



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

Report on 2003

Research Projects and Activities
Knowledge Transfer & Exchange

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Introduction to the IWH Report on 2003 Research, Knowledge Transfer & Exchange Activity

What we do:

The mission of the Institute for Work & Health is to conduct research to promote and improve the health of working people and develop innovative strategies for sharing this research with workers, labour, employers, clinicians and policy-makers. The Institute is dedicated both to conducting high quality research and making this research evidence available to decision-makers to support the creation of safer and healthier workplaces.

Our research involves a transdisciplinary approach to a range of occupational health and safety matters, particularly the prevention of injury, the effectiveness of clinical treatment, 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 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 knowledge transfer and exchange (KTE) activity is to get research knowledge into the hands of key decision-makers in a timely, accessible and useful manner. We use a range of strategies to accomplish this goal and are committed to collaborations with partners in the prevention system and with a wide range of other stakeholders committed to protecting the health of workers including workplace parties, clinicians, and policy-makers.

How to review this report:

This five part report the Institute produces annually, providing information on the year-end status of research and KTE initiatives. In the first section, Research, we provide an overview of each of the nine research themes which provide the foundation and structure to the overall research program. Each overview is followed by details of the research projects which contribute to the theme. These project descriptions, which are updated annually, are written as cumulative histories of the projects.

In describing the scope of work within the themes we have made a link between our research and the five research priorities established in Ontario over the past several years by the Workplace Safety and Insurance Board's Research Advisory Council. These priorities were identified through a consultative process with a broad range of stakeholders. We have noted this link to emphasize our commitment to contributing to a consistent direction in occupational health and safety research in Ontario.

The second section of the report, Knowledge Transfer & Exchange, provides an overview of the four departmental themes. The 2003 activities associated with each of these themes are then described with a focus on the accomplishments of 2003.

The next two sections, this is sections three and four of the report, detail of the cross organizational accomplishments in the year 2003. (This is in contrast to earlier in the report where multi-year activities are noted.) The third section focuses on 2003 publications, presentations, grants and awards, while the fourth provides details on professional collaborations and staff appointments as well as information on staff academic and service contributions. It is important to note as you review these latter two sections, that many of our scientific staff are cross appointed to other organizations which may require a substantial time commitment. The information reported here, is however a reflection of IWH-related activity only.

The final section of the report lists all IWH staff in 2003, as well as the names of the adjunct scientists who also contributed to our activities in the past year.

Behavioural Consequences of Insurance and Regulation

Overview

Over the last two decades, workers' compensation jurisdictions across North America have experienced substantial declines in injury claim rates, yet workers' compensation and other disability insurance program costs have steadily increased in many of these same jurisdictions. What factors have been driving these trends, and are they attributable to incentives created by disability insurance and occupational health and safety regulation? To what degree do claim trends reflect a reduction in work-related injuries? To what extent do cost trends reflect an increase in the intensity of health-care provided to injured workers? These are important policy design 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. Over the past five years, Institute scientists have initiated a comprehensive research program on the behavioural consequences of insurance and regulation.

One of the major projects in this theme is an examination of the post-accident income sources and amounts for individuals who have sustained permanent impairment due to a work-related accident occurring in Ontario. One of the objectives of this project is to investigate 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 degree of permanent impairment; and the other in existence post 1990 in which compensation is based on loss of earnings capacity. Preliminary results were presented to the Ontario WSIB in 2003 and the British Columbia WCB have expressed interest in discussing a similar analysis. In 2004 a major output of this study will be the submission to peer review of a journal article on the analysis and results. In addition, further analysis of this data set will be initiated to look at pre/post injury income differences based on earnings strata. These results will have particular relevance to the *Fair Compensation and Ontario Workers' Compensation System Research* priority.

A systematic review of the literature on the prevention incentives of insurance and regulatory mechanisms for occupational health and safety was completed in 2003 and results were shared with WSIB and the Ministry of Labour. This comprehensive review examined over 55 studies which met pre-determined methodological and content standards. The results of both of these studies have relevance to *Fair Compensation and Ontario Workers' Compensation System and Organizational, Management and Policy Research* priorities.

As part of its examination of the decline in injury claim rates over the past 10 years, the Institute published a paper in 2003 which considered the relationship between declining workers' compensation claim rates in Ontario and workplace injuries. Continuing this line of inquiry, Institute researchers are collaborating with international colleagues to examine the relevance of a range of explanatory hypotheses for declining injury rates in several industrialized countries including Canada. The results of this collaboration will be presented at the 6th International Congress on Work Injuries, Prevention, Rehabilitation and Compensation in Rome, December 2004. The results of this work are most relevant to the *Organizational, Management and Policy Research* priority.

Project Titles:

Systematic Review of the Literature on Workers' Compensation System and Occupational Health and Safety Features and their Consequences for Work-related Injury Experiences (Disability Lit Review: 4/440/860) 5

The Impact of Experience Rating and Occupational Health and Safety on Claims Experiences in the Ontario Jurisdiction (ER and OHS Studies: 4/440/416) 7

Five Country Comparison on Declining Workers' Compensation Injury Rates (Five Country Study: 4/440/412) 10

WSIB Lost-time Injuries and Income Sources Post-injury (WSIB Lost-time Injuries: 4/440/406) 11

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

Short Title & Budget Code: Disability Lit Review: 4/440/860

Project Status: Completed 2003.

Introduction: To assess the state of knowledge of compensation systems and their behavioural consequences, we undertook a comprehensive literature review. This also helps to identify gaps in the literature and where it would be best to invest future research effort. This project is a systematic literature review of empirical research on workers' compensation system design features and their consequences for injury experiences. We focused on features directed at employer behaviour. These include characteristics such as experience rating, insurance options, and occupational health and safety regulation enforcement.

The project was innovative in at least two ways. It was the first review on disability compensation to employ the methodology of systematic reviews. Several reviews had already been undertaken on the topic but none with the formality and comprehensiveness of a systematic review. Moreover, we assessed the quality of empirical articles reviewed and, where possible, synthesized the evidence on the impact of design features using a method known as 'best-evidence synthesis'. This synthesis is an invaluable tool for policy makers and is unique in the field to date. Previous reviews have only summarized the evidence by means of tables listing the results of each article separately or informally in the text. These other approaches make it difficult for readers to assess the overall strength of the evidence for the relationships under review.

Objectives:

- ▶ To undertake a systematic literature review on the topic of workers' compensation system and occupational health and safety regulation design features and their consequences for injury experiences. To categorize the literature according to the conceptual framework on work, disability and compensation.
- ▶ To summarize the literature and undertake a best evidence synthesis.
- ▶ To identify where there are important gaps in the literature/knowledge.
- ▶ To test the inter-rater reliability of the quality assessment form.

Methods: This is a systematic review using the methodology of best-evidence synthesis.

Results: This project reports on the results of a systematic review of the literature on experience rating of workers' compensation insurance premiums and occupational health and safety regulation. The review was undertaken with the dual objective of advancing research and informing public policymaking in these policy arenas. To date, Kralj (2001), Hyatt & Thomason (1998), Mendeloff (2001), and Thomason (2001) amongst others, have reviewed parts of this diverse literature, but none have employed the systematic review methodology. This novel application of the methodology appears justified in light of our findings, which contradict, to varying degrees, some of the specific conclusions and accepted wisdom developed by earlier reviews. Specifically, we find moderate evidence that the degree of experience rating reduces the frequency and/or severity of injuries. With OHS regulations, we found limited to no evidence that an increase in the possibility of an inspection

or an actual inspection had an effect on the compliance behaviour of firms. Similarly, we found no evidence that an increase in the possibility of a citation/penalty had effect on compliance behaviour. However, we found strong evidence that an actual citation/penalty reduces the frequency and/or severity of injuries in cited/penalized firms. Overall, our synthesis of the evidence suggests that more research needs to be conducted before definitive conclusions can be drawn about the effectiveness of workers' compensation experience rating programs and occupational health and safety regulation on reducing the frequency and severity of work-related injuries and illnesses. In this regard, the confidence of some researchers in the effectiveness of experience rating, and conversely in the ineffectiveness of occupational health and safety regulation, appears premature.

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

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

Potential Audiences and Significance: The results of this study will be of interest to policymakers in workers' compensation boards, other policymakers 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.

External Funding: None

Presentations: None to date.

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. (IWH Working Paper #213)

The Impact of Experience Rating and Occupational Health and Safety On Claims Experiences in the Ontario Jurisdiction

Short Title & Budget Code: ER and OHS Studies: 4/440/416

Introduction: This project is comprised of three studies that focus on experience rating and occupational health and safety regulation. One study under this umbrella project will be directed at analyzing the trends in work related injuries/ illnesses and particularly lost time claims over the last two decades. The Ontario jurisdiction has experienced a substantial decline in lost time claims particularly over the 1990-2000 time period. Other jurisdictions have also experienced similar trends. A variety of explanations have been proposed, such as changes in the workforce, state of the economy, increased efforts of firms to improve their safety performance, under reporting and cost shifting to other programs, and changes in the regulatory structure such as workers' compensation and occupational health and safety. The contribution made by workers' compensation features and occupational health and safety regulation, to the observed trends is the key issue being addressed in this project. A second project is a micro level study that will entail a linkage of data on inspections and investigations from the Ontario Ministry of Labour with administrative data on firm level injury experiences from the WSIB. A third project will also focus on experience rating and occupational health and safety regulation, but will investigate their impact on productivity in the manufacturing sector. The precise design of these studies will depend largely on the nature of data available on inspection, investigation and enforcement of occupational health and safety regulation, experience rating categories, and the incidence and duration of work related injuries and illnesses resulting from accident claims. The following summary provides details on the projects:

1. *The Impact of Experience Rating on Accidents Claims in Ontario*

Project Status: Ongoing 2004.

Introduction: A system of experience rating 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 should provide an incentive to increase safety efforts, but to what degree the observed trend in claim rates is attributable to the introduction of experience rating is unclear. 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 strictly by within-jurisdiction policy changes. Nonetheless, at least part of the trend may be attributable to experience rating. Determining the degree to which this is the case is an empirical exercise, and the phasing in of experience rating provides an interesting natural experiment to test the relationship between experience rating and claim rates.

Objectives:

- ▶ To assess whether the degree of experience rating is correlated with injury experiences in the manufacturing sector, after controlling for other characteristics of relevance.
- ▶ To assess whether the degree of experience rating is correlated with specific aspects of injury experiences such as the frequency, duration and nature of injuries.
- ▶ To investigate the impact of OHS regulation enforcement on injury experiences.

2. *Effects of Inspection and Investigation on Injury Rates in Ontario Workplaces*

Project Status: Pending availability of data.

Introduction: Estimating the impact of the enforcement of health and safety regulations through workplace inspection and investigation on the behavior of firms and workers has received some attention in the research and evaluation literature, but the specific magnitude of the effect of inspection and investigation remains uncertain. Over the decade of the 1990s, the Ontario Ministry of labour performed an average of 50,000 workplace investigations annually. The study framework will acknowledge that there are many influences on the behavior of firms and workers, of which the potential deterrent effects of inspection and enforcement are one factor. The study design will be based on the firm-level linkage of Ministry of Labour case records over the period 1993 to 2000 for the Central Ontario region with WSIB records of the injury experience of firms and sectors. Over this same time, the rate of time loss injury among workers employed in WSIB firms declined by 50%.

Objectives: To estimate the effect of workplace inspection and investigation on the injury experience of firms.

3. *The Impact of Occupational Health and Safety Regulation on Productivity in the Manufacturing Sector in Ontario*

Project Status: Pending availability of data.

Introduction: There are obvious parallels between health and safety regulation and environmental regulation. Work related injury and illness, like pollution, are a by-product of the production process. Unless regulated, the related costs are external to the firm. Regulation attempts to internalize such externalities. Consequently, regulation introduces an extra constraint in the optimization efforts of a firm, and therefore has the potential to be onerous to profits and productivity. But, it is possible that OHS regulation, as well as environmental regulation, has a positive impact on productivity growth. Conservation and sustainable development have their counterparts in the labour-force in terms of health as human capital, both of which can translate into long-term productivity enhancements at the societal level. There could also be short-term productivity enhancements through R&D. R&D generally has positive externalities and so there is often under investment in R&D at the societal level. Regulation may stimulate R&D in productivity enhancement that would otherwise not have been undertaken. This project will test the net impact of OHS regulation measures and environmental regulation expenditures on the productivity of firms in the manufacturing sector in Ontario. This paper is modeled on some work that has been undertaken in the Quebec jurisdiction (Dufour, Lanoie, and Michel, 1998). The proposed study would use aggregate time series data at the industry or sub-industry level to estimate the impact of OHS regulation measures and environmental regulation expenditures on total factor productivity using an OLS/GLS estimation procedure. A number of confounding factors will need to be considered in the modeling, e.g. industry and time period fixed effects, business cycle effects, energy costs, scale of output, etc.

