over time and investigate characteristics that define different group trajectories. In addition we will investigate the effect of work organization factors at the hospital-level on the risk of musculoskeletal and mental disorders, independent of demographic factors and occupation.



Mieke Koehoorn

Results:

Findings indicate six unique trajectories for musculoskeletal health over time and five unique trajectories for mental health over time, illustrating unique variability in the trajectory shapes. Some individuals never experience any musculoskeletal or mental health outcomes (as measured by the various health databases), while others have episodes of symptoms with either a decline or an increase in health care contacts for their symptoms over time. Also present are individuals who continue to show high levels of musculoskeletal and mental health outcomes (as evidenced by contacts with various health care providers or systems) with no resolution over the entire follow-up period. Future analysis will investigate the factors associated with group membership to begin to understand and predict differences in health trajectories. Preliminary multi-level modeling results indicate that musculoskeletal outcome among health care workers varied by hospital of employment, peer-group (similar groupings of hospitals based on size, service and geography) and health authority after controlling for age, gender, union membership, income and working (part-time/full time) status. Mental health outcomes varied by hospital of employment and peer-group controlling for age, gender, union membership, income, working status and health region. Work will continue to investigate which hospital level variables account for this difference in MSK and mental health outcomes.

Impact: The construction of the database will provide the opportunity for a series of studies to be conducted on the health of health care workers, and will be of interest to researchers in the field of occupational epidemiology and health services planning. Findings related to musculoskeletal and mental disorders will be relevant to policy-makers within hospitals and health authorities, the health care sector, compensation systems and the provincial ministries of health.

Researchers: Mieke Koehoorn (Principal Investigator), Donald Cole, Selahadin Ibrahim, C. Hertzman, A. Ostry, J. Dufton (University of British Columbia)

Stakeholder Involvement: Major health sector unions nationally including the B.C. Nurses Union and the Hospital Employees Association, and the Healthcare Benefit Trust, the largest provider of health care benefits to the B.C. health care sector, provincially.

Presentations:

Dufton JA, Koehoorn M, Cole DC, Hertzman C, Ibrahim S, Ostry A. Poster: Investigating trends in mental disorders among a cohort of health care workers in British Columbia. Oct 2003; Montreal, QC: Canadian Association of Researchers in Work and Health 2nd National Symposium.

Koehoorn M, Mozel M, Cole DC, Hertzman C, Ostry A, Ibrahim S. The health of health care workers: A profile of extended health benefits utilization. Sept 2002; Barcelona, Spain: International Congress on Epidemiology in Occupational Health.

Koehoorn M. Use of administrative health data for research on health care workers. Nov 2002; Vancouver, BC: Presentation to Board of Trustees, Health Sciences Association of British Columbia.

Publications:

O'Brien-Pallas L, Shamian J, Thomson D, Alksnis C, Koehoorn M., Kerr MS, Bruce S. Work-related disability in Canadian nurses. *J Nurs Scholarsh* 2004; 36(4): 352-357.

Koehoorn M, Cole DC, Hertzman C, Lee H. (2003) Patterns of general health care utilization among hospital worker compensation claimants with a work-related musculoskeletal disorder. (IWH Working Paper#221)

Koehoorn M, Mozel M, Cole DC, Hertzman C, Ostry A, Ibrahim S. The health of health care workers: A profile of extended health benefits utilization. Abstract appears in *La Medicina del Lavoro: The Italian Journal of Occupational Health and Industrial Hygiene*, 93(5) 445-446.

Koehoorn M, Cole DC, Hertzman C, Lee H. (2002) How much or when? Work exposures and the risk of musculoskeletal injury among health care workers. Aug 2002: Vancouver, B.C.: International Society of Exposure Analysis (ISEA): Linking Exposures and Health. Abstract: *Am J Epi*.

External Funding: Canadian Institutes for Health Research Operating Grant: \$162,142; 2001-2003. (Administered at the University of British Columbia)

Koehoorn M, Cole DC, Hertzman C, Ostry A, Ibrahim S. Studying the health of the health care workers: focus on long-term disability claims. CIHR: \$92,006; 2001-2003. (Administered at the University of British Columbia)

Investigating the Consequences of Work-related Injuries Among Young Workers in British Columbia

Work experiences are beneficial for adolescents and young adults. However, young workers also face exposure to a variety of health and safety hazards that can lead to work-related injury and illness. Lost-time compensation claim rates for 15 to 24 year olds are consistently higher than the rate of claims for all workers. Moreover, there is little information on the contribution and consequences of occupational injuries to the health of young people.

The purpose of this study is to further our understanding of the experience of young workers and the longer-term health consequences of being injured on the job. We plan to:

- ▶ investigate if young workers have significantly higher general health care utilization compared to a matched group of non-claimants following a workers' compensation claim;
- ▶ identify at what point in time relative to injury date does health care utilization increase and for how long it is sustained;
- ▶ investigate if higher health care utilization differs by type of occupation or type of injury.

Preliminary findings have identified four unique trajectories for health care utilization among the study population over time. In particular, one group of individuals experienced a trajectory of high and increasing use of health services for the post-injury follow-up period.

Research Lead: Mieke Koehoorn

Status: Ongoing

External Funding: Koehoorn M, Breslin FC. Investigating the consequences of work-related injuries among young workers in British Columbia. WCB of British Columbia: \$76,068; 2002-2004. (Administered at the University of British Columbia)

Atlas of Work Injury

Descriptive information on the risk of workplace injury is not currently available by geographical region in Ontario. Claims rates are known to vary by industrial sector or by rate group, but investigation into geographical influences has not been undertaken. We propose to describe geographical variation in claims rates and to explore the feasibility of conducting geographically based analysis (are there enough firms within each region, within each rate group, are claims rates stable enough at level of measurement of interest?) If feasible, we will fit a statistical model to account for important confounders (age and sex composition of workforce, rate group, standing in for nature of work, etc.) and analyse whether geographical differences in claims rates exist.

Research Lead: Sheilah Hogg-Johnson

Status: Ongoing

Evidence-Based Practice

Injured workers, health-care providers, payers 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 for Work & Health 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. The Institute was created just prior to the release of the *Acute Low-back Pain Guidelines* from the U.S. Agency for Health Care Policy and Research (AHCPR) in 1994. Consequently, the Institute's initial focus in EBP was on low-back pain and the diffusion of these guidelines to our relevant stakeholders in Ontario. In 2004, the Institute was approached by the Ontario Medical Association and the Ministry of Health to participate in a clinical guideline development process for primary care, on the basis of this earlier work. In conjunction with the Ministry of Health's Guideline Advisory Committee (GAC) the College of Physicians and Surgeons, the Ontario College of Family Physicians. The University of Toronto and other colleagues, IWH staff are engaged in a process of disseminating these guidelines and evaluating the dissemination approach. This work will continue through 2005.

Much of the current work of the EBP theme is related the Institute's role as an international Cochrane Collaboration Review site – The Back Review Group. Over 2004, The Back Review Group has released a number of new evidence-based reviews on the effectiveness of interventions for low back pain. The work of this group has been actively used in the development of the WSIB Programs of Care for Acute and Persistent Low Back Pain and in the Report of the Chronic Pain Expert Advisory Panel, prepared for the WSIB. Outreach activities for the EBP group in 2004 included participation as faculty members in the week-long University of Toronto multidisciplinary training program on pain and pain management for medical, nursing and rehabilitation students. In addition a series of evidence-based practice/systematic review workshops for policy-makers, clinicians and research trainees were initiated and will continue in 2005. These highly successful workshops were attended by Ministry of Health staff as well as staff from the WSIB. Our work in this area is highlighted in this report.

Project Titles:

<i>Cochrane Collaboration Back Review Group: Systematic Reviews of the Scientific Literature on Spinal Disorders / Systematic Review Workshops</i>	75
Methodological Developments in Systematic Reviews	77
Development of a Comprehensive Conceptual Model to Understand the Prognosis and Course of Low Back Pain	77
Adherence to Clinical Guidelines for Plain Film Radiography in Acute Low Back Pain Among Chiropractic Trainees	78
Stakeholder Products: Linkages: Literature Synthesis and Diffusion; Journal of the Ontario Occupational Health Nurses' Association	78

Cochrane Collaboration Back Review Group: Systematic Reviews of the Scientific Literature on Spinal Disorders / Systematic Review Workshops

Overview: Over the past 10 years the Institute has developed considerable expertise and reputation as a leader in the areas of evidence-based practice and systematic reviews. Since 1995, the Institute has been the co-ordinating centre for the Cochrane Back Review Group (BRG), one of 50 review groups in the Cochrane Collaboration, 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 interventions. The scope of the Back Review Group is to conduct reviews of randomized controlled trials and controlled clinical trials on primary and secondary prevention of neck and back pain and other spinal disorders, excluding inflammatory diseases and fractures. As the editorial and central coordinating centre for the BRG we are responsible for preparing, maintaining and disseminating systematic reviews of the scientific literature on spinal disorders; maintaining a specialized database of trials on spinal disorders as a resource for those conducting literature searches; and assisting in identification of gaps in the literature for areas of further study. We have also contributed to the development of standardized methods of randomized controlled trials in low-back pain research. As a result of the expertise gained as a Cochrane Collaborating Centre, and our broader interests in enhancing the methodology of systematic reviews within clinical research and other disciplines a number of Institute staff have developed significant capacity in the methods of systematic reviewing.



Vicki Pennick, Nadia Marchese, Andrea Furlan, Jill Hayden

Results:

Back Review Group

Through the BRG we have managed 30 reviews (10 of which have been updated as of 2004) and 11 protocols, all of which are registered in The Cochrane Library, Issue 4, 2004. There are also 1,532 references in the Specialized Trials Registry.

Systematic Reviews

Our capacity in systematic review methods has led to many requests for the Institute to share its expertise and to contribute to the education and training of educators, clinicians and future researchers. In response, since March 2001 the Institute has been conducting two-day Systematic Review Workshops that teach participants to plan, conduct and communicate the results of systematic reviews.

Impact: 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 by patients, health care professionals, policy-makers and payers. The Systematic Review Workshops are of particular interest to healthcare professional students, educators, clinicians, researchers, insurers and policy-makers. We have conducted special sessions of the Workshop for the University of Toronto as a course credit in Clinical Epidemiology. The workshop is also an accredited group learning activity under Section 1 of the Framework of Continuing Professional Development options for the Maintenance of Certification Program of the Royal College of Physicians and Surgeons of Canada (11 hours). These sessions have also been attended by a number of staff from the Ontario Ministry of Health as well as by staff of the WSIB.

BRG Researchers: Victoria Pennick (Group Co-ordinator), Nadia Marchese, Andrea Furlan, Rhoda Reardon, Emma Irvin, Sandra Sinclair, Judy Clarke, Jaime Guzman.

Co-editors: Claire Bombardier, L. Bouter (EMGO Institute, The Netherlands)

Editors: G. Bronfort (Northwestern University, USA), R. de Bie (Maastricht University, The Netherlands), R. Deyo (U.S. Department of Health Services, Back Pain Outcome Assessment Team), F. Guillemin (École de Sante Publique, France), H. Kreder (Women's College & Sunnybrook Health Sciences Centre), P. Shekelle (Rand Corporation), M. van Tulder (EMGO Institute, The Netherlands), G. Waddell (Glasgow, Scotland), J. Weinstein (Editor in-Chief, Spine).

Workshop Researchers: Emma Irvin (Co-ordinator), Claire Bombardier, Pierre Côté, Jill Hayden, Vicki Pennick, Andrea Furlan; J. Bayene (The Hospital for Sick Children); M. Van Tulder (Vrije University Medical Centre and the Institute for Research in Extramural Medicine)

Stakeholder Involvement in BRG Project Development: Clinical stakeholders participate in Cochrane activities at their own level of interest and expertise. This varies by individuals, 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 lay public. Current consumer representatives are Andy King of the United Steelworkers of America, Canada and Mark Schoene of The Back Letter, USA.

Methodological Developments in Systematic Reviews

In the hierarchy of the quality of evidence on the effects of health care interventions, observational studies are rated low compared to randomized controlled trials (RCTs). Although RCTs are ideal for assessing the relative efficacy of an intervention, they are not always feasible, and when they are, they are very expensive. Observational studies add to the evidence by assessing whether efficacy under controlled conditions translates into effectiveness in the real world. Currently, there is no guidance on how to incorporate this type of evidence into systematic and other literature reviews. The Cochrane Collaboration Non-randomized Studies Methods Group (NRSMG) was registered in 1999 to develop methods to incorporate evidence from non-RCTs into Cochrane reviews, but their work is still developmental. This study will aim to develop the minimum number of criteria that will reliably classify observational studies (cohorts and case-controls) as valid evidence of efficacy or effectiveness.

Research Lead: Andrea Furlan (PhD Candidate & Co-ordinator), Claire Bombardier

Status: Ongoing (temporarily suspended due to A. Furlan's maternity leave)

Development of a Framework to Identify Clinically Useful Predictive Factors for Low Back Pain

Low back pain is one of the leading causes of disability and has a major socioeconomic impact. The majority of the cost associated with this disorder is generated by a small percentage of patients whose condition proceeds to chronicity. Ability to predict accurately the clinical course early may lead to more effective management and would facilitate future investigations. Although there is an abundance of literature attempting to predict those patients at greatest risk of chronicity, conflicting results, complex prognostic models, and limited attention to prognostic factor prevalence means that these studies are of limited usefulness to the practicing clinician.

To develop a comprehensive understanding of chronic disability in LBP the program of study will involve three important pieces: 1) refining a theoretical framework from the literature to guide thinking; 2) summarizing current knowledge from the literature using a systematic collection and reconciliation process, and from clinical practice using focus groups with clinical experts, and 3) using qualitative methods to fill in the gaps in the LBP disability model with a grounding in patient experience.

This study will also provide the opportunity to investigate methodology around combining non-randomized and heterogeneous studies. Specific areas for novel methodological investigation include: assessing primary study design and methodology, exploring alternative methods for combining information from heterogeneous studies, and model-based approach to meta-analysis.

Research Lead: Jill Hayden (Co-ordinator, PhD Candidate), Claire Bombardier

Status: Ongoing

External Funding: Hayden J. Chiropractic Research Fund, Ontario Chiropractic Association and the Ontario Ministry of Health and Long Term Care: \$11,000, 2002-2004.

Adherence to Clinical Guidelines for Plain Film Radiography in Acute Low Back Pain Among Chiropractic Trainees

There is a gap between evidence-based good practice x-ray use and actual x-ray use for low back pain among chiropractors. Evidence-based guidelines are aimed at narrowing it. Although chiropractic trainees receive evidence-based instruction in radiology it is not known whether this translates to evidence-based practice.

We have recruited 448 consecutive eligible patients with acute low back pain from all six teaching clinics of the Canadian Memorial Chiropractic College over a six month period. A self-administered questionnaire has been completed by all recruited patients. Multi-level regression analysis is being used to examine patient, trainee and clinician factors associated with non-adherence to guidelines. We plan:

- ▶ to assess adherence to plain film guidelines for acute low back pain among chiropractic trainees;
- ▶ to develop a conceptual framework for the adherence of radiography guidelines;
- ▶ to compare sensitivity, specificity and positive predictive values among three clinical guidelines;
- ▶ to assess patient, trainee and clinician factors associated with adherence to radiography guidelines;
- ▶ to describe the characteristics of patients who present to chiropractic teaching clinics with a new episode of low back pain;
- ▶ to determine the x-ray use rate among trainees for patients with a new episode of acute low back pain.

Research Lead: Carlo Ammendolia (Co-ordinator, PhD Candidate), Claire Bombardier

Status: Ongoing

External Funding: Ammendolia C, Bombardier C, Hogg-Johnson S. Validation of a decision aid tool for x-ray use in patients with acute low back pain (ALBP). Special Chiropractic Research Fund, Ontario Chiropractic Association and the Ontario Ministry of Health and Long Term Care: \$187,450; 2002-2004.

Clinical Stakeholder Products: Linkages/ Journal of the Ontario Occupational Health Nurses' Association

The Institute has developed a number of evidence-based products in response to clinical stakeholders' requests for critiques of the research literature. *Linkages*, distributed semi-annually with *At Work* and available in PDF through the Institute's website, critically reviews the best available evidence in the peer-reviewed literature in the area of soft tissue injury. *From the Research Frontier* is a regular feature of the *Journal of the Ontario Occupational Health Nurses' Association*, the official publication of the Association. Published three times a year, the column highlights the work of Institute researchers and colleagues that may be of import to our occupational health stakeholders. These products are used to make the knowledge gained through high quality research both accessible and useful to our stakeholders.

Research Lead: Vicki Pennick

Status: Ongoing

Prevention of Work Disability

Achieving optimal return-to-work outcomes that support the functional recovery of injured workers and minimize workplace and societal costs is a complex challenge that requires coordination between workplace parties, the compensation insurer and health care system institutions and providers. In recent years, there has been renewed interest in evidence on the quality and effectiveness of interventions to support the safe and sustainable return-to-work of injured workers. The IWH has made a sustained commitment to research return-to-work issues since its foundation and its staff have been active in supporting WSIB's policy development in return-to-work program delivery.

The Institute's traditional focus has been on musculoskeletal disorders, the dominant cause of disability from work-related causes in Ontario. More recently, the Institute's scientific staff have been reflecting on how we might contribute understanding of effective methods of reducing work disability arising from mental disorders. Untreated or under-treated mental health needs may adversely affect the health and recovery of workers disabled by a musculoskeletal injury. Representatives of employers and of workers in Ontario are increasingly advocating enhanced detection, treatment and return-to-work strategies arising from mental health disorders. In 2004, the Institute's Scientific Advisory Committee endorsed a recommendation from IWH scientific staff to develop research into the prevention of work disability arising from these causes. The Institute has consolidated long-standing interests in the prevention of disability from musculoskeletal injury with a new focus on the prevention of disability from mental health disorders. Jointly these projects will form a program to be known as the Prevention of Work Disability.

Dr. Franche will provide scientific support to our knowledge transfer activity in disseminating the key messages from a complex systematic literature review of the effectiveness of workplace-based interventions in supporting timely and safe return-to-work following musculoskeletal disorders that was completed in 2004 and is highlighted in this report.

Dr. William Gnam will lead the development of a portfolio of research projects to improve understanding of the effectiveness of interventions to reduce work disability arising from mental health disorders. Following his recruitment in 2004, Dr. Gnam has initiated work in the conception and measurement of work disability related to mental health and has designed and led a suite of observational cohort studies. In 2005, the Institute will collaborate with Dr. Gnam and the Centre for Addiction and Mental Health in the development of a multi-year research program funding application, seeking support from the WSIB Centres of Research Expertise program and from the anticipated special funding program to be mounted by the Canadian Institutes for Health Research.

Project Titles:

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Workplace-Based Return-to-Work (RTW) Interventions: A Systematic Review of the Literature

Introduction: Employers, insurers and workers have expressed a growing interest in workplace-based return-to-work (RTW) intervention studies for occupational injuries. These studies have been scarce and they have been conducted using a variety of research designs, such as randomized and non-randomized trials. In order to provide guidelines regarding the most effective RTW strategies and to direct future research priorities in the area of RTW, a systematic literature review of the most critical Canadian and international studies was conducted, and summary reports were shared with the WSIB in 2004. The project was initiated at the request of the Workplace Safety & Insurance Board of Ontario (WSIB).

The literature review included both quantitative and qualitative studies. The former included studies examining workplace-based RTW interventions. The latter examining workers' experience of the return-to-work trajectory, as well as the perceptions and/or experiences of various other players such as employers, labour representatives, insurers and rehabilitation professionals. We included studies reporting the effectiveness of clinical RTW interventions only if care was delivered by healthcare professionals, linked specifically with the workplace. Effectiveness was examined in terms of what impact the interventions had on: 1) duration of work disability, 2) associated compensation and healthcare costs, and 3) workers' quality-of-life. To focus the review, we limited our scope to studies of workers with pain-related conditions.



Renée-Louise Franche

Seven databases were searched for relevant studies published in English and French between January 1990 and December 2003 and peer reviewed reports published by major research centres were also included. From the total of 4,124 papers identified in the search, 35 quantitative studies and 15 qualitative studies met our study relevance selection criteria. Of this 50 studies judged 24 studies - 11 quantitative and 13 qualitative - met our quality appraisal criteria and were included in the final evidence synthesis.

For quantitative studies, we relied on the best evidence synthesis approach developed which involves combining three aspects of the research literature: the number of studies identified; their methodological quality; and the consistency of the results across different studies. For qualitative studies, we used a meta-ethnographic approach which involves identifying "key concepts" across the selected studies and then re-interpreting the findings.

Results:

From the Quantitative Studies

Our best evidence synthesis finds that RTW interventions are effective in reducing the duration of work disability. They also reduce associated wage replacement and healthcare costs. The evidence that such interventions improve quality-of-life for workers is weaker. Here are some key findings and recommendations:

- ▶ There is moderate evidence that three components - early contact with the worker by the workplace; a work accommodation offer; and contact between healthcare providers and the workplace - significantly reduce work disability duration and associated costs. Therefore we recommend that workplace-based RTW interventions include these three core disability management strategies.

- ▶ There is moderate evidence that two other RTW components - ergonomic¹ worksite visits and the involvement of an individual with responsibility for RTW coordination - also reduce work disability duration and associated costs. In the studies reviewed, ergonomic visits were conducted by third party specialists such as physiotherapists, ergonomists and occupational therapists. The intensity and timing of these visits varied across studies. Therefore we recommend that workplace-based RTW interventions include a strong ergonomic component, as facilitated by ergonomic worksite visits. We also recommend that such interventions include RTW coordination.
- ▶ There is moderate evidence that educating supervisors and managers leads to reductions in work disability duration. In the studies we reviewed, this consisted primarily of education about participatory ergonomics² and safety training. Therefore we recommend that RTW interventions contain an educational component for supervisors and managers.
- ▶ There is moderate evidence that labour-management cooperation is associated with shorter work disability duration. There is limited evidence that both people-oriented culture and safety-committed culture are associated with shorter work disability duration. We recommend that increased attention be given to labour-management relations and consideration be given to workplace culture.

Certain intervention components were directly related to insurer activity and decision-making. One study showed that a RTW-focused, insurer-based case management program was effective in achieving positive RTW outcomes. As well, another study suggested that supernumerary replacements³ may be an effective RTW strategy. Therefore we suggest that insurance providers consider the merits of expanding their investment in the following activities: increasing the focus on RTW in their case management and examining the role of supernumerary replacements.

The quality of workers' lives after RTW, including their levels of pain, function and general physical health, is central to understanding the effectiveness of RTW interventions. However, our review found that the levels of evidence across studies were too diverse for us to conclude that these interventions had a positive impact on the quality-of-life of workers. Therefore we recommend more research be conducted in this area.

Conditions of goodwill and mutual confidence are influential factors contributing to the success of RTW arrangements. These conditions stem from an understanding of and a respect for the needs of the parties involved. Even when recommended conditions - such as early contact and a proactive approach to disability management - exist, people must have confidence in the RTW process and know that their well-being has been considered.

We advise that building confidence in the return-to-work process among all parties (recovering workers, their supervisors, managers, physicians and insurance providers) and gaining their commitment are important for successful return to work.

From the Qualitative Studies

Developing good relationships among unions, management and health-care providers is important for successful RTW interventions. When it comes to return to work, unions and labour representatives may sometimes face competing responsibilities. For example, an employee seniority agreement which protects one group of workers can conflict with the process of work accommodation. The research, which is supported by the quantitative literature, suggests that when unions and labour representatives are committed to and participate fully in the RTW process, their involvement is very beneficial. We recommend employing strategies to encourage a "shared understanding" of RTW - for example, processes that bring together workers, unions, employers, insurers and healthcare providers.

The RTW process is laden with potential for miscommunication and misunderstanding. Successful return to work after injury or illness is not a straightforward process. The qualitative studies highlight the many difficulties workers face in meeting their "duty to cooperate" with employers and workers' compensation boards. Their navigation through that system is often arduous, marked by a lack of information about process and procedures at a time when they feel vulnerable and less than self-reliant. Workers are usually not familiar with rules about workers' compensation or the specialized language used by health care and insurance professionals. We recommend that employers, insurers and health-care providers provide adequate and consistent information when communicating with ill or injured workers about return to work. It is important to simplify procedures and language around RTW processes and requirements, and to ensure that workers have been fully informed of their rights and obligations.

There are important social aspects to modified work. Modified work can involve difficult social dislocation which produces new sets of relationships and routines. The injured worker may have to deal with co-workers who resent having to take over some of his or her workload, or who may feel that the worker has managed to get an "easier" job. An awkward fit with a modified work environment or a negative social atmosphere can contribute to a breakdown of the RTW process. We recommend that creativity and sensitivity to the needs of all parties be considered an integral part of modified work planning.

Return to work requires careful coordination and consideration of the needs of the various players. The needs and experiences of workers, co-workers, supervisors, managers and healthcare providers will affect the success of RTW. For instance, supervisors who must maintain competitive production levels may find that this conflicts with their ability to fully accommodate the needs of an injured worker. In this case, organizational restructuring may modify supervisor performance requirements so that RTW needs do not compete with production targets. We recommend that at each step, the parties consider the feasibility of RTW plans and the ability of workers to successfully negotiate the process. We also emphasize the importance of engaging with top management to ensure their consideration of and support for the resources needed for a successful RTW process.

Supervisors can play an important role in the RTW process. They were identified as important to the success of RTW due to their proximity to the worker, their ability to manage the immediate RTW work environment, and their organizational position, which provides a link between the worker and senior workplace decision-makers. These findings are reinforced by moderate evidence from the quantitative literature that educating supervisors and managers leads to reductions in work disability duration. To support their role in successful return to work, we recommend that supervisors be included in RTW planning and offered related training.

Rehabilitation and occupational health professionals can be key to RTW success because they are a bridge between the workplace and the healthcare system. These professionals are able to communicate with health specialists, to visit worksites to assess RTW conditions, and to offer tailored advice that is sensitive to the workers' immediate work environment. The review findings show that the involvement of rehabilitation and occupational healthcare providers in the RTW process is important. The systematic review has identified which workplace-based actions have been found to enhance RTW and reduce worker disability and associated costs.

¹ Ergonomics is the study and process of designing and/or modifying tools, materials, equipment, work spaces, tasks, jobs, products, systems and environments to match the abilities, limitations and social needs of human beings in the workplace.

² Participatory ergonomics refers to the implementation of ergonomic solutions involving the participation of the worker and other workplace staff, such as the supervisor.

³ Supernumerary replacement refers to a person hired to replace an ill or injured worker who is receiving benefits while doing modified or part-time work. The funds used to cover the salary of the replacement worker may be provided by a government insurance program, a private insurer, or by the employer. However, such arrangements are still relatively uncommon.

Impact: Our systematic review represents the most comprehensive review to date of the literature about workplace-based RTW interventions and processes. It provides background knowledge and guidelines for WSIB, employers, employee assistance programs and unions regarding RTW strategies. We are now confident in sharing evidence-based knowledge about "what works" in RTW and under what conditions. The Institute is now working with various stakeholders, including the Workplace Safety & Insurance Board (WSIB), to translate evidence from the systematic review into "key messages" by engaging representatives from three key target audiences, the workplace, healthcare providers and insurers.