Objectives:

- ▶ To investigate the impact of OHS regulation on productivity in the manufacturing sector in the 1990s.
- ▶ To determine what other contextual factors have had a bearing on productivity.

Methods: Regression analysis will be used to assess the impact of the introduction of experience rating on injury frequency and severity.

Results: Limited activity on this set of projects in 2003, due to other priorities.

Researchers: Emile Tompa (Coordinator), Roman Dolinschi, Marjan Vidmar

Stakeholder Involvement in Project Development: In 2001 and 2002 there were ongoing discussions with Marg Fraser and Bob Kusiak about the project and MOL administrative data availability.

Potential Audiences and Significance: This project is relevant to employers, the WSIB and workers' compensation boards in other jurisdictions, and policy makers in provincial ministries of labor.

External Funding: None

Presentations: None to date.

Publications: None to date.

Five Country Comparison on Declining Workers' Compensation Injury Rates

Short Title & Budget Code: Five Country Study: 4/440/412

Project Status: Ongoing in 2004. Postponement of the Congress on Work Injuries in Rome, June 2003 to December 2004 has led to this extension of this project.

Introduction: 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 which took place 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 will provide the background documentation for a workshop proposed for the 6th International Congress on Work Injuries: Prevention, Rehabilitation, and Compensation. This workshop will examine the common issues and lessons which can be drawn from these countries to assist and inform strategic considerations for workers' compensation systems internationally.

Objectives:

- ▶ To develop a web-based document of comparative analysis on injury rates and explanatory hypothesis across the countries.
- ▶ To hold a workshop in Rome at the 6th International Congress on Work Injuries: Prevention, Rehabilitation and Compensation.
- ▶ To proceed to publication of this analysis and the discussion from a broader international perspective as a result of the workshop in Rome.

Methods: Review of the currently available data injury rates in each country over the previous 15-20 years and development of hypotheses to explain the trends. Publication of a monograph or special journal issue is under discussion.

Results: Incomplete

Researchers: Sandra Sinclair, Cameron Mustard, J. Burton (Rutgers University), T. Sullivan (Cancer Care Ontario), R. Allingham (WSIB), W. Eichendorf (HVBG, Germany), A. Clayton (Australian National University), K. Jorgensen (Danish Work Environment Authority)

Stakeholder Involvement in Project Development: Project initiated in partnership with WSIB Research and Evaluation Branch.

Potential Audiences and Significance: This work will have broad interest to the workers' compensation and occupational health and safety communities here in Ontario and internationally.

External Funding: None

Presentations: Working Group presentation: Where have all the injuries gone? Experiences from six countries - a workshop. March 2001; Werribee Park, Victoria, Australia.

Publications: None to date.

WSIB Lost-time Injuries and Income Sources Post-injury

Short Title & Budget Code: WSIB Lost-time Injuries: 4/440/406

Project Status: Ongoing in 2004.

Introduction: There is longstanding interest in more fully understanding the adequacy and equity of income-loss compensation for individuals sustaining permanent impairment due to a workplace accident. It is well known, for example, that the unemployment rates for individuals who sustain permanent partial impairments are quite high for several years post-accident. This brings to the fore two key concerns. First, how successful are individuals in re-entering the labour force and recouping at least a fraction of their earnings, and what characteristics determine success? Second, does workers' compensation adequately and equitably replace lost earnings? In the first phase of the project, we will focus on addressing these two issues as they relate to the Ontario jurisdiction. Several other issues will be addressed with regards to benefits adequacy and equity such as regional, age and gender differences. In the second phase of the project, we will also be investigating cross-jurisdictional differences in program adequacy and equity using data from several U.S. jurisdictions and possibly British Columbia. In the third phase, using a similar methodological approach, we will be investigating the post-accident earnings experiences of individuals sustaining a temporary work disability arising from a work-related accident.

Objectives:

- ▶ To investigate the labour-market success of individuals who have sustained a permanent impairment due to a work-related accident.
- ▶ To investigate the adequacy and equity of workers' compensation benefits under two benefit programs that have existed in the Ontario.
- ▶ To determine whether there are any noteworthy regional, gender, or age differences in labour-market earnings success.
- ▶ To describe the changes in income sources of individuals and their families, before and after work-related accidents resulting in permanent impairment.
- ▶ To investigate the family formation/dissolution patterns of individuals after work-related accident resulting in permanent impairment.
- ▶ To undertake cross jurisdiction comparisons of workers' compensation program adequacy and equity.
- ▶ To investigate the long-term labour-market earnings of individuals sustaining temporary work disability from a work-related accident.

Methods: To estimate earnings loss due to injury and permanent impairment requires assessing the counterfactual, i.e., determining the amount an individual would have earned if they had not incurred an injury. Two options will be employed to estimate earnings loss: 1) post-injury earnings will be compared with pre-injury earnings at the individual level, and 2) post-injury earnings of individuals who have sustained an injury will be compared with the earnings of a control group (individuals who have not sustained an injury). For the second approach, we plan to use a matching method in which controls group will be selected for each of the event groups based on characteristics such as age, sex and labour-market earnings in the four years prior to the injury date, and region of residence at time of injury. The control groups will consist of individuals who have not received permanent-impairment injury awards as a result of a work-related injury during the period of interest. This

project is based on a linkage of data from the WSIB that identifies the event group of interest, with an administrative database resident at Statistics Canada called the Longitudinal Administrative Databank.

Results: Post-accident earnings are higher for individuals with lower impairment levels. However, the percentage of earnings losses post-accident are greater than the percentage of impairment rating for all impairment categories when impaired cohorts are compared to their control counterparts. This was the case for both before and after tax post-accident earnings losses. Earnings losses are not as large if post-accident earnings are compared to pre-accident earnings, particularly for younger individuals. Individuals receiving benefits from the post-1990 Future Economic Loss program fared much better in terms of the replace of pre-accident earnings through benefits and labour-market earnings than did individuals receiving benefits from the pre-1990 Permanent disability program.

Researchers: Emile Tompa (Coordinator), Cameron Mustard, Sandra Sinclair, Roman Dolinski, Marjan Vidmar, and Scott Trevithick.

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

Potential Audiences and Significance: This project is of great interest to both workers and workers' compensation insurance providers. In particular, the comparison of the two benefit programs in Ontario will be of interest to WSIB policy makers. The cross jurisdictional comparisons will be of interest to insurance providers and workers across North America.

External Funding: Tompa E, Mustard C, Sinclair S. Post-accident earnings and benefits adequacy and equity. NIOSH, \$150,000 U.S.; 2004-2006. (Approved for funding Feb 2004)

Presentations:

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

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)

Labour Market Experiences and Health

Overview

The forces of globalization, trade competition and rapid technological change have brought about many changes in labour markets, including changes in the demand for labour and in employment strategies. In the search for competitive advantage, some employers have adopted “flexible staffing” while others have increased the size/number of task-related demands on workers. The activities in this research theme are grounded in a conceptual framework that unites two broad dimensions of labour market experiences: the availability of work (unemployment, underemployment, job insecurity, and overwork, etc.) and nature of work (job characteristics, job position within the firm or society, and organizational characteristics of the firm, etc.).

An important deliverable that will be completed in early 2004 is a chapter on “contingent” work and its health and disability effects. This work will be included in a book on precarious employment which presents an analysis of this transition in the Canadian labour market. This publication will be of interest to those focusing on *Fair Compensation and Ontario Workers’ Compensation System* and *Organizational, Management and Policy Research* priorities.

Another significant strand of this theme is the work injury experiences of youth and young adults. There is growing evidence that young workers have a higher risk of work injuries than others and that individual, work situation, and community factors bear on this risk. We have been working on several papers regarding injuries to young workers. One paper will examine regional differences in claim rates among young Ontario workers and the work-related and socio-economic factors associated with them. Another will examine cyclical and long term trends in work injuries among Ontario youth. A third will compare claims rates among youth across Ontario and British Columbia. These papers, expected to be completed in 2004, will provide new information relevant to resource allocation decisions and for the development of prevention initiatives aimed specifically at young workers. As such, they contribute to both the *Occupational, Diseases, Injury and Health Services Research and Prevention, Workplace Design and Intervention Research* priorities.

Other elements of this theme are: studies of mental health and the workplace; with colleagues at McMaster University we are examining childhood health antecedents to labour market participation through a longitudinal cohort of Ontario children now entering the labour force from the Ontario Childhood Health Survey; at the other end of the spectrum we are analyzing mortality data by occupational classification from the 1991 Canadian Census data.

This work is important to our broader understanding of the relationship between health and work throughout the life course and much of it is undertaken with external grant funding support.

Project Titles:

Ten-year Mortality Follow-up for Occupations in the 1991 Canadian Census (Mortality Follow-up: 5/440/461)	16
Health and Labour Market Trajectories (Market Trajectories: 5/440/448)	18
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Ten-year Mortality Follow-up for Occupations in the 1991 Canadian Census

Short Title & Budget Code: Mortality Follow-up: 5/440/461

Project Status: Ongoing 2004.

Introduction: This research program is based on the creation of a new population-based longitudinal person-oriented database formed from the linkage of existing administrative datasets. A 15% sample of 1991 census records will be linked to death registrations for the years 1991 to 2001. 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 ten year follow-up period.

Objectives: The relationship between life expectancy and occupation has been poorly described in Canada relative to surveillance and monitoring efforts in other OECD countries. Evidence is accumulating that the cumulative impact of labour market experiences influences the initiation and progression of chronic disease processes. The linkage to be undertaken by this program 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.

Methods: There are two phases to this project. The first phase, to be conducted by Statistics Canada, involves the linkage of a 15% sample of census records to the Canada Mortality Data Base. Following this linkage, the analysis phase of the project will commence. Analytic work will be conducted both by Statistics Canada and by a working group at the Institute for Work & Health.

Results: None to date. Over the past year, the linkage protocol has been under review within Statistics Canada. The linkage was approved by Statistics Canada in September 2003. Work on the first phase of activity within Statistics Canada is underway with completion expected by April 2004. Analytic work on the project would commence at that time.

Researchers: Cameron Mustard (Coordinator), Jacob Etches, R. Wilkins (Statistics Canada), K. Aronson (Queens University)

Stakeholder Involvement in Project Development: The project team is advised by a three person stakeholder advisory group. Members of this group are: Dr R. Lessard, Director of Public Health, Montreal Centre Regional Health Authority; S. Paradis, Director, Policy and Major Projects, Health Canada; Dr. J. Reading, Scientific Director, Institute of Aboriginal Peoples' Health, Canadian Institutes of Health Research.

Potential Audiences and Significance: This project, led by colleagues at Statistics Canada, will provide current estimates of socioeconomic mortality differences for the Canadian population. These estimates are currently unavailable. There will be numerous audiences for this information, ranging from Health Canada and provincial ministries of health to Regional Health Authorities and municipalities. The information from this study will be broadly influential in policy settings concerned with the allocation of public expenditures to protect and improve the health of the

population. The contribution by the Institute for Work & Health to a focus on occupational mortality will be important to workplace parties and to government regulatory and insurance agencies.

External Funding: This project was initiated in 2002 with funding provided by CPHI to Statistics Canada and the IWH: \$406,000; 2001 - 2004. (Administered at Statistics Canada)
CIHR: \$152,479; 2003-2006.

Presentations: None to date.

Publications: None to date.

Health and Labour Market Trajectories

Short Title & Budget Code: Market Trajectories: 5/440/448

Project Status: Ongoing 2004.

Introduction: Over the past three years, the Institute has established capacity to conduct research using Statistics Canada master files of longitudinal health interview surveys (the National Population Health Survey) and labour market surveys (Survey of Labour Income Dynamics and the Workplace Employee Survey). A number of these longitudinal cohorts have six years or more of follow observations on representative samples of Canadians. Each of these surveys contain detailed information on health status, disability status, labour market entry, labour market exit and labour market trajectories.

Objectives:

- ▶ To estimate the longitudinal patterns of employment tenure in the Canadian labour forces.
- ▶ To estimate the extent to which changes in employment tenure are associated with subsequent changes in health.
- ▶ To estimate the extent to which changes in health are associated with subsequent changes in employment tenure.
- ▶ To determine if the patterns between labour market trajectories and health consistently reported across gender, and different measures of socioeconomic status (education, household income etc.).

Methods: Analysis specific.

Results: Due to changes to much of the wording for labour market questions in the NPHS, occupational coding changes between 1996 and 1997 and increased priority given to other projects none of the work targeted for completion in 2003 was completed.

Researchers: Cameron Mustard (Coordinator), Peter Smith, Christina Kalcevich

Stakeholder Involvement in Project Development: None to date.

Potential Audiences and Significance: The results of these projects will be of interest to policy makers, workers compensation bodies and government departments involved in the settings of policies related to both the provision of health benefits for labour market participants, and policies surrounding employment regulation protection.

External Funding: None.

Presentations: None to date.

Publications:

Smith PM, Breslin FC, Beaton DE. Questioning the stability of sense of coherence: the impact of socioeconomic status and working conditions in the Canadian population. (IWH Working Paper # 153) Social Psychiatry and Psychiatric Epidemiology 2003; 38(9):475-484.

Mustard CA, Vermeulen M, Lavis JN. Is position in the occupational hierarchy a determinant of decline in perceived health status? *Social Science and Medicine* 2003; 57:291-303.

Smith PM, Short SD, Mustard CA. (2002) Gender differences in occupational position and declines in self-rated health. (IWH Working Paper #178)

Growth Curve Analysis of Work Stressors and Distress/Depression (NPHS 1994-2000)

Short Title & Budget Code: NPHS Longitudinal: 4/420/202

Project Status: Completed 2003.

Introduction: Mental health problems in the workplace have been the subject of investigation in the past two decades. Such problems affect a significant proportion of the work force and the cost to employers in terms of lost work days and lost productivity while at work is enormous. Work psychosocial factors have been shown to have an impact on the physical and mental health of workers. Most studies that have shown relationships between work stressors and depression/distress have been cross-sectional.

Objectives:

- ▶ In this study we use the 4 wave (1994-2000) Canadian National Population Health Survey (NPHS) to investigate the relationships between work stressors and mental health problems among Canadian working population.
- ▶ All four waves contain questions on distress and depression. We will use growth curve analysis to discover changes in distress/depression and the contribution of work stressors to these changes.

Methods: We used data from the longitudinal NPHS (4 time points). We used multilevel modeling to investigate the relationship between distress and work variables, and generalized estimating equations to investigate the relationship between depression (dichotomous outcome) and work variables. Work variables, negative recent life events and self-esteem were measured in 1994/95 and 2000/01 only. We formed average work stress, average recent life events and average self-esteem measures and included them in the model as person level variables. All other variables were measured repeatedly at all four time points. Analyses were done separately for men(n~2200) and women(n~2100).

Results: Women had more distress and depression at all time points compared to men. Distress and depression decreased between 1994 and 2000 for both genders, however for distress it was significant. In multivariable analyses, low work social support and high psychological demands were significantly and positively associated with distress for both men and women, while job insecurity was only significantly associated with distress for women. For both men and women low work social support, high psychological demands and job insecurity were positively associated with depression. For both genders, decision latitude was not significantly associated with either outcome.

Researchers: Selahadin Ibrahim (Coordinator), Gail Hepburn, Donald Cole, Mickey Kerr

Potential Audiences and Significance: The results of this study will be of interest to employers.

Stakeholder Involvement in Project Development: N/A

External Funding: None

Presentation: Ibrahim S, Hepburn CG, Cole DC, Kerr MS. Work stressors and mental health: a longitudinal analysis of the National Population Health Survey (NPHS). June 2003; Halifax, N.S.: Canadian Society of Epidemiology and Biostatistics Biennial Meeting.

Publications: None to date.

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

Short Title & Budget Code: Methods for Resource Allocation: 5/440/476

Project Status: Ongoing 2004.

Introduction: This three year research program will develop 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.

Objectives:

- ▶ To estimate the impact of medical and non-medical interventions on population health status.
- ▶ 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.
- ▶ 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.

Methods: The primary method of this project focus on the application of empirical simulation methods. Multiple sources of information are applied in this project, ranging from estimates of population health status from health interview surveys to measures of the use of health care services in the population of Ontario.

Results: To date, the project has focused on two themes: 1) the relationship between socioeconomic status and access to health care services and 2) the development of population-based methods to assess the health impact of primary and secondary prevention interventions. In the second theme, the project has completed work on estimating the population impact of statins for the primary prevention of heart disease, estimated the population-attributable risk of smoking at the regional level in Ontario and examined methodological issues in population-attributable risk methods.

Researchers: Cameron Mustard (Coordinator), Jacob Etches, D. Manuel (ICES), V. Goel, G. Anderson (University of Toronto)

Stakeholder Involvement in Project Development: Representatives of a GTA District Planning Council participate fully as project members. The project expects to disseminate and test planning tools in District Planning Councils.

Potential Audiences and Significance: The aim of this program is to improve population-based resource allocation by developing, validating and evaluating methods for provincial and regional health planners. We expect that these methods will facilitate a more effect use of health care resources for improving population health and reducing inequalities by assessing the potential population health impact of health care interventions. These general methods will be applicable to the primary and secondary prevention of work-related health disorders.

External Funding: Funding provided by the Canadian Population Health Initiative to the Institute for Clinical Evaluative Sciences (\$605,0000: June 2001 to December 2004).

Presentations:

Anderson GM. Professor, University of Toronto and Senior Adjunct Scientist, ICES. Can health care reduce health disparities? Harmonizing the perspectives of population health and evidence-based medicine. May 2003; Toronto, ON: IWH Plenary.

Mustard CA. Measurement of socio-economic status in population health research. Jan 2003; Toronto, ON: Measurement in health care: how, what why? Institute for Clinical Evaluative Sciences Annual Conference.

Publications:

Manuel D, Schultz S, Mustard CA, Anderson G. How many deaths could be prevented in Canada by statin therapy: evaluating Canadian treatment recommendations.(IWH Working Paper #202) Submitted: Canadian Medical Association Journal.

Anderson G, Mustard CA, Manuel D, Alter D. Health care and health inequalities: population health and evidence-based medicine perspectives. Submitted: Journal of General Internal Medicine.

Manuel D, Schultz S, Mustard CA, et al. Estimate of population attributable risk. (Manuscript in preparation).

Work Injuries and Teens

Short Title & Budget Code: Work Injuries and Teens: 4/440/451

Project Status: Ongoing.

Introduction: Work injuries among adolescents (15 to 19 years old) and young adults (20 to 24 years old) are of particular concern because of their elevated risk for work injuries compared to adults. For example, a representative sample of emergency departments in the U.S. showed that 15 to 19, and 20 to 24 year-old workers had the highest rates of work injuries per 100 full-time equivalents. These age differences were particularly marked for males, with adolescent and young adult males' injury rates at 1.5 to 4 times the rates of males over 25 years old. Population-based surveys in Canada and Europe also show elevated work injury rates among adolescents and young adults.

This project focuses on the antecedents and consequences of work injuries among young people. Risk factor identification is an essential part of the overall public health approach recommended for addressing work injuries. The second part of the study will investigate the post-injury labour-market earning experiences of injured young workers, an experience that has not previously been examined - partly due to the lack of appropriate data sets. Documenting the consequences of work injuries on young people is a key part of designing more equitable workers' compensation systems and improving health care and social services for injured workers. In researching both areas (i.e., antecedents and consequences), longitudinal data are critical because knowing the timing of events is essential to improving the level of causal inference.

Objectives: Using Canadian health surveys (i.e., NPHS, CCHS, NLSCY, SLID), we plan to examine the following questions:

- ▶ Do adolescent and young adult workers sustain work injuries more often than adult workers? What is the relative contribution of work situation (e.g., occupation) and worker characteristics (e.g., gender) in explaining this relative risk?
- ▶ Do injury rates for young workers vary by province? Do provincial differences in industrial mix explain any observed provincial differences?
- ▶ Are low-SES young workers more likely to sustain a work injury?
- ▶ What is the relationship between work and nonwork injuries? Does increased work hours lead to an increased risk for an unintentional injury in any setting for both young men and women?
- ▶ Are previous work experience and current job tenure inversely related to likelihood of work injury?
- ▶ Do injured young workers show earnings losses 12 months after returning to work?

Methods: We have used Statistic Canada health surveys to explore these questions.

Results: In our analyses of age-related differences, we find that adjustment for the different type of jobs youth and adults work do account for a substantial portion of the elevated risk of youth. Our analyses of provincial differences show that some provinces have almost double the young worker injury rate as others and that this is not accounted for by the different types of jobs that youth perform.

Researchers: Curtis Breslin (Coordinator), Peter Smith, Cameron Mustard

Stakeholder Involvement in Project Development: Workplace Safety and Insurance Board (C.Carr), Workers' Compensation Board of B.C. (K. Zukas), Safe Communities Foundation

Potential Audiences and Significance: The results of this project will be of interest to policymakers 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.

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

Presentations:

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.

Breslin FC, Smith PE. Influence of household SES on youth working in manual occupations. November 2002; Philadelphia, PA: The 130th Annual Conference of the American Public Health Association.

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.

Publications:

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 multivariate, population-based study. (IWH Working Paper #227) Submitted: American Journal of Industrial Medicine.

Smith PE, Breslin FC. Influence of household SES on youth working in manual occupations. Submitted: Canadian Journal of Public Health.

Incidence and Correlates of Lost-time Claims Among Adolescents and Young Adults in Ontario and British Columbia

Short Title & Budget Code: Lost Time Claims Youth BC/Ontario: 5/440/408

Project Status: Ongoing 2004

Introduction: There is a growing body of evidence that young workers are at increased risk for work injuries relative to older workers. However, there is preliminary evidence that the risk is not uniform. Preliminary evidence suggests that individual, work situation and community factors influence the risk of compensated work injuries among young workers. Finally, the role of workers' compensation policies and youth lost-time claims has not been well documented. This project seeks to address these issues by conducting secondary data analysis on the Ontario and British Columbia workers' compensation databases, each of which contains over 100,000 lost-time claims by young workers.

Objectives: Using both Ontario and British Columbia workers' compensation data, we plan to examine the following questions:

- ▶ Do 15 to 19 year olds sustain work injuries less often than 20 to 24 year olds or adult workers? What is the relative contribution of work situation (e.g., occupation) and worker characteristics (e.g., gender) in explaining this relative risk?
- ▶ Do claim rates for young workers vary by geographic area? What community-level factors (e.g., industrial mix, socio-economic status) are associated with area claim rates?
- ▶ What is the pattern of claim rates over the 1990's for young workers? How do these trends compare across provinces and across different age groups? Are changes in workers' compensation policy associated with claim trends?

Methods: We have used the WSIB and WCB of British Columbia lost-time claim data base to explore these questions.

Results: We find that workers in the first month of their employment are 6 to 8 times more likely to sustain a work injury than workers with longer job tenures, regardless of age.

Researchers: Curtis Breslin (Coordinator), Peter Smith, Mieke Koehoorn, Cameron Mustard, Sheilah Hogg-Johnson. Marjan Vidmar.

Stakeholder Involvement in Project Development: Workplace Safety and Insurance Board (C. Carr), Workers' Compensation Board of B.C. (K. Zukas), Safe Communities Foundation (P. Coursey).

Potential Audiences and Significance: The results of this project will be of interest to policymakers 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.

External Funding: 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 grant: \$147,844; 2002-2004.

Breslin FC, Tompa E, Hogg-Johnson SA, Amick B. Work injury and young people: a prospective study. NIOSH. \$100,000 U.S. (approved for funding)

Presentations:

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.

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.

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.

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

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

Short Title & Budget Code: BC High School Study: 5/420/234

Project Status: Ongoing.

Introduction: Today, work is a common part of the lives of many young adults, but young workers face exposure to a variety of health and safety hazards that can lead to work-related injury and illness. A series of questions on work and work-related injuries were included in an existing high school survey administered to 3,061 grade 10 and 11 high school students in the Vancouver and Prince George areas of BC. The purpose of the questions was to investigate self-reported patterns of work (e.g. types of jobs and work hours) and work-related injury rates among young people. Self-reported survey data helps to address the need for a) a broader picture of all work-related injuries to design prevention efforts, and not limit data to those working in formal jobs and only injuries serious enough to warrant compensation; b) the need for youth sensitive data collection methods to estimate exposure time at work given varied work schedules and to address under reporting of injuries to the compensation system because of inexperience and employment vulnerability. Broader surveillance of injuries among youth complements claims information in informing policy and helping target education and prevention efforts.

Objectives:

- ▶ To describe patterns of work among high school students in urban and rural areas of British Columbia.
- ▶ To calculate work-related injury rates among high school students in urban and rural areas of British Columbia.
- ▶ To investigate associations between injuries and demographic and occupational variables
- ▶ To describe the consequences of work-related injuries in terms of medical aide and/or absenteeism from school.

Methods: Cross sectional survey of 3,061 grade 10 and 11 students in 13 randomly selected high schools (7 in Prince George, BC and 6 in Vancouver BC). Survey items included work for pay in the past 12 months, types of occupations for pay (e.g. construction, farming, retail, restaurant), weeks of work and average hours per week for both the past summer and the school year, injury at work during the past 12 months, type of injury (e.g. cut, burn, sprain, amputation), and consequences of the injury (medical aide and/or absence from work/school). Exposure time at work was estimated by summing the product of self-reported weeks of work and hours per week for both the school year and the summer. Injury rates (injuries/100 full time employees) were calculated using injuries resulting in both medical attention and absence from work/school.