Researchers: Renée-Louise Franche (Co-ordinator), Sandra Sinclair, Donald Cole, John Frank, Rhoda Reardon, Kim Cullen, Anusha Raj, Judy Clarke, Emma Irvin, Quenby Mahood, Sheilah Hogg-Johnson, Jaime Guzman, Dwayne Van Eerd, Vicki Pennick, Ellen MacEachen

Stakeholder Involvement: This literature was initiated at the request of WSIB and representatives were involved in the definition of project objectives.

Presentations:

Franche R-L, MacEachen E, and the Workplace-based RTW Interventions Systematic Review Group. Workplace-based RTW interventions: A systematic review of the quantitative and qualitative literature review. June 2004; Toronto, ON: Workplace Safety & Insurance Board.

Franche R-L, Cullen K, Clarke J, MacEachen E, Frank JW, Sinclair S and the Workplace-based Return-to-Work Intervention Literature Review Group. Workplace-based return-to-work interventions: A systematic review of the quantitative and qualitative literature. Oct 2004; Toronto, ON: RTW Roundtable Meeting: Ontario Health & Safety Associations

MacEachen E, Clarke J, Franche R-L, Cullen K, Sinclair S, Frank JW, Irvin E, Reardon R, Raj A, Pennick V, Cole DC. What systematic reviews gain when they include qualitative research: A systematic review of qualitative work on workplace-based return to work practices. Oct 2004; Ottawa, ON: XII Cochrane Colloquium.

Cullen K, Franche R-L, Clarke J, MacEachen E, Frank JW, Sinclair S and the Workplace-based Return-to-Work Intervention Literature Review Group. Workplace-based return-to-work interventions: A systematic review of the quantitative and qualitative literature. Oct 2004; Niagara Falls, ON: IWH meeting of Educationally Influential Kinesiologists.

Franche R-L, Cullen K, Clarke J, MacEachen E, Frank JW, Sinclair S and the Workplace-based Return-to-Work Intervention Literature Review Group. Workplace-based return-to-work interventions: A systematic review of the quantitative and qualitative literature. Nov 2004; Boston, MA: Workers Compensation Research Group

Franche R-L, Cullen K, Clarke J, MacEachen E, Frank JW, Sinclair S and the Workplace-based Return-to-Work Intervention Literature Review Group. Workplace-based return-to-work interventions: A systematic review of the quantitative and qualitative literature. Dec 2004; Toronto, ON: IWH Board of Directors

Franché R-L, Cullen K, Clarke J, MacEachen E, Frank JW, Sinclair S and the Workplace-based Return-to-Work Intervention Literature Review Group. Workplace-based return-to-work interventions: A systematic review of the quantitative and qualitative literature. Dec 2004; Toronto, ON: Rounds for Healthcare Providers of the WSIB of Ontario

Publications:

Franché R-L, Cullen K, Clarke J, MacEachen E, Frank JW, Sinclair S and the Workplace-based RTW Intervention Systematic Review group. Workplace-based return-to-work interventions: A systematic review of the quantitative and qualitative literature. 2004 Report: WSIB.

Summary Report can be found at www.iwh.on.ca/products/images/IWH_rtw.pdf

Return-to-Work Cohort

This prospective inception cohort study followed injured workers for two years and provided important descriptive and predictive information regarding differences in return-to-work outcomes in Ontario. It examined the relative contribution of organizational, individual/psychological, insurer, and healthcare provider factors to return to work outcomes, using an interactional framework. Pilot work on 400 injured workers has facilitated testing of the measurement instruments and confirmed the feasibility of recruitment and interviewing for a long term follow-up study. In 2004, we successfully received grant funding from the WSIB-RAC to continue this research which has evolved into the project: Readiness for RTW Cohort.

Research Lead: Renée-Louise Franche

Project Status: Completed - has evolved into: Readiness for RTW Cohort.

The Readiness For Return To Work Cohort

This prospective cohort study will follow a sample of 600 lost-time claimants with work-related musculoskeletal disorders over a duration of twelve months, using telephone interviews one month, six months and 12 months post injury. The study seeks to validate the conceptual framework of the Readiness for Change Model to the return-to-work (RTW) process. The readiness for change model proposes five stages of readiness for engaging in and maintaining behavior change: pre-contemplation, contemplation, preparation for action, action, maintenance. The model has received strong empirical validation with respect to health risk behaviours; however, its application to RTW is new. It will identify critical workplace, insurer, healthcare provider and individual factors contributing to healthy and sustainable RTW process and provide descriptive information regarding the RTW trajectory and outcome one year post-injury of a representative sample of injured workers with work-related musculoskeletal disorders.

Research Lead: Renée-Louise Franche

Status: Ongoing

External Funding: Franche R-L, Mustard CA, Hepburn G, Breslin C, Hogg-Johnson S, Frank JW, Côté P. Determinants of return-to-work: applying the readiness for change model. WSIB RAC: \$278,320; 2004-2006.

Return to Work in Small Workplaces: Worker and Employer Perspectives

Successful return to work (RTW) is of critical importance to workers, employers and the compensation system. Despite a growing research literature on return-to-work we have insufficient understanding of its psychosocial dimensions and of how it occurs in small workplace settings. Our current knowledge is mainly focused in large, unionized work sites. This study began in October 1999 and was funded through the Workplace Safety & Insurance Board Research Advisory Council (WSIB-RAC) peer-reviewed funding to further our understanding of the RTW process in workplaces employing fewer than 50 workers.

It linked different perspectives of employers, workers and rehabilitation professionals, and identified how their understandings of and responses to RTW were related to the broader social, economic and regulatory environment, institutional policies, the nature of the work, the social relations of work and the nature of the illness/injury. Audio-taped interviews were conducted with 17 employers and 22 workers, as well as six RTW professionals. The analytic focus was on how key return-to-work principles and practices actually play out within the workplace, including notions of early return, modified work and workplace self reliance. Core findings included the pernicious effect of a systemic ‘discourse of abuse’ on the experiences of both employers and workers, disruption of the ‘moral economy’ of the workplace, and the mediating role of certain forms of ‘social capital’ in the return-to-work process.

Research Lead: Joan Eakin (IWH Adjunct Scientist, University of Toronto), Judy Clarke

Status: Completed

Effects of Return-to-Work on Health-Related Quality of Life in HIV/AIDS

The use of highly active antiretroviral therapies for HIV disease has resulted in dramatic increases in life expectancy and declines in morbidity. People living with HIV/AIDS are now considering the possibility of going back to work. The main objective of this study is to understand the effect of returning to work on the health-related quality of life of people with HIV/AIDS who are currently on disability. The secondary objective is to determine predictors of return-to-work in this population.

Research Lead: Sergio Rueda (PhD Candidate & Co-ordinator), Cam Mustard

Status: Ongoing

External Funding: Mustard CA, Rued S, Lavis JN, Bayoumi A, Raboud J, Rourke S. Effects of return-to-work on health related quality of life in HIV/AIDS: A prospective cohort study. CIHR: \$116,678; 2003-2007.

Training Initiatives In Work Disability Prevention

The Institute for Work & Health is a leading institution recognized internationally for its expertise in evidence-based practice, measurement research and work disability prevention (WDP). The Institute has received increasing requests to share its expertise and to contribute to the education and training of educators, clinicians and future researchers.

The WDP program engaged 24 key mentors from nine Canadian universities. This program is supplemental for students enrolled in a relevant recognized PhD or post-doctoral program from a Canadian university or the equivalent from a recognized foreign university. It is offered over a three year period. Three main types of educational experiences are provided: 1) summer session including problem-solving learning modules and invited speakers, 2) training practicum at various Canadian sites 3) e-learning. The trainee's own disciplinary experience and research project are used to contribute to the group's transdisciplinary experience. The program also adds to the development of the trainees' on-going research project by anchoring it in a transdisciplinary context. A total of 20 students are enrolled in the WDP program, and we are anticipating the enrollment of 10-12 more students for the 2005 summer session and a third summer session of the program is being planned currently.

Research Lead: Renée-Louise Franche

Status: Ongoing

External Funding: The Work Disability Prevention Training Program is funded by CIHR, Patrick Loisel, Principal Investigator (Administered at Universite de Sherbrooke)

Mental Health Disorder, Treatment and Work Disability in the NPHS

Substantial attention has been given to estimating the prevalence and consequences of mental illness. A recent study by Health Canada estimates that the economic burden of mental disorders was \$7.8 billion in 1993. There are two questions regarding mental health in the workplace that can be addressed through analysis of the National Population Health Survey. First, does depression treatment reduce work disability? To date, information on the impact of depression treatment on work disability has been obtained from randomized clinical trials. These studies provide evidence that timely and appropriate clinical care can reduce work role disability associated with mental disorders. However, the generalizability of these findings to the general population in natural settings remains to be determined. Second, what are the employment and earnings costs of mental disorders? In the U.S. 5-6 million workers lose, fail to seek, or cannot find employment as a consequence of mental illness. Among those who do work, it is estimated that mental illness decreased annual income by about \$3500 to \$6000.

Research Lead: William Gnam

Status: Ongoing

External Funding: Funded by CIHR (Administered at the Centre for Addiction and Mental Health)

Profiling the Mental Health and Service Utilization of Workers' Compensation Claimants

In the interest of providing cost-effective health care for injured workers, workers' compensation systems across North America are placing increasing emphasis on treatment quality and outcomes. This study will make an initial but important step towards improving the health service delivery targeted at the mental health of injured workers. It represents the first systematic Canadian profile of the mental health and related service utilization of an entire workers' compensation population. Investigators at the Centre for Addiction and Mental Health and the Institute for Work & Health have sampled and linked administrative data on a large cohort of approximately 110,000 workers' compensation claimants in British Columbia together with an age and sex matched comparison population. A person-specific longitudinal database (spanning 1990-2000) has been constructed which will facilitate the understanding of the pre-injury and post-injury mental health and related substance use of compensation claimants. Specifically, this will profile the mental health and related utilization of injured workers along several dimensions, including psychiatric hospitalization, substance disorder treatment, the use of general medical and specialty mental health physician services, and diagnostic information. We will model the patterns and intensity of mental health services as predictors for two outcomes: the duration of a claim, and the probability of having a repeat claim.

Research Lead: William Gnam

Status: Ongoing

External Funding: Gnam W, Koehoorn M, Breslin FC, Mustard C. Profiling the mental health and service utilization of workers' compensation claimants. \$110,310; 2002-2004. WCB - British Columbia (Administered at the Centre for Addiction and Mental Health)

Knowledge Transfer & Exchange in Health Services Research Program

Project Title: Return to Work Knowledge Transfer & Exchange Project

Introduction: The Institute, in partnership with WSIB have reviewed the existing evidence on ‘workplace-based RTW interventions’. The output from this review is being used in a Phase II endeavour which includes translating and transferring this knowledge for workplace parties (workers and employers). The transfer will first engage the “Workplace Connection Strata”, i.e. those roles, services, organizations and initiatives which interact directly with workplace parties and, in the course of this interaction, influence (or could influence) the workplace parties’ awareness and behaviours around return to work. The Workplace Connection Strata includes: WSIB Service Delivery Teams; Health Care Providers who treat injured workers; HSAs; Safe Communities Incentive Program (SCIP); Safety Groups; Disability Managers; WSIB Specialty Programs; Organized Labour.

Objectives:

Impact #1: *Ensure delivery of consistent, evidence-based RTW messages across the ‘Workplace Connection Strata’*

Goal #1: Describe the ‘*Workplace Connection Strata*’, i.e., for each Strata participant describe:

- ▶ their current interaction/role with workplace parties;
- ▶ how current interactions/role addresses RTW;
- ▶ any tools/resources used which are intended to assist workplace parties in implementing RTW.

Goal #2 Engage Strata participants in a process of reviewing, and where indicated, using the evidence to improve their workplace parties interactions and their tools/resources (*Note: the project team will likely prioritize participant engagement with Service Delivery Teams being a high priority*). The nature of the engagement will include:

- ▶ a review interactions with workplace parties to determine consistency with the evidence and expose any opportunities for improvement;
- ▶ a review of any RTW tools/resources to determine consistency with the evidence and expose any opportunities for improvement;
- ▶ a consideration of the generalizability of any tools/resources to other Strata participants and willingness of the Strata participant to share the tool/resource in the Work Ready Tool Kit appendix;
- ▶ determining Strata participant’s interest in participating in a Work Ready workshop.

Impact #2: *Promote networking and tool/resource sharing across the Workplace Connection Strata*

Goal #3 Create a new RTW knowledge transfer tool for the RTW parties (workers, employers, health care providers, insurers, organized labour, disability managers, health and safety partners) by revising *Work-Ready* and attaching a ‘Tool Kit’ or tools/resources which help workplace parties implement the evidence.

Goal #4 Model networking and sharing across the strata by offering the revised and enhanced Work-Ready knowledge transfer tool to all Strata participants and demonstrate Work-Ready’s utility by delivering a several workshops with interested Strata participants.

Messages: RTW outcomes can be improved through:

- ▶ Behaviour-based support for RTW in the workplace;
- ▶ Early, appropriate contact with injured workers;
- ▶ Offer of work accommodation;
- ▶ Planned RTW programs with input from supervisors;
- ▶ Contact between workplace and health care provider.

Stakeholder Involvement: WSIB (RTW/LMR Branch, WSIB Service Delivery Teams; Health Care Providers who treat injured workers; HSAs; SCIP; Safety Groups; Disability Managers; WSIB Specialty Programs; Organized Labour.

Summary of Accomplishments: Extracting the messages worked with Systematic Review team on message extraction.

Bringing the Partners Together:

- ▶ provided liaison between WSIB and the systematic review team
- ▶ developed understanding of WSIB RTW Strategy

Developing the KTE Strategy:

- ▶ developed a joint project (logic model) with WSIB to transfer messages to multiple audiences
- ▶ conducted a healthy workplace think tank with researchers and partners and incorporated results into the RTW transfer plan

Beginning the Transfer and Exchange:

- ▶ assisted WSIB partners in development and delivery of return to work workshop for IAPA conference
- ▶ delivered workshop on RTW evidence to Kinesiology Educational Influential's
- ▶ delivered workshop on RTW evidence to Eastern Health and Safety Conference

Next Steps: Ongoing in 2005.

Team: Rhoda Reardon, Judy Clarke, Kim Cullen, Renée-Louise Franche, Project #142 Team, Dee Kramer, Kathy Knowles Chapeskie, Melissa Cohen

Data & Information Systems Program

This section, under the theme Statistical Methods and Data Tools, describes an important Institute Program that underpins virtually every project in every theme within the Institute's research portfolio. Since the Institute is primarily occupied with applied research, using empirical methods of analysis, both qualitative and quantitative, we attach great importance to the availability of appropriate programming, bibliographical, information retrieval, statistical, econometric and other empirical skills, with experts capable of supporting a very diverse set of projects in terms of their substantive topic content, their empirical method and their scientific discipline. The Institute sees the function of this Program as serving the entire corpus of our work and the staff are accordingly to be found amongst the listed participants in all themes. Their involvement is typically from early conceptualization of the research to be done, through its implementation to its publication.

The skills of the Institute's staff are not restricted to the support of the Institute's own research, wherever generated. Our staff are frequently consulted by other researchers applying to the WSIB Research Advisory Council peer review grants program. Our expertise in time series of labour force denominators is being used by the provinces of British Columbia and Quebec as well as the WSIB in Ontario. Staff are also involved in the development of a range of tools to facilitate our research. These include Microsoft Access modules for frequently used instruments such as SF-36, DASH, the Chronic Pain Guide and an information database to house project and staff details.

Statistical Methods and Data Tools

In addition to the essentially support role, where the initiative for the research in question typically comes from a member of a theme in another Program, staff in this Program have a proactive research role by taking the lead in the exploration, development and implementation of methodologies and approaches to accessing, collecting, analyzing, interpreting, storing and maintaining the security of our data. This includes current WSIB administrative data necessary for ongoing research work and data from those systems no longer currently in widespread use at the WSIB. We continuously refine our capacity for on-line data collection and the development and maintenance of our repository of WSIB historical databases for research purposes. The projects detailed below are those led by staff in this program.

Project Titles:

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WSIB Denominators

Overview: Workplace injury and disease surveillance in Ontario and in Canada is deficient relative to leading international standards. Workplace injury surveillance conducted by provincial workers' compensation authorities in Canada has a number of limitations. While time-loss injury claims recorded by worker's compensation authorities in Canada contain information on the age and gender of the injured worker, the nature and cause of injury as well as the size of the firm and the industrial sector in which the firm is engaged, there is a lack of denominator information available from compensation system sources at similar levels of stratification. To examine alternate sources of labour force denominator information, this project obtained detailed labour force counts from the Canadian Labour Force Survey and the Canadian Census. These were adjusted for the coverage rates of the Ontario Workplace Safety and Insurance Board. The labour force counts, stratified by age, gender and industry, have been tabulated for each of the two dominant occupational classification systems in use in Canada in the 1990s (SOC1980 and SOC1991). We anticipate the use of the time series of labour force denominators developed in earlier phases of this project in applications to enhance the surveillance and monitoring of occupational injury and disease in Ontario and eventually to conduct cross provincial- comparisons. In the interim this alternate source of labour force counts has subsequently been applied in a wide range of research applications at the Institute for Work & Health.

Results: The alternate denominator series based on Statistics Canada data sources has been applied in a range of IWH surveillance reports. Most recently, this method has been applied in projects examining youth injury risk, where the alternate denominator series has provided adjustment for person-time work exposure in estimating differences in injury risk between young workers and older workers. Younger workers have fewer average work hours.

Impact: This project was originally focused on the internal capacity of the Institute to provide accurate and timely descriptive statistics of the rates of time-loss injury in the Ontario labour force. However, at the annual AWCBC meeting in August 2004, Chief Financial Officers of the Canadian Workers' Compensation Agencies directed staff of the Quebec and Ontario compensation agencies to conduct an assessment of the feasibility of implementing the IWH alternate denominator series as a means of improving indicators of cross-provincial compensation system performance. This directive to the workers' compensation agencies indicates policy interest in the development of these methods. IWH believes the work arising from this project will be of increasing interest to a wide range of stakeholders.

Researchers: Cameron Mustard (Co-ordinator), Peter Smith, Stella Chan

Stakeholder Involvement: B. Kusiak, Ministry of Labour, R. Allingham, WSIB, T. Bogyo (British Columbia WCB), C. Martin (CSST).

Publications:

Smith PM, Mustard CA. Examining the association between physical work demands and work injury rates between men and women in Ontario. 1990-2000. (IWH Working Paper #215) *Occup Environ Med* 2004; 61(9):750-756.

Smith P, Mustard CA, Payne JI. A methodology for estimating the labour force insured by the Ontario WSIB 1990-2000. (IWH Working Paper #196) *Chronic Dis Can* 2004; 25(3/4): 127-137.

Presentations:

Smith P, Mustard CA. Examining the associations between physical work demands and work injury rates between men and women in Ontario. 1990 - 2000. Nov 2004; Toronto, ON: WSIB-RAC, Solutions for Workplace Change Conference.

Cohort Methods

Overview: Valid interpretation of the results of cohort studies depends on the validity (amongst other things) of the assumptions made by epidemiologists when designing and conducting these studies. However, the validity of these assumptions is rarely tested and this can be a source of bias. One of these sources is attrition bias, the potential bias given to studies through the loss over time of cohort members. Our objectives in this project were to test the impact of attrition bias on the results of cohort studies and to determine the impact of various attrition rates on the results of cohorts studies.

A simulated cohort of 300 subjects using 500 computer replications was used to determine whether mean imputation, regression imputation, individual weighting, or multiple imputation were useful to reduce attrition bias. We compared these results to a complete subject analysis. Our logistic regression model included a binary exposure and two confounders. We generated 10%, 25%, and 40% attrition through three missing data mechanisms: missing completely at random, missing at random and missing not at random, and used four covariance matrices to vary attrition. We compared true and estimated mean odds ratio and defined bias to be present when the coverage was less than 80%.

Results: With data missing completely at random and missing at random for all attrition rates, the complete subject analysis produced results at least as valid as those from the imputation and weighting methods. With data missing not at random, no method provided unbiased estimates of the odds ratio at attrition rates of 25% or 40%.

Impact: Researchers conducting cohort studies will find this work significant, as it will offer an answer to the issue of dealing with data of individuals that are lost to follow-up, thus reducing potential bias.

Researchers: Pierre Côté (Co-ordinator), Vicki Kristman, M. Manno (Mount Sinai Hospital)

Presentations:

Kristman V, Manno M, Côté P. Attrition in cohort studies: How much is too much? June 2003; Halifax, NS: Canadian Society for Epidemiology and Biostatistics Biennial meeting.

Kristman V, Manno M, Côté P. Attrition in cohort studies: How much is too much? June 2003; Atlanta, Georgia: Society for Epidemiologic Research 36th Annual meeting.

Kristman V, Manno M, Côté, P. The potential impact of attrition bias in cohort studies: A simulation study. August 2002; Montreal, PQ: XVI International Epidemiological Association World Congress of Epidemiology.

Kristman V, Manno M, Côté P. The potential impact of attrition bias in cohort studies: A simulation study. August 2002; Montreal, PQ: 16th Annual Canadian Society for Epidemiology and Biostatistics Student Conference, McGill University.

Kristman V, Manno M, Côté P. The potential impact of attrition bias in cohort studies: A simulation study. June 2002; Palm Desert, California: 35th Annual meeting of the Society for Epidemiological Research.

Publications:

Kristman VL, Manno M, Côté P. Methods to account for attrition in longitudinal data: do they correct for bias? A simulation study. (IWH Working Paper #180) Submitted: Eur J Epidemiol

Kristman V, Manno M, Côté P. Loss to follow-up in cohort studies: how much is too much? Eur J Epidemiol 2004; 19:751-760 (IWH Working Paper #208)

Kristman V, Manno M, Côté P. (2003) Attrition in cohort studies: how much is too much? Submitted: European Journal of Epidemiology (IWH Working Paper #208)

Kristman V, Manno M, Côté P. (2002) The potential impact of attrition bias in cohort studies: A simulation study. (IWH Working Paper #180)

Workplace Safety & Insurance Board Data Routine Statistics

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

Research Lead: Sheilah Hogg-Johnson

Status: Ongoing

Historical Data Depository

The Ontario Workplace Safety & Insurance Board has immense data holdings on workers' compensation claims, claimants and covered firms. Recent developments at the WSIB have focused on modernizing the technical capacity for claims management, with an initial focus on prevention. However, for research and policy purposes, it is important to maintain older data as a resource also. Following consultation and agreement with the WSIB, IWH initiated a special project which will result in a dedicated IWH repository of historical WSIB data on claims and employers for IWH research purposes.

Research Lead: Sheilah Hogg-Johnson

Status: Ongoing

Data Dictionary

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 has been completed.

Research Lead: Sheilah Hogg-Johnson

Status: Ongoing

Keyword Project

The Keyword project is an attempt to create a common nomenclature for describing terms and 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 needs.

Research Lead: Emma Irvin

Status: Ongoing

Development of Instrument Database and Questionnaire Design Tools

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.

Research Lead: Michael Swift

Status: Ongoing

Integrated Information Database

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 which contained all of these information items, which could easily be manipulated to allow for customization, was proposed. The integrated information database was conceived as a tool which 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 the elements of detailed project descriptions. The third phase will contain CV type information on Institute staff and affiliates.

Research Lead: Michael Swift

Status: Ongoing

Knowledge Transfer & Exchange

Overview

The overall goal of Knowledge Transfer and Exchange (KTE) at the Institute is to make research evidence available, understandable and usable for decision-making, program planning and practice in order to promote, protect and improve the health of working people.

In this year's report we have integrated some of the KTE projects with the relevant research programs to make it easier for the reader to see these links. The remaining accomplishment summaries are found in this section of the report:

The accomplishment summaries fall into four categories:

1. **Building stakeholder/audience relationships** to enhance the applicability and uptake of IWH research and to provide audience intelligence back to IWH in shaping its research agenda.
2. **Building capacity** of stakeholder/audiences to enhance their understanding of research and its use in decision-making and to increase the "pull" for research evidence.
3. **Improving the effectiveness of the KTE program.**
4. **Supporting the Institute through effective corporate communication** strategies. This goal continued to focus on increasing the Institute's visibility through communications and marketing. The Website continued as a major source of outreach along with the publication of our quarterly newsletters At Work and Infocus.

Project Title: Clinical Networks

Introduction: There are a range of providers who practice outside the more traditional clinical settings and focus on the work/health interface. Disciplines in this group include (but are not limited to) occupational health nurses, occupational therapists, chiropractors, physiotherapists, kinesiologists and physicians. There are multiple research messages from IWH that are relevant and useful to these groups and, equally, there is a practice expertise and knowledge that these groups possess that is useful and relevant to focus IWH research and knowledge transfer activities. This project builds on work initiated in 2003 to develop a *knowledge transfer & exchange mechanism* that can be used over time, with multiple messages. The goal is to systematically identify within each discipline, those individuals across the province who are “Educationally Influential (EI) Opinion Leaders”. A systematic process for identifying opinion leaders is employed (based on Hiss methodology). Once identified, the opinion leaders are convened to seek their cooperation in an ongoing role as “*knowledge broker*” to facilitate a two-way exchange: stakeholder information and opinion into IWH and research knowledge out to EI groups and, via EI groups, to their peers.

The work with primary care physician EIs was new in 2004. The GAC - Guidelines Advisory Committee of the Ontario Medical Association and Ministry of Health and Long Term Care (OMA & MOH & LC) select and implement guidelines in primary care medicine. They invited IWH partnership on their current project, implementing a guideline on acute low back pain (ALBP). The IWH/GAC partnership set a goal to identify educationally influential physicians in primary care and invited other partners, College of Physicians and Surgeons of Ontario, Ontario College of Family Physicians and the University of Toronto Knowledge Translation Program. This group have adopted the name: Ontario Physicians Knowledge Exchange Collaborative (OPKEC). The project successfully identified approximately 200 EI physicians across Ontario and in November 2004 a workshop was held where approximately 55 physicians attended. Currently work is underway to set up regional meetings with EI physicians to discuss evidence on management of LBP and RTW.

Objectives:

- ▶ Forge and maintain partnerships with relevant professional bodies.
- ▶ Systematically identify EI opinion leaders.
- ▶ Design, with partners, a rigorous outcome evaluation.
- ▶ Convene EI opinion leaders to gain their cooperation as knowledge brokers.
- ▶ Plan and implement knowledge transfer & exchange sessions with discipline groups and/or multidisciplinary groups (research messages out; stakeholder wisdom in).
- ▶ Maintain relationship with network of clinical EI opinion leaders through appropriate communication and interaction.
- ▶ Evaluate effectiveness of this mechanism for KTE.