Results: Of a total of 3,061 eligible Grade 10 and 11 respondents, 1,710 reported working for pay during the past school year (56%). Of these, 468 students (27%) reported a work-related injury. Three percent (n=50) of all injuries were defined as reportable to the compensation system as requiring both medical attention and necessitating time away from school or work. The overall injury rate for the survey population was 19.7 injuries per 100 FTEs. Significant differences in the injury rate were observed. Males (23.8 injuries per 100 FTEs) had a higher injury rate compared to females (15.4 injuries); younger workers in Grade 10 (24.7 injuries per 100 FTEs) had a higher

injury rate compared to workers in Grade 11 (17.0 injuries); and the northern region of the province had a higher injury rate (24.0 injuries per 100 FTEs) compared to East Vancouver (15.1 injuries) and West Vancouver (18.6 injuries).

Researchers: Mieke Koehoorn (Principal Investigator), Curtis Breslin (IWH), J. Johnson, P. Ratner, J. Shoveller and R. Tucker (University of British Columbia)

Stakeholder Involvement in Project Development: WCB of BC Young Worker Safety Steering Committee (Prevention Division) includes representatives from BC Ministry of Advanced Education and Training, Ministry of Labour (Employers' and Workers' Advisors Office), YWCA, Canadian and BC Restaurant and Food Services Associations, Business Council of BC, Safety and Health in Arts Production and Entertainment Association (SHAPE), BC Federation of Labour, BC National Youth, Student Voice, BC Federation of Students, WCB of BC Injured Young Worker Representative, Career Educations Society, BC Safety Council, and the Workers' Compensation Board of British Columbia.

Potential Audiences and Significance: Workers' Compensation Boards, Ministries of Health and Education, Canadian and, BC Federation of Labour, BC National Youth, Student Voice, BC Federation of Students, BC Safety Council, and BC Injury Research and Prevention Unit. Gaining a better understanding of work-related injuries among young people is a fundamental input to the process of establishing resource allocation and regulatory priorities for prevention initiatives aimed specifically at young workers.

External Funding: Overall high school survey funded by CIHR operating grant, 2001 (J. Johnson, Principal Investigator, University of British Columbia).

Presentations:

Koehoorn M, Breslin FC. Poster: Self-reported work patterns and work-related injuries among high school students in British Columbia. Oct 2003; Montreal, PQ: Canadian Association of Workers' Compensation Boards of Canada - 2nd Public Forum.

Koehoorn M, Breslin FC. Injuries among high school students in British Columbia. Feb 2003; British Columbia: Divisional Young Workers Team, Workers' Compensation Board of British Columbia.

Prevention Division, Workers' Compensation Board of BC, Jan 2003;
School of Occupational and Environmental Hygiene-UBC, Seminar Series, Nov 2002;
Institute for Work & Health, Plenary, Oct 2002,;

Publications: None to date.

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

Short Title & Budget Code: Ontario Child Health Survey: 4/440/755

Project Status: Ongoing 2004.

Introduction: There are only a handful of cohorts internationally which have measured emotional, physical and behavioral health during childhood and subsequently followed these children into adulthood. Very little information is available concerning the implications of childhood health and behavioral status for adult role function, especially labour-force participation.

Objectives:

- ▶ To describe attainment and performance in three major adult role domains: worker, parent and partner.
- ▶ To describe the potential predictors of adult role function which will include adult health status and a series of childhood attributes and experiences organized into three distinct levels: community-level socioeconomic factors, structural and functional characteristics at the family level, and aspects of health and functioning assessed at the level of the individual child.
- ▶ To estimate the strength of association between the potential predictors of adult role function and attainment and performance as a worker, parent, and partner.

Methods: The Ontario Child Health Study (OCHS) baseline survey of 3,294 children in 1,869 families was conducted in 1983, with a followup conducted in 1987. By the year 2000, the OCHS sample was aged 21-33 years of age. Instrument development and pilot testing was conducted in the spring and summer of 1999 with completion accomplished in November 1999. Survey pilot work was conducted in the spring and summer of 2000, and fieldwork commenced in October 2000. Survey administration was conducted by Statistics Canada. Instruments were administered to OCHS respondents, and their spouse/partner and children if applicable. Community-level measures of social and economic environments were obtained from Census data. Fieldwork was completed in the late fall of 2001 and Statistics Canada delivered the final dataset to the McMaster site in December 2002.

Results: With the availability of the third wave (2000) in 2003, descriptive analysis of the three waves of the OCHS (1983, 1987 and 2000) commenced. Six initial analytic projects were presented for review at McMaster University in November 2003: Effects of exposure to child maltreatment (H MacMillan); The OCHS sample in 2000 relative to age peers in the CCHS (C Mustard); Inter-generational correlation of income in the OCHS (M Dooley); Effect of early neighbourhood socio-economic influences on later labour force attachment (P Wilk); Is being born to a teen mother a risk factor for poor psychosocial functioning in young adulthood? (E Lippman); Impact of parental ill health on later health and functioning in their young adult children (A Crawford). In addition to this analytic work, project staff have contributed to development of a comprehensive concept and data dictionary.

Researchers: Cameron Mustard (Coordinator), Curtis Breslin, Christina Kalceovich, M. Boyle (McMaster University)

Stakeholder Involvement in Project Development: There was extensive consultation with academic and policy audiences in the design and selection of content to measure in the 2000 follow-up. With the completion of field work, we expect to initiate consultations with stakeholders to identify priority research questions.

Potential Audiences and Significance: This project will be informative of the childhood and adolescent characteristics which are associated with successful and unsuccessful labour market entry and with the risk of disabling injuries early in the adult work career. Among the factors of special interest in this study will be the role of physical and mental health in determining labour market success in young adults.

External Funding:

MRC, \$1,452,700, Feb 1999 - Dec 2002 (administered at McMaster University);

CPHI, \$415,200, Feb 2001 - March 2002 (administered at the IWH);

CIHR, \$304,000, Jan 2003 - Feb 2004 (Full grant administered at McMaster University); CIHR \$97,700, 2002 - 2004 (Administered at McMaster University)

Presentations: Mustard CA. The Ontario child health survey: the third wave. IWH Plenary Series, October 1999.

Publications:

Mustard CA, Boyle M, Duku E, Racine Y. (2003) Evaluation of sample loss in the Ontario Child Health Study 2001 follow up. (IWH Working Paper #212)

Khambalia A, Breslin C, Mustard CA. (2002) Young adult behavior problems: family antecedents and behavior mediators. (IWH Working Paper #189)

Khambalia A, Breslin C, Mustard CA. (2002) The association between adolescent and young-adult behavior problems in a male cohort. (IWH Working Paper #199)

Mental Health Disorder, Treatment and Work Disability in the NPHS

Short Title & Budget Code: CPHI Mental Health Treatment: 5/440/560

Project Status: Ongoing 2004.

Introduction: 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.

Objectives: To estimate the effectiveness of depression treatment in reducing work disability.

Results: Random effects models showed significant associations between depression and activity limitations. Adjustment for confounding factors using fixed effects models reduced these associations. In particular, for work limitations, control reduced the association of depression to the point of non-significance for men, but not for women. Nevertheless, after such control, depression remained significantly associated with limitations in other (e.g., leisure activities) for men and for all types of activities for women. Analyses are still underway with regard to the impact of treatment on work disability.

Researchers: W. Gnam - IWH Scientist (Centre for Addiction and Mental Health), Curtis Breslin (Coordinator), Cameron Mustard, Renée-Louise Franche

Stakeholder Involvement in Project Development: N/A

Potential Audiences and Significance: The results of these analyses will be of interest to administrative/ managerial audiences (especially employers). There is a great deal of interest among large private and public sector employers in the relationship between mental health problems, rates of health-related work absence and work-related injury, the impact of treatment.

External Funding: Funds administered at the Centre for Addiction and Mental Health.

Presentations: None to date.

Publications:

Breslin FC, Mustard CA. Factors influencing the impact of unemployment on mental health among youth and older adults in a longitudinal, population-based survey. *Scandinavian Journal of Work Environment and Health* 2003; 29:5-14.

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. In Revision: Journal of Psychiatric and Social Epidemiology.

Profiling the Mental Health and Service Utilization of Workers Compensation Claimants

Short Title & Budget Code: Mental Health and Service Utilization: 5/420/231

Project Status: Ongoing 2004.

Introduction: This study 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. This understanding will inform policy and resource allocation decisions targeted at improving the mental health of injured workers.

Objectives:

- ▶ To 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.
- ▶ To 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.

Methods: A person-specific longitudinal database (spanning 1990-2000) was constructed for approximately 110,000 workers compensation claimants in British Columbia, together with an age and sex matched comparison population.

Results: In 2003, project activities focused on database development and the completion of preliminary descriptive analyses.

Researchers: Curtis Breslin, Mieke Koehoorn, Cameron Mustard (Institute Co-ordinators), W. Gnam, IWH Scientist (Principal Investigator, Centre for Addiction & Mental Health), T. Hadley (University of Pennsylvania), Hyunmi Lee.

Stakeholder Involvement in Project Development: Workers' Compensation Board of British Columbia.

Potential Audiences and Significance: This project has relevance for policy analysts, workers' compensation boards, and clinicians working with compensation claimants. This project will represent the first-ever population-based study of the mental health and related health service utilization of workers compensation claimants. Profiling the entire population of WCB claimants will allow us to contrast the treated mental health conditions and utilization patterns across occupational, socioeconomic, and demographic groups, creating valuable descriptive profiles. Mental health and substance abuse problems may adversely affect the health and recovery of disabled workers. In the interest of providing cost-effective health care that improves the health of injured workers, workers compensation systems across North America are placing increasing

emphasis on treatment quality and outcomes. The proposed study will make an initial but important step towards improving the health service delivery and mental health of injured workers.

External Funding: Gnam W, Koehoorn M, Breslin FC, Mustard CA. Profiling the mental health and service utilization of workers' compensation claimants. \$110,310; 2002-2004. (Funds are from the Workers' Compensation Board of British Columbia, but administered at the Centre for Addiction and Mental Health, Ontario)

Presentations: None to date.

Publications: None to date.

Underemployment and Contingent Work

Short Title & Budget Code: Contingent Work: 5/440/486

Project Status: Ongoing 2004.

Introduction: In this research project we will investigate the health consequences of two increasingly prevalent non-standard work arrangements, namely underemployment and contingent work. Though the health consequences of policies governing the institutional structure of the labour market have historically been given great importance, the potential health consequences arising from new forms of work arrangements have had less attention. Across the multiple objectives of this research proposal, our purpose is to determine if there are measurable consequences to health arising from non-standard work arrangements. To illustrate this perspective, we offer a description of six potential pathways by which adverse labour market experiences may influence health: 1) increased risky health behaviours such as decreases in physical activity and increases in smoking, drinking, and unhealthy dietary habits; 2) changes in the use of health care; 3) loss of social support; 4) loss of income; 5) stress induced physiological changes such as increased cholesterol; and 6) changes in the nervous, immune and endocrine systems that may have long-term negative health consequences.

Objectives: The key question to be addressed by this project is as follows: what are the health consequences of underemployment and contingent work? These two labour-market experiences will be investigated with a focus on the following objectives:

- ▶ To determine whether individuals who experience underemployment (contingent work) have lower levels of health or suffer larger declines in health than those who are in permanent employment positions.
- ▶ To determine whether the association between underemployment (contingent work) and health, if present, is stronger for individuals who experience these work arrangements more frequently, or for longer periods of time.
- ▶ To determine whether the association between underemployment (contingent work) and health, if present, is magnified or modified by the context of these experiences. Specific contextual factors to be considered are: i) the contraction of social assistance programs by some provincial governments and of the Employment Insurance program by the federal government in the 1990s; ii) local unemployment rates; iii) social support; and iv) family context.
- ▶ To determine whether the association between underemployment (contingent work) and health, if present, can be partially explained by changes in potential pathways such as social support, drinking and smoking patterns, and physical activity.
- ▶ To determine whether the association between underemployment (contingent work) and health, if present, can be explained through the selection of unhealthy workers into these work arrangements (also described as “endogeneity” or “reverse causality” in statistical parlance).

Methods: Key methods include regression analysis, specifically instrument variable analysis, of the down stream health impact of different labour-market experiences. Analysis will focus on the duration of labour-market experiences and the contextual factors that modify or magnify their health implications.

Results: None to date.

Researchers: Emile Tompa (Coordinator), John Lavis, Cameron Mustard, Roman Dolinschi, Heather Scott, and Scott Trevithick.

Stakeholder Involvement in Project Development: Project plans are to have Knowledge Transfer & Exchange coordinate stakeholders involvement from the early stages of the project.