Message: Multiple

Stakeholder Involvement: Clinicians who work on the health/work interface, specifically, physical therapists (PT), occupational therapists (OT), occupational health nurses (OHN), chiropractors (DC), kinesiologists (KIN) and primary care physicians. Partners including: College of Physiotherapists of Ontario; Ontario Kinesiologist Association; Ontario Occupational Health Nurse Association; College of Occupational Therapists of Ontario; Ontario Society of Occupational Therapists; Guidelines Advisory Committee; College of Physicians and Surgeons of Ontario; Ontario College of Family Physicians, and the University of Toronto Knowledge Translation Program.

Summary of Accomplishments:

PT, OHN, and KIN EIs

- ▶ consolidated networks with physiotherapy, OHN and kinesiologist EI groups
- ▶ created a database with profile information on all current EIs
- ▶ initiated partnership around identification of Occupational Therapist EIs and provided KT input to the OT Work Practice Task Force
- ▶ delivered workshop to the PT EIs (initiated process to include their input to Cochrane reviews)
- ▶ delivered an interactive workshop to Kin EIs on RTW
- ▶ presented to two OHN groups
- ▶ presented EI project to international CME conference, U of T Physiotherapy Research Day and contributed to poster presentation

Primary Care Physicians

- ▶ partnered with the GAC to form the ‘Ontario Physician Knowledge Exchange Collaborative’
- ▶ surveyed approximately 3,700 physicians with a 40% response rate and identification of 198 primary care physician EIs
- ▶ delivered an interactive workshop for 55 physician EIs
- ▶ initiated a plan to revise patient education materials (LBP) with input from the EI physicians

Team: Rhoda Reardon, *KTE Support* Jane Gibson, Dee Kramer, Robin Kells, Melissa Cohen, Kathy Knowles Chapeskie, Evelyne Michaels, *Research support* Jamie Guzman, Claire Bombardier Vicki Pennick, Kim Cullen, Dwayne Van Eerd, Carol Kennedy, Sandra Sinclair, Jill Hayden, Pierre Côté, Carlo Ammendolia, Vicki Pennick; *Survey design and data analysis support*, Sheilah Hogg-Johnson, Peter Subrata.

Project Title: Workplace Parties Network

Introduction: Integral to the KTE strategic plan is the idea that the interactive nature of KTE requires the initiatives be built on solid partnerships with key stakeholders. This participatory process aids in the transfer and utilization of research knowledge and ensures that tools and strategies are sensitive to the needs of the target audience. It also facilitates development of a knowledge exchange loop and a reciprocal exchange of information.

Objectives:

- ▶ To build networks to facilitate the transfer and exchange of research information with: employer associations, labour, prevention partners (HSAs, WSIB), ergonomists and consultants at the Health and Safety Associations, injured workers, workplace health and safety specialists (through the Ryerson School of Occupational and Public Health)
- ▶ To share the results of research.
- ▶ To engage specific audiences in the research process.
- ▶ To involve stakeholders in the dissemination of the research messages.
- ▶ To provide feedback about stakeholder needs for the Institute's research agenda.
- ▶ To measure stakeholders' use the research (conceptual use, instrumental use, strategic use).

Message: Multiple messages for workplace studies, specifically WHIR.

Audiences: Employers and management, union representatives and labour, workplace health and safety specialists, consultants and ergonomists at the Health & Safety Associations, and injured workers.

Summary of Accomplishments:

A number of individuals within different organizations were identified as key opinion leaders and potential conduits of research messages. Meetings took place concerning IWH research, potential collaboration on specific projects, as well as support for workshops and presentations.

Employers: Ian Howcroft (CME), Sherri Helmke (EAC)

Labour: Andy King and Nancy Hutchison (USWA) Dave Robertson (CAW)

Prevention Partners: Occupational Health Clinic for Ontario Workers, Industrial Accident Prevention Association, Health Care Health & Safety Association, Construction Safety Association of Ontario, Centre for Addiction and Mental Health, WSIB (ergonomists and consultants), Injured Workers Associations, Ryerson OHS Students.

The Institute now has regular contact with these individuals in an expanding network of employer associations, unions and labour, ergonomists and consultants at the Health and Safety Association, injured workers and workplace health and safety specialists. Awareness of IWH with these groups is increasing and active engagement early in the research process was demonstrated in the WHIR project. An evaluation of multiple stakeholder involvement in one research project (the WHIR project) was completed and an article written and accepted for publication. (Dee Kramer, Donald Cole)

HSA Liaison Committee at IWH expanded to include all interested HSAs (met quarterly) with combined agenda of IWH research evidence and HSA research needs/projects.

IWH also asked to serve on WSIB RAC Research Utilization Committee

Supported several Partners in workshops (WSIB Think Tank on Road Safety)

Team: Dee Kramer, Robin Kells, Donald Cole, Jane Brenneman Gibson, Philip Bigelow

Introduction: The theme of **Building Capacity** has focused on increasing awareness, and on how to understand and use research by our audiences. One tool has been to share research concepts with audiences so that there is a better understanding of the research process. In addition a series of Roundtables to discuss building a better blueprint for KTE was undertaken in partnership with WSIB RAC. KTE support was also provided to the new Centre of Expertise in MSDs (CRE-MSD) at the University of Waterloo.

Objectives:

- ▶ To enhance understanding of research concepts in our audiences.
- ▶ To begin to build a better blueprint for KTE through listening to our audiences via roundtable discussions.
- ▶ To provide support to the CRE-MSD by helping to raise its profile within the Safety Prevention System, with prevention partners, unions and labour and employer groups, during its start up phase and to involve stakeholders in research projects funded by the Centre.

Audiences: Prevention system partners, workplace parties, employers, workers, labour, WSIB, Ministry of Labour.

Summary of Accomplishments:

1. CRE-MSD: Steering committee was created with representatives from: Ontario Service Safety Association, WSIB, Electrical & Utilities Safety Association, Employers Advocacy Council, the Communications, Energy and Paperworkers Union of Canada and United Food & Commercial Workers unions, Injured Worker, and the Ministry of Labour. The Centre held a successful opening on June 28th. Engaged stakeholders about CRE-MSD, presentation given on participative ergonomics at the Industrial Accident Prevention Association conference, a focus group was held at the Annual ACE conference, multi-stakeholder presentation given at the WSIB-RAC conference with input from labour, management, and ergonomists.
2. Conceptual building blocks: A regular column has been added to At Work which addresses research conceptual building blocks in each edition.
3. Roundtables: Partnering with WSIB RAC, we have held two roundtables, one with policy-makers and one with prevention partners. The purpose of the roundtables is to better understand how to build capacity to use research evidence, to better support interactions between research organizations and research users and to define roles and responsibilities. Emerging themes include the growing demand for evidence, what is driving this demand, the need for a strategic framework for research to support policy, how to link and sustain relationships between research organizations and research users. Two more roundtables are planned for 2005.

Team: Dee Kramer, Jane Brenneman Gibson, Robin Kells, Kathy Knowles Chapeskie, Evelyne Michaels, R. Wells, IWH Adjunct Scientist (University of Waterloo), Anthony Culyer, A. Peters (WSIB)

Introduction: As part of the goal to continue to **build a strong and effective program**, KTE continued to document our methodology, receive input and advice from the KTE Advisory Committee (KTEAC) and the internal “Huddles” process, apply our evaluation framework to our projects and participate with other research organizations in developing a community of practice in KTE in Ontario.

Objectives:

- ▶ Build changes in the KTE program with advice from internal (huddles) and external (KTE Advisory Committee) sources.
- ▶ Continue to develop the evaluation framework to individual projects and report on results
- ▶ Develop KTE workshop materials.
- ▶ Work with research partners to explore a KTE community of practice concept in Ontario.

Audience: KTE staff, KTEAC, IWH staff and executive; researchers, other knowledge brokers

Summary of Accomplishments:

Building a stronger program:

- ▶ Decision to create a message inventory (in process) to ensure messages are shared across IWH.
- ▶ KTEAC held a successful second meeting. John Lavis completed his term as chair and Sonya Corkum was confirmed as chair for two years beginning in 2005. Strong support for role of KTE in building relationships and capacity in audiences. Strong support for KTE role in systemic reviews and “push” messages to stakeholders.
- ▶ Evaluation framework is being applied across KTE strategies. KTEAC and Huddles encouraged KTE to look at ways to incorporate harms and benefits into an implementation analysis.

How to do KTE workshop:

- ▶ Slides developed.
- ▶ Workshops provided to students at the University of Toronto, York University and Ryerson University
- ▶ Workbook continues to be very popular.

KTE Community of Practice: Grant (\$7000) awarded to IWH, HSC, Centre for Addiction and Mental Health, Centre for Health Economics and Policy Analysis to develop a workshop bringing together KTE practitioners to discuss a community of practice concept. Invitees required to submit KTE stories. Workshop scheduled January 2005.

Team: KTE staff

Introduction: The Institute's **Communications** group is nested within the Knowledge Transfer & Exchange department and supports both the activities of the department and the corporate needs of the IWH. The communications group is responsible for the development and production of corporate newsletters, the IWH web site, marketing of products, media relations activities, special events and tool development. In addition, internal communications is also supported by the group through a weekly e-newsletter for staff and an intranet (IWH innie).

Objectives:

- ▶ To improve the accessibility, readability, quality and branding consistency of IWH communications and products;
- ▶ to increase the Institute's profile;
- ▶ to communicate research knowledge and activities to the Institute's primary and secondary audiences;
- ▶ to improve internal communications;
- ▶ to track and compare communications statistics to inform future directions within the department and the Institute as a whole.

Audiences: All IWH external stakeholders

Summary of Accomplishments:

- ▶ Web site—ongoing development of content; rebranding of fact sheets to briefings for media room; preliminary redesign of Cochrane and DASH web sites.
- ▶ Events— successful annual general meeting and Alf Nachemson Lecture; profile at several key conferences including IAPA.
- ▶ Media relations— several articles reprinted in partner publications; 44 articles in media profiling or mentioning IWH or its research; gender differences in injuries release garnered media attention in trades and commercial media; media training workshop held.
- ▶ Publications— four issues of At Work/Infocus; e-list subscriptions up to 490 by year end; APEX award for Scientific and Medical Writing for article on youth injury; 2003 annual report produced.
- ▶ Internal communications: a new internal electronic newsletter, thistweek@IWH was successfully developed and currently sent to staff on a weekly basis; the innie (Intranet) was reviewed and updated based on staff survey feedback.
- ▶ Corporate Identity— corporate templates were developed for scientific posters, power point presentations, reports and report covers, as well as some internal forms.
- ▶ Fifteen year logo was developed to be added to our products in 2005.

Team: Kathy Knowles Chapeskie, Melissa Cohen, Carol Holland, Reshma Mathur, Evelyne Michaels, Greer Palloo, Katherine Russo (on maternity leave)

Journal Articles: Peer Reviewed

In 2004, we published 33 articles in peer reviewed journals, down somewhat from the 40 published in 2003. However, an additional 32 articles were accepted in 2004 for future publication, double the rate in 2003. Another 43 articles were submitted to journals in 2004 with the decision still outstanding. This compares to 35 in 2003.

Ammendolia C, Bombardier C, Hogg-Johnson S, Pennick V, Glazier R. Implementing evidence-based guidelines for x-ray use in acute low back pain. A chiropractic community intervention. *J Manipulative Physiol Ther* 2004; 27(3):170-179.

Beech-Hawley L, Wells R, Cole DC. A multi-method approach to assessing deadlines and workload variation among newspaper workers. *Work* 2004; 23(1): 43-58.

Cadarette SM, Beaton DE, Hawker GA. Osteoporosis health belief scale: Minor changes were required after telephone administration among women. *J of Clin Epi* 2004; 57:154-166.

Carroll L, Cassidy JD, Côté P. Depression as a risk factor for onset of troublesome neck and low back pain. *Pain* 2004; 107:134-139.

Cassidy JD, Carroll L, Côté P, Berglund A, Nygren. Mild traumatic brain injury after traffic collisions: A population-based inception cohort study. *J Rehabil Med* 2004; Suppl. 43:15-21.

Cole DC, Rivilis I. Individual factors and musculoskeletal disorders: A framework for their consideration. *J Electromyogr Kinesiol* 2004;14:121-127.

Côté P, Cassidy JD, Carroll LJ, Kristman V, The annual incidence and course of neck pain in the general population: a population-based cohort study. *Pain* 2004; 112: 267-273.

Culyer A, Rawlins M. National Institute for Clinical Excellence and its value judgements. *BMJ* 2004; 329: 224-22.

Harniman E, Carette S, Kennedy C, Beaton DE. Extracorporeal shock wave therapy for calcific and non-calcific tendonitis of the rotator cuff: A systematic review of the literature. *J Hand Ther* 2004; 17(2):132.

Hudak PL, Hogg-Johnson S, Bombardier C, McKeever PD, Wright JG. Testing a new theory of patient satisfaction with treatment outcome. *Medical Care* 2004; 42:726-739.

Kluska K, Laschinger HKS, Kerr MS. Staff nurse empowerment and effort-reward imbalance. *Can J Nurs Leadersh* 2004; 17(1):112-129.

Kramer DM, Cole DC, Leithwood K. Doing knowledge transfer: Engaging management and labour with research on employee health and safety. *Bull Sci Technol Soc* 2004; 24(4).

Kristman V, Manno M, Côté P. Loss to follow-up in cohort studies: how much is too much? *Eur J Epidemiol* 2004; 19:751-760 (IWH Working Paper #208)

Laing AC, Frazer MB, Cole DC, Kerr MS, Wells RP, Norman RW. Study of the effectiveness of a participatory ergonomics intervention in reducing worker pain severity through physical exposure pathways. *Ergonomics* 2004; 48(2):150-170.

Mustard CA. Work-related stress in the UK: A new, management standards' approach. *Work Stress* 2004; 18:140-141.

O'Brien-Pallas L, Shamian J, Thomson D, Alksnis C, Koehoorn M., Kerr MS, Bruce S. Work-related disability in Canadian nurses. *J Nurs Scholarsh* 2004; 36(4): 352-357.

Pennick V. Work-related injuries - what works to reduce them? *Journal of the Ontario Occupational Health Nurses Association* 2004; 23(1):15-16.

Pennick V. Evidence-based nursing practice. *Canadian Association of Nephrology Nurses and Technologists (CANNT) Journal* 2004; 14(3):46-47.

Pennick V. To vaccinate or not to vaccinate? That is the policy question. *Journal of the Ontario Occupational Health Nurses Association* 2004; 23(3): 19-21.

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Forthcoming or Submitted: Peer Reviewed

Ammendolia C, Kerr MS, Bombardier C. The use of back belts for prevention of occupational low back pain: A systematic review. Accepted: *J Manipulative Physiol Ther* (IWH Working Paper #166)

Anderson G, Mustard CA, Manuel D, Alter D. Clinical epidemiology and population health perspectives can define health care's role in reducing health disparities. Accepted: *J of Clin Epi*

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Beaton DE, Kennedy C. Beyond return-to-work: Testing a measure of at-work disability. Submitted: *Am J Ind Med*

Beaton DE, Manno M, Kennedy C, Hogg-Johnson S. The message is in the difference: Varying responses to physiotherapy as revealed using cluster analysis on longitudinal measures of health status. Submitted: *J Bone Joint Surg* (IWH Working Paper #258)

Beaton DE. Simple or too simple? Possible limits to the universality of the standard deviation. Accepted: *Medical Care*

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Beaton DE, Bombardier C, Cole DC, Hogg-Johnson S, Van Eerd D and the Clinical Expert Group. Pattern recognition approach to the development of a classification system for upper-limb musculoskeletal disorders in workers. Submitted: *Scand J Work Environ Health*

Beaton DE, Bombardier C, Cole DC, Hogg-Johnson S, Van Eerd D and the Clinical Expert Group: Validity of a classification system for upper-limb musculoskeletal disorders in workers. Submitted: *Arthritis Care Res*

Breslin FC, Adlaf EM. Part-time work and adolescent binge drinking: A multilevel analysis. Submitted: *J Health Soc Behav*

Breslin FC, Adlaf EM. Part-time work and adolescent binge drinking: The moderating effect of family and community context. Submitted: J Stud Alcohol

Breslin FC, Amick BC. The labor market and health framework: Organizing and integrating the multi-level determinants of work injuries among youth. Submitted: Safety Science

Breslin FC, Gnam W, Franche R-L, Mustard CA. Depression and activity limitations: Examining gender differences in the general population. Submitted: Soc Psychiatry Psychiatr Epidemiol

Breslin FC, Gnam W, Franche R-L, Mustard CA, Lin E. Depression and activity limitations: Examining the causation hypothesis and gender differences in the general population. Accepted pending revisions: Soc Psychiatry Psychiatr Epidemiol

Breslin FC, Ibrahim S, Hepburn G, Cole DC. Understanding stability and change in psychological distress and sense of coherence: A four-year prospective study. Accepted: J Appl Psychol

Breslin FC, Shannon HS. Injury prevention across work and other settings: Opportunities and challenges for collaboration in research and practice. Submitted: Inj Prev (IWH Working Paper # 289)

Burr H, Shannon HS, Ibrahim S. Work environment exposures explained by occupation. Submitted: Scand J Work Environ Health

Breslin FC, Smith P. Baptism of fire: The relationship between job tenure and lost-time claim rates among adolescent, young adult and adult workers. Submitted: Occup Environ Med

Breslin FC, Smith P. Youth and work injuries: How do provinces compare? Submitted: CMAJ (IWH Working Paper #260)

Breslin FC, Smith P. Age-related differences in work injuries: A multivariate, population-based study. Submitted: Am J Ind Med (IWH Working Paper #227)

Carroll LJ, Cassidy JD, Côté P. Depression is common after whiplash injury: The incidence, timing and course of depression after whiplash. Submitted: Spine (IWH Working Paper #272)

Cassidy JD, Côté P, Carroll LJ, Kristman V. The incidence and course of low back pain in the general population: A population-based cohort study. Accepted: Spine (IWH Working Paper #271)

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Cole DC, Ibrahim S, Shannon HS. Predictors of work-related musculoskeletal disorders in a population cohort. Accepted: Am J Public Health

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Côté P, Hogg-Johnson S, Cassidy JD, Carroll LJ, Frank JW, Bombardier C. The impact of general

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Cullen KL, Williams RM, Shannon HS, Amick BC, Westmorland MG. Workplace organizational policies and practices in Ontario educational facilities: Part I - Workplace characteristics and subgroup comparisons; and Part II- Associations with injury claims experience. Submitted: J Occup Rehabil

Culyer A, Szende A. The inequity of under-the-counter payments for health care: the case of Hungary. Submitted: Health Policy

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DeCicco J, Laschinger H, Kerr MS. Impact of perceived empowerment and respect on nurses' organizational commitment in nursing home settings. Submitted: J Gerontol Nurs

Etches J, Mustard CA. Education and mortality in Canada: mediation by behavioral and material factors. Submitted: Int J Epidemiol (IWH Working Paper #278)

Franche R-L, Pole J, Hogg-Johnson S, Vidmar M, Breslin FC. The impact of work-related musculoskeletal disorders on workers' care giving activities. Submitted: Am J Ind Med (IWH Working Paper #235)

Franche R-L, Williams A, Ibrahim S, Grace S, Stewart D, Minore B, Mustard CA. Work conditions, work-family balance, and risk for depression in healthcare workers. Submitted: Journal of Occupational and Organizational Psychology

Furlan A. Development and evaluation of a method for searching studies with observational design in electronic databases. Submitted: Am J Epidemiology (IWH Working Paper #265)

Furlan AD. Optimizing the efficiency of searching for epidemiological studies: Development and evaluation of a progressive method for searching electronic databases. Submitted: Int J Epidemiol

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Gordon DR, Ames G, Yen I, Gillen M, Aust B, Rugulies R, Frank JW, Blanc PI. Integrating qualitative research into occupational health research: A case study among hospital workers. In press: J Occ Environ Med

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Kennedy CA, Manno M, Hogg-Johnson S, Haines T, Hurley L, McKenzie D, Beaton DE. Prognosis in soft tissue disorders of the shoulder: predicting change in and level of disability after treatment. (IWH Working Paper #254) Submitted: Phys Ther

Kennedy CA, Haines T, Beaton DE. Predictors of disability in soft-tissue disorders of the shoulder: A comparison of prognostic models when the dependent outcome is formatted in three different ways. (IWH Working Paper #257) Submitted: Qual Life Res

Kennedy CA, Haines T, Beaton DE. Prognosis in soft tissue disorders of the shoulder: predicting patterns of response during the course of physiotherapy. (IWH Working Paper #255) Submitted: J of Clin Epi

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Kerr MS, Laschinger HK, Severin C, Almost J, Shamian J. New strategies for monitoring the health of Canadian nurses: Results of collaborations with key stakeholders. Accepted: Can J Nurs Leadersh

Kerr MS, Laschinger HK, Almost J, Severin C, Shamian J, O'Brien Pallas LL. Monitoring the health of nurses in Canada. Accepted: Can J Nurs Leadersh

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Kramer DM, Wells RP, Cole DC, Leithwood K. Achieving buy-in: Building networks to facilitate knowledge transfer. Submitted: Sci Commun

Kristman VL, Manno M, Côté P. Methods to account for attrition in longitudinal data: do they correct for bias? A simulation study. (IWH Working Paper #180) Submitted: Eur J Epidemiol

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Luria G, Zohar D, Erev I. The effect of visibility on effectiveness of supervisory-based interventions. Submitted: Organizational Behaviour & Human Decision Processes

MacEachen E. The demise of repetitive strain injury in skeptical governing rationalities of workplace managers. Submitted: Sociol Health and Illn

Manuel DG, Tanuseputro P, Mustard CA, Schultz SE, Anderson GM, Alter DA, Laupacis A. The revised Canadian lipid guidelines should be revised again (To avoid hundreds of deaths and save millions of dollars). Accepted: CMAJ

Mercado AC, Carroll L, Cassidy JD, Côté P. Passive coping as a risk factor for disabling neck or low back pain. Accepted: Pain

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Pole J, Franche R-L, Hogg-Johnson S, Krause N, Vidmar M. Duration of work disability: A comparison of self-report and administrative data. Submitted: J Am Indust Med

Robson LS, Cole DC, Shannon HS, and the Healthy Workplace Group. Healthy workplace performance measurement. Submitted: Personnel Review (IWH Working Paper # 256)

Sandoval JA, Furlan AD, Mailis-Gagnon A. Oral methadone for chronic non-malignant pain: A systematic literature review of reasons for administration, prescription patterns, effectiveness, and side effects. Accepted: Clin J Pain

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Shain M, Kramer DM. Health promotion in the workplace: Framing the concept; reviewing the evidence. Accepted: Occup Environ Med

Shamian J, O'Brien-Pallas L, Thomson D, Alksnis, Koehoorn M, Kerr MS. Work-related disability in nurses. Accepted: J Nurs Scholarsh

Shannon HS, Ibrahim SA, Robson LS, Zarinpoush F. Changes in job stressors in the Canadian working population. Accepted: Can J Public Health

Sherwood S, Cole DC, Crissman C. Cultural encounters: Learning from cross-disciplinary science and development practice over ecosystem health. Submitted: World Development

Smith P, Frank JW. When aspirations and achievements don't meet: A longitudinal examination of the differential effect of education and occupational attainment on declines in self-rated health among Canadian labour force participants. Accepted: Int J Epidemiol

Smith P, Breslin FC, Beaton DE. The stability of sense of coherence: Examining the impact of socio-economic status and working conditions in the Canadian working population. Accepted: Soc Psychiatry Psychiatr Epidemiol

Snir R, Zohar D. "Workaholism: Positive engagement or work addiction? Submitted: Acad Manage J

Steele L, Glazier RH, Lin E, Austin PC, Mustard CA. Measuring the effect of a large reduction in welfare payments on mental health service use in welfare-dependent neighbourhoods. Accepted: Med Care

Sung L, Hayden J, Greenberg ML, Koren G, Feldman BM, Tomlinson GA. Reporting of Bayesian analyses in clinical studies - The ROBUST criteria. Accepted: J of Clin Epi.

Tanuseputro P, Manuel DG, Schultz SE, Mustard CA. Improving population attributable fraction methods: examining smoking attributable mortality for 136 health regions in Canada. Accepted: Am J Epi

Theberge N, Granow K, Cole DC, Laing A, and the Ergonomics Intervention Evaluation Research Group.

Negotiating participation: Understanding the “how” in a workplace ergonomic change project. Accepted: *Appl Ergon*

Tompa E, Trevithick S, Scott H, Dolinski R, Bhattacharyya S. Precarious employment experiences and their health consequences: Towards a theoretical framework. Submitted: *Work Stress (IWH Working Paper #232)*

Tompa E, Scott H, Dolinski R. The health consequences of precarious employment experiences. Submitted: *Soc Sci Med (IWH Working Paper #268)*

Tompa E, Trevithick S, McLeod C. A systematic review of the prevention incentives of insurance and regulatory mechanisms for occupational health and safety. Submitted: *J Law Econ (IWH Working Paper #213)*

Weir E, Cohen M, Mustard CA, Kung R. Endometriosis: risk of hospital admission, readmission and surgical progression. Submitted: *Med Care*

Westmorland MG, Williams RM, Amick BC, Shannon HS, Rasheed F. Disability management practices in Ontario workplaces: Employees’ perceptions. Submitted: *J Occup Rehab*

Williams A, Franche R-L, Ibrahim S, Mustard CA, Roussy LF. Examining the relationship between work-family spillover and sleep quality. Submitted: *J Occup Health Psychol (Working Paper # 276)*

Williams RM, Westmorland MG, Shannon HS, Rasheed F, Amick BC. Disability management practices in education, hotel/motel and health care workplaces. Submitted: *Am J Ind Med*

Zohar D, Luria G. A multi-level model of safety climate: Cross-level relationships between organization and group-level climates. Accepted: *J Appl Psychol*

Zohar D, Tzischinski O, Epstein R, Lavie P. Effect of sleep adequacy on emotional reactions to work events: A cognitive-energy model. Submitted: *Sleep*

Zohar D, Erev I. A decision-making analysis of safety behaviour: Why is it so difficult to maintain safety behavior at work. Accepted: *International Journal of Risk Assessment and Management*

Zohar D. Ethical leadership in ordinary and extraordinary situations: A tale of two metaphors. Submitted: *Acad Manage Rev*

Letters to Editor & Commentaries

Ammendolia C, Hogg-Johnson S, Glazier R, Bombardier C. Letter to the Editor. *J Manipulative Physiol Ther* 2004 Mar; 27(3):219-220.

Culyer A, Littlejohns P, Leng G, Drummond M. NICE clinical guidelines: Maybe health economists should participate in guideline development (letter). *BMJ* 2004; 329, p571.

Culyer A, Rawlins M. NICE and its value judgments: Authors' reply. *BMJ* 2004; 329, p741.

Li LC, Backman C, Bombardier C, Hammond A, Hill J, Iversen M, Petersson I, Stenstrom C, Vlieland T. Focusing on care research: A challenge and an opportunity. *Arthritis Rheum* 2004; 51(6):874-876 [Editorial]

Shannon HS, Cole DC. Invited commentary on work organization interventions. Accepted: *Social and Preventative Medicine*

Contributions to Books

Culyer A, Castelli A. Rationing health care in Europe – the United Kingdom. In: J-Matthias Graf von der Schulenburg, M. Blanke (Eds) *Rationing of Medical Services in Europe: An Empirical Study - A European Survey*, Berlin: IOS Press, 2004, 255-305.

Guzman J. (2004) Chapter 37: Rehabilitation of Patients with Rheumatic Diseases. In: R. L. Braddom (Ed), *Textbook of Physical Medicine & Rehabilitation*.

Mailis-Gagnon A, Furlan AD, Sandoval JA, Taylor R. (2004) Spinal cord stimulation for chronic pain (Cochrane Review). In: *The Cochrane Library*, Issue 3. Chichester, UK: John Wiley & Sons Ltd.

Polanyi MF, Tompa E. Foley J.(2004) Chapter 5: Labour market flexibility and worker insecurity. In: D. Raphael (Ed), *Social Determinants of Health: A Canadian Perspective*. (IWH Working Paper #191).

Van Tulder MW, Furlan AD, Gagnier J. (2004) CAM therapies for non-specific low back pain. *Ballieres Clinical Rheumatology*.

Zohar D. (2004) Work Safety. In: C. Spielberger (Ed), *Encyclopedia of Applied Psychology* (Vol. 3). San Diego, CA: Academic Press (pp. 719-724).

Contributions to Books: Forthcoming

Amick B, Mustard CA. (2004) Labour markets and health: a social epidemiological perspective. In: S.M. Bianchi, L.M. Casper (Eds), *Work, Family, Health and Well-being*. Lawrence Erlbaum Associates (IWH Working Paper #218)

Côté P, Cassidy JD, Carroll L, Kristman V, Rezaei M. (2004) The epidemiology of work-relevant neck pain. In: M. Nordin, G.J. Andersson, M.H. Pope (Eds), *Musculoskeletal Disorders in the Workplace*. Scheduled for publication by Mosby, 2005.

Côté P, Carroll L, Cassidy JD, Rezaei M, Kristman V, and the Scientific Secretariat of the 2000-2010 Bone and Joint Decade Task Force on Neck Pain and Associated Disorders. *A review of the epidemiology of*

neck pain in workers: Prevalence, incidence and risk factors. In: M. Nordin, G.B Anderson, M. Pope (Eds) *Musculoskeletal Disorders in the Workplace*. Scheduled for publication by Mosby, 2005.

Culyer A. *The dictionary of health economics*. (With Edward Elgar)

Franché R-L, Krause N, Frank JW. (In press). Predictive factors and models of disability. Chapter in: I.A. Schultz & R.J. Gatchel (Eds), *At Risk Claims: Prediction of Occupational Disability Using a Biopsychosocial Approach*. Plenum Publishers.

Frank JW, Dunn J, Mustard CA. Assessing and addressing health inequalities: The Canadian experience. In: *Health Disparities: International Research and Policy Examples*. Oxford University Press.

Mustard CA, Sinclair S. Health care and workers' compensation. In: K. Roberts J. Burton (Eds), *Workplace Injuries and Diseases: Prevention and Compensation. Essays in Honour of Terry Thomason*. W.E. Upjohn Institute (IWH Working Paper #261)

Smith P, Frank JW. The changing nature of work. What do the trends over time tell us? In: P. Schnall, K. Kendrick, M. Jauregui (Eds) *The Way We Work and It's Impact on our Health*.

Tompa E, Scott H, Trevithick S. Precarious employment and people with disabilities. In: L.F. Vosko (Ed) *Precarious Employment in the Canadian Labour Market*.

Van Tulder MW, Furlan AD. What is the value of alternative treatment? In: M. van Tulder, Waddell (Eds), *Non-Specific Low Back Pain*.

Abstracts

Bassil K, Cole DC et al. Public Health Surveillance for World Youth Day 2002: An Event Specific Syndromic Surveillance Network. The 2004 Syndromic Surveillance Conference. Nov 2004; New York City, New York, USA.

Beaton DE, Orner A, Dyer S et al. How are you now? A study of the discordance in patient and clinician view of outcomes. June 2004; Calgary, Alberta: Canadian Orthopaedic Association.

Furlan A, van Tulder M, Cherkin D, Tsukayama H, Lao L, Koes B, Berman B. Acupuncture for low-back pain. An updated Cochrane systematic review. *The Journal of Pain* 2004; 5(3) Suppl 1: 88.

Glenton C, Nilsen SE, Kho ME, Koi T, Pennick V, Underland V, Vist GE, Oxman AD. Using Cochrane reviews to develop consumer information - choosing and presenting outcomes. Oct 2004; Ottawa, ON: 12th Cochrane Colloquium.

Granzow K, Theberge N, Cole DC, Laing A. "I feel good I got chosen": Determining the meaning (fullness) of worker participation in participatory ergonomics. April 2004; Banff, Alberta: Qualitative Health Research Conference.

Kho ME, Glenton CG, Pennick V, Koy T, Underland V, Vist GE, Oxman AD. Using Cochrane reviews for patient-centred information on the management of low-back pain. Oct 2004; Ottawa, ON: 12th Cochrane Colloquium.

Mustard CA, Kalcevich C. Childhood health status and inter-generational socio-economic mobility in the Ontario Child Health Study. April 2004; Offord Centre for Child Studies.

Mustard CA, Manuel D, Anderson G. Updating Geoffrey Rose: Comparing Rose's population health approach to the 'new' medical approach for improving the health of populations. June 2004; St. John's, NS: Canadian Public Health Association.

Rueda S, Raboud J, Mustard CA, Bayoumi A, Lavis JN, Rourke S. Health related quality of life dimensions and employment status in HIV/AIDS. Nov 2004; Toronto, ON: OHTN research day

Working Papers (Not Noted Elsewhere)

Dolinschi R, Tompa E, Bhattacharyya S. Precarious employment experiences and functional health. (IWH Working Paper #273)

Furlan AD, Bombardier C. A critical appraisal of the traditional taxonomy of study design. (IWH Working Paper #267)

Hayden JA, Beaton DE, Hogg-Johnson S, McKenzie D, Bombardier C. Measurement properties and feasibility of patient-report outcome measures in claim-based musculoskeletal rehabilitation practice. (IWH Working Paper #264)

Kramer D, Cole DC. Accomplishing what cannot be accomplished alone: When community partners become part of the research. (IWH Working Paper #275)

Maggi S, Ostry A, Hershler R, Chen L, Hertman C. Investigating agreement between expert rater and self-report evaluation of psychosocial work conditions: A latent class modeling approach. (IWH Working Paper #262)

Mustard CA, Robson LS, Nixon D, Ignatieff N, Loughlin C. A survey of occupational health and safety management research. (Project #532, IWH Working Paper #263)

Mustard CA, Sinclair S. Health care and workers' compensation. (IWH Working Paper #261)

Mustard CA, Kalcevich C, Boyle M, Racine Y, Dooley M. Childhood health status and inter-generational socioeconomic mobility in the Ontario Child Health Study. (IWH Working Paper # 270)

Mustard CA, Bielecky A, Breslin FC, Boyle M. Childhood and early adult predictors of risk of unintentional injury: Ontario Child Health Survey 2001 Follow-up. (IWH Working Paper #277)

Mustard CA. Enhancing opportunities for cooperation between insurance and prevention in occupational health and safety. (IWH Working Paper # 283)

Swift M. Review of confidence intervals for a poisson mean. (IWH Working Paper #282)

Tompa E, Dolinschi R, Trevithick S, Scott HK, Bhattacharyya S. Non-standard work forms and arrangements and work-related precariousness: Canadian trends, 1976-2002. (IWH Working Paper #281)

Other Papers, Reports and Reviews

Beaton DE, Kennedy C, McKenzie D, Manno M, Hogg-Johnson S, Sinclair S, Swift M, and the CPO Working Group (L. Hurley, M. Nayer, N. Bakker). CPO/IWH Technical Report. Practice review of physiotherapy management of soft-tissue disorders of the shoulder. 2004 Report: College of Physiotherapists of Ontario.

Cole DC, Rivlis I, Van Eerd D, Cullen K, Irvin E, Kramer D. Effectiveness of participatory ergonomic interventions, a systematic review. Toronto: Institute for Work & Health, 2004.

Culyer A, Littlejohns P, Leng G, Drummond M. NICE clinical guidelines: Maybe health economists should participate in guideline development, *British Medical Journal*, 329, 2004, 571 (letter) and NICE and its value judgments: Authors' reply, *British Medical Journal*, 329, 2004, 741 (with Michael Rawlins)

Frache R-L, Cullen K, Clarke J, MacEachen E, Frank JW, Sinclair S and the Workplace-based RTW Intervention Systematic Review group. Workplace-based return-to-work interventions: A systematic review of the quantitative and qualitative literature. 2004 Report: WSIB.

Furlan AD. Linkages: Conservative treatments for carpal tunnel syndrome. Supplement to *At Work* Issue #35. Winter 2004.

Guzman J, Frank JW, Hayden J, Cassidy D, Flannery J, Loisel P, Furlan A, Gibson J, Jones D. Key factors in back disability prevention. Background document for a consensus panel on the factors that prevent participation restrictions in people with back pain.

Kerr MS, Laschinger HK, Shamian J, O'Brien Pallas LL, Thomson D, Koehoorn MW, LeClair S, McPerson D, Aiken L, Sochalski J. Monitoring the health of nurses in Canada. 2004 Report: Canadian Health Services Research Foundation - Open Competition Grant #RC1-0632-06.

Kerr MS, Severin C. New nurse health website launched. <http://www.nurseshealth.org/> 2004 Report: Canadian Health Services Research Foundation - Open Competition Grant #RC1-0632-06.

Knowles Chapeskie K, Breslin FC. A safe and health future: The road to injury prevention for young workers. Winter.

Kramer D. Improving health and safety requires a change in thinking. 2004 *Canadian HR Reporter*, April 19, 2004, p. 16.

Mazumder A. Hidden Markov models as an EMG pattern recognition method.

Mustard CA, Robson LS, Nixon D, Ignatieff N, Loughlin C. A survey of occupational health and safety management research. 2004 Report: WSIB (RFIQ 2002-09)

Robson LS, Clarke J, Cullen K, Bielecky A, Severin C, Bigelow P, Irvin E, Culyer T, Mahood Q. The effectiveness of occupational health and safety management systems: a systematic review. Toronto: Institute for Work & Health, 2004.

Robson LS. Report: St. Joseph's Health Centre Quality of Work Life Survey, May 2004.

Shannon HS, Robson LS, Ibrahim S. Survey on workplace stress at Dofasco: Final Report, August 2004.

Smith P, Frank JW. Secular trends in job characteristics, job strain and volume of work. To be published with other papers from recent California Forum: The way we work and its impact on health, University of California, USA, 2004. Available at www.workhealth.org

Smith P, Hodgson C. Social determinants of hypertension: A synthesis paper for the Heart and Stroke Foundation of Ontario.

Multi Media

Breslin FC, Kells R, Mustard CA. Passport to Safety Research Advisory Group. Evaluation design workshop summary. Toronto, ON: Feb 2004.

Dolinschi R. Workers' Compensation Benefits Paid in Canada: 2001, 2002, 2003. Fact sheets containing tables and charts on WC benefit payments in ten Canadian jurisdictions.

O'Hagan F, Thomas S, Franche R-L. Work readiness and adjustment, decisional balance, and self-efficacy in cardiac rehabilitation patients. World Congress of Cardiac Rehabilitation, Dublin, Ireland: May 2004.

MacEachen E, Clarke J, Franche R-L, Cullen K, Sinclair S, Frank JW, Irvin E, Reardon R, Raj A, Pennick V, Cole DC. What systematic reviews gain when they include qualitative research: A systematic review of qualitative work on workplace-based return to work practices. 12th Cochrane Colloquium, Ottawa, ON: Oct 2004.

Smith P. Women injured more? Less likely than men to report being hurt on job research says. Metro Newspaper. Nov 2004.

Smith P. Gender differences in on-the job injuries: Study. Toronto Star, 23 Oct 2004.

Smith P. When work is a pain: Work-related injuries that sideline women are underestimated, often unrecorded, studies find. Ottawa Sun Newspaper, Sunday, December 19th, 2004.

RTW Video. IWH was approached by Andre Clark of Clark Brown to assist them to make a video for CIBC on return to work: What really works. Video was completed and delivered to Clarke Brown.

External Scientific/Academic Presentations

Ammendolia C, Kaw S, Hogg-Johnson S, Côté P, Bombardier C. Poster: Trend in utilization and cost of lumbar and full spine radiography among Ontario chiropractors from 1994 to 2001. Oct 2004; Edmonton, Alberta: International Forum VII for Primary Care of Low Back Pain.

Ammendolia C, Kaw S, Hogg-Johnson S, Côté P, Bombardier C. Poster: Trend in utilization and cost of lumbar and full spine radiography among Ontario chiropractors from 1994 to 2001. Oct 2004; Ottawa, ON: XII Cochrane Colloquium.

Ammendolia C, Kaw S, Hogg-Johnson S, Côté P, Bombardier C. Poster: Trend in utilization and cost of lumbar and full spine radiography among Ontario chiropractors from 1994 to 2001. Nov 2004; Toronto, ON: WSIB RAC Conference on Solutions for Workplace Change.

Ammendolia C, Pennick V, Hogg-Johnson S, Côté P, Bombardier C. Poster: Pilot survey of plain film radiography protocols taught at chiropractic schools for acute low back pain. Oct 2004; Ottawa, ON: XII Cochrane Colloquium.

Ammendolia C, Pennick V, Hogg-Johnson S, Côté P, Bombardier C. Poster: Pilot survey of plain film radiography protocols taught at chiropractic schools for acute low back pain. Oct 2004; Edmonton, AL: International Forum VII on Primary Care Research for Low Back Pain.

Beaton DE. Are you better? Meaning of recovery and implications for our work. June 2004; Bordeaux, France: Task Force Meeting of the Bone and Joint Decade 2000-2010.

Beaton DE. Clinical importance: The OMERACT experience. Initiative for maternal mortality program assessment. June 2004; Washington, DC: IMMPACT IV Meeting.

Beaton DE, Orner A et al. Discordance between clinician and patient views of recovery. June 2004; Canadian Orthopaedic Meeting.

Beaton DE. Comparison of item reduction techniques in the development of the QuickDASH outcome measure. Nov 2004; Toronto, ON: WSIB RAC Solutions for Workplace Change Conference.

Bombardier C. Royal College Debate (Contra). Be it resolved that data from clinical trials are believable. Feb 2004; Lake Louise, AB: Invited Speaker Canadian Rheumatology Association (CRA) Meeting

Bombardier C. Successes and obstacles of integration of evidence-based guidelines in occupational health. April 2004; New York, NY: Musculoskeletal Session: Prevention of work disability from low back pain. NIOSH ERC 25th Annual Scientific Meeting.

Bombardier C. Important issues in neck pain in Canada. June 2004; Bordeaux, France: Task Force Meeting of the Bone and Joint Decade 2000-2010.

Bombardier C. L'elaboration des recommandations de pratique et de prevention des lombalgies. June 2004; Bordeaux, France: Congres de Bordeaux.

Bombardier C. What do the data show and why are we confused? The COX-2 Case. Oct 2004; San Antonio, Texas: American College of Rheumatology Clinical Symposium.

Bombardier C. The basic of evidence-based medicine for low back pain clinical practice. Oct 2004; Tokyo, Japan: 19th Annual Orthopaedic Research meeting of the Japanese Orthopaedic Association.

Bombardier C. Tooling up for early osteoarthritis: Measuring what matters (TUFOA) Net Emerging Themes (NET) Knowledge Transfer Workshop. Nov 2004; Vancouver, BC; Canadian Arthritis Network (CAN) 2004 Annual Scientific Conference.

Breslin FC, Smith P, Etches J, Mustard CA. Regional variation in work and non-work injuries among Canadian youth. June 2004; Vienna, Austria: 7th World Conference on Injury Prevention and Safety Promotion.

Breslin FC, Smith P, Tompa E. Age-related differences in lost-time claim rates. Sept 2004; Dresden, Germany: 2nd Meeting of Working on Safety.

Breslin FC, Smith P, Mustard CA, Etches J. Regional differences in the incidence of work injury and non-work injury among Canadian adolescents. Oct 2004; Melbourne, Australia: 17th International Symposium on Epidemiology in Occupational Health.

Breslin FC, Smith P, Tompa E. Young workers in the 1990's: Did their risk of work injury decline as much as adults? Nov 2004; Washington, DC: 132nd Annual Meeting of the American Public Health Association.

Carroll LJ, Mercado AC, Cassidy JD, Côté P. Passive coping is a risk factor for disabling neck or low back pain. Oct 2004; Edmonton, Alberta: 7th International Forum on Primary Care Research on Low Back Pain.

Cole DC, Manno M, Hogg-Johnson S, Ferrier S, Wells R, Swift M, Moore A, Polanyi MF, Van Eerd D, Kennedy C, Ibrahim S, Lee H, Subrata P, Beaton DE, Shannon HS. Changes in WMSD risk factors and burden with implementation of an ergonomic policy. July 2004; Zurich, Switzerland: Program in Occupational Health & Environmental Medicine. PREMUS 2004 5th International Scientific Conference on Prevention of Work-related Musculoskeletal Disorders.

Côté P, van der Velde G, van Tulder M, Hogg-Johnson S, Aker P, Cassidy JD. A comparison of two standard approaches to assess the scientific literature: Exercises for work-relevant neck pain. May 2004; Porto, Portugal: Spine Week 2004.

Côté P, Baldwin M, Johnson WG. La lombalgie professionnelle: son pronostique depend-il du type de mode de prise en charge. Juin 2004; Bordeaux, France: XXVIII Congress National de Medicine et Sante au Travail.

Fox P, Beaton DE. The impact of SARS on OT/PT sense of professionalism. June 2004; Charlottetown, PEI: Canadian Physiotherapy Association.

Fox P, Beaton DE. The impact of SARS on OT/PT sense of professionalism. July 2004; American Physical Therapy Association Annual Meeting.

Franche R-L, Cullen K, Clarke J, MacEachen E, Frank JW, Sinclair S and the Workplace-based Return-to-Work Intervention Literature Review Group. Workplace-based return-to-work interventions: A systematic review of the quantitative and qualitative literature. Nov 2004; Boston, MA: Workers Compensation Research Group.

Franche R-L, et al. An innovative training program: The work disability prevention Canadian Institute Health Research (CIHR) Strategic Training Program. Dec 2004; Rome, Italy: WorkCongress6.

Frank JW, Smith P. The changing nature of work: what do the trends over time tell us? April 2004; California, USA: California Forum: The Way We Work and It's Impact on Health, U.C.L.A.

Frank JW, Smith P. Data needs for monitoring population and public health in Canada. Aug 2004; Toronto, ON: Invited Speaker Luncheon, Joint Statistical Meetings - Statistics as a unified discipline.

Furlan AD. Poster: Oct 2004; Edmonton, AL: International Forum VII on Primary Care Research for Low Back Pain.

Furlan AD, Bombardier C, Jadad A, Tomlinson G. Poster: What is the study design? Oct 2004; Ottawa, ON: XII Cochrane Colloquium.

Furlan AD, Van Tulder M, Cherkin D, Tsukayama H, Lao L, Koes B, Berman BM. Poster: An Updated Cochrane Systematic Review. Oct 2004; San Francisco, CA: Society for Acupuncture Research 11th Annual Symposium on Acupuncture for Low-back Pain.

Glenton C, Nilsen SE, Kho ME, Pennick V, Underland V, Koy T, Vist GE, Oxman AD. Poster: Using Cochrane reviews to develop consumer information - choosing and presenting outcomes. Oct 2004; Edmonton, AB: Alberta International Forum VII: Primary Care Research on Low-Back Pain.

Glenton C, Nilsen SE, Kho ME, Pennick V, Underland V, Koy T, Vist GE, Oxman AD. Poster: Using Cochrane reviews to develop consumer information - choosing and presenting outcomes. Oct 2004; Ottawa, ON: XII Cochrane Colloquium.

Griffith L, Shannon HS, Wells R, Cole DC, Hogg-Johnson S, Walter S. The use of individual participant data (IPD) for examining heterogeneity in a meta-analysis of biomechanical workplace risk factors and low back pain. July 2004; Zurich, Switzerland: Program in Occupational Health and Environmental Medicine and PREMUS 2004 - 5th International Scientific Conference on Prevention of Work-related Musculoskeletal Disorders.

Guzman J. Incidence and risk of neck pain in workers. June 2004; Bordeaux, France: Task Force Meeting of the Bone and Joint Decade 2000-2010.

Hayden JA, Tomlinson G. Bayesian statistics in meta-analysis and meta-regression. Oct 2004; Ottawa, ON: XII Cochrane Colloquium Advanced Educational Workshop.

Hayden JA, Van Tulder MW, Malmivaara AV, Koes BW. Poster: Part I: Is exercise therapy effective in the treatment of non-specific low back pain? An updated systematic review and meta-analysis of randomized controlled trials. Oct 2004; Edmonton, AB: International Low Back Pain Forum.

Irvin E. Poster: Does it matter which version of Medline you search? Oct 2004; Ottawa, ON: XII Cochrane Colloquium.

Johnson WG, Côté P, Baldwin ML. The course of occupational back pain: Looking beyond the first return-to-work: Findings from the ASU Healthy Back Study. Oct 2004; Edmonton, AL: VII International Forum on Primary Care Research on Low Back Pain.

Johnson WG, Côté P, Baldwin ML. The course of occupational back pain: Looking beyond the first return-to-work: Findings from the ASU Healthy Back Study. Oct 2004; Modena, Italy: International Commission on Occupational Health.

Kho ME, Glenton C, Pennick V, Koy T, Underland V, Vist GE, Oxman AD. Poster: Using Cochrane reviews for patient-centred information on the management of low-back pain. Oct 2004; Ottawa, ON: XII Cochrane Colloquium.

Kho ME, Glenton C, Pennick V, Koy T, Underland V, Vist GE, Oxman AD. Poster: Using Cochrane reviews for patient-centred information on the management of low-back pain. Oct 2004; Edmonton, AB: Alberta International Forum VII: Primary Care Research on Low-Back Pain web site.

Koehoorn M, Breslin FC, Xu F. Investigating the long term consequences of injuries among young workers. Oct 2004; Melbourne, Australia: 17th International Symposium on Epidemiology in Occupational Health.

Kosny A, Franche R-L, Pole J, Krause N, Côté P, Mustard CA. Poster: Early healthcare provider communication with patients and their workplace following a lost-time claim for an occupational musculoskeletal injury. Dec 2004; Rome, Italy: WorkCongress6.

Kramer DM, Cole DC and members of the Workplace Health Intervention Research (WHIR) project. Poster: Working with partners: Embracing users of the research within the research process. Nov 2004; Toronto, ON: WSIB-RAC Conference.

Lipskie T, Breslin FC. Poster: A descriptive analysis of young worker injuries using surveillance data from the Canadian Hospitals Injury Reporting and Prevention Program (CHIRPP). Oct 2004; Ottawa, ON: Health Canada Departmental Science Forum.

MacEachen E. The decline of RSI through its regulation as a moral hazard in workplaces. June 2004; Winnipeg, MN: Canadian Sociology and Anthropology Annual Meeting.

MacEachen E. Making sense (and use) of what people say: Methodological issues in the interpretation of manager's accounts of workplace health practices. Nov 2004; Washington, DC: Qualitative Research in Occupational Health: Exploiting the Resources and Maximizing the Dialogue, American Public Health Association.

MacEachen E. Subterranean discourses in occupational health: the translation of policy in everyday workplace practice. Sept 2004; York, UK: British Sociological Association Medical Sociology Group Annual Meeting.

MacEachen E, Clarke J, Franche R-L, Cullen K, Sinclair S, Frank JW, Irvin E, Reardon R, Raj A, Pennick V, Cole DC. What systematic reviews gain when they include qualitative research: a systematic review of qualitative work on workplace-based return to work practices. Oct 2004; Ottawa, ON: XII Cochrane Colloquium.

MacEachen E. Qualitative research in occupational health: Exploiting the resources and maximizing the dialogue. Nov 2004; Washington, DC: American Public Health Association.

Manuel D, Mustard CA, Anderson G. Estimating the number of deaths associated with a behavioral risk in a health unit: A practical guide using the example of smoking attributable mortality. June 2004; St. John's, NS: Canadian Public Health Association.

Manuel D, Mustard CA, Anderson G. Updating Geoffrey Rose: Comparing Rose's population health approach to the 'new' medical approach for improving the health of populations. June 2004; St. John's, NS: Canadian Public Health Association.

Mazumder A, Falenchuk O. Implication of transitioning to a new model: Investigation of item fit using graphical analysis. May 2004; Winnipeg, MB: 2004 Canadian Society for Studies in Education.

Mustard CA. A closer look at inequalities in health. March 2004; Ottawa, ON: Newsmaker Breakfast, National Press Club.

Mustard CA. Experiences from the front line: Developing, implementing and evaluating a KT strategy. March 2004; Sociobehavioral Cancer Research Network Annual Meeting.

Mustard CA, Sinclair S. Health care and workers' compensation. March 2004; Kingston, RI, USA: University of Rhode Island, Thomason Workers' Compensation Conference.

Mustard CA, Kalcevich C. Childhood health status and intergenerational socio-economic mobility in the Ontario Child Health Study. April 2004; Toronto, ON: Offord Centre for Child Studies.

Mustard CA. Marking research work. April 2004; Toronto, ON: Workers' Compensation Committee, Canadian Manufacturers and Exporters Association.

Mustard CA. Making sense to policy making: Some research examples from the intersection of labour market policy and health policy. June 2004; Toronto, ON: SPIDA Conference, York University.

Mustard CA, Manuel D, Anderson G. Examining the impact of risks and interventions in populations: Creating an agenda for methodology development and policy intervention. June 2004; St. John's, NS: Canadian Public Health Association.

Mustard CA, Kalcevich C. Childhood health status and intergenerational socio-economic mobility: The Ontario Child Health Study. Oct 2004; Toronto, ON: Epidemiology Program Seminar Series, University of Toronto.

Mustard CA, Sinclair S. Health care and workers' compensation. Nov 2004; Cambridge and Hopkinton, MA: Workers' Compensation Research Group.

Mustard CA, Sinclair S, Allingham R, Eichendorf W, Burton JF. Navigating common trends and diverse systems: examining declining work injury trends across jurisdictions. Dec 2004; Rome, Italy: WorkCongress6.

Parsons J, Davis A, Eakin J, Franche R-L, Bell RS. Poster: Experiences of illness and return to vocational pursuits in patients with primary malignant bone tumours. Nov 2004; Montreal, PQ: Connective Tissue Oncology Society Conference.

Raj A, Frank JW, Hogg-Johnson S, Badley E. Poster: Prognosis of upper-extremity soft tissue disorders. Feb 2004; Toronto, ON: Public Health Sciences Research Day.