Potential Audiences and Significance: Our research will provide a better understanding of how two increasingly prevalent work experiences and the factors underlying these experiences can play a role in the health of individuals and populations. This knowledge will be invaluable to policy makers at workers' compensation boards, provincial ministries of labour, and Human Resources and Development Canada in developing labour-market policies and programs that can achieve desired economic objectives without adversely affecting the health of individuals and populations. We foresee the principal policy implications to be in the following domains: 1) the provision of employment insurance benefits; 2) the provision of health and pension related work benefits; 3) work related disability policy; 4) employment standards; and 5) the relative mix between private and public disability insurance coverage.

External Funding: 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 Research Advisory Council: \$13,643; 2002-2004. (Top-up to CIHR funding)

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:

Tompa E, Scott H, Trevithick S, Bhattacharyya S. (2003) Precarious employment and people with disabilities. (IWH Working Paper #240)

Tompa E, Scott H, Dolinschi R, Trevithick S, Bhattacharyya S. (2003) Labour- market insecurity: theoretical constructs and Canadian trends. (IWH Working Paper #232)

A Framework of Policy Instruments Which Influence the Health Effects of Labour Market Experiences

Short Title & Budget Code: Policy Taxonomy: 4/440/444

Project Status: Completed 2003.

Introduction: Protection of the health of the workforce has historically been an objective of public policy. In addition to the direct objective of preventing injury, disease and disability, policy intervention in this area has the additional objective of improving productivity and contributing to greater overall economic well-being. There are a wide range of policy instruments which may be used to protect and improve health as well as instruments which can be used to reduce the prevalence of disability and instruments which protect workers from the social and economic consequences of work-related injury, illness and disability. Many of these policy instruments do not have health as their objective, but can be understood to have health as their consequence.

Objectives: To develop a comprehensive framework of policy instruments, within the triad of regulation, incentives and social protection institutions, which have the potential to influence workplace practices in the prevention of compensable and non-compensable injury and illness or which have the potential to mitigate the social and economic consequences of work-related disability.

Methods: Limited activity was initiated on this project in 2003 due to requirements of stronger priorities.

Results: Two preliminary contributions to this work plan were completed in 2003. A framework statement on disability insurance programs in Canada, outlining research opportunities to address administrative reforms was also developed.

Researchers: Cameron Mustard (Coordinator), John Lavis, Alina Gildiner, B. Amick (University of Texas)

Stakeholder Involvement in Project Development: We would expect to consult with policy research organizations and agencies in the design stage of this work.

Potential Audiences and Significance: The potential audience for this work will be policy research organizations and agencies with interests in population health or the institutional structure of the labour market. The framework has the potential to serve as a strategic guide for the knowledge, exchange and transfer efforts of the Institute in policy domains.

External Funding: None.

Presentations:

Amick BC, Mustard CA. Labour markets and health: a social epidemiological perspective. June 2003; Washington DC: NICHD Conference on Work, Family and Well-Being.

A framework paper was presented to an NIH consensus conference on Work, Family, Health and

Well-Being in June 2003 which addressed some of the themes in this project

Publications:

A framework paper was presented to an NIH consensus conference on Work, Family, Health and Well-Being in June 2003 which addressed some of the themes in this project

Amick BC, Mustard CA. (2003) Labour markets and health: a social epidemiological perspective. (IWH Working Paper #218)

Labour-market Experiences and Self-reported Health Status and Disability: the Ten Country Study

Short Title & Budget Code: Ten Country Study: 5/440/620

Project Status: IWH association with this project concluded in 2003. Work on this study in the future will be undertaken at the University of British Columbia as C. McLeod's PhD dissertation.

Introduction: Among the broad range of labour-market experiences that interest public policy-makers, unemployment and job insecurity constitute the most frequently studied experiences related to the availability of work, while contingent work constitutes the least studied, situated as it is at the newly found intersection between the availability and the nature of work. Previous studies of these labour-market experiences have not examined trends over time in those experiences that are likely to be associated with negative health consequences (i.e., these studies have not examined trends in work-related population health indicators), have not examined both self-reported health status and disability in the same study, have tended to focus on one type of experience in isolation and not clusters of experiences, and have rarely examined the effects of (potentially modifiable) contextual factors within countries (and never across countries). One global measure of context that is relevant to cross-national studies is the welfare state regime: countries can be classified according to the extent to which they protect a citizen from being dependent on the labour market for his or her material needs. Canada, the United States, the United Kingdom, and Ireland represent liberal welfare-state regimes; Belgium, France, Germany, and Italy represent Christian Democratic regimes, and Denmark and the Netherlands represent social democratic regimes.

Objectives:

- ▶ To describe the level of and changes in work-related population health indicators such as unemployment, job insecurity, and contingent work in Canada, the United States, and select countries within the European Union.
- ▶ To examine the association between labour-market experiences (specifically unemployment, job insecurity, and contingent work) and self-reported health and disability within these countries.
- ▶ To examine the association between clusters of labour-market and other experiences (among population groups that are treated by the popular press as 'canaries in the coal mine', such as single unemployed men and low-income working parents) and self-reported health and disability within these countries.
- ▶ To examine the association between dynamic labour-market trajectories (specifically the transition from employment to unemployment to re-employment in a contingent work arrangement) on self-reported health status and disability within these countries.
- ▶ To examine the effects of contextual factors, such as the local unemployment rate and the receipt of labour-market contingent social benefits, on these associations both within and between these countries.

Methods: We plan to conduct multivariate analyses of longitudinal micro-data from Canada (National Population Health Survey and the Survey of Labour Income Dynamics), the United States (Panel Study on Income Dynamics), and the European Union (European Community Household Panel), with the latter supplemented for Germany using the German Socio-Economic Panel. These analyses will explore the relationships between labour-market experiences and health and disability

within and between these countries, which collectively span the range of welfare-state regimes found in advanced industrial societies, and shed light on the contextual factors that affect these relationships.

Results: None to date.

Researchers: John Lavis (Coordinator), Chris McLeod, Cameron Mustard, B. Amick - IWH Adjunct Scientist, University of Texas, Houston, Alina Gildiner

Stakeholder Involvement in Project Development: N/A

Potential Audiences and Significance: The results of this study will be of interest to administrative/managerial audiences (especially employers who can influence employment and working conditions) and legislative audiences (especially federal ministries of finance and human resources development which deal with employment).

External Funding: Grant application rated 3.48 and ranked 11/23 in a previous CIHR competition. Only the top seven projects were funded in this competition. Subsequent submission was not funded.

Presentations: None to date.

Publications: None to date.

Labour Market Experiences and Mortality in the National Population Health Survey 1994-2000

Short Title & Budget Code: NPHS Work Mortality: 4/440/456

Project Status: On hold in 2003 due to other priorities.

Introduction: The National Population Health Survey has followed a sample of 20,000 Canadians aged 15+ for 6 years. By the fourth survey wave, conducted in 2000, there will have been approximately 600 deaths among the 6,000 working age adults who were enrolled in the original sample. This study will examine the mortality risk associated with behavioral factors, demographic factors, health status and work experiences over the 6 year followup period.

Objectives: To estimate the contribution of labour market experiences to mortality risk in a representative sample of the Canadian labour force.

Methods: This project is based on analyses of the longitudinal sample of the National Population Health Survey. Analyses are restricted to working age adults. The risk of mortality will be examined relative to health behaviors (smoking, physical activity and alcohol consumption), health status (estimated from the Health Utilities Index, a generic health status measure), demographic factors and work experiences. The cause of death is not available in the National Population Health Survey.

Results: In 2002, preliminary analyses were completed for this project. The project was delayed by approximately six months due to delays in the availability of the Year 2000 wave of the National Population Health survey. Preliminary analyses have focused on differences in mortality risk by educational status. A manuscript entitled, 'Education and mortality in the NPHS longitudinal cohort: mediation by behavioural and material factors' is under development.

Researchers: Cameron Mustard (Coordinator), Jacob Etches

Stakeholder Involvement in Project Development: No stakeholder involvement to date.

Potential Audiences and Significance: The relationship between work experiences and mortality in Canada is poorly described. The policy governance of the institutional structure of the labour market in Canada will benefit from improved understanding of the relationship between labour market experiences and health.

External Funding: None

Presentations: Etches J. Education and mortality: behavioural and material mediators in Canadian adults. April 2002; Toronto, ON: Institute for Work & Health NPHS working group meeting.

Publications: Mustard C, Etches J. Gender differences in socioeconomic inequality in mortality. *Journal of Epidemiology and Community Health* 2003; 57:974-980.

Systematic Review of Studies of the Links Between Labour-market Experiences and Health

Short Title & Budget Code: Systematic Review: 4/440/610

Project Status: On hold for 2004. (J. Lavis on sabbatical as of July/03, C. McLeod entered a PhD program Sept/03)

Introduction: Labour-market experiences, such as unemployment or job strain, have been found in a number of studies to be associated with negative health consequences. Surprisingly, no one has undertaken a systematic review of cohort studies across the full range of labour-market experiences.

Objectives:

- ▶ To identify published and unpublished cohort studies that examine the association between labour-market experiences and health.
- ▶ To systematically extract data from these studies about the magnitude of the associations.

Methods: We searched electronic databases from 1968 to the present, conducted manual reviews of the reference lists of reviews and original studies, and contacted authors who have previously published in the field. From each eligible study two blinded reviewers extracted data about the study population, labour-market experience, and magnitude of the association.

Results: Data extraction for this project is complete and three manuscripts are in preparation on: job insecurity and health, unemployment and health, youth unemployment and health.

Researchers: John Lavis (Coordinator), Chris McLeod

Stakeholder Involvement in Project Development: N/A

Potential Audiences and Significance: These results will be of interest to administrative/managerial audiences (especially employers that can influence employment/working conditions) and legislative audiences (especially ministries that can affect employment/working conditions).

External Funding: None

Presentations:

Lavis JN. Labour market experiences and health: a systematic review of cohort studies. In: Hurley J, Charles C, Lavis JN, et al. Ed. Health policy in the era of population health: an exploration of changing roles. Report submitted to Health Canada through the National Health Research and Development Program (NHRDP), 1998.

Publications: None to date.

Work Organization

Overview

The organization of work is an important determinant of many health problems including work-related musculoskeletal disorders (WMSD). Many challenges, however, exist in defining and measuring those aspects of work organization most relevant to health. These include the interaction of risk factors, the effects of work organization at various levels within firms and effects on biomechanical and psycho social well-being. Beginning in 1992 with a large study of biomechanical and psychosocial risk factors for reported low-back pain conducted at a General Motors (GM) assembly plant, the examination of work organization factors has been a long standing key component of the Workplace Studies area.

Researchers are currently engaged in studies which look at aspects of work organization in a number of different sectors including health care. Since the first indications of human resource strain and stress in the health care system were recognized in the 1990's, concern has been raised about the potential adverse effects on the health of health care workers, on their working conditions, and on patient outcomes. In collaboration with colleagues from the Universities of British Columbia, Western Ontario and Toronto, Institute researchers are engaged in a number of studies exploring the well being of nurses and other health care workers. In 2004 results from two of these studies should be forthcoming. In the longer term the results of this group of studies will provide a comprehensive picture of work environments in the health sector and how these affect worker health and behaviour, and their impact on the quality of care being given to patients.

A three year study initiated in 2003 takes advantage of a unique "natural experiment" in Ottawa where three hospitals recently merged under a centralized reporting structure. Institute researchers are participating in this longitudinal study to evaluate the impact of a new professional practice model for provision of nursing care that is being adopted in the merged facilities. The outcomes being examined include nurse well-being, organizational climate and quality of patient care. These studies have particular relevance to the WSIB RAC research priorities of *Occupational Disease, Injury and Health Services Research* and to *Prevention, Workplace Design and Intervention Research*.

Several studies are also under way on the development and application of innovative ways to measure "health" in the workplace. One study proposes to monitor and describe the prevalence of optimal, adequate and inadequate workplace policies and practices in the prevention of workplace injury, illness and disability. Other work has examined the 'conceptual models' of a healthy workplace and a healthy workplace performance scorecard is currently being tested. Three other studies which continued through 2003 involved examining the relationships of work organization related variables and other personal descriptors with aspects or measures of health in diverse working populations, including executive level Canadian civil servants, auto workers and workers who are also the parents of very young children. Finally, in 2003 we undertook at the request of the WSIB a review of the literature on the contributions of the management sciences disciplines to the field of occupational health and safety.

Project Titles:

Management Practices to Reduce Work-related Injury (Management Practices: 5/420/532)	46
Collaborative Research-Workplace-Stakeholder Development of “Healthy Workplace” Performance Assessment Tools (Healthy Workplace Model Review: 5/420/567)	48
Healthy Workplace Scorecard for Hospitals (Healthy Workplace Scorecard: 5/420/565)	49
Measuring Stress at Work for Prevention, Reduction or Control (Healthy Workplace Stress Survey: 5/420/566)	52
Leading Indicators of Workplace Health and Safety Policies and Practices (Leading Indicators OSHCO: 4/420/204)	54
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Work Organization and Well-being Among Executive-level Employee Members of the Association of Professional Executives (APEX) of the Public Service of Canada APEX Executive Study: 5/420/221)	64
A Study of Work Organization and Health in the Auto Sector (CAW Stress Study: 5/420/785)	66

Management Practices to Reduce Work-related Injury

Short Title & Budget Code: Management Practices: 5/420/532

Project Status: Completed 2003

Introduction: Understanding the effectiveness of management commitment and organizational practices in reducing the burden of work-related injury, illness and disability in Ontario is an important priority. The effectiveness of management activities includes questions about the role of leadership in effecting change, the effectiveness of different approaches to human resource management or how to establish a healthy and productive relationship between new technology and the workforce. This project involved a survey of the management sciences literature to describe the extent to which the formal management sciences have incorporated interests in understanding the effectiveness of management practices in workplace health protection.

Objectives: This project was commissioned by the WSIB Research Advisory Council to provide an overview of the contributions of the management sciences disciplines to the field of occupation health and safety. The project had three objectives:

- ▶ to survey the scientific literature in the field
- ▶ conduct an assessment of current research activities in Canadian business faculties
- ▶ provide recommendations to address gaps in knowledge, to build research capacity and to identify future directions for research in the field

The survey focused on peer-reviewed published international literature over the time period 1980-2001 and provides a synthesis of the prominent theories in the field, an evaluation of the quality of the research evidence and an appraisal of the gaps in the current knowledge base.

Methods: To address the first objective, four electronic databases were searched for published papers which meet keyword search criteria (Medline 2,100; Embase 1,500; Psycinfo 4,300; Safety Science and Risk; 2,700). A random sample of approximately 1,000 abstracts which met the keyword search criteria were reviewed to identify a final selection of 256 abstracts. These abstracts were reviewed to identify 1) the disciplinary contributions to the literature, 2) the frequency of emphasis on management performance and quality metrics, 3) the theoretical perspective of the literature and 4) the quality of research designs.

To address the second objective, contacts were made with research administration offices in Business Faculties in Canadian universities.

Results: Overall, the survey found a large body of research relevant to the management responsibilities in the field of workplace health and safety. Only a minority of this work was conducted by researchers based in formal management faculties. Overall, the quality of research designs was limited. The survey also noted limited attention to the measurement of economic outcomes associated with workplace health management practices.

Researchers: Cameron Mustard (lead), Lynda Robson, C. Loughlin (Rotman School of Business, University of Toronto), D. Nixon (DNI Group), N. Ignatieff (DNI Group).

Stakeholder Involvement in Project Development: The project team consulted with an advisory group consisting of Dr. Kaj Frick, Institute for Working Life, Sweden, Dr. Kevin Kelloway, St. Mary's University, Halifax and Dr. John Gordon, Queens' University School of Business.

Potential Audiences and Significance: The primary audience for this project will be the WSIB Research Advisory Council, who commissioned this survey to support initiatives to address gaps, build research capacity and identify future research directions. We expect a summary of the findings from this project will be of interest to Business School faculties, to management consulting organizations and to voluntary organizations which seek to improve the quality and competence of Canadian management practice in workplace health and safety.

External Funding: WSIB Research Advisory Council: \$70,700 (RFIQ-2002-09), April 2003 to December 2003.

Presentations: None to date.

Publications: None to date.

Collaborative Research-Workplace-Stakeholder Development of "Healthy Workplace" Performance Assessment Tools

Short Title & Budget Code: Healthy Workplace Model Review: 5/420/567

Project Status: Ongoing 2004.

Introduction: Employers and labour representatives are interested in monitoring individual workplace performances in health and safety. Even sophisticated workplaces need guidance when monitoring goes beyond traditional injury rates and absenteeism. There is a variety of models of what has become known as "the healthy workplace" but little agreement exists on the appropriate content or purpose of such models. This project consists of a systematic and critical review of the literature, the validation and further development of a conceptual model and the development of more sophisticated indicators of workplace performance regarding health and safety than the usual injury rates and absenteeism.

Objectives:

- ▶ Identify the concepts of 'healthy workplaces' and their components that appear in the research literature.
- ▶ Perform a comparative analysis of conceptual models by identifying the commonalities and differences between them.
- ▶ Perform a critique of conceptual models by assessing the advantages and disadvantages of the models identified.

Results: Completed systematic search of eight bibliographic databases. Data abstraction of articles that passed inclusion/exclusion screen complete.

Researchers: Harry Shannon (Principal Investigator), Colette Severin (Coordinator), Donald Cole, Lynda Robson, Gail Hepburn, Mickey Kerr, Fataneh Zarinpoush, J. Eakin (University of Toronto)

Stakeholder Involvement in Project Development: N/A

Potential Audiences and Significance: This project is of relevance to occupational health and safety personnel, workplace parties, and researchers.

External Funding: Original funding with the Health Evidence Application and Linkage Network (HEALNet).

Presentations: None to date.

Publications: None to date.

Healthy Workplace Scorecard for Hospitals

Short Title & Budget Code: Healthy Workplace Scorecard: 5/420/565

Project Status: Ongoing 2004.

Introduction: Inspired by the popularity of performance scorecards for managing organizations and guiding them towards new goals, this project aims 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.

Objectives:

- ▶ To complete syntheses of the research literature pertinent to the development of a healthy workplace (HWP) scorecard for hospitals.
- ▶ To develop a HWP performance scorecard tool for hospitals with acceptable reliability and validity properties, based on stakeholder input and research evidence.

Methods:

- ▶ Review academic literature pertinent to a healthy workplace scorecard tool, including the organizational performance measurement literature and the determinants-of-health literature.
- ▶ Gather stakeholder input through interviews, a workshop, and published literature.
- ▶ Design a scorecard survey, based on extant survey measures, stakeholder input and the determinants-of-health literature, that will yield a complement of measures consistent with the healthy workplace scorecard framework.
- ▶ Implement the survey at a pilot site; refine the organizational report according to hospital partner preferences; refine the survey questionnaire following data analysis.

Results:

- ▶ Literature regarding performance measurement, especially in occupational health and safety performance measurement has been reviewed; a draft manuscript will be submitted as a working paper in the near future.
- ▶ Determinants-of-health (and some determinants-of-turnover and determinants-of-job-satisfaction) literature in the health care sector has been reviewed.
- ▶ The content for a healthy workplace (HWP) scorecard survey for hospitals was selected based on research evidence and stakeholder input.
- ▶ The survey is being implemented at a pilot site with 2200 employees (St. Joseph's Health Centre, Toronto, a community teaching hospital).
- ▶ Discussion with stakeholder partners that can provide access to multiple workplaces is underway.

Researchers: Lynda Robson (Principal Investigator), Harry Shannon, Mickey Kerr, Selahadin Ibrahim

Stakeholder Involvement in Project Development: Managers from best practice organizations and labour representatives with an OHS function were interviewed in 1999 to elicit recommendations for healthy workplace measurement and to get feedback on an earlier form of the scorecard. Health care stakeholders, including representatives from nursing professional

organizations, hospital directors of OHS, and HCHSA were convened in a workshop in 2001 to get feedback on the scorecard and recommendations for indicators.

In 2003, the twenty-six members of the Quality of Worklife Committee at the project pilot site, St. Joseph's Health Centre (SJHC), were given 60 potential survey topics to rank in their importance; highest ranked topics already not represented on the questionnaire were added to it. The Committee also pretested the questionnaire and vetted the final version.

Potential Audiences and Significance: Senior management, labour leaders, human resource and occupational health & safety professionals. Even sophisticated workplaces are expressing a need for guidance when monitoring goes beyond traditional indicators like injury rates and absenteeism. This project will ultimately provide workplace stakeholders in the institutional health care sector with a survey tool for internal and external benchmarking in healthy workplace performance, thereby assisting efforts to improve working conditions and related organizational outcomes.

External Funding: Health Evidence Application and Linkage Network (HEALNet) \$224,000, 1998-2001.

Presentations:

Robson LS. Healthy workplace performance measurement. June 2002; Toronto, ON: Industrial Accident Prevention Association.

Robson LS. Healthy workplace balanced scorecard. April 2002; Mississauga, Ontario: Presentation to Health and Wellness Network, Dupont Corporation.

Robson LS. Balanced scorecards for health and safety. April 2001; Toronto, Ontario: Industrial Accident Prevention Association (IAPA) Health & Safety.

Robson L, Kramer D. Using the healthy workplace balanced scorecard approach to measurement. March 2001 Toronto, Ontario: International Quality & Productivity Centre Conference on Measuring & Managing Occupational Health & Safety.

Robson LS. Healthy workplace performance assessment tools. October 2000; Toronto, Ontario: Health, Work & Wellness Institute Conference.

Robson LS. Balanced scorecards for health & safety. April 2000; Toronto, ON: Industrial Accident Prevention Association (IAPA) Conference and Trade Show.

Robson LS. Development of "healthy workplace" performance assessment tools. April 2000; Toronto, ON: Health Evidence Application and Linkage Network (HEALNet) Annual Conference.

Robson LS, Shannon HS, Polanyi MF, Kerr MS, Eakin JM, Brooker A-S, Cole DC. A conceptual model of a "healthy workplace". March 1999; Calgary, Alberta: HEALNet (Health Evidence Application and Linkage Network) Annual Conference. (poster)

Robson LS, Shannon HS, Polanyi MF, Kerr MS, Eakin JM, Brooker A-S, Cole DC. A conceptual model for a healthy workplace tool. March 1999; Baltimore, Maryland: Work, Stress and Health '99:

APA-NIOSH Joint Conference. (poster)

Robson LS, Shannon HS, Kerr MS, Polanyi MF, Eakin JM, Cole DC, Brooker A-S. A multi-disciplinary conceptual framework for a healthy workplace index. September 1998; Toronto, ON: University of Toronto Workplace Health Interest Group Seminar Series.

Robson LS, Shannon HS, Kerr MS, Polanyi MF, Eakin JM, Cole DC, Brooker A-S. What is a “healthy” workplace?: a conceptual framework. August 1998; The Hague, The Netherlands: Organizational Design and Management (ODAM) 6th International Conference.

Robson LS, Polanyi MF, Kerr MS, Shannon HS, Eakin JM, Cole DC, Brooker A-S. Evaluating how “healthy” workplaces are: a conceptual framework. June 1998; Montreal, QC: Canadian Public Health Association 89th Annual Conference.

Publications:

Robson LS, Cole DC, Eakin JM. (2003) Healthy workplace performance measurement. (IWH Working Paper #256)

Cole DC, Robson LS, Lemieux-Charles L, McGuire W, Sicotte C, Champagne F, Barnsley J. (2003) Quality of working life indicators in Canadian health care organizations: a tool for healthy healthcare workplaces? (IWH Working Paper #219) Submitted: Occupational & Environmental Medicine.

Shannon HS, Robson LS, Sale JEM. Creating safer and healthier workplaces: the role of organizational factors. *Am J Ind Med* 2001;40:319-334.

Robson LS, Oliveira E, Eakin J. (2000) Healthy workplace performance assessment tools: management and labour perspectives. (IWH Working Paper #123)

Robson LS, Severin C, Cole DC, Hepburn CG. Institute for Work & Health - St. Michael's Hospital collaborative development of a healthy workplace balanced scorecard: Identification of SMH priorities in employee health and safety and potential indicators. Interim Report and Discussion Paper, 2001.

Proceedings of Healthy Workplace Performance Indicators in Hospitals Workshop, June 2001. Toronto: Institute for Work & Health.

“What gets measured gets done”: The healthy workplace balanced scorecard. Special Report Winter 2000. Toronto: Institute for Work & Health.

Robson LS, Polanyi MF, Kerr MS, Shannon HS, Eakin JM, Brooker A-S, Cole DC. (1998) What is a ‘healthy workplace’? In: Vink P, Koningsveld EAP, Dhondt S, editors. Human factors in organizational design and management VI. North-Holland: Elsevier Science, p. 539-544.

Measuring Stress at Work for Prevention, Reduction or Control

Short Title & Budget Code: Healthy Workplace Stress Survey: 5/420/566

Project Status: Concluding in 2004.

Introduction: The rapid move from the Industrial Age to the Knowledge Age affected workers in different ways including being recognized as the intellectual capital (a basic economic resource) and also as the victims of work-related stress (a major health problem). Our growing understanding of the magnitude of stress at work shows that a broadened focus on this issue is unavoidable. This project was aimed at measuring the key aspects of stress at work, focusing on stressors and stress-related health outcomes. A tool was developed and piloted. Exploration of partnerships with external human resource management firms and other interested parties have not lead to a sustainable relationship. Work on this project in 2004 will be limited to completing the analyses and reporting back to the pilot work site.