Raj A, Frank JW, Hogg-Johnson S, Badley E. Poster: Prognosis of upper-extremity soft tissue disorders. June 2004; Boston, MA: 2004 ISOQOL Symposium

Reardon R. Values, beliefs and views: Impact on systematic review. Results of the survey of Task Force membership. June 2004; Bordeaux, France: Neck Pain Task Force meeting.

Rivilis I, Cole DC, Frazer M, Kerr MS, Ibrahim S, Wells R. Evaluating the effectiveness of a participatory ergonomic intervention aimed at improving musculoskeletal health. Nov 2004; Toronto, ON: WSIB-RAC, Solutions for Workplace Change Conference.

Rueda S, Raboud J, Mustard CA, Bayoumi A, Lavis JN, Rourke S. Health-related quality of life dimensions and employment status in HIV/AIDS. Nov 2004; Toronto, ON: Ontario HIV Treatment Network Research Day.

Smith P, Mustard CA. In the deep end: Examining the prevalence of occupational health & safety and orientation training for employees in their first year of a new job. Dec 2004; Rome, Italy: WorkCongress6.

Smith P, Mustard CA. Examining the associations between physical work demands and work injury rates between men and women in Ontario. 1990 - 2000. Nov 2004; Toronto, ON: WSIB-RAC, Solutions for Workplace Change Conference.

Tompa E, Mustard CA, Sinclair S, Trevithick S, Vidmar M. Post-accident earnings and benefits adequacy and equity of Ontario workers sustaining a permanent impairment from workplace accidents. March 2004; Phoenix, US: Annual Meeting of the Workers' Compensation Research Group.

Tompa E, Dolinschi R, Scott H. Poster: The health consequences of precarious employment experiences. Nov 2004; Toronto, ON: WSIB-RAC Solutions for Workplace Change Conference. (IWH Working Paper #268)

Tompa E, Trevithick S, McLeod C. Poster: A systematic review of the prevention incentives of insurance and regulatory mechanism for occupational health and safety. Nov 2004; Toronto, ON: WSIB-RAC Solutions for Workplace Change Conference. (IWH Working Paper #213)

Tompa E, Mustard CA, Sinclair S, Trevithick S, Vidmar M. Post-accident earnings and benefits adequacy and equity of Ontario workers sustaining a permanent impairment from workplace accidents. Dec 2004; Rome, Italy: WorkCongress6.

van der Velde G, van Tulder M, Côté P, Hogg-Johnson S, Aker P, Cassidy JD. Une comparaison de deux méthodes standard pour analyser la littérature scientifique: Traitement par l'exercice de la cervicalgie professionnelle. June 2004; Bordeaux, France: XXVIII Congrès national de médecine et santé au travail.

van der Velde G, van Tulder M, Côté P, Hogg-Johnson S, Aker P, Cassidy JD. Exercise treatment for work-relevant neck pain: Does the body-of-literature used for a qualitative synthesis of trial results differ according to methodological quality assessment approach? Oct 2004; Ottawa, ON: XII Cochrane Colloquium.

van der Velde G, van Tulder M, Côté P, Hogg-Johnson S, Aker P, Cassidy JD. Exercise treatment for work-relevant neck pain: Does the body-of-literature used for a qualitative synthesis of trial results differ according to methodological quality assessment approach? Oct 2004; Edmonton, AB: International Forum VII for Primary Care in Low Back Pain.

Van Eerd D, Mazumder A, Hogg-Johnson S, Moore A, Wells R, Cole DC. Relationship between EMG and workstation setup. July 2004; Zurich, Switzerland: PREMUS 2004.

Van Eerd D, Mazumder A, Hogg-Johnson S, Wells R, Moore A, Cole DC. Relationship between task recording methods in an office environment. July 2004; Zurich, Switzerland: PREMUS 2004.

Van Eerd D, Beaton DE, Hogg-Johnson S, Cole DC, Bombardier C, Haines T. Poster: Agreement among upper limb musculoskeletal classification systems. July 2004; Zurich, Switzerland: PREMUS 2004.

Van Eerd D, Mazumder A, Hogg-Johnson S, Moore A, Wells R, Cole DC. Relationship between EMG and workstation setup. Nov 2004; Toronto, ON: WSIB RAC Solutions for Workplace Change Conference.

Van Eerd D, Mazumder A, Hogg-Johnson S, Wells R, Moore A, Cole DC. Relationship between task recording methods in an office environment. Nov 2004; Toronto, ON: WSIB RAC Solutions for Workplace Change Conference.

Van Eerd D, Beaton DE, Hogg-Johnson S, Cole DC, Bombardier C, Haines T. Poster: Agreement among upper limb musculoskeletal classification systems. Nov 2004; Toronto, ON: WSIB RAC Solutions for Workplace Change Conference.

van Tulder MW, Malmivaara AV, Hayden J, Koes BW. Interpretation of the results of trials on back pain: a novel approach. Oct 2004; Edmonton, AB: International Low Back Pain Forum.

Zohar D. Safety climate and the supervision-based safety (SBS) intervention model. 2004; Stratford-Upon-Avon, UK: The British Psychological Society- Occupational Psychology Section Annual Conference.

Zohar D. Organizational climate with safety climate as exemplar (Master Tutorial). 2004; Chicago, IL: 19th Annual Conference of the Society for Industrial and Organizational Psychology (SIOP).

Educational, Professional, Policy and other Presentations & Consultations

Provincial and Local

Beaton DE. Are you better? Meaning of recovery and implications for our work. June 2004; Halifax, NS: Health Outcomes Research Unit Rounds, Dalhousie University.

Bombardier C. Patient driven outcomes and their application in daily practice. May 2004; Mont Tremblant, PQ: Merck Pre-conference Symposium at Laurentian Conference.

Bombardier C. What is the clinical problem in Ontario and what does the evidence show. May 2004; Toronto, ON: Guidelines Advisory Committee.

Bombardier C. Evidence-based medicine, systematic reviews and the Cochrane Collaboration. May 2004; Toronto, ON: Invited Speaker/Organizer. Institute for Work & Health Systematic Review Workshop.

Bombardier C. Evidence-based medicine, systematic reviews and the Cochrane Collaboration. Sept 2004; Toronto, ON: IWH Systematic Review Workshop.

Bombardier C, Furlan A, van Tulder M, Irvin E, Hayden J, Côté P, Bayene J. Sept 2004; Toronto, ON: IWH Systematic Review Workshop.

Bombardier C. Dissemination, clinical practice guidelines. Sept 2004; Toronto, ON: IWH Systematic Review Workshop.

Bombardier C. What is the clinical problem in Ontario? What does the evidence show? Nov 2004; Toronto, ON: Guidelines Advisory Committee video conference on acute low back pain.

Bombardier C. Evidence into practice: What does the evidence on managing LBP mean for primary care physicians? Nov 2004; Toronto, ON: Educationally Influential (EI) Physician Workshop.

Brenneman Gibson J. Knowledge transfer and exchange at IWH for WSIB RUC. May 2004; Toronto, ON.

Breslin FC. Young people and work injury: Towards the next generation of prevention approaches. May 2004; Ottawa, ON: Cross-Canada Young Worker Advisory Committee.

Breslin FC. Young people and work injuries: Using the SLID to help us understand this health problem. May 2004; Ottawa, ON: Income Statistics Division, Statistics Canada.

Breslin FC. Jugendarbeits Schultz in Kanada. Aug 2004; Dortmund, Germany: Federal Institute for Occupational Safety and Health.

Breslin FC. Youth work injuries: Current and future research. Oct 2004; Orangeville, ON: Interdisciplinary Capacity Enhancement (ICE) Team Injury Symposium.

Breslin FC. Young people and work injury: Towards the next generation of prevention approaches. Nov 2004; Hamilton, ON: McMaster University.

Breslin FC. Occupational health, hygiene, and toxicology rounds. Nov 2004; Hamilton, ON: McMaster University.

Carroll LJ, Cassidy JK, Côté P, Mercado AC. Back Pain: How do depression and coping fit in? Dec 2004; Edmonton, Alberta: Seminars in Bone and Joint Health/Biomedical Engineering, University of Alberta and University of Calgary Video Seminar Series.

Carroll LJ, Cassidy JD, Côté P. Effectiveness of rehabilitation programs after whiplash: Is less better? Modeling time to recovery using piecewise proportional hazards analysis with time-dependent covariates. March 2004; Calgary, Alberta: Faculty of Medicine Inter-Departmental Rounds on Clinical Epidemiology and Evidence-based Practice, University of Alberta.

Cassidy JD, Côté P. Back pain in the population: a challenge for clinicians, scientists and policy-makers. April 2004; Toronto, ON: Arthritis Community Research & Evaluation Unit (ACREU) Rounds, Toronto Western Hospital, University Health Network.

Cole DC. Evaluating worksite ergonomics intervention programs. Feb 2004; Hamilton, ON: Occupational Health, Hygiene & Toxicology Rounds, McMaster University.

Cole DC. Evaluating a workplace intervention modeling change in a workforce. April 2004; University of Toronto Epidemiology Seminar Series, Prosserman Center for Health Research, Mount Sinai Hospital.

Cole DC. Psychosocial factors: Hidden causes of sprains and strains. May 2004; Toronto, ON: Pulp and Paper Health & Safety Association Annual Conference.

Côté P, Hogg-Johnson S, Cassidy JD, Carroll L, Frank JW, Bombardier C. The impact of early patterns of care on the recovery of whiplash injuries: A population-based cohort study. April 2004; Toronto, ON: Epidemiology Rounds, University of Toronto.

Côté P. Conservative treatment for neck pain: What is the evidence? Sept 2004; Toronto, ON: OCA-CMCC "Practice Makes Perfect" Conference.

Cullen K, Franche R-L, Clarke J, MacEachen E, Frank JW, Sinclair S and the Workplace-based Return-to-Work Intervention Literature Review Group. Workplace-based return-to-work interventions: A systematic review of the quantitative and qualitative literature. Oct 2004; Niagara Falls, ON: IWH meeting of Educationally Influential Kinesiologists.

Culyer A. Keynote. Some practical ethics in cost-effectiveness health care decision making: reflections on the experience of NICE. The Ethics of Cost-Effectiveness. Dec 2004; Toronto, ON: Workshop hosted by Defining the Medicare Basket, Faculty of Law, University of Toronto.

Franche R-L, MacEachen E, and the Workplace-based RTW Interventions Systematic Review Group. Workplace-based RTW interventions: A systematic review of the quantitative and qualitative literature review. June 2004; Toronto, ON: Workplace Safety & Insurance Board.

Franche R-L, Cullen K, Clarke J, MacEachen E, Frank JW, Sinclair S and the Workplace-based Return-to-Work Intervention Literature Review Group. Workplace-based return-to-work interventions: A systematic review of the quantitative and qualitative literature. Oct 2004; Toronto, ON: RTW Roundtable Meeting: Ontario Health & Safety Associations.

Franche R-L, Cullen K, Clarke J, MacEachen E, Frank JW, Sinclair S and the Workplace-based Return-to-Work Intervention Literature Review Group. Workplace-based return-to-work interventions: A systematic review of the quantitative and qualitative literature. Dec 2004; Toronto, ON: IWH Board of Directors.

Franche R-L, Cullen K, Clarke J, MacEachen E, Frank JW, Sinclair S and the Workplace-based Return-to-Work Intervention Literature Review Group. Workplace-based return-to-work interventions: A systematic review of the quantitative and qualitative literature. Dec 2004; Toronto, ON: Rounds for Healthcare Providers of the WSIB of Ontario.

Guzman J. A roadmap for disability prevention. Oct 2004; Toronto, ON: Ontario Roundtable on Disability Prevention.

Guzman J. A network of Ontario Educational Influential physicians. Nov 2004; Toronto, ON: Facilitator: Ontario Family Physicians.

Guzman J. Back pain as a biopsychosocial problem. Toronto, ON: Toronto Rehabilitation Institute MSK Forum.

Hepburn CG, Williams A, Zohar D, Cole DC, Kramer D, Ferrier S. Poster: Safety climate: Measurement, intervention and evaluation in a manufacturing setting. April 2004; Toronto, ON: IAPA Conference & Trade Show: Knowledge in Motion, Health & Safety.

Kramer M. Building a more positive organizational climate for safety. Feb 2004; Kitchener, ON: IAPA Conference.

Kramer D. Building a more positive organizational climate for safety. March 2004; Toronto, ON: School of Public and Occupational Health, Ryerson University.

Kramer D. Ten factors for organizational health. March 2004; Toronto, ON: Ministry of Health Internal Forum on Connecting, Collaborating and Changing: Making a Difference.

Kramer D, Wells R. The participative ergonomic blueprint. April 2004; Toronto, ON: IAPA Conference & Trade Show.

Kramer D, Wells R. Poster: Getting research into the hands of users: Using network theory to aid knowledge transfer. April 2004; Toronto, ON: IAPA Conference & Trade Show.

Kramer D. Improving the health of workers. May 2004; Toronto, ON: Ministry of Health and Long-Term Care.

Kramer D, Reardon R. Knowledge transfer and exchange workshop. May 2004; Toronto, ON: Wellesley Urban Health Community-Based Research Workshop Series.

Kramer D. Prevention of musculoskeletal disorders and disabilities workshop facilitator. June and Oct 2004; Waterloo, ON: University of Waterloo.

Kramer D. Priorities of research focus group facilitator. Oct; Windsor, ON: Association of Canadian Ergonomists Conference.

MacEachen E. Interview skills: Issues in occupational health seminar. March 2004; Toronto, ON: Ryerson University.

Mazumder A.) OISE/EQAO research consultant (member of the OISE/EQAO Review Project) – 2 presentations : (1) IRT model fit issues; and (2) HLM and DIF analysis (impact of demographic characteristics on student achievement and test performance)

Mustard CA The impact of experience rating and occupational health and safety on compensation claim incidence in Ontario. Jan 2004; Toronto, ON: Labour Consultation Group, WSIB.

Mustard CA. Making research work. April 2004; Toronto, ON: Workers' Compensation Committee, Canadian Manufacturers and Exporters Association

Mustard CA. Making sense to policy-making: Some research examples from the intersection of labour market policy and health policy. June 2004; Toronto, ON: SPIDA Conference, York University.

Mustard CA. Childhood health status and intergenerational socio-economic mobility: The Ontario Child Health Study. Oct 2004; Toronto, ON: Epidemiology Program Seminar Series, University of Toronto.

Pennick V. Everything you ever wanted to know about Cochrane but were afraid to ask. Nov 2004; Toronto, ON: HAD 5308H Systematic Reviews Course, University of Toronto, HPME Department.

Pennick V, Maxwell L. Cochrane Reviewer Training Workshop. Nov 2004; Toronto, ON.

Pitts S, Beaton DE, Solway S. A comparison of five measures of at-work disability in injured workers. June 2004; Toronto, ON: University of Toronto, Occupational Therapy Research Day.

Reardon R. Knowledge transfer demonstration project - Ergonomics and the clothing trade. Feb 2004; Toronto, ON: WSIB RAC.

Reardon R. Selecting educationally influential physicians project. Feb 2004; Toronto, ON: Ontario Medical Association, Guidelines Advisory Committee.

Reardon R. IWH model for knowledge transfer and exchange. March 2004; Toronto, ON: Episodic Disability Network.

Reardon R. The use of EI's in knowledge transfer. March 2004; Toronto, ON: Toronto Occupational Health Nurses Association.

Reardon R. EIs and knowledge transfer and facilitation. March 2004. Physiotherapy EI Network.

Reardon R. Convergence of return-to-work and health safety in the workplace. April 2004; Toronto, ON: IAPA Conference.

Reardon R. Return-to-work literature review and KTE plan. June 2004; Toronto, ON: WSIB

Reardon R. From research to change: A multi-sector dialogue on knowledge transfer. June 2004; Toronto, ON: Inner City Health Research Unit, St. Michael's Hospital Health Policy Forum.

Robson LS. Development of an annual OHSCO performance report. April 2004; Toronto, ON: Ontario Health and Safety Council of Ontario.

Robson LS. Healthy workplace scorecard: measuring the OHS performance of workplaces. May 2004; Toronto, ON: Pulp & Paper Health & Safety Conference.

Shannon HS, Vidmar M. Poster: How low can they go? April 2004; Toronto, ON: Industrial Accident Prevention Association Conference.

Tompa E, Trevithick S, McLeod C. A systematic review of the prevention incentives of insurance and regulatory mechanism for occupational health and safety. Jan 2004; Toronto, ON: Research Consultation with the WSIB.

Urbanski K, Beaton DE, Gignac M. A theoretical framework for measuring re-adjustment and re-definition. June 2004; Toronto, ON: University of Toronto, Occupational Therapy Research Day.

Van Eerd D, Cole DC. Burden/costs of musculoskeletal injuries/disorders. May 2004; Toronto, ON: Legislating Ergonomic Solutions 2004, Workers Health & Safety Centre and Occupational Health Clinics for Ontario Workers Inc.

Van Eerd D, on behalf of the Worksite Upper Extremity Research Group and the Workplace Musculoskeletal Health Intervention Research Program (Cole DC, Hepburn CG, Ferrier S, et al.) Evaluating workplace interventions for work-related musculoskeletal disorders. April 2004; Toronto, ON: IAPA Conference and Trade Show.

Van Eerd D, Cole DC. Burden/costs of musculoskeletal injuries/disorders. June 2004; Toronto, ON: IWH Board of Directors Meeting.

Zohar D. Safety leadership: Protecting employees' safety and health in the face of adversity. 2004; Omaha, Nebraska: The UNL-Gallup Leadership Summit.

Zohar D. Building a more positive organizational climate for safety. April 2004; Toronto, ON: Industrial Accident Prevention Association Conference.

National

Ammendolia C. Overview of research initiatives. Dec 2004; Toronto, ON: Canadian Chiropractic Association Board Meeting.

Ammendolia C. Presentation at the general meeting of the Canadian Chiropractic Research Foundation, Toronto, May 2004.

Bombardier C. Managing rheumatoid arthritis using information technology: The eRheum project. Sept 2004; Ottawa, ON: Ottawa Center for Research and Innovation (OCRI) Conference, University of Ottawa.

Bombardier C. Outcomes measures in the assessment of the RA patient. Nov 2004; Toronto, ON: Nurses Issues and Advances in Rheumatic Diseases (NIARD) Conference.

Bombardier C. Overcoming the challenge: Translating research findings into practice. Dec 2004; Toronto, ON: Arthritis and Autoimmunity Research Centre Retreat.

Franche R-L, Côté P, Hogg-Johnson S, MacEachen E. Participation as mentors at the work disability prevention program. June 2004; Montreal, PQ.

Guzman J. Evaluation of the CLIP (Application des principes de prise en charge Clinique des Lombalgies, Interdisciplinaire en Première ligne) project. Dec 2004; Montreal, PQ.

Guzman J. Chronic back pain as a bio-psychosocial problem. March 2004; Ottawa, ON: Medico-ethical Workshop and Professional Development Seminar, Office of the Commissioner of Review Tribunals, CPP/OAS, HRDC.

Hogg-Johnson S, MacEachen E. Quantitative and qualitative methodology in work disability research. June 2004; Longueuil, PQ: Work Disability Prevention CIHR Strategic Training Program, Université de Sherbrooke.

Mustard CA. Overview of the Canadian population health initiative. Jan 2004; Toronto, ON: Inaugural Meeting of the Health Council.

Mustard CA. Adequacy and equity of permanent partial disability benefit programs in Ontario, 1985-2000. Jan 2004; Vancouver, BC: British Columbia Worker's Compensation Board.

Mustard CA. A closer look at inequalities in health. March 2004; Ottawa, ON: National Press Club Newsmaker Breakfast.

Mustard CA. Experiences from the front line: Developing, implementing and evaluating a KT strategy. March 2004; Toronto, ON: Socio-behavioral Cancer Research Network Annual Meeting.

Mustard CA. Making research work. June 2004; Hamilton, ON: Canadian Association of Administrators of Labour Legislation: Occupational Health and Safety Committee.

Mustard CA. Back pain: Don't take it lying down. Evaluation of a population-based media campaign to reduce back pain disability. Aug 2004; Whitehorse, Yukon: Association of Workers' Compensation Boards of Canada.

Reardon R, Brennehan Gibson J. Using educationally influential clinicians to enable research knowledge transfer and exchange. May 2004; Toronto, ON: CME Congress.

Tompa E, Mustard CA, Sinclair S, Trevithick S, Vidmar M. Post-accident earnings and benefits adequacy and equity of Ontario workers sustaining a permanent impairment from workplace accidents. Jan 2004; British Columbia: Workers' Compensation Board of British Columbia.

Zohar D, Stuewe D. Safety climate as key for understanding and improving safety in high-risk companies. March 2004; Halifax, NS: 22nd Annual Conference of the Nova Scotia Safety Council.

International

Bombardier C. Journal of clinical epidemiology retreat. June 2004; Maastricht, The Netherlands.

Bombardier C. Update on the management of low back pain. Oct 2004; Philadelphia, PA: CME National Pain Forum Meeting.

Bombardier C. How effective are we at assessing pain relief. June 2004; Berlin, Germany: European League Against Rheumatism (EULAR), MERCK Sharp & Dohme (MSD) Symposium.

Mustard CA. Cooperation between insurance and prevention. Aug 2004; Dresden, Germany: International Network on the Prevention of Accidents and Trauma at Work.

Mustard CA. Prevention policy development: Current priorities in Canada. Oct 2004; Melbourne, Australia: Worksafe Victoria.

Plenaries

External Speakers

Patrick Neumann National Institute for Working Life, Sweden
Optimizing ergonomics and productivity in the design of industrial processes:
Examples from Sweden.
13 Jan 2004

Anne Moore York University, Toronto
Introduction of principles and methods on the measurement of muscle effort.
20 Jan 2004

Hermann Burr National Institute of Occupational Health, Denmark
The Danish work environment cohort study - its design and published results.
23 Jan 2004

Brian Murphy Blaney McMurtry
Cost shifting in health care: A pilot study explores the relationship between cost
shifting, repetitive strain injury, the WSIB, and publicly funded health care.
3 Feb 2004

Freek Lötters	Erasmus Medical Centre, Rotterdam Transdisciplinary project: Model for work- relatedness of low back pain. 9 March 2004
Richard Wells	University of Waterloo Centre of research expertise on the prevention of musculoskeletal disorders: Linking research and practice. 06 April 2004
Bianca Seaton	University of Toronto Return to work in precarious employment: The experiences of nurses with work-related musculoskeletal injuries. 27 April 2004
Doug Manuel John Frank	Institute for Clinical and Evaluative Sciences CIHR - Institute of Population and Public Health Comparing Rose's and the "new" medical approaches to improving population health: Is it about risk or risk factors? 13 May 2004
Marie DesMeules	Health Canada The surveillance of musculoskeletal diseases in Canada: The approaches, the challenges, and the implications for policy. 18 May 2004
Joan Eakin	University of Toronto What can be learned from qualitative analysis? 25 May 2004
Hermann Burr	National Institute of Occupational Health, Denmark Measurement error of health symptoms in self-reported longitudinal data than analyzing longitudinal data with more than two rounds. 01 June 2004
Louise Logan	B.C. Workers' Compensation Board Workplace health and safety policy and regulation development: The view from the inside. 08 June 2004
William G. Johnson	Arizona State University Opportunities for research. 22 June 2004
CIHR/Stats Canada	The national survey of the work and health of nurses - An opportunity to provide feedback. 13 July 2004
John Frank	CIHR - Institute of Population and Public Health Design issues for a Canadian national birth cohort. 21 Sept 2004

Rieke de Vet	EMGO Opportunities for collaboration between IWH and the Institute for Research in Extramural Medicine. 01 Oct 2004
Susan Rappolt	University of Toronto Occupational therapy for acute and subacute neck or back soft tissue injuries. 12 Oct 2004
Gary Latham	Rotman School of Management, University of Toronto The importance of outcome expectancies for changing behavior. 02 Nov 2004
Patrick Loisel	Universite de Sherbrooke Return to work interventions: what's effective? 16 Nov 2004
Hasanat Alamgir	University of British Columbia Contrasting hospital discharge data with workers compensation data in identifying work-related Injury among the BC lumber industry workers. 17 Nov 2004
Terry Sullivan	Cancer Care Ontario What lessons has the CCO initiative for health care in general? 07 Dec 2004

Internal Speakers

Pierre Côté	The relationship between impairment, activity limitations, participation restriction and markers of recovery in individuals with musculoskeletal disorders: A validation study of two conceptual frameworks. 23 Nov 2004
Tony Culyer	First impressions. 27 Jan 2004
Vicki Kristman	Information disclosure in population-based research involving genetics: Guidelines for the practice of ethics in epidemiology. 30 Jan 2004
John Frank	Genes and environment - The need for balance. 10 Feb 2004
Donald Cole	Evaluation of the impacts of a workplace ergonomic policy implementation. 17 Feb 2004
Dorcas Beaton	When is pain a problem? 24 Feb 2004

- Jane Brenneman Gibson State of the Union for KTE.
02 March 2004
- Jaime Guzman Would cellular phones, global positioning devices and accelerometers help identify the factors that prevent disability in people with back pain? Discussion of a pilot trial proposal.
16 March 2004
- Emile Tompa The health consequences of precarious employment experiences.
Heather Scott 04 May 2004
Scott Trevithick
Roman Dolinschi
- Jaime Guzman Transdisciplinarity at IWH- A panel discussion
Pierre Côté 11 May 2004
Sheilah Hogg-Johnson
Emile Tompa
- Jaime Guzman Transdisciplinary rounds: What makes a good theory good?
26 Oct 2004
- Peter Smith An examination of the social, contextual and individual factors that modify the relationships between labour market experiences and health.
09 Nov 2004
- Pierre Côté The relationship between impairment, activity limitations, participation restriction and markers of recovery in individuals with musculoskeletal disorders: A validation study of two conceptual frameworks.
23 Nov 2004
- Frances Share Workplace Safety & Insurance Board
The Pareto Principle: What does the 80/20 rule tell us?
30 Nov 2004
- Dov Zohar Authentic (ethical) leadership as the source of safety climate in high-risk organizations.
14 Dec 2004

Grants and Awards * Principal Investigator is External

Research Project Funding - Awarded

* Alter D, Mustard CA, Irvine J, Naylor D, Austin P, Williams J, Tu J. Socioeconomic status and outcomes after acute myocardial infarction. CIHR: \$211,500; 2004-2006.

Ammendolia C, Bombardier C, Hogg-Johnson S. Validation of a decision aid tool for x-ray use in patients with acute low back pain (ALBP). Special Chiropractic Research Fund, Ontario Chiropractic Association and the Ontario Ministry of Health and Long Term Care: \$187,450; 2002-2004.

Beaton DE, Richards RR, Hogg-Johnson S. The validation of a classification system for work-related disorders of the shoulder and elbow. WSIB RAC: \$179,655; 2002-2004 (Administered at St. Michael's Hospital)

* Berthelot JM, Wilkins, R, Mustard CA. Mortality follow-up of the 1991 census: Cohort mortality by socioeconomic characteristics. CPHI: \$406,000; 2001-2004 (Administered at Statistics Canada)

Bigelow P. Exploring organizational factors and safety climate in the implementation of an ergonomic intervention. CRE-PREMUS: \$7500; 2004.

Bombardier C, Beaton DE, Gignac M, Lecaille D. Disability while at work: A comparison of different measures in persons with arthritis. Canadian Arthritis Network: \$76,487; 2004.

* Boyle M, Mustard CA, Offord D, Dooley M, Rosenbaum P, Bennett K, Cairney J, MacMillan H, Lipman E. Ontario child health study: early influences on health and development in adulthood. CIHR: \$304,000 IWH; 2003-2004 (Administered at McMaster University)

* Boyle M, Zeesman A, Willms D, Murray S, Mustard CA, Bennett K, Cairney J, Dooley M, Lievesley D. Environmental influences on child health and development: a global health research program. CIHR: \$97,700; 2003-2004 (Administered at McMaster University)

Breslin FC. Systematic Review: Risk factors for work injury among youth. McMaster University: Institutional Capacity Enhancement (ICE) pilot project: \$13,325; 2004-2005.

Breslin FC, Koehoorn M, Mustard CA, Hogg-Johnson S. Incidence and correlates of lost-time claims among adolescents and young adults in Ontario and British Columbia. WSIB RAC: \$147,844; 2002-2004 extended to Dec. 31, 2005.

Breslin FC, Tompa E, Hogg-Johnson S, Amick B. Work injury and young people: A prospective study. NIOSH. \$100,000 U.S.; 2004-2006.

Breslin FC, MacEachen E, Shannon HS, Morrongiello B. Work injuries among adolescents: Towards a gendered conceptual framework. CIHR: \$48,024; 2004-2005.

Cole DC, Ferrier S. Evaluation of the impact of a participatory ergonomics intervention. CRE-PREMUS: \$7,500; 2004-2005.

Cole DC, Hepburn CG, Tompa E, Theberge N, Wells R, Barling J, Vezina N, Lanoie P. Workplace interventions to reduce workplace injuries and improve musculoskeletal health: a program of intervention research. CIHR: \$99,500; 2003-2004.

Côté P, Beaton DE, Cassidy J, Carroll L, Bombardier C, Hogg-Johnson S. The relationship between impairment, activity limitations, participation restriction and markers of recovery in individuals with musculoskeletal disorders: a validation study of two conceptual frameworks. CIHR: \$74,580; 2004-2006.

Côté P, Hogg-Johnson S, Bombardier C, Beaton DE. The epidemiology and primary care utilization for occupational neck pain in Ontario. Special Chiropractic Research Fund, Ontario Chiropractic Association and Ontario Ministry of Health and Long Term Care Special Chiropractic Research Fund: \$139,950; 2002-2004.

* Denburg J, Mustard CA et al. ALLERGEN: Allergy, genes and environment network. Networks of Centres of Excellence: \$25,000,000. (Administered at McMaster University)

Eakin JM, MacEachen E, Clarke J. The logic of practice: An ethnographic study of front-line service work with small businesses in Ontario's workplace health insurance agency. WSIB RAC; \$52,691; 2004-2006 (Administered at the University of Toronto).

Frache R-L, Mustard CA, Hepburn G, Breslin FC, Hogg-Johnson S, Frank JW, Côté P. Determinants of return-to-work: applying the readiness for change model. WSIB RAC: \$278,320; 2004-2006.

Gnam W, Koehoorn M, Breslin FC, Mustard CA. Profiling the mental health and service utilization of workers' compensation claimants. \$110,310; 2002-2004; Workers' Compensation Board of British Columbia. (Administered at the Centre for Addiction and Mental Health, Ontario).

Gnam W, Mustard CA. The economic costs of mental disorders, alcohol and illicit drugs in Ontario: A cost-of-illness and micro-simulation study. Ontario Mental Health Foundation: \$354,064; 2003-2005. (Administered at the Centre for Addiction and Mental Health, Ontario)

Guzman J. Developmental grant from Ontario Roundtable to Toronto Rehabilitation Institute to develop ACTION project. \$15,000.

Guzman J. What are the key modifiable personal and environmental factors that prevent disability in people with back pain? A consensus using Delphi and Q-card methodologies. WSIB RAC; \$29,504; 2004-2005.

* Hertzman C, Barer M, Black C, Evans R, Frank JW, Mustard CA, Roos N, Teschke K, Willms D. Population health observatory: A resource to improve health, quality of life and productivity in Canada. Canadian Foundation for Innovation: \$2,938,069 (Administered at the University of British Columbia)

* Holness L, Corey P, House R, Liss G, Purdham J, Sass-Kortsak A, Scott J, Silverman F, Tarlo S, Verma D, Abel S, Eakin J, Faughnan M, Hargreave F, Hosein R, Kerr MS, Lou W, Loughheed D, Pratt M, Skotnicki-Grant S, Switzer-McIntyre S. Centre of Research Expertise in Occupational Disease. WSIB: \$1,976,000; 2003-2008 (Administered at St. Michael's Hospital)

* Hurley J, Tompa E, Gnam W, Lavis J, Culyer A, Mustard CA. The dynamics of parallel systems of finance: Interaction between Canada's workers' compensation systems and public health care systems. CIHR: \$74,513 (Administered at McMaster University)

Kerr MS, Lemire Rodger G, Laschinger HK, Hepburn CG, Mayrand-Leclerc M, Gilbert J, O'Brien-Pallas L. Adopting a common nursing practice model across a recently merged multi-site hospital. CHSRF: \$438,722; 2002-2005 (Administered at University of Western Ontario).

Kerr MS, Bigelow P, Fernie G, Fraser M, Keir P, Laschinger H, Mustard CA. Evaluation of overhead patient lifting devices in Ontario. Ministry of Health and Long Term Care; \$1,028,000.

* Koehoorn M, Breslin FC. Investigating the consequences of work-related injuries among young workers in British Columbia. WCB of British Columbia: \$76,068; 2002-2004. (Administered at the University of British Columbia).

* Koehoorn M, Breslin FC. Youth at work: B.C. high school survey on work-related injuries. Workers' Compensation Board of British Columbia: \$50,215; 2004-2006.

Kosny I, Eakin J, Holness L, Hwang S. Are non-profit organizations healthy workplaces. National Network on Environments and Women's Health: \$29,925; 2004-2005.

* Laschinger, HK, Wong C, Armstrong-Stassen M, White J, Kerr MS, Saxe-Braithwaite M, Matthews S, Vincent L, Almost J, Wilk, P. A profile of the structure and impact of nursing management in Canadian hospitals. CHSRF: \$387,500; 2002-2005 (Administered at the University of Western Ontario)

* Muntaner C, Mustard CA. Work organization and health among homecare workers. NIOSH: \$58,272.

Mustard CA. Predictors of the incidence of disability income insurance among Ontario labour force participants, 1994-2004. Ontario WSIB RAC: \$161,000; 2004-2006.

Mustard CA, Aronson K, Wilkins R. Mortality by occupation in Canada: a ten-year follow-up of a 15% sample of the 1991 census. CIHR: \$152,479; 2003-2005. (Project #461)

Mustard CA, Rued S, Lavis JN, Bayoumi A, Raboud J, Rourke S. Effects of return-to-work on health related quality of life in HIV/AIDS: A prospective cohort study. CIHR: \$116,678; 2003-2007.

Mustard CA, Tompa E, Manuel D. Canadian trends in socioeconomic inequalities in avoidable mortality:1985-2002. CIHR: \$180,000; April 2005 - Oct. 2007.

* Naqvi S, Cole DC, Theberge N, Ferrier S, Chase T, Tompa E. Evaluation of the impact of participatory ergonomics intervention. CRE-PREMUS; \$7,500; 2004 (Administered at Occupational Health Clinics for Ontario Workers Inc.)

* O'Brien-Pallas LL, Thomson D, Kerr MS, Alksnis C, Pink G, McGillis-Hall L. Evidence-based standards for measuring nurse staffing and performance. CHSRF: \$449,959; 2001-2004 (Administered at the University of Toronto)

* Shannon HS, Mustard CA, McDonough P. The use of health and social services following workplace injury: a study of workers and their families in British Columbia. NIH: \$144,000; 2003-2005 (Administered at McMaster University)

* Shannon HS, Cole DC, Walter S, Wells R, Hogg-Johnson SA. The use of individual participant data (IPD) for examining heterogeneity in meta-analysis of observational studies: An application to biomechanical workplace risk factors and low back pain. CIHR: \$201,838; 2004-2006. (Administered at McMaster University).

Tompa E, Lavis JN, Mustard CA. The health and safety consequences of underemployment and contingent work. CIHR: \$134,643; 2002-2004.

Tompa E, Lavis JN, Mustard CA. The health and safety consequences of underemployment and contingent work.. WSIB RAC: \$13,024; 2002-2004 (Top-up to CIHR funding).

Tompa E, Mustard CA, Sinclair S. Post accident earning and benefits adequacy and equity. NIOSH: \$150,000; 2004-2007.

van der Velde G, Hogg-Johnson S, Kahn M, Maetzel A, Nagle G. Utility values for health state outcomes to two conservative treatments for neck pain (non-steroidal anti-inflammatory drugs and cervical spinal manipulation) obtained from a sample of neck pain patients and the general public: A pilot study. Ministry of Health and Long Term Care/Ontario Chiropractic Association Special Chiropractic Research Fund: \$48,490; 2002-2004. \$58,400; 2004 - 2005.

van der Velde G, The Bone and Joint Decade 2000-2010 Task Force on Neck Pain and its Associated Disorders: \$35,000; 2004-2005.

Van Eerd D, Cole DC, Wells R, Ferrier S, Tompa E, Theberge N. Evaluating a partner-based participatory intervention for musculoskeletal disorders in a medium-sized workplace. CRE-PREMUS: \$7,500; 2004.

*Wells RW, McGill S, Frazer M, Green H, Theberge N, Ranney D, Medley J, MacGregor C, Cole DC, Keir P, Moore A, Callaghan J, Haines T, Kerr MS, Naqvi S, Potvin J. Centre of Research Expertise for an action centre for the prevention of work-related musculoskeletal disorders. WSIB: \$2,035,000; 2003-2008 (Administered at University of Waterloo)

* Wells R, Cole DC, Tompa E, Naqvi S, Frazer M, Theberge N. Evaluation and sustainability of ergonomic interventions. WSIB: \$149,175; 2004-2006 (Administered at University of Waterloo)

* Wells R, Cole DC, Frazer M, Kramer D, Naqvi S, Theberge N, Tompa E. Ergonomic interventions for prevention of WMSDs: Evaluation and sustainability. WSIB RAC. (Administered at University of Waterloo).

Williams A. Evaluating the effect of transformational leadership on MSK disorders and minor injuries in the service sector. CRE-PREMUS: \$7,500; 2004-2005.

* Yassi A, Bryce E, Gershon R, Bigelow P, Copes R, Corbière M, Daly P, Kerr MS, Noble M, Patrick D, Qureshi K. Barriers and facilitators to implementing protective measures against SARS for healthcare workers: A collaborative interdisciplinary study. CIHR: \$160,265; 2004-2006 (Administered at UBC)

Research Grants Pending

Bigelow PL, Cole DC, Ferrier S, Franche R-L, Frazer M, Kramer D, Lee W, Maracle S, Theberge N, Wells R, Zohar D. Evaluation of a HSA-initiated collaborative partnership to implement participatory ergonomic evaluation. WSIB-RAC: \$292,908; 2005-2007.

Cole DC, Tompa E, Scott L, Clarke A, Hogg-Johnson S. Monitoring system for workplace-based work disability management - implementation & preliminary evaluation. WSIB-RAC: \$297,688; 2005-2007.

Côté P, Mustard CA, Dionne C, Koehoorn M, Cassidy D, Bombardier C. The impact of back and neck pain on quality of life: Understanding the course, determinants and consequences of these disorders. CIHR: \$1,445,000.

Côté P, Kristman V, Hogg-Johnson S, Cassidy JD, Wennberg R, Tator CH. Occupational mild traumatic brain injury in Ontario: identification, prognosis and health care utilization. Submitted to the Ontario Neurotrauma Foundations's "MTBI/Feasibility Studies" \$76,625: April 2005- Dec. 2006.

*Grignon M, Lavis J, Tompa E. The impact of aging on absenteeism in Canada, France and the United Kingdom. SSHRC through McMaster: \$46,127.

Guzman J, Fernie G, Jadad A, Frank JW, El-Emam K, McIlroy B, Beaton D, Gignac M, Côté P. The use of wireless technologies to measure occupational and non-occupational participation in people with back pain and arthritis. Submitted to Physician Services Incorporated: \$150,000. New Investigator award application to CIHR.

* Loisel P, Franche R-L et al. Développer, évaluer et implémenter des modes de prise en charge pour le retour et maintien au travail des personnes avant des troubles musculo-squelettiques. FRSQ: Programme en santé et société; \$800,000.

MacEachen E, Ferrier S, Cole DC. An ethnographic study of injured workers' complex claims experiences. WSIB-RAC: \$88,198; 2005-2007

Tompa E, Mustard CA, Muntaner C. The health consequences of underemployment and contingent work. CIHR grant renewal \$219,167.

Tompa E, Dolinski R. An analysis of industry-specific injury rates in Ontario and Quebec SSHRC: \$20,000.

Research Personnel Funding

Ammendolia C. Canadian Memorial Chiropractic College/CIHR Post-Doctoral Fellowship Training Award: 2001-2004.

Bombardier C. CIHR Senior Scientist Award, University Health Network: 2003-2010.

Côté P. CIHR New Investigator Award: 2003-2008.

Etches J. CIHR Doctoral Award: 2003-2006.

Furlan A. CIHR Post-doctoral Fellowship Award: 2002-2005; Clinician Scientist Fellowship Award: 2004-2005 University of Toronto: Centre for Study of Pain

Hayden J. Postdoctoral Fellowship Award, CIHR/Canadian Chiropractor Research Foundation. Development of a framework to identify clinically useful predictive factors for low back pain. (2004-2007)

MacEachen E. Mustard Fellowship in Work Environment and Health; IWH: 2003-2005.

MacEachen E. SSHRC Post-doctoral Fellowship Award: 2004-2006.

van der Velde G. CIHR Post-doctoral Fellowship Award: 2002-2005.

Research/Professional Collaborations and Networks, Appointments and Offices

AMMENDOLIA, Carlo

Member, Research Fund Allocating Committee, Canadian Chiropractic Research Foundation
Member, Canadian Chiropractic Association
Member, Ontario Chiropractic Association
Member, Canadian Memorial Chiropractic College
Member, College of Chiropractors in Ontario
Member, Ontario Council of Acupuncture

BEATON, Dorcas

Canadian Representative, Scientific Committee, International Federation of Societies of Hand Therapy
Canadian Delegate, Council of the International Federation of Societies of Hand Therapy
Chair of Research Committee, American Society of Elbow Therapists
Member, American Society of Shoulder and Elbow Therapists, Member of Research Committee 1995-
Member, Canadian Association of Occupational Therapists
Member, College of Occupational Therapists of Ontario
Founding Member, Canadian Society of Hand Therapists
Member, Upper Extremity Collaborative Group (Institute for Work & Health, American Academy of Orthopaedic Surgeons)
Member, Canadian Arthritis Network
Member, Allied Health Panel, CIHR
Member, International Society of Quality of Life Research
Member, Advisory Committee, The Bone & Joint Decade 2000-2010 Task Force on Neck Pain and its Associated Disorders

BIGELOW, Philip

Member, Society for Epidemiologic Research
Member, American Board of Industrial Hygiene
Member, American Academy of Industrial Hygiene
Member, Canadian Registration Board of Occupational Hygienists
Sub-committee Co-chair, Threshold Limit Values Committee, American Conference of Governmental Industrial Hygienists
Member, Academic-Community-Agency Network for Environmental Justice (ACA-NET)

BOMBARDIER, Claire

Member, Canadian Institutes of Health Research (CIHR) High Risk, Teams, Interventions (HTI) Peer Review Committee
Member, AMGEN Global Advisory Board in Inflammation
Co-Chair, Health Canada (Working Group), Food and Drug Act, Schedule A
Member, AMGEN - Kineret Registry Steering Committee, 2002 to present
Member, Merck -Etoricoxib Outcomes Study Steering Committee, 2002 to present

Member, Merck - Worldwide Arthritis Advisory Board (WAAB), 2002 to present
Member, Merck Frosst Rheumatology Medical Advisory Council (MEDAC), 2002 to present
Member, Canadian Arthritis Network, 2001 to present
Member, Advisory Board, SONORA Study, Abbott Pharmaceutical Company, 2000 to present
Member, Advisory Board, WHO International Task Force on Neck Pain, 1999 to present
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)
Fellow, Royal College of Physicians of Canada F.R.C.P.(C)
Member, Canadian Medical Association (CMA)

BRENNEMAN GIBSON, Jane

CHSRE/ CIHR Chairs Review Panel member for CADRE
Member, Planning Committee WSIB Workshop on Transportation Safety
Member, Advisory Committee GTA Rehab Network Best Practices Day
Member, National Advisory Committee Health Work and Wellness Conference
Member, Planning Committee Ontario Regional KTE Workshop
Chair, HSA Liaison Committee
Member, Advisory Committee Retention of Clinical Practice Guidelines in LTC Facilities in Ontario

BRESLIN, Curtis

Member, Ontario College of Psychologists
Member, American Public Health Association
Member, Canadian Psychological Association

COLE, Donald

Member, Scientific Committee, Canadian Association for Research in Work and Health
Acting Co-Director, Health and Environment Division of the International Potato Center (CIP)
Member, Institute of Environmental Studies, Research and Education Steering Committees
Member, Canadian & Ontario Public Health Associations
Member, Canadian Society of International Health
Royal College of Physicians and Surgeons of Canada, Fellow in Occupational Medicine and Community Medicine

CÔTÉ, Pierre

Member, Canadian Society for Epidemiology and Biostatistics
Member, Society for Epidemiologic Research
Member, Scientific Secretariat, 2000-2010 Bone and Joint Decade Task Force on Neck Pain and Its Associated Disorders

Member, Canadian Chiropractic Association
Member, College of Chiropractors of Ontario
Member, Canadian Memorial Chiropractic College
Member, Ontario Chiropractic Association
Member, College of Chiropractic Clinical Sciences
Member, Consortium for Chiropractic Research Centres
Member, University of Toronto Epidemiology Doctoral Program Renewal Working Group

CULYER, Anthony

Chair, Office of Health Economics Policy Committee
Chair, Office of Health Economics Editorial Committee
Chair, NICE Working Group on Economic Evaluation in Public Health
Co-Editor, Journal of Health Economics
Special Advisor, Canada Health Council
Fellow, Academy of Medical Sciences
Fellow (Hon), Royal College of Physicians of London
Fellow, Royal Society of Arts
Member, National Institute for Clinical Excellence R&D Committee
Member, Governing Board, International Health Economics Association
Member, Health Economists' Study Group
Member, Home Office Economics Panel
Member, Editorial Board, Medical Law International
Member, Editorial Board, Clinical Effectiveness in Nursing
Member, Academic Advisory Council, University of Buckingham
Member, Royal Economic Society

FRANCHE, Renée-Louise

Member, Ontario College of Psychologists
Member, Canadian Psychological Association

FURLAN, Andrea

Member, Canadian Pain Society
Member, Guidelines Developing Committee, Canadian Chiropractic Association/Canadian Federation of Chiropractic Regulatory Board
Member, Cochrane Collaboration Non-randomised studies Methods Group

GUZMÁN, Jaime

Member, Scientific Secretariat, 2000-2010 Bone and Joint Decade Task Force on Neck Pain and It's Associated Disorders
Affiliate, Physiatric Association of Spine, Sports and Occupational Rehabilitation, 2003 to present
Member, American Academy of Physical Medicine and Rehabilitation, 2001 to present
Member, Canadian Association of Physical Medicine and Rehabilitation, 2001 to present
Fellow, The Royal College of Physicians and Surgeons of Canada, 2003 to present
Member, Mexican Society of Rheumatology, 1991 to present

HAYDEN, Jill

Member, Canadian Chiropractic Association
Member, Ontario Chiropractic Association
Member, Prognosis Review Network (emerging group of Cochrane Collaboration)

HEPBURN, Gail

Member, Canadian Association for Research on Work and Health, 2001 to present
Member, American Psychological Association, 2000 to present
Member, Academy of Management, 1998 to present

HOGG-JOHNSON, Sheilah

Member, Scientific Secretariat, 2000-2010 Bone and Joint Decade Task Force on Neck Pain and Its Associated Disorders

IRVIN, Emma

Convenor, The Cochrane Library Users Group
Member, The Publishing Policy Group of the Cochrane Collaboration

KELLS, Robin

Member, Executive Committee, Threads of Life (peer-support charity for families of people injured or killed as a result of work), 2003 to present
Member, Program Committee, Health, Work & Wellness Conference

KERR, Mickey

Academic Associate, Centre for Health and Well-Being, University of Western Ontario
Chair, Finance Committee, Canadian Association of Schools Nursing 2004 Nursing Research Conference
Acting Chair - Scholarships and Awards Committee, School of Nursing, University of Western Ontario, 2002 to present
Member, Year 3 Curriculum Planning Committee, School of Nursing, University of Western Ontario
Member, School Affairs Committee, School of Nursing, University of Western Ontario
Member, Graduate Affairs Committee, School of Nursing, University of Western Ontario
Project Steering Committee, The Change Foundation and the Ontario Hospital Association

KNOWLES CHAPESKIE, Kathy

Chair, Communications Committee and Member, Board of Directors, Canadian Research Transfer Network
Member, IAPA Health & Safety Conference and Trade Show Advisory Committee
Member, Ontario NAOSH Network and the Ontario NAOSH Network Communications Subcommittee

MACEACHEN, Ellen

Member, Canadian Anthropology and Sociology Association
Member, British Sociological Association
Member, Canadian Association for Research on Work and Health,
Member, Selection Committee, University of Toronto PHS Social Science & Health Program
Assistant Professor (status only), University of Toronto Department of Public Health Sciences, Faculty of Medicine

MUSTARD, Cam

Member, Expert Advisory Committee, Canadian Health Examination Survey, Statistics Canada
Member, Editorial Advisory Board, Longwoods Review
Member, Wellesley Central Health Corporation
Member, Occupational Health and Safety Council of Ontario, 2002 to present
Member, Medical Advisory Board, Health News, University of Toronto, 2002 to present
Member, Passport to Safety Standards and Advisory Board, 2002 to present
Senior Adjunct Scientist, Division of Prevention Oncology, Cancer Care Ontario, 2002-2004
Member, Research Advisory Council, WSIB of Ontario, July 2001 to present
Chair, CPHI Council, 1999 - 2004
Board Member at Large, CIHI, 1st Term: 1997-2000; 2nd Term: 2000 - 2004

PENNICK, Victoria

Registered Nurses Association of Ontario
Regional Representative, Region 7 on Board of Directors, 2003-2005
Communications Officer, Nursing Research Interest Group, 2001-2005
Flemingdon Community Health Centre, Vice-Chair, Board of Directors, 2003-2006

REARDON, Rhoda

Member, Ontario Guidelines Collaborative

ROBSON, Lynda

Member, System Measurement Sub-Committee of the Occupational Health and Safety Council of Ontario
Member, Canadian Council on Health Services Accreditation Worklife Advisory Committee

SHANNON, Harry

Executive Committee, Canadian Association for Research in Work & Health
Royal Society of Canada Advisory Panel to monitor Ontario Hydro's Electric and Magnetic Field
Member, Royal Society of Canada Advisory Panel to monitor Ontario Hydro's Electric and Magnetic Field Risk Assessment Program
Member, Committee on Social and Economics Consequences of Occupational Illness and Injury Part of (U.S.) National Occupational Research Agenda Program

SMITH, Peter

Member, Public Health Association of Australia (PHAA)

Member, Special Interest Group on Injury Prevention (PHAA)

SINCLAIR, Sandra

Member, Advisory Committee, Workers' Compensation Research Group

Member, Advisory Committee, Workers' Compensation Policy Review, School of Industrial Relations,
Rutgers University

Member, International Association of Industrial Accident Boards and Commissions

TOMPA, Emile

Member, International Health Economics Association

van der VELDE, Gabrielle

Member, Scientific Secretariat, 2000-2010 Bone and Joint Decade Task Force on Neck Pain and Its
Associated Disorders

Member, Canadian Chiropractic Association

Member, College of Chiropractors of Ontario

Member, Canadian Memorial Chiropractic College

Member, Ontario Chiropractic Association

Teaching, Educational and Service Activities

AMMENDOLIA, Carlo

Teaching/Educational Role

Canadian Memorial Chiropractic College, Department of Graduate Studies and Research, 1996 -
Lecturer: 1st year chiropractic students on occupational musculoskeletal injuries. 16 Apr 2004

Service Activities

Grant Committees: Canadian Chiropractic Research Foundation, Fund Allocating Committee
Journal Referee: Journal of the Canadian Chiropractic Association

BEATON, Dorcas

Teaching/Educational Role

Assistant Professor: Occupational Therapy, University of Toronto, Oct 1995 -
Graduate Appointments: Health Policy Management and Evaluation and Graduate Department of
Rehabilitation Sciences
Course Co-ordinator: Measurement in Clinical Research, Health Policy, Management and Evaluation
Graduate Program, University of Toronto; Measurement Theory in the New Millennium - Graduate
Department of Rehabilitation Sciences Outcome Measurement: Measurement Properties, 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

BIGELOW, Philip

Teaching/Educational Role

Adjunct Faculty Member: Institute of Health Promotion Research, University of British Columbia
Adjunct Professor: Department of Environmental and Radiological Health Sciences, Colorado State
University
Adjunct Professor: Institute of Public Health, Florida A&M University
Adjunct Professor: Institute of Health Promotion Research, The University of British Columbia
Associate Professor (status only): Department of Public Health Sciences, Faculty of Medicine, University
of Toronto
Co-Coordinator: Program Evaluation Course, Department of Public Health Sciences, Faculty of Medicine,
University of Toronto
Lecturer: Topics in Occupational Health and Safety, Ryerson University
PhD Thesis Committee: Steven Thygerson (Colorado State University)
Journal Referee: Journal of Agricultural Safety and Health; Environmental Health Perspectives
Journal of Occupational and Environmental Hygiene

BOMBARDIER, Claire

Teaching/Educational Role

Director: Division of Rheumatology, University of Toronto

Professor: Medicine/Health Administration, University of Toronto

Guest Professor: University of Toronto, MSc, HAD 5302: Measurement in Clinical Research

Synthesis Session to, Guest Lecturer, University of Toronto, Clinical Epidemiology Students - PhD Thesis Course

Instructor: IWH Systematic Reviews Workshop

Course Co-Coordinator: HAD 5308H Systematic Reviews Course. University of Toronto, Health Policy, Management and Evaluation Graduate Program Department, Fall 2004

MSc Thesis Supervisor: Shahin Walji, Ruben Tavares, Carol Hagino, Bindu Nair, Joel Gagnier, Roselynn Chuong, Shanas Mohamed

PhD Thesis Supervisor: Linda Li, Andrea Furlan, Jill Hayden, Carlo Ammendolia.