Objectives:

- ▶ Develop a comprehensive approach to work-related stress that encompasses the workers and the workplaces.
- ▶ Develop a set of tools to measure various aspects of work stress and related issues.
- ▶ Allow workplaces to benchmark their organizations relative to Canadian norms.
- ▶ Model the relationships between workplace stressors and health outcomes, and also between stressors and some organizational functions such as absenteeism and work injuries.
- ▶ Increase the involvement of stakeholders by collaborating with them from the very beginning of survey projects.
- ▶ Search for related existing data sources, and also develop a Canadian database for occupational stress.
- ▶ Test the tool in a major workplace.
- ▶ Market the tool to other sites.

Methods:

- ▶ Expand the content of the survey by including other widely used scales such as ERI.
- ▶ Expand the approach of the study by investigating work stress changes over time.
- ▶ Update the Canadian norms by using NPHS 2000 data.
- ▶ Develop and improve a system for generating a graphic dynamic online report for the online version as well as the paper version of ESWE.
- ▶ Obtain the ownership of ESWE and the dataset.
- ▶ Develop strategies for implementing and promoting ESWE.

Results:

- ▶ Studied and conducted analysis for adding ERI items to ESWE (further action suspended until the generation of some revenue).
- ▶ Completed the first section of the pilot of the paper version of the survey (n= 1357) with a large manufacturing company and provided them with the online report.
- ▶ Improved the online report and added some features such as a search engine for the commentary section.
- ▶ Developed and maintain the ESWE website: www.healthyworkplacesurvey.ca.

- ▶ Continued the communication with organizations that expressed an interest in this tool.
- ▶ Developed strategies for the implementation of the tool, promotion and partnerships.
- ▶ Delivered presentations in related topics.
- ▶ Prepared a demo of the online report.
- ▶ Engaged KTE to find workplaces interested in the tool.

Researchers: Harry Shannon (Principal Investigator), Lynda Robson, Selahadin Ibrahim

Stakeholder Involvement in Project Development: Increasing the collaboration and involvement of different stakeholders is an objective of this project. This involvement is a prerequisite of the project's ability to develop the tools which are required and applicable.

Potential Audiences and Significance: Public and private organizations interested in human resources as well as health and productivity issues; university researchers interested in studying stressors and stress outcomes.

External Funding: Shannon HS, Robson L, Zarinpoush F, Ibrahim S, Cole DC. Extension and field testing of healthy workplace survey. Health Evidence Application and Linkage Network \$32,000; 2001-2002.

Presentations:

Shannon HS. Stress in the workplace. Mar 2003; Southwest Region Health Information Partnership.

Zarinpoush F. Managing stress-related disabilities in the workplace. Dec 2002; Toronto, ON: Minimizing Absenteeism in the Workplace.

Shannon HS. What does the research say about workplace organizational factors? Potential leading indicators? Nov 2002; Toronto, ON: Achieving a Healthy Workplace: Knowledge Exchange on Leading Indicators, IWH Workshop.

Zarinpoush F. Using a workplace stress survey to identify workplace stressors and measure their impact. Oct 2002; Toronto, ON: "3rd Annual Conference in Advanced Guide to Managing Employee Stress and Mental Health Claims.

Zarinpoush F. Differentiating among causes of stress and dealing with them effectively. June 2002; Toronto, ON: Employee Stress and Mental Health Conference.

Zarinpoush F. How to find strategic solutions to stress at work. March 2002; Barrie, ON: Health Promotion Ontario, Spring Training Camp.

Publications: None to date.

Leading Indicators of Workplace Health and Safety Policies and Practices

Short Title & Budget Code: Leading Indicators OSHCO: 4/420/204

Project Status: Ongoing 2004.

Introduction: The Occupational Health & Safety Council of Ontario (OHSCO) System Measurement Subcommittee has identified the measurement of workplace health and safety policies and practices as a surveillance priority for the prevention system in Ontario. Such measurement has also been defined as a priority by prevention system authorities in Europe, the United States and Australia. To date, no jurisdiction has established a sustained surveillance information system which reports on progress towards optimal workplace practices.

Objectives: To design an internationally innovative survey to monitor and describe the prevalence of optimal, adequate and inadequate workplace policies and practices in the prevention of workplace injury, illness and disability.

Methods: The survey will be administered to approximately 1,500 Ontario workplaces, sampled to represent 15 major economic sectors. Workplace respondents to the survey will include both management representatives and employees. Statistics Canada will provide field survey services, responsible for sampling and recruiting workplaces, survey administration and data collection. The Leading Indicators survey is proposed to be included as a module in the core content of the Workplace and Employee Survey, currently conducted by Statistics Canada.

Results: In 2003, the Institute committed to complete a design specification task which involved developing accurate cost estimates for the field survey work and developing a draft survey instrument. These tasks were completed as proposed. The survey instrument measures firm practices in the domains of: management commitment, leadership motivation, employee and industrial relations, workplace commitment to the internal responsibility system, safety diligence, health and safety training, ergonomic practices and disability management practices.

Researchers: Cameron Mustard (Coordinator), Lynda Robson, Robin Kells

Stakeholder Involvement in Project Development: The OHSCO System Measurement Subcommittee is leading the specification and planning of this initiative.

Potential Audiences and Significance: The targeted audience for this research will be the 200,000 workplaces in the province of Ontario and HSA prevention partners. Results from the initial survey will be broadly disseminated to workplaces, in cooperation with HSA prevention partners. Results will also inform the HSAs' programming.

External Funding: None.

Presentations:

Kells R. Monitoring and benchmarking: leading indicators in workplace health and safety. July 2003; Toronto, ON: Ministry of Labour, Summer Experience Program.

Robson LS. Concepts in the measurement of workplace leading indicators. May 2003; Toronto, ON: Measuring Leading Indicators: An OHSCO Initiative, IWH Workshop.

Publications: Mustard CA, Robson L. (2003) Measurement of leading indicators: workplace health and safety practices: revised questionnaire content. Preliminary Specifications, OHSCO Initiative. Toronto: Institute for Work & Health.

Monitoring the Health of Nurses in Canada

Short Title & Budget Code: CHSRF Nurse Monitoring: 5/420/945

Project Status: Ongoing 2004 (only for completion of papers associated with project)

Introduction: The ultimate goal of this project was to help policy and decision makers maintain and enhance the health of the nursing workforce. As a prerequisite to meeting this goal, the study will conduct a synthesis of existing health information sources about nurses in Canada and highlight any significant gaps that exist. The knowledge gained in the early phase of the study, in conjunction with stakeholder input, will be used to propose a mechanism for monitoring the health of Canadian nurses on an ongoing basis. This study directly relates to the health and well-being of the nursing workforce in three key ways: 1) by identifying what data needs to be collected; 2) by proposing how to collect these data; and 3) by providing policy makers and decision makers with a framework for developing evidence-based performance indicators.

Objectives:

- ▶ What data concerning the physical and mental health of nurses are already available in existing data sources and/or ongoing studies?
- ▶ What are the perceived gaps in this information that must be addressed in order to be able to effectively monitor the health of nurses over time?
- ▶ Can these knowledge gaps be addressed through modifications to existing data collection methods? If not, what is the best mechanism to establish such a monitoring system?
- ▶ How can data on nurses' health be best integrated into health services organizations in order to be utilized by policy makers, decision makers and the nursing community?

Methods: There were two phases planned for this two-year study: Phase I was focused on the identification of desired data elements, including reviewing existing data sources and identifying data gaps; Phase II was concerned with the development of future data collection mechanisms for ongoing health monitoring. Overlapping these methods is a primary concern that the data to be collected and the process to be developed are made highly relevant to decision makers and policy makers. To ensure this relevance, there was a focus on direct stakeholder contact, including regional interviews with appropriate stakeholders, which were used to get input on the project as well as to examine potential data sources. At the end of Phase II a report was prepared to summarize the findings of the study and outlined for a plan of action to develop and implement a monitoring system that meets the needs of the key stakeholders involved.

Results: Field work completed, including 64 interviews and 2 stakeholder workshops. To date, we have developed a conceptual framework for our project that identifies levels of factors that can influence nurses' health. We have also assembled a project steering committee and have held the final project workshop for dissemination and discussion of results. Project website (www.nurseshealth.org) under construction and final funder's report submitted in late 2003.

Researchers: Mickey Kerr (Co-Principal Investigator and Institute Coordinator), Colette Severin (Study Coordinator), Mieke Koehoorn, H. Spence Laschinger (Co-Principal Investigator - University of Western Ontario), J. Shamian, D. Thomson (Mount Sinai Hospital), L. O'Brien-Pallas (University of Toronto), D. MacPherson (Canadian Federation of Nurses Unions), J. Almost (University of Western Ontario)

Stakeholder Involvement in Project Development: Representatives from the following organizations: Ontario Ministry of Health and Long Term Care, Health Canada, Canadian Federation of Nurses Unions, Canadian Healthcare Association, Canadian Council on Health Services Accreditation, Canadian Nurses Association, Canadian Institute for Health Information, Canadian Practical Nurses Association, College of Nurses of Ontario, Ontario Nurses Association, Ordre des infirmières et infirmiers du Québec, Statistics Canada.

Potential Audiences and Significance: This project is of direct relevance to health-policy makers and health care administrators who will need evidence-based research when developing performance indicators. It is also relevant to the nursing community.

External Funding: Kerr MS, Severine C, Koehoorn M, Spence Laschinger H, Shamian J, Thomson D, O'Brien-Pallas L, MacPherson D, Almost J. CHSRF; \$264,800: Dec 2000-Nov 2002.

Presentations:

Kerr MS, Laschinger HK, Shamian J, Thomson D, Koehoorn M, O'Brien-Pallas L, McPherson D, LeClair S, Sochalski J, Aiken L, Severin C, Almost J. Monitoring the health of nurses in Canada. Nov 2002; Toronto, ON: Registered Nurses Association of Ontario, Healthy Workplaces in Action 2002, 2nd International Conference.

Publications: None to date.

Exploring Stress Differences Between Full-time and Part-time Nurses

Short Title & Budget Code: Nurse Stress Cortisol: 5/420/246

Project Status: Ongoing 2004.

Introduction: The quality of working conditions for nurses has become an increasingly important issue over the past decade, as hospital restructuring and changes in health care delivery have often translated into increased workload and increased unpredictable change for nurses. As a result, it is hypothesized that full-time nurses have a greater risk of work-related health problems due to their greater work environment exposure. However, one of the remaining challenges in directly linking work or life stressors to health problems is the paucity of biological evidence for a causal pathway. Recent animal research examining cortisol as a potential biomarker for stress is starting to address this issue of causality. Evidence from human subjects, including some studies involving nurses, is also beginning to accumulate (Goldstein et al., 1999). This emerging evidence, coupled with recent field method developments, such as non-invasive sampling through saliva collection, has made it possible to consider large-scale epidemiologic studies that can better explore the causal pathway for stress (Kirschbaum & Hellhammer, 1994). However, some uncertainty remains regarding the best methods of sample collection and type of cortisol analysis.

Objectives:

- ▶ Explore the differences in physiological stress levels between full and part-time nurses and determine if salivary cortisol is a reliable biomarker for stress.
- ▶ Determine if any relationships exist between the major questionnaire instruments for work and life stressors and salivary cortisol. We will address the following two questions:
- ▶ Do full-time and part-time nurses differ with respect to major work and life stressors?
- ▶ Do nurses with higher job or life stress instrument scores also have higher mean daily salivary cortisol levels?

Methods: 100 full-time nurses and 100 part-time nurses will be chosen from the same acute care teaching hospital, and nurses from a range of specialties will be included, balanced by shift status. Participants will be asked to complete a self-administered questionnaire addressing work and non-work stress measures, as well as self-reported health outcomes and typical demographic factors. Cortisol samples will be obtained at 1, 4, 9, and 11 hours after waking and just before bedtime, on each of two work and two non-work days. Cortisol data will be analyzed using the mean level over the day (or “area under the curve” approach). This project will require informed consent from study participants as well as ethical review.

Results: Field work is complete. The projected sample size of 200 was not achieved, as data collection ended with a final sample closer to 150 (approximately 75 in each group). The response rate was much lower than expected (about 40%). All saliva samples have been analyzed and all of the questionnaires have been data entered. Analysis started in late 2003.

Researchers: Mickey Kerr (Principal Investigator), Cameron Mustard, Renée-Louise Franche, H. Laschinger (University of Western Ontario), J. Shamian (Health Canada), J. Schwartz (SUNY-Stony Brook), John Frank (CIHR/IWH), C. Kirschbaum (Cortisol Reference Laboratory, Germany), Selahadin Ibrahim

Stakeholder Involvement in Project Development: Presented to the nursing professional practice committee at London Health Science Centre (LHSC) before getting ethics approval, and met with head of Human Resources at LHSC to discuss study. Support for study obtained from President of Ontario Nurses Association (ONA) and from local ONA representative.

Potential Audiences and Significance: A better understanding of the consequences of stress in the work environment could lead to the development of more effective intervention strategies to improve job satisfaction and reduce stress at work which will assist in the attraction and retention of nurses. This project will be of relevance to policy makers, workplace parties and researchers.