Member of Committee: Hans Oh (PhD program)

Director: Clinical Decision Making and Health Care, Research Division, Toronto General Research Institute, Toronto General Hospital, University Health Network

Member: School of Graduate Studies, Division of Community Health, University of Toronto

Member: School of Graduate Studies, Institute of Medical Science (IMS), University of Toronto

Member: Search Committee for Chair, University of Toronto, Department of Medicine, Faculty of Medicine, 2002 -

Staff Physician: Rheumatic Disease Unit, Mount Sinai Hospital, Toronto

Service Activities

Grant Committees:

Member: Multidisciplinary Clinical Research Center in Musculoskeletal Diseases (MCRC) Scientific Advisory Board, Dartmouth Medical School

Chair: Data Safety and Monitoring Board (DSMB). National Institute of Musculoskeletal and Skin Diseases (NIAMS), 2002 -

Member (Ad Hoc Reviewer): The Abbott Scholar Award in Rheumatic Diseases Program. 2002 -

Grant Reviewer: Ontario Ministry of Health, The Arthritis Society, Medical Research Council, Fond de Recherche en Santé du Québec, National Health and Welfare Canada

Core Review Panelist: Ontario Guidelines for the Treatment of Musculoskeletal Disorders/Ontario

Musculoskeletal Therapy Review Panel: Health Canada (Emergency Care Research Institute)

Review Committee: Best Research on Low Back Pain Commission de la santé et de la sécurité du travail (CSST)

Editorial Boards: American Journal of Medicine; Arthritis Care and Research; Co-ordinating Editor, Cochrane Collaboration Back Review Group; Associate Editor, Arthritis Care and Research - Current Science Limited; Joint Bone Spine, International Edition

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:

National Networks on Environments and Women's Health: Best Practice in Knowledge Transfer and Policy Uptake

Occupational Health and Hygiene & Toxicology Rounds McMaster University October 2004

BRESLIN, Curtis

Teaching/Educational Role

Assistant Professor: Department of Psychiatry, University of Toronto

Service Activities:

Journal Referee: Journal of Psychology of Addictive Behaviours

Thesis Committee Member: Cameron Norman, University of Toronto

COLE, Donald

Teaching/Educational Role

Associate Professor: Department of Public Health Sciences, University of Toronto, 2001- 2004

Associate Program Director: MHSc Community Health & Epidemiology Program, 2004 -

Member: Doctoral and MHSc Selection Committees, PHS Epidemiology Program

Full Member: School of Graduate Studies, University of Toronto, 2004-

Associate Graduate Faculty: Department of Kinesiology, University of Waterloo, 1997 -

Adjunct Appointment to School of Geography and Geology, McMaster University, 1998 -

Member: Program Committee, Community Medicine Residency Program, University of Toronto, 2001-

Lead Instructor: Epidemiology II, University of Toronto, 2003 -

Lead Instructor: Global Health Research Methods, University of Toronto, 2003 -

MSc Thesis Supervisor: Gloria Cordoso. Healthy workplace indicators in hospital scorecards. Health Policy, Management and Evaluation. University of Toronto: 2003-

Irina Rivilis. Work-site ergonomic intervention evaluation, Epidemiology, University of Toronto: 2002-2004

PhD Thesis Supervisor: Irina Rivilis. Thesis to be determined. Epidemiology, University of Toronto:2004-

PhD Doctoral Committees: Lauren Griffith. Meta-analysis of biomechanical risk factors for back pain. Epidemiology, University of Toronto: 2003 -

Monica Bienenfeld. Spontaneous abortion among medical radiation technologists. Epidemiology, University of Toronto: 2000-2004

Post-doctoral: Ellen MacEachen. Organization, management commitment and workplace health in the context of contemporary work conditions. Mustard Fellow with the Institute for Work & Health: Sept 2003 - Aug 2005

Service Activities

Grant Committees: External Reviewer: L'institut de recherche en santé et en sécurité du travail (IRSST) Québec; Canadian Institutes of Health Research

External Grant Reviews: Michael Smith Foundation, 2003 - present; U.S. National Institutes of Health, Fogarty Centre: 2003 -

Journal Referee: American Journal of Epidemiology; American Journal of Industrial Medicine; Chronic Disease in Canada; Canadian Medical Association Journal; Social Science and Medicine; American Journal of Preventive Medicine; Biotech Central; Archives of Medical Research; Injury Prevention

CÔTÉ, Pierre

Teaching/Educational Role

Assistant Professor: Department of Public Health Sciences, University of Toronto

Assistant Professor: Department of Health Policy Management and Evaluation, University of Toronto

Adjunct Professor: School of Health Management and Policy, W.P. Carey School of Business, Arizona State University

Adjunct Professor: Department of Graduate Studies and Research, Canadian Memorial, Chiropractic College

Member: Doctoral Program Renewal Working Group, Department of Public Health Sciences, Faculty of Medicine, University of Toronto

University Courses:

Laboratory in Epidemiologic Protocol Design (CHL 5408) Department of Public Health Sciences, University of Toronto

Non-experimental Design Course (HAD 5309). Department of Health Policy Management and Evaluation, University of Toronto

PhD Committee:

Carlo Ammendolia, Institute of Medical Studies, University of Toronto

Esther Waugh, Clinical Epidemiology, University of Toronto

MSc Committee:

Richard Foty, Epidemiology, University of Toronto

Thesis Examiner:

Sujitha Ratnasingham, Master's in Epidemiology, University of Toronto.

Service Activities

Grant Committees: Canadian Institutes of Health Research

Editorial Boards: Journal of Canadian Chiropractic Association; Journal of Manipulative and Physiological Therapeutics; Cochrane Back Review Group; The Spine Journal; Australian Journal of Chiropractic and Osteopathy

Journal Referee: The Lancet; Journal of Psychosomatic Research; Occupational and Environmental Medicine; Medicine and Science in Sports and Exercise; Pain; Annals of Epidemiology

CULYER, Anthony

Teaching/Educational Role

Supervisor: 4 PhD students (U of York, England)

Mentor: 2 PhD students (U of T)

DOLINSCHI, Roman

Service Activities

Reviewer: Journal of Health Economics, July 2004

ETCHES, Jacob

Teaching/Educational Role

Teaching Assistant: Introductory Biostatistics for Students in Biological Sciences II (CHL5202)

University of Toronto, Jan-May 2004

FERRIER, Sue

Service Activities

Board Member and Executive: Fife House Foundation (provides supportive housing for people living with HIV/AIDS)

Grant Committees: Reviewer, Canadian Working Group on HIV and Rehabilitation

FRANCHE, Renée-Louise

Teaching/Educational Role

Professional Advisory Committee: CIHR Training Program, Work Disability Prevention, 2002 -

PhD Thesis Committee Member: Janet Parson, Institute of Medical Sciences, University of Toronto

Assistant Professor: University of Toronto, Faculty of Medicine, Department of Public Health Sciences and Graduate Department of Public Health Sciences, 2001 -

Assistant Professor: Department of Psychiatry, Women's Mental Health Program, Faculty of Medicine, University of Toronto, 2000 -

Associate Member: Women's Health Program, University Health Network, 2000 -

Service Activities

Grant Committees: Canadian Institutes of Health Research (CIHR) Health Information & Promotion (HIP) Committee, Operating Grants Competition; Arthritis Society Scientific Review Panel -

Epidemiology/Health Services; WSIB Research Advisory Committee; Fonds pour la Formation de Chercheurs et l'Aide à la Recherche and Canadian Innovation Funds

Journal Referee: Journal of Psychosomatic Obstetrics and Gynecology; Canadian Journal of Behavioural Sciences

FRANK, John

Teaching/Educational Role

PhD Supervisor: Michael Ladouceur, Institute of Medical Sciences, University of Toronto

PhD Committee Member: Ann-Sylvia Brooker, University of Toronto, and UCB Berkeley student, (Patsi Sinnott) working on a huge workers' compensation cohort

Prepared (with Cam Mustard) new University of Toronto Doctoral Seminar on "Empirical Perspectives on Social Organization and Health"

Service Activities

Grant Committees: Alberta Heritage Medical Research Foundation; IRRST/CSST; appointed to WSIB RAC

Journal Referee: Health Canada's Women's Health Surveillance Report

Editorial Boards: U of T Health News

Organizations: CIHI Expert Panel for "Report on the Health of Canadians"

FURLAN, Andrea

Teaching/Educational Role

Facilitator: Pain Curriculum 2004, University of Toronto Centre for the Study of Pain

Course Instructor: IWH Systematic Reviews Workshop

Teacher Assistant: HAD 5308H Systematic Reviews Course. University of Toronto, Health Policy, Management and Evaluation Graduate Program Department. Fall 2004.

Service Activities

Journal Referee: Cochrane Collaboration Back Review Group

GUZMAN, Jaime

Teaching/Educational Role

Assistant Professor: Department of Internal Medicine, University of Toronto.

Tutor: (Attending presentations and student marking), Systematic Review Course, University of Toronto.

Mentor: CIHR Work Disability Prevention Strategic Training program.

Service Activities

Grant Committee: Reviewer for Alberta Heritage Foundation for Medical Research, WorkSafe Program, Workers Compensation Board of British Columbia

Journal Referee: J Rheumatology

Module Reviewer: The Foundation for Medical Practice Education

HAYDEN, Jill

Teaching/Educational Role

Lecturer (P/T): Canadian Memorial Chiropractic College, Department of Biological Sciences 1999 -

Canadian Memorial Chiropractic College, Department of Graduate Studies and Research, 2000 -

Guest Lecture: Prognostic Indices. Measurement in Clinical Research HAD5302, Department of Health Policy, Management and Evaluation Graduate Program, Clinical Epidemiology, University of Toronto. March 2004, March 2005.

Instructor: IWH Systematic Reviews Workshop, September 29 and 30, 2004.

Course Instructor: HAD 5308H Systematic Reviews Course. University of Toronto, Health Policy, Management and Evaluation Graduate Program Department, Fall 2004.

Service Activities

Editorial Boards: Journal of Canadian Chiropractic Association, Cochrane Back Review Group.

Journal Referee: British Medical Journal, The Spine Journal, Pain.

HEPBURN, Gail

Teaching/Educational Role

Associate Graduate Faculty: Department of Psychology, University of Guelph.

Lecturer & Associate Member: Graduate Department, Department of Health Policy, Management and Evaluation, University of Toronto.

PhD Thesis Committee Member: Anuradha Chawla, Department of Psychology, University of Guelph: 2002 to present; Laila Salim, Department of Health Policy, Management and Evaluation, University of Toronto.

Service Activities

Journal Referee: Journal of Occupational Health Psychology

Grant Committees: External Reviewer, Research Secretariat, Workers' Compensation Board of British Columbia, 2001 -

HOGG-JOHNSON, Sheilah

Teaching/Educational Role

Assistant Professor: Department of Public Health Sciences, Faculty of Medicine, University of Toronto, 1995 -

Assistant Professor: Department of Health, Policy, Management and Evaluation, Faculty of Medicine, University of Toronto, 2001 -

Core Faculty Member: Graduate Program in Clinical Epidemiology and Health Services Research, University of Toronto, 1998 -
Lecturer: (on Survival Analysis) for Epidemiological Methods II in Public Health Sciences, University of Toronto
Lecturer: Introduction to Applied Biostatistics (HAD 5307H) : 1) Survival Analysis and 2) Model Selection Strategies, Nov 2004
PhD Thesis (University of Toronto) - Supervisor: G. van der Velde
Committee Member: Anusha Raj
PhD Thesis (University of Toronto) C. Ammendolia, L. Griffith, J. Hayden, R. Martinussen, K. Ghelani, F. Ahmad
Member Limited: School of Graduate Studies, Division of Community Health, University of Toronto

Service Activities

Grant Committees: External Reviewer for Workplace Safety & Insurance Board RAC.

IBRAHIM, Selahadin

Teaching/Educational Role

Lecturer: Department of Public Health Sciences, Faculty of Medicine, University of Toronto, 2002 -

IRVIN, Emma

Teaching/Educational Role

Instructor: IWH Systematic Reviews Workshop
Instructor: Systematic Reviews Course. University of Toronto, Health Policy, Management and Evaluation Graduate Program Department.

KELLS, Robin

Teaching/Educational Role

Instructor: Topics in Occupational Health & Safety, Certificate Program in Occupational Health & Safety, Ryerson University 2004.

KENNEDY, Carol

Teaching/Educational Role

Lecturer: Department of Physical Therapy, University of Toronto: 1996 -

KERR, Mickey

Teaching/Educational Role

Assistant Professor: School of Nursing, Faculty of Health Sciences at the University of Western Ontario, with a Master's core membership status in the Faculty of Graduate Studies.
Assistant Professor (status only), Department of Public Health Sciences, Faculty of Medicine Associated Member, Limited status, School of Graduate Studies, University of Toronto
MSc Thesis Committee Member: Julianne Natale, University of Waterloo; Nancy Robertson and Kinga Kluska, University of Western Ontario; Irina Rivilis, University of Toronto.
MScN Thesis Examination Chair: Heidi Siu and Veron Ash, University of Western Ontario.
MScN Thesis Supervisor: Sherry Frizell, Grant Fisher.
MScN Thesis Examination Committee Member: Cheryl Mayer, University of Western Ontario.
MSc, PhD Thesis Committee Member: Nancy Robertson, University of Western Ontario.

PhD Thesis Committee Member: Nancy Purdy, University of Western Ontario.

Service Activities

Grant Committees:

Panel Member: Ontario Government Scholarship Selection Committee, 2002-2005.

Reviewer: National Health Research Development Program (NHRDP), Medical Research Council, The Workplace Safety and Insurance Board of Ontario, and the Workers' Compensation Board of British Columbia.

Journal Referee: Canadian Journal of Public Health; Canadian Journal of Nursing Research; Canadian Medical Association Journal; Occupational and Environmental Medicine; International Journal of Law and Psychiatry; American Journal of Industrial Medicine; Social Science and Medicine; American Journal of Public Health and Pediatrics

KRAMER, Dee

Teaching/Educational Role

Professor: Topics in Occupational Health & Safety, Certificate Program on Occupational Health & Safety, Ryerson Polytechnical University, 1999 -

MACEACHEN, Ellen

Teaching/Educational Role

Assistant Professor (Status), Department of Public Health Sciences, University of Toronto

Collaborator: Work Disability Prevention CIHR Strategic Training Program, Universite de Sherbrooke, Longueuil, Quebec.

Mentor: Adam Cann, PhD (Candidate), CIHR Work Disability Prevention Program

Service Activities

Journal Referee: Health, Risk & Society; Health, Education and Behaviour

External Representative: Student Admissions Committee, Social Science and Medicine, Department of Public Health Sciences, University of Toronto. Spring 2004.

SSHRC Graduate Fellowship Committee, Social Science and Medicine, Department of Public Health Sciences, University of Toronto, Fall 2004.

MUSTARD, Cam

Teaching/Educational Role

Professor: Public Health Sciences, University of Toronto, July 2002 -

Professor (Part-time), Clinical Epidemiology & Biostatistics, McMaster University, July 2003 - June 2006.

Member, Comprehensive Examination Committee, Epidemiology Program, Department of Public Health Sciences, University of Toronto Faculty of Medicine, June 2004

Review Panel Member, Comparative Program in Health and Society, Munk Centre for International Studies, University of Toronto

Service Activities

Reviewing Activity; Granting Agencies and Review Panels

Member: Fellowship Award Panel, Comparative Program on Health and Society, Munk Centre for International Studies, University of Toronto

Member: Research Committee, Association of Workers' Compensation Boards of Canada, Feb 2004 -

Journal Referee: Editorial Advisory Board, Longwoods Review; Journal of Epidemiology and Community Health; Health Services Research Journal; American Journal of Public Health; Social Science and Medicine; Medical Care; Injury Prevention; Journal of Psychosomatic Research

Member: Organizing Committee, Society for Epidemiologic Research and Canadian Society for Epidemiology and Biostatistics Joint Meeting, Summer 2005, Toronto

Chair: Health Research Fund Advisory Committee, Alberta Heritage Foundation for Medical Research. Edmonton, May 6-7, 2004.

PENNICK, Vicki

Teaching/Educational Role

Member: Course Planning Committee, Determinants of Community Health Course. Faculty of Medicine, University of Toronto, Ongoing for 2004-2005 academic year.

Tutor: (Year 1), Determinants of Community Health Course. Faculty of Medicine, University of Toronto, Ongoing for 2004-2005 academic year.

Tutor: U of T Centre for the Study of Pain – Interfaculty Pain Curriculum, March 2004

Service Activities

Reviewer: Open Research Grant Proposals. RNAO Nursing Research Interest Group

REARDON, Rhoda

Teaching/Educational Role

Lecture: University of Toronto, 'KTE - The IWH Model with an operational perspective'; post-grad course on knowledge translation, 19 Oct 2004.

Invited Presenter: University of Toronto, Rehabilitation Science Research Day, "Using Educationally Influential Clinicians for Knowledge Transfer and Exchange"

SINCLAIR, Sandra

Teaching/Educational Role

Assistant Professor: McMaster University, School of Rehabilitation Sciences, 2002 -

McMaster University, School of Rehabilitation Sciences, BHSc/MSc OT/PT Program, Admissions

Interviewer, 1998, 2002 -

Service Activities

Journal Referee: American Journal of Industrial Medicine

External Reviewer: WSIB Research Advisory Committee

SHANNON, Harry

Teaching/Educational Role

Professor: Clinical Epidemiology & Biostatistics, McMaster University, Continuing Appointment Without Annual Review, 1990 -

Adjunct Professor, Department of Public Health Sciences, University of Toronto: 1995 -

Service Activities

Grant Committees: Canadian Institutes for Health Research, Population and Public Health Committee

Editorial Boards: Safety Science

Journal Referee: Canadian Medical Association Journal; American Statistician; American Journal of Epidemiology; American Journal of Industrial Medicine; Canadian Journal of Aging

SMITH, Peter

Service Activities

Journal Referee: Australia New Zealand Journal of Public Health; Journal of Epidemiology and Community Health

TOMPA, Emile

Teaching/Educational Role

Adjunct Assistant Professor: Public Health Sciences, University of Toronto. May 2004 -

Adjunct Assistant Professor: Department of Economics, McMaster University: 2001 -

Course Co-instructor: Advanced Topics in Labour Economics (ECON 782)

Course Co-instructor: Advanced Topics in Health Economics (ECON 291)

Service Activities

Journal Referee: Social Science and Medicine; Journal of Health Economics

Theses Committee Member: H. Scott, PhD University of Toronto; H. Alamgir, PhD University of British Columbia

Post-doctoral Mentor: Social Science and Humanities Post-doctoral Award, Scott H. beginning Sept 2005.

VAN DER VELDE, Gabrielle

Teaching/Educational Role

Associate Professor; Divisions of Clinical Education, Graduate Studies and Research, Canadian Memorial Chiropractic College: 2003 -

Service Activities

Editorial Board Member: Journal of the Canadian Chiropractic Association.

Supervisor: Canadian Institutes for Health Research - Canadian Memorial Chiropractic College Partnered

Student Summer: Research Position, June - August 2004.

Adjunct Scientists

Benjamin C. Amick III (since 1997)

Associate Professor, Houston School of Public Health, University of Texas Health Sciences Centre.

Benjamin Amick's research focuses on how working (participating in the labour market) influences a person's health status, and the human and economic burden of occupational illnesses and injuries. His current labour market research involves the development of life course models to explain how labour market participation influences health, and estimating the affect of organizational structure, climate and work organization on worker health. Dr. Amick is developing new measures to estimate the individual and family economic burden associated with occupational illness and injuries.

Peri Ballantyne (since 2001)

Assistant Professor, Faculty of Pharmacy, University of Toronto.

Peri Ballantyne, a health sociologist, is Assistant Professor, Faculty of Pharmacy, and Department of Public Health Science. Her research interests include the sociology of aging and the life course, the sociology of work and health, gender as a determinant of health, and the sociology of pharmaceutical health care. In qualitative research, Dr. Ballantyne uses applied ethnography to examine the context and meaning of phenomenon such as illness, disability, health, work and non-work, poverty, social support, and medication use. Examples of recent work include examination of the experience and context of arthritis and its influence on patients' decision-making regarding treatment (sponsored by the Centre for Research in Women's Health), and the health trajectories of long-term injured workers from Ontario (sponsored by the Institute for Work & Health). She also conducts survey research, and is currently examining profiles and patterns of use of medicines among the elderly, using the National Population Health Survey. This is part of a developing program of research examining the use of medicines and medicine-use decision-making in response to perceptions of health, illness, risk, need, and entitlement in the middle-aging and elderly population.

Michele Battié (since 2003)

Professor, Department of Physical Therapy, University of Alberta.

Michele Crites Battié is a Professor in the Department of Physical Therapy of the Faculty of Rehabilitation Medicine of the University of Alberta and a Tier 1 Canada Research Chair in Common Spinal Disorders. She received BSc degrees from Washington State University and the University of Washington, MSc degree from the University of Washington and PhD from the University of Gothenburg, Sweden. She worked as a Research Associate Professor with the Department of Orthopaedic Surgery at the University of Washington prior to joining the University of Alberta in 1995. Her goal is to elucidate the underlying causes and mitigating factors of common disorders and degenerative conditions affecting the spine including seminal work on the role of psychosocial factors in work-related back pain reporting and the influence of familial and genetic influences on lumbar disc degeneration. Dr. Battié's work on common spinal disorders has been recognized with numerous international research awards, including four Volvo Awards from the International Society for the Study of the Lumbar Spine and a Kappa Delta Award from the American Academy of Orthopaedic Surgeons. Her research has been published in a wide range of journals, and supported by the National Institutes of Health of the United States, the Canadian Institutes of Health Research, The Finnish Academy, the Alberta Heritage Foundation for Medical Research and others.

Linda J. Carroll (since 2004)

Associate Professor, Department of Public Health Sciences, University of Alberta, Canada

Linda Carroll is an associate professor of epidemiology in the Department of Public Health Sciences at the University of Alberta and holds a Health Scholar Award from the Alberta Heritage Foundation for Medical Research. She is also an adjunct professor at the University of Saskatchewan and an associated scientist at the Alberta Centre for Injury Prevention and Research. Her clinical background is in health psychology, and 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. Carroll was a member of the scientific secretariat an international task force, the WHO Collaborating Centre on Neurotrauma's Task Force on Mild Traumatic Brain Injury, which recently published a Journal of Rehabilitation Medicine supplement reporting their findings from a systematic review of the world literature on mild traumatic brain injury. She is currently a principal investigator and member of the administrative committee and the scientific secretariat of the Bone and Joint Decade 2000-2010 Task Force on Neck Pain and its Associated Disorders.

J. David Cassidy (since 1997)

Senior Scientist, Division of Outcomes and Population Health, Toronto Western Hospital Research Institute.

David Cassidy is a senior scientist in the Division of Outcomes and Population Health at the Toronto Western Hospital Research Institute and holds the new endowed Chair in Artists' Health within the University of Toronto's Health Network. He is formerly an associate professor in epidemiology and medicine at the University of Alberta and is currently an adjunct professor in the Department of Public Health Sciences at the University of Alberta. He is also a guest research professor at the Section for Personal Injury Prevention at Karolinska Institute in Stockholm, Sweden. Dr. Cassidy holds a Bachelor's degree in Anatomy, a Master of Science in Surgery and a Doctorate in Pathology from the College of Medicine at the University of Saskatchewan. He has graduate training in epidemiology and biostatistics from Tuft's University in Boston, the Johns Hopkins School of Public Health in Baltimore and from Erasmus University in Rotterdam. Dr. Cassidy's research interests include musculoskeletal and injury epidemiology. He is the scientific secretary for the World Health Organization's Collaborating Centre Task Force on Mild Traumatic Brain Injury and the Decade of the Bone and Joint 2000-2010 Task Force on Neck Pain. He is also a member of the expert working group on mild traumatic brain injury at the Centers for Disease Control and Prevention in the United States

Paul Corey (term ended in 2004)

Associate Chair and Professor, Department of Public Health Sciences and Department of Preventive Medicine & Biostatistics, Faculty of Medicine, University of Toronto.

Paul Corey acts as a statistical consultant at the Gage Institute (in Toronto) which conducts research on respiratory function and illness where many of the statistical applications involve longitudinal or repeated measures data. Dr. Corey's research interests are broad and include occupational health, non-parametric statistics and the use of survival analysis to classify patients in medical follow-up studies.

Joan Eakin (since 1998)

Professor, Department of Public Health Sciences, Faculty of Medicine, University of Toronto.

Joan Eakin is Professor in the Department of Public Health Sciences in the Faculty of Medicine at the University of Toronto. With a disciplinary background in the social sciences (Ph.D Sociology McGill University), her research, teaching and graduate research supervision focus on the social dimensions of work and health, and on qualitative research methodology. Her research program in the work/health arena has been directed in particular to issues of health and prevention in very small workplaces where she has studied workers, employers, and the work environment in relation to the workplace determinants of health and illness, the social relations of work, prevention and health promotion, and, more recently the impact of institutional practices and policies of return to work and work-related disability. She is currently engaged in a study of frontline prevention and claims management work in Ontario's Workplace Safety and Insurance Board. She teaches graduate-level courses in qualitative analysis and has lectured widely on qualitative methodology. She founded and directs QUIG (Qualitative Inquiry Group), a collective of qualitative researchers, and hosts a lecture series and forum for leading edge cross disciplinary advancement of qualitative method. She recently organized and hosted an invitational national workshop on the teaching of qualitative method in the health sciences.

Monique Gignac (since 2003)

Scientist, Division of Outcomes & Population Health, Toronto Western Hospital.

Monique Gignac is a Scientist with the Division of Outcomes and Population Health and a research investigator with the Arthritis Community Research and Evaluation Unit at the University Health Network (UHN). She is also an Assistant Professor in the Department of Public Health Sciences at the University of Toronto. Dr. Gignac is a social psychologist who studies coping and adaptation to chronic stress, especially chronic illness and disability. With funding from CIHR and the Canadian Arthritis Network (CAN) she is currently examining longitudinally the coping efforts and adaptations that individuals with arthritis disability use to manage their condition and remain employed. This work will provide information about behaviours that enhance or create risks to health and can be applied to interventions aimed at minimizing the impact of chronic disabling health conditions. It is part of an ongoing program of research to investigate factors associated with the independence of people with arthritis and their families in different domains of life. Dr. Gignac's other research includes examining the coping and adaptation of older adults with osteoarthritis and osteoporosis and relating these efforts to changes in adults' health status, disability, and independence, as well as research examining the provision of care to people with arthritis in the community. She is also involved in research examining early osteoarthritis and changes in the trajectory of OA over time, shifts in the meaning of illness, interventions to helping people with arthritis maintain or regain greater independence, and biopsychosocial factors affecting pain, fatigue, and decision-making.

Alina Gildiner (term ended in 2004)

Post-Doctoral Teaching Fellow, Department of Political Science, McMaster University.

Alina Gildiner is jointly appointed in Political Science and in the Health Studies Program at McMaster University. Her teaching and research focuses on the politics of health and of health-care systems, social and public policy in welfare states, and comparative-historical approaches. Currently, she is engaged in the following research projects: an international comparison of disability policy systems in OECD countries (PI; CIHR); and a cross-provincial study of health-care reform in Canada (Co-Investigator, PI Harvey Lazar; CIHR). She is also a member of the Centre for Health Economics and Policy Analysis (CHEPA) and the Program in Policy Decision Making (CRC, John Lavis), both at McMaster University.

Michel Grignon (since 2004)

Assistant Professor, Department of Economics and Department of Gerontology, McMaster University

Michel Grignon is a professor in the Department of Economics and the Gerontology Studies Program at McMaster University. He has Master's equivalent from the National School for Statistics and Economics, France, and a PhD in Economic History from Ecole des Hautes Etudes en Sciences Sociales, Paris, France. His research interests include issues related to health care financing, such as the impact of supplemental health care insurance on welfare, equity in financing, and regulation of universal coverage for the poor. He also does research on the economics of health care distribution and delivery, including determinants and patterns of health care consumption across income and age groups. Dr. Grignon has also undertaken econometric analysis of the impact of taxes on tobacco consumption in France.

Morley Gunderson (term ended in 2004)

Professor, Centre for Industrial Relations, University of Toronto.

Morley Gunderson holds the Canadian Imperial Bank of Commerce Chair in Youth Employment at the University of Toronto, where he is a Professor at the Centre for Industrial Relations, and the Department of Economics. He has a wide range of economic research interests including workers' compensation, disability policy and reasonable accommodation. He has published on various topics including gender discrimination and comparable worth; the aging workforce, pensions and mandatory retirement; youth employment; and public sector wage determination. Dr. Gunderson has also published research on the determinants and impact of immigration; the causes and consequences of strikes, labour policy, labour standards, industrial relations, and human resource management and workplace practices.

Gail Hepburn (since 2004)

Assistant Professor, Department of Psychology, University of Lethbridge

Gail Hepburn is an Assistant Professor in the Department of Psychology at University of Lethbridge. She holds a BSc. from Trent University and an MA and PhD from Queen's University. Her area of specialization is organizational psychology. She holds an Associate Graduate Faculty appointment in the Department of Psychology at the University of Guelph. Hepburn's 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. A scientist at the Institute For Work & Health from 2000, Hepburn accepted a position at the University of Lethbridge in the fall of 2004.

Linn Holness, (since 2000)

Director, Gage Occupational & Environmental Health Unit, University of Toronto and St. Michael's Hospital.

Linn Holness is the Director of the Gage Occupational and Environmental Health Unit, a collaborative program of the University of Toronto and St Michael's Hospital. She is an Associate Professor in the Departments of Public Health Science, Medicine and Health Policy, Management and Evaluation and the Centre for Industrial Relations at the University of Toronto and Chief of the Department of Occupational and Environmental Health at St Michael's Hospital. Dr Holness is the Director of the Centre for Research Expertise in Occupational Disease, established with funding from the Ontario Workplace Safety and Insurance Board. Her main research interest has been occupational skin and lung disease, occupational health services program delivery and workplace health and safety issues in inner city.

William Johnson (since 2003)

Professor, School of Health Administration & Policy, Arizona State University.

William Johnson, Ph.D., is a Professor of Economics in the School of Health Management & Policy and the Department of Economics in the W. P. Carey School of Business at ASU where he teaches graduate courses on health and managerial economics and health care outcomes. He has previously held appointments at the medical schools of Rutgers University, the State University of New York and the University of Arizona. He authored the first empirical studies of labor market discrimination against persons with disabilities and is the author or co-author of nearly every subsequent empirical study of the problem. He also completed the first interview study of the families of the victims of asbestos related death and disease in the United States and Canada. In regards to workers' compensation, Professor Johnson was Principal Investigator or co-investigator on the first studies of workers' compensation health care costs in the United States; the first interview study of injured men and women in the United States and the largest interview study of injured workers (conducted in Ontario). He is one of the principal authors of the Harvard Medical Practice Study, the largest study to date of medical malpractice. His current research focuses on access to care, occupational illness and injury, the effects of health on work and other activities, health care outcomes and the development of health information systems for use in research. He has a number of professional affiliations, including the National Academy of Social Insurance, the Collegium Ramazzini (Carpi, Italy), the NIH Review Panel for Health Services Research, the National Academy of Science, the National Disability Research Institute and the World Health Organization Collaborating Center Task Force on Neck Pain.

Mieke Koehoorn (since 2004)

Assistant Professor, Department of Health Care & Epidemiology, University of British Columbia

Mieke Koehoorn is an Assistant Professor with the Department of Health Care & Epidemiology, University of British Columbia and a Michael Smith Foundation for Health Research Scholar. She also holds an appointment with the School of Occupational and Environmental Hygiene, University of British Columbia. Her research interests focus on the epidemiology of work-related musculoskeletal injuries, in particular back injuries among health care workers, school custodians and workers in heavy industries. Koehoorn also conducts research on the relationship between work organization and mental disorders among health-care workers, and the epidemiology of injuries among young workers.

Niklas Krause (since 2003)

Assistant Professor of Medicine, Division of Occupational & Environmental Medicine, University of California at San Francisco.

Niklas Krause is an Assistant Professor of Medicine at the University of California at San Francisco. His research focus has been the epidemiology and prevention of work-related musculoskeletal and cardiovascular diseases and disability. He is co-principal investigator on a new IWH study investigating predictors of return to work after low-back injury among WCB claimants. Dr. Krause is also investigating the effects of job stress, social support, and work organizational and ergonomic factors (including interventions) on health and disability in various populations including hotel workers, public transit operators, engineers, graphic designers, call center service workers, and California workers' compensation claimants.

Heather Laschinger (since 2004)

Professor and Associate Director Nursing Research

Heather Spence Laschinger is Professor, and Associate Director Nursing Research at the University of Western Ontario, School of Nursing, Faculty of Health Sciences in London, Ontario. Since 1992 she has been Principal Investigator of a program of research designed to investigate the impact of nursing work environments on nurses' workplace health and work behaviours using Rosabeth Moss Kanter's organizational empowerment theory. Publications of this work have attracted considerable interest from researchers, managers, and graduate students from both nursing and other disciplines around the world. In 2003, in recognition of her extraordinary excellence in nursing research Heather was awarded the Sigma Theta Tau International Founders Award for Excellence in Research. The Canadian Institutes of Health Research recently listed her as one of Canada's most productive researchers in mental health in the workplace during 1991 to 2002. Currently, she is Co-Principal investigator on a national study "A Profile of the Structure and Impact of Nursing Management in Canadian Hospitals". This study will profile nursing leadership/management structures in teaching and non-teaching hospitals across the country. During year 2003, she has been a consultant for several national initiatives examining strategies to measure quality indicators of nurses' worklife. She is also Chair of the Leadership Panel in the Registered Nurses Association of Ontario's Best Practice Guidelines for Healthy Workplace Environments.

Louise Lemieux-Charles (since 2000)

Associate Professor & Chair, Department of Health Policy, Management & Evaluation, University of Toronto.

Louise Lemieux-Charles has research interests in the areas of performance management, health human resource management, organizational learning, knowledge transfer and organization of health systems. She holds a master's degree in psychiatry and community health, and a PhD in organizational theory and management as applied to health care both from the University of Toronto. She has a number of research grants examining issues of evidence and decision-making in health-care organizations and management of organizational performance.

Anne Moore (since 2004)

Assistant Professor, School of Kinesiology & Health Science, York University

Anne Moore is an Assistant Professor in the School of Kinesiology and Health Science at York University, Toronto. She has a BSc in Mechanical Engineering from Queen's University, and is a professional engineer (PEng). She obtained both her MSc and PhD in Kinesiology from the University of Waterloo specializing in Occupational Biomechanics/Ergonomics. Her research interests include physical exposure assessment for Work-related Musculoskeletal Disorders of the Upper Limb, Occupational EMG assessment, and modeling of the upper limb during repetitive manual tasks. She is particularly interested in work rest cycles and has used psychophysical adjustment approaches to assess acceptable demands on the hands during manual tasks.

Carles Muntaner (since 2004)

Chair in Psychiatry and Addictions Nursing Research, CAMH

Carles Muntaner is currently a the Chair in Psychiatry and Addictions Nursing Research, Social Policy and Prevention Research Department at the Centre for Addictions and Mental Health (CAMH) and Professor at the Faculty of Nursing and cross-appointed to the Department of Public Health Sciences, Faculty of Medicine, University of Toronto. He has a diverse educational background with BSc in Mathematics and Natural Sciences from Lycée Francais, an M.D. from the University of Barcelona, Internships in Neurology and Psychiatry, a Ph.D. in Social Psychology, an MHS in Psychiatric Epidemiology and post-doctoral training at the National Institute on Drug Abuse Addiction Research

Center in Baltimore, Maryland, and the National Institute of Mental Health. Dr. Muntaner is an internationally renowned leader in the literature on the social determinants of health with more than 120 publications in professional journals, and over 35 book chapters, monographs, and reports. In addition, Dr. Muntaner has expertise in basic and applied research via his collaborations with European Union researchers and international labor organizations. He has conducted research in disadvantaged communities in the U.S., the European Union, Latin America and Western Africa and has provided intellectual leadership for public health with his pioneering work in areas of health disparities and social inequalities in health. The recipient of many peer reviewed grants, he has also conducted research and collaborated with investigators in Canada, Spain, Sweden, Mali, Mexico, and Chile and worked with labor unions in the U.S., Sweden and Spain. He is currently an Advisor on social determinants of health to the Minister of Health of the Bolivarian Republic of Venezuela. An active and dedicated scholar in social epidemiology for many years, Dr. Muntaner has contributed many policy resolutions on social determinants of health to the APHA including a study of community violence; expansion of OSHA regulations over home work places; and elimination of racism in maternal and child health. He presented, organized, or chaired more than 100 sessions on social determinants of health. His awards include one in Behavioral Pharmacology and Toxicology from the Association for Behavioral Analysis, the Fleming Award (Oxford University), a Fulbright/Ministry of Health and Consumer Affairs Fellowship and the Wade Hampton Frost Award from the American Public Health Association.

Aleck Ostry (since 2003)

Assistant Professor, Department of Healthcare & Epidemiology, University of British Columbia.

Aleck Ostry is an assistant professor in the Department of Health Care and Epidemiology at the University of British Columbia where he developed and taught most of the courses on the social determinants of health and served as principal investigator on five studies, garnering approximately \$2.5 million dollars in competitive research funds. His research currently involves collaborations with several groups, including the University of Melbourne's School of Population Health, the University of New South Wales, in Sydney, and the SSHRC funded Community University Research Alliance (CURA) in British Columbia. Dr. Ostry is also a lead investigator with NEXUS (a Michael Smith Foundation for Health Research funded project at UBC) and is working on studies of job strain among healthcare workers with this group. Dr. Ostry holds graduate degrees in history and health services planning, and a doctorate in epidemiology. His work is inter-disciplinary and his method of working is collaborative across many academic disciplines. He conducts a broad program of research on the social determinants of health with a focus on the determinants of workplace health, nutrition policy and health and, the social determinants of rural and northern health. He currently holds two scholar awards: one, a new investigator award (2000-2005) from the Canadian Institutes for Health Research and another, a scholar award (2002-2007), from the Michael Smith Foundation for Health Research.

Glenn Pransky (since 1997)

Director, Centre for Disability Research, Liberty Mutual Research Centre for Safety & Health.

Glenn Pransky directs the Centre for Disability Research, and holds appointments at the University of Massachusetts Medical School and School of Public Health, as well as the Harvard School of Public Health, Department of Occupational and Environmental Health. His research interests are in the areas of disability and outcome measurement particularly for work-related musculoskeletal disorders. Pransky holds an MD from Tufts University and a master's degree in occupational health from the Harvard School of Public Health in Massachusetts.

Robert Reville (since 2003)

Director, RAND Institute for Civil Justice.

Robert Reville is the Director of the RAND Institute for Civil Justice (ICJ) and the Co-Director of the RAND Center for Terrorism Risk Management Policy (CTRMP). He was appointed Director of the ICJ in October 2002, after serving as research director for three years. As a labor economist, Dr. Reville focuses on compensation policy, and has a national reputation in workplace injury compensation policy and the impact of disability on employment. He was recently appointed to the Board of Scientific Counselors of the National Institute for Occupational Safety and Health (NIOSH), Centers for Disease Control and Prevention. He also serves on the Workers' Compensation Steering Committee of the National Academy of Social Insurance. As Director of the Institute for Civil Justice, Dr. Reville leads a highly-respected research organization within RAND that provides empirical research to inform policy decision making on class actions and mass torts, jury verdicts, administration of justice, workers' compensation and other civil justice issues. As a founding Co-Director of the Center for Terrorism Risk Management Policy, Dr. Reville has built a new center within RAND to address policy issues related to terrorism victims' compensation, liability, risk management, risk modeling and insurance. Dr. Reville received his Ph.D. in economics from Brown University.

Susan Rappolt (since 2004)

Associate Professor, School of Rehabilitation Sciences, University of Toronto

Susan Rappolt is an occupational therapist and sociologist who studies models to promote research utilization in clinical practices and to enhance organizational capacity to support evidence-based professional practices. She is also studying the effectiveness of occupational therapy for re-engagement work roles following illness or injury. Dr. Rappolt holds appointments in the Department of Occupational Therapy, the Graduate Department of Rehabilitation Science, Public Health Sciences, and the Knowledge Translation Program at the University of Toronto, and is a Senior Scientist at the Toronto Rehabilitation Institute.

Judith Shamian, (since 2001)

President and CEO, the Victorian Order of Nurses

Judith Shamian is the president and chief executive officer of the Victorian Order of Nurses. Previously, Shamian was the executive director, Office of Nursing Policy, Health Policy & Communications Branch, Health Canada. Her work has focused on the areas of leadership, health-system outcomes, healthy workplaces and healthy workforce issues. Shamian is a co-investigator on the International Hospital Outcomes Consortium, for which she recently led the Ontario arm of the study. Dr. Shamian attended Concordia University in Montreal, New York University and earned her PhD from Case Western University in Ohio. She is currently a Professor at the University of Toronto, Faculty of Nursing, and maintains an active research portfolio as a Principal Investigator, Co-Investigator and Decision-maker. Her work has focuses in the areas of leadership, health system outcomes, healthy workplaces and healthy workforce issues. Widely published internationally, her work has taken her to every Canadian province and territory, as well as throughout the Americas, Eastern Europe, China, Israel, Africa and the Caribbean. She has collaborated on a number of IWH studies examining the health of health-care workers.

Harry Shannon (since 2004)

Program in Occupational Health and Environmental Medicine, McMaster University

Harry Shannon is a full Professor in the Department of Clinical Epidemiology and Biostatistics and was the Acting Chair of the department for a year in 1997-8. In 1999, he was appointed the Director of McMaster's Program in Occupational Health and Environmental Medicine, a position he still holds. In 1991 Dr Shannon was seconded part-time as a Senior Scientist to the Institute for Work & Health in Toronto and in 2004 was appointed as Adjunct Scientist. Dr Shannon's research interests have concentrated on work and health. His PhD thesis examined occupational accidents at a large automobile plant. He then conducted a series of mortality and cancer morbidity studies on workers in nickel mining and processing, glass fibre production, lamp manufacturing, etc. For the last decade, he has returned to research on occupational injuries. Several major studies include: a case-control study of low back pain at a large General Motors complex; a study of upper extremity disorders at the Toronto Star; and examination of the role of organizational factors in workplace safety. The back pain study led to his being a co-recipient of the Clinical Biomechanics award of the International Society of Biomechanics. His interest in organizational factors continues, as does his work in understanding how to create safer and healthier workplaces. Overall he has published nearly 100 papers in peer-reviewed journals, as well as numerous other reports and book chapters. Dr Shannon has been involved in the founding of the Canadian Association for Research on Work and Health (CARWH) and was the President of the Association for 2003-2004.

Nancy Theberge (since 2003)

Professor, Department of Kinesiology, University of Waterloo.

Nancy Theberge is a Professor with a joint appointment in the Departments of Kinesiology and Sociology at the University of Waterloo. Her areas of teaching expertise are the sociology of health, with a particular focus on social aspects of injuries, and gender relations. Dr. Theberge is engaged in research on participatory ergonomics. Some of the main issues addressed in this research are the impact of different forms of involvement on reported outcomes, the process of implementing participatory programs, and the factors that affect the long term sustainability of workplace interventions. Dr. Theberge is currently the Associate Chair for Graduate Studies in the Department of Kinesiology at the University of Waterloo.

Maurits van Tulder (since 2003)

Epidemiologist, Institute for Research in Extramural Medicine and Vrije University Medical Centre, the Netherlands.

Maurits van Tulder is an epidemiologist at the Institute for Research in Extramural Medicine of the VU University Medical Centre and the Institute for Health Sciences of the Vrije University in Amsterdam. He is the author of numerous scientific papers in peer-reviewed scientific journals and has written several book chapters and was editor of three books on conservative management for low-back pain. He is also chairman of the European Guidelines for the Management of Low Back Pain (EC project COST B13) and member of the editorial board of the Cochrane Back Review Group. Dr. van Tulder also lectures in courses on systematic reviews, evidence-based medicine and health technology assessment. His current interest includes economic evaluations of therapeutic interventions for musculoskeletal disorders.

Leah Vosko (since 2002)

Canada Research Chair, School of Social Sciences, Atkinson Faculty of Liberal and Professional Studies, York University.

Leah Vosko is Canada Research Chair and Associate Professor, School of Social Sciences, Atkinson Faculty, York University. Professor Vosko is the author of *Temporary Work: The Gendered Rise of a Precarious Employment Relationship* and co-author of *Self-Employed Workers Organize: Law, Policy and Unions*. She is also co-editor of *Changing Canada: Political Economy as Transformation and Challenging the Market: The Struggle to Regulate Work and Income*. Her work has appeared in a range of scholarly journals and edited collections. Professor Vosko is the Principal Investigator of a Community University Research Alliance on Contingent Work, Director of the Gender and Work Database project, and she was the Virtual-Scholar-in-Residence at the Law Commission of Canada in 2003/2004. She is currently writing a book on globalization, gender, and the changing nature of the employment relationship and editing a book titled *Precarious Employment: Understanding Labour Market Insecurity in Canada*.

Richard Wells (since 1998)

Professor, Department of Kinesiology, University of Waterloo.

Richard Wells is a Professor in the Department of Kinesiology, Faculty of Applied Health Sciences, University of Waterloo. He was educated as a Mechanical Engineer at the University of Manchester, England and McMaster University, Canada where he specialized in Applied Mechanics with application to human function and injury; head injury in boxing and description of human gait using assistive devices. Since joining the Department of Kinesiology, University of Waterloo, Richard has pursued similar work concerning seat belt loads and neck injury in head-first impacts. For the last decade his main research and teaching interests have been work-related musculoskeletal disorders of the upper extremity and low back in industrial and office settings. His interests are in work-related musculoskeletal disorders of the back and upper limbs; their causes, pathophysiology and prevention. He address these issues using anatomical and functional anatomical studies in cadavers and volunteer, by biomechanical modeling of the structures affected, by development of measurement, recording and processing approaches to document exposure at work, by participating in epidemiological studies to assess the work-relatedness of various workplace exposures and by the development of workplace processes to implement changes to prevent musculoskeletal disorders and monitor their health effects.

Kathryn Woodcock (since 2001)

Associate Professor, School of Occupational and Public Health, Ryerson University.

Kathryn Woodcock is an Associate Professor, School of Occupational and Public Health, Ryerson University. She has a PhD in Engineering from the University of Toronto. Her research interests cover a range of topics in health and safety and injury prevention. They include hazard perception and human error, safety inspection and accident investigation practices and tools, professional development of safety specialists and safety program decision-making and management, achieving safety through design, and health, safety and ergonomic implications of deafness and assistive technology.

IWH Staff - 2004

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Sir, Cathy; CMA, Accountant

Glossary

A	AHCPR	Agency for Health Care Policy and Research
	AHFMR	Alberta Heritage Foundation for Medical Research
	AHRQ	Agency for Healthcare Research & Quality
	AJPH	American Journal of Public Health
	AJIM	American Journal of Industrial Medicine
	ALBP	Acute Low Back Pain
	AMA	American Medical Association
	APA	American Psychological Association
	AWCBC	Association of Workers' Compensation Boards of Canada
B	BMJ	British Medical Journal
	BRG	Cochrane Back Review Group (a.k.a. CCBRG or Cochrane Collaboration Back Review Group)
C	CAHSPR	Canadian Association for Health Services and Policy Research
	CAMH	Centre for Addiction & Mental Health
	CANOSH	Canada's National Occupational Safety & Health Information Centre
	CARP	Canadian Association of Rehabilitation Professionals
	CARWH	Canadian Association for Research on Work and Health
	CAW	Canadian Auto Workers
	CCA	Canadian Chiropractic Association
	CCDP	Centre for Chronic Disease Prevention
	CCOHS	Canadian Centre for Occupational Health and Safety
	CCOHTA	The Canadian Coordinating Office for Health Technology Assessment
	CCS	Canadian Cancer Society
	CCFP	Canadian College of Family Physicians
	CEFRIO	Centre francophone d'informatisation des organisations
	CERF	Canadian Employment Research Forum
	CES	Centre for Epidemiological Studies
	CFI	Canada Foundation for Innovation
	CHEPA	Centre for Health Economics and Policy Analysis
	CHERA	Canadian Health Economics Research Association (now CAHSPR)
	CHSRF	Canadian Health Services Research Foundation
	CIAR	Canadian Institute for Advanced Research
	CIHI	Canadian Institute of Health Information
	CIHR	Canadian Institutes of Health Research
	CIWA	Canadian Injured Workers Alliance
	CJPH	Canadian Journal of Public Health
	CMA	Canadian Medical Association
	CMAJ	Canadian Medical Association Journal

	CMCC	Canadian Memorial Chiropractic College
	CMPA	Canadian Medical Protective Association
	CNO	College of Nurses of Ontario
	CPA	Canadian Physiotherapy Association
	CPHA	Canadian Public Health Association
	CPHI	Canadian Population Health Initiative
	CPRN	Canadian Research Policy Networks
	CPSA	Canadian Political Science Association
	CPSO	College of Physicians and Surgeons of Ontario
	CRTN	Canadian Research Transfer Network
	CSAO	Construction Safety Association of Ontario
	CSIH	Canadian Society for International Health
	CSST	Commission de la santé et de la Sécurité du travail
D	DASH	Disabilities of the Arm, Shoulder and Hand
E	EBP	Evidence-based Practice
	EI	Educational Influential
	EPICOH	Epidemiology in Occupational Health
	ERI	Effort-reward Imbalance
	ESAO	Education Safety Association of Ontario
	EUSA	Electrical & Utilities Safety Association
G	GLADnet	Global Applied Disability Research and Information Network on Employment & Training
H	HCHSA	Health Care Health & Safety Association
	HEALNet	Health Evidence, Application and Linkage Network of the Centre of Excellence
	HIRU	Health Information Research Unit
	HMOs	Health Maintenance Organizations
	HRDC	Human Resources Development of Canada
	HSAs	Health and Safety Associations
	HWP	Healthy Workplace
	HWW	Health Work & Wellness Conference
I	IAB	Institute Advisory Board (IAPH)
	IAIABC	International Association of Industrial Accident Boards & Commissions
	IAPA	Industrial Accident Prevention Association
	IAPH	Institute of Aboriginal Peoples' Health
	ICES	Institute for Clinical Evaluative Sciences
	ICOH	International Commission of Occupational Health
	IHPM	Institute for Health and Productivity Management

	IHSPR	Institute of Health Services and Policy Research
	ILO	International Labour Organization
	INCLEN	International Clinical Epidemiology Network
	IPPH	Institute of Population and Public Health (CIHR)
	IWH	Institute for Work & Health
	IRSST	L'institut de recherche Robert Sauvé en santé et en sécurité du travail
J	JAMA	The Journal of the American Medical Association
	JCE	Journal of Clinical Epidemiology
	JCQ	Job Content Questionnaire
	JHSC	Joint Health and Safety Committee
K	KTE	Knowledge, Transfer & Exchange
L	LAD	Longitudinal Administrative Databank
	LBP	Low-back pain
	LFDI	Listening for Direction on Injury (CIHR Advisory Committee)
	LTD	Long Term Disability
M	MASHA	Mines and Aggregates Safety and Health Association
	MDD	Major Depressive Disorder
	MHSAO	Municipal Health and Safety Association of Ontario
	MOL	Ministry of Labour
	MSK	Musculoskeletal
N	NCE	Networks of Centres of Excellence
	NEJM	New England Journal of Medicine
	NHS	National Health Service
	NIH	The National Institutes of Health
	NICE	National Institute for Clinical Excellence
	NICHD	National Institute for Child Health and Development
	NIOSH	National Institute for Occupational Safety and Health (U.S.A.)
	NOIRS	National Occupational Injury Research Symposium (U.S.A.)
	NORA	National Occupational Research Agenda
	NPHS	National Population Health Survey
O	OCHS	Ontario Child Health Study
	OEA	Office of the Employer Adviser
	OEMAC	Occupational & Environmental Medical Association of Canada
	OFSWA	Ontario Forestry Safe Workplace Association
	OHA	Ontario Hospital Association

	OHCOW	Occupational Health Clinic for Ontario Workers
	OHIP	Ontario Health Insurance Plan
	OHN	Occupational Health Nurse
	OKA	Ontario Kinesiology Association
	ONA	Ontario Nurses Association
	OOHNA	Ontario Occupational Health Nurses Association
	OSHA	Occupational Safety and Health Administration (U.S.A.)
	OSSA	Ontario Service Safety Alliance
P	PHS	Public Health Sciences, University of Toronto
Q	QOL	Quality of Life
R	RAC	Research Advisory Council (WSIB)
	RFP	Request for Proposals
	RNAO	Registered Nurses Association of Ontario
	RSI	Repetitive Strain Injury
	RTW	Return-to-work
S	SAC	Scientific Advisory Committee
	SARS	Severe Acute Respiratory Syndrome
	SHARP	Safety and Health Assessment and Research for Prevention (Washington State)
	SR	Systematic Review
	SRC	Systems Review Committee
	SRDC	Social Research and Demonstration Corporation
	SSHRC	Social Sciences and Humanities Research Council of Canada
	Star/SONG	Star/Southern Ontario Newspaper Guild
T	TDHC	Toronto District Health Council
	TENS	Transcutaneous electrical nerve stimulation
	TSAO	Transportation Safety Association of Ontario
U	UE	Upper Extremity
	UNITE	Union of Needletrades, Industrial & Textile Employees
	USWA	United Steelworkers of America
W	WCB	Workers' Compensation Board
	WHSC	Workers' Health & Safety Centre
	WHSCC	Workplace Health, Safety & Compensation Commission of Newfoundland & Labrador
	WHO	World Health Organization
	WMSDs	Work-related Musculoskeletal Disorders

WSIB Workplace Safety & Insurance Board

WSIB/RAC Workplace Safety & Insurance Board Research Advisory Council