External Funding: Kerr MS, Mustard CA, Franche R-L, Laschinger HK, Shamian J, Schwartz JE. Exploring stress differences between full-time and part-time nurses. University of Toronto, Nursing Effectiveness, Utilization and Outcomes Research Unit: \$26,800; 2001-2003.

Presentations:

Kerr MS, Cole DC, Ibrahim S, Lewchuk W, Robertson D, Wigmore D, Haines T, Sale J, Zsoldos J. Industry-specific versus generic measures of the psychosocial work environment: data from a study of job strain and health in the automobile industry. Mar 2003; Toronto, ON: APA-NIOSH: Work and Health: New Challenges in a Changing Workplace, 5th Interdisciplinary Conference on Occupational Stress and Health.

Kerr MS, Mustard CA, Franche R-L, Laschinger HK, Shamian J, Schwartz JE, Dusky S, Frank JW. Exploring stress and cortisol differences between full-time and part-time nurses. Mar 2003; Toronto, ON: APA-NIOSH Work and Health: New Challenges in a Changing Workplace, 5th Interdisciplinary Conference on Occupational Stress and Health.

Publications: None to date.

Prospective Nursing Care Model

Short Title & Budget Code: Nursing Care Model: 5/420/208

Project Status: Ongoing 2004.

Introduction: 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, including 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" whereby three recently merged hospitals will now all be adopting 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.

Objectives:

- ▶ To determine the multilevel (individuals; units and (former) hospitals) impact of adopting a new, common clinical practice model for nursing care across three recently merged campuses of The Ottawa Hospital.
- ▶ 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?

Methods: A quasi-experimental approach will be used, taking advantage of the unique "natural experiment" mentioned above. Approximately 1000 surveys and 9 focus groups with key informants are planned for each of baseline, year 1 and Year 2. The project timeline will be dependent upon the "rollout" of the new nursing model by the central hospital administration. The project has been delayed 6-9 months due to administrative delays with the model rollout and the outbreak of SARS in Ontario.

Results: None available yet.

Researchers: Mickey Kerr (Principal Investigator), Gail Hepburn, G. Lemire Rodger (The Ottawa Hospital), H. Laschinger (University of Western Ontario), M. Mayrand Leclerc (The Ottawa Hospital), J. Gilbert, G. Murray (The Change Foundation), L. O'Brien-Pallas (University of Toronto)

Stakeholder Involvement in Project Development: The Hospital Chief Nursing Officer is a part of study team. Local union officials also involved and project status has been reported on twice in local nursing newsletter and at the Registered Nurses Association of Ontario meeting on Healthy Work Environments. (Nov 2003).

Potential Audiences and Significance: Given the extent of hospital restructuring across Canada,

by examining a hospital in the process of a substantial merger will help to demonstrate how adopting a standard model of nursing care will impact on nurse well-being, organizational climate and nurse sensitive patient outcomes. This study is of direct relevance and benefit to managers, policy-makers, and the nursing community at large.

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)

Presentations: None to date.

Publications: None to date.

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

Short Title & Budget Code: Multiple Role Strain: 5/410/109

Project Status: Ongoing 2004.

Introduction: 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 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.

Objectives:

- ▶ To examine the impact of gender, parenting status, age of children, childcare arrangements, length of maternity leave on psychological health, physical health perception, and health risk behaviours (physical activity, diet, smoking, alcohol consumption, stress reduction, sleep hygiene) during the adaptation to the parental role and to combined parental and occupational roles in working parents of young children.
- ▶ To examine the impact of modifiable psychosocial factors — multiple role strain, over-commitment, occupational stress — on psychological health, physical health perception, and health risk behaviours in working parents and non-parents.
- ▶ To compare results from urban centers of various sizes.
- ▶ To examine the impact of the occupational environment on the health of mothers returning to work.
- ▶ To develop two workshop modules, one intended for employees, another for employers, aimed at reducing work reintegration stress and general stress, and increasing positive health behaviours.

Methods: Longitudinal multi-site study healthcare sector employees (and their partners) who are taking maternity leaves, compared to other employees (and their partners). Three data collection points for the maternity group, two for the comparison group.

Results: Recruitment for the first wave of the study has been completed at the three sites (2002) and the second and third wave of data collection is now ongoing.

Researchers: Renée-Louise Franche (Principal Investigator), Alysha Williams, Selahadin Ibrahim, Cameron Mustard

Stakeholder Involvement in Project Development: Staff at the three hospital sites have been involved from the beginning of the project in the planning of the study.

Potential Audiences and Significance: The information generated by this study and the workshops can be used by government bodies, employee assistance programs, organizations such as hospitals,

and public education organizations to make changes in relevant areas such as work conditions, childcare policies, and maternity/parental leave benefits, and to educate the public about the impact of multiple role strain. Results of the study will offer direction on the most potent factors to address in promoting the health of working parents and in primary prevention of disease. The two workshops, based on evidence generated by the study, will offer the possibility of a wide dissemination of stress reduction strategies and health promotion strategies specifically targeted to the population of working parents experiencing multiple role strain.

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

Presentations: Franche R-L, Minore B, Roussy F, Grace S, Stewart D, Williams A, Fancott C, Kunkel G. Multiple role strain, health, and health risk behaviors in Ontario healthcare workers. March 2003; Toronto, ON: APA-NIOSH Conference on Work, Stress, and Health.

Publications: Franche R-L, Williams A, Ibrahim S, Grace S, Stewart D, Minore B, Mustard CA. (2003) Work conditions, work-family balance, and risk for depression in healthcare workers. (IWH Working Paper #229) Submitted: Work & Stress.

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

Short Title & Budget Code: APEX Executive Study: 5/420/221

Project Status: Ongoing 2004.

Introduction: 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'.

Objectives: Although more generally a study of work organization and health, a focus will be on the following two objectives:

- ▶ Investigate the link between perceptions of organizational justice and both executive health and their belief in the public service as a learning organization (to date few published studies make a link between justice and health).
- ▶ Determine the impact of workplace aggression and source of aggression (e.g. abusive supervisors, abusive coworkers) on both executive health and their belief in the public service as a learning organization.

Methods: This study involves the collection of cross-sectional survey data, and follow-up interviews with a subsection of the executives.

Results: Preliminary analyses suggest that organizational justice is positively related to executive health. As well, the experience of workplace aggression is negatively related to executive health, the impacts being greater if supervisors are the perpetrators of the aggression.

Analyses related to the workplace aggression component of the project were presented in March 2003 at the APA-NIOSH conference. The project was also highlighted at the conference in a symposium on the health of leaders in the public sector. In addition APEX hosted a research seminar 'Creating Healthy Leadership in the Public Service of Canada' in March 2003. Investigators have interacted with many government agencies about the findings and the implications for policy. One formal venue was a colloquium hosted by APEX entitled 'Measuring and Rewarding Healthy Leadership and Organizations' in May 2003.

Researchers: Gail Hepburn (Co-Investigator), L. Lemyre (Principal Investigator, University of Ottawa), W. Corneil (APEX), and J. Barrette (University of Ottawa).

Stakeholder Involvement in Project Development: APEX has had input into the project and provided support from the outset. The departments and agencies of the Public Service of Canada will participate in meetings and workshops about the findings and be aided in implementing positive change.

Potential Audiences and Significance: This work will be of interest to those investigating the link between work organization and health: researchers, human resource professionals and policy makers.

External Funding: Lemyre L, Hepburn G, Corneil W, Barrette J. SSHRC Initiative on the New Economy Program: \$193,000; 2002-2005. (Administered at the University of Ottawa)

Presentations:

Hepburn CG. Beyond the talk: influencing executives' leadership behaviours to achieve healthier workplaces. Mar 2003; Toronto, ON: American Psychological Association and National Institute of Occupational Safety and Health conference: Work, Stress and Health: New Challenges in a Changing Workplace at the 5th Interdisciplinary Conference on Occupational Stress and Health.

Hepburn CG, Corneil W. Outcomes of workplace aggression for executives in the Canadian Federal Public Service: A replication and extension. Mar 2003; Toronto, ON: American Psychological Association and National Institute of Occupational Safety and Health conference: Work, Stress and Health: New Challenges in a Changing Workplace at the 5th Interdisciplinary Conference on Occupational Stress and Health.

Publications: None to date.

A Study of Work Organization and Health in the Auto Sector

Short Title & Budget Code: CAW Stress Study: 5/420/785

Project Status: Ongoing in 2004.

Introduction: This is a study led by colleagues at McMaster University and the Canadian Autoworkers (CAW). The main purpose of the study was to determine if there is a relationship between work organization and blood pressure (BP), with a secondary interest in the relationship of work organization with musculoskeletal pain and burnout.

Objectives:

- ▶ Identify the key aspects of work organization affecting worker health, and to determine how these factors interact with individual characteristics such as sex and age.
- ▶ Examine the psychometric properties of a newly developed job strain measure designed specifically for workers in the auto industry.
- ▶ Propose solutions on how to re-organize work to prevent work related injury and illness and to reduce WSIB liabilities.

Methods: Cross-sectional surveys in auto plants, with questionnaires and measurements of point blood pressures. Measurement of ambulatory blood pressures on sub-set of participants. Multi-level analysis of the latter.

Results: Awaiting revision of report by principal investigator and approval by workplace parties.

Researchers: Donald Cole, Mickey Kerr (IWH Co-investigators), Selahadin Ibrahim; W. Lewchuk (Principal Investigator), T. Haines (McMaster University); D. Robertson (CAW)

Stakeholder Involvement in Project Development: Intimate involvement of CAW members and auto company members at both national, regional and plant levels.

Potential Audiences and Significance: Workplace parties and practitioners, insurers including the WSIB (medium priority) and policy makers (e.g., informing guidelines and regulations).

External Funding: WSIB RAC and the Canadian Auto Workers Health and Training Fund (Funding administered at the University of Waterloo)

Presentations:

Cole DC, Ibrahim S, Lewchuk W, Kerr MS, Wigmore D, Haines AT, Robertson D, Zsoldos J. Working blood pressure: point versus ambulatory comparisons. Mar 2003; Toronto, ON: Work, Stress and Health.

Kerr MS, Cole DC, Ibrahim S, Lewchuk W, Robertson D, Wigmore D, Haines T, Sale J, Zsoldos J. Industry-specific versus generic measures of the psychosocial work environment: data from a study of job strain and health in the automobile industry. Mar 2003; Toronto, ON: APA-NIOSH: New Challenges in a Changing Workplace, 5th Interdisciplinary Conference on Occupational Stress and Health.

Several closed presentations to workplace stakeholders (company and union).

Publications:

Lewchuk W, Robertson D, Zsoldos J, Wigmore D, Cole DC, Kerr MS, Haines T, Ibrahim S, Lansbergis P, Schnall P, Schwartz J. CAW/McMaster work-related health and safety risks study. Final Reports to WSIB (Dec 2001) and Auto Company (July 2002) on Phase 1.

Workplace Intervention Studies

Overview

Workplaces and workers' compensation system leaders seek more effective ways to reduce the risk factors for work-related illness and injury. Both are interested in intervention research that demonstrates improvement in workplace conditions and health. Currently, policy makers struggle to develop regulatory or incentive structures to improve prevention in the absence of any large body of rigorous evaluations of workplace interventions.

Institute scientists participating in this theme have been active in a number of workplace settings, including manufacturing and office services. The results of this work emerge as IWH working papers in 2004. This will be of interest to *Prevention, Workplace Design and Intervention* and *Organizational, Management and Policy Research* priorities.

The new projects for which commenced in late 2003 include collaborative work with sabbaticant Dr. Dov Zohar on organizational safety climate. Safety climate is a "leading indicator" of safety performance and injury outcomes and refers to employees' shared understanding of the organization's safety policies, procedures and practices. This study will implement and evaluate the effectiveness of a workplace-based intervention workshop involving feedback and goal setting strategies.

Another new and significant initiative in this theme is a program of work entitled Workplace Musculoskeletal Health Intervention Research. This program will address the broad research question "what types and intensities of interventions at what levels of the organization will achieve the greatest impact on risk factors for work-related musculoskeletal health problems?" The results of this program of study will contribute to the WSIB research priorities of *Prevention, Workplace Design and Intervention; Organizational, Management and Policy Research; and Transferring Research Knowledge to the Workplace*.

A pilot program funded in 2004 for the first time by the WSIB, will see an increased focus on the synthesis of the best evidence on the effectiveness of workplace occupational health and safety prevention interventions. The methodological expertise at IWH initially established in reviewing and synthesizing the clinical literature will be applied to assemble literature summaries of relevance to the broader occupational health and safety community with a focus on the injury prevention literature. This work will have particular relevance to those interested in *Prevention, Workplace Design and Intervention Research*.

Project Titles:

Prevention Knowledge Synthesis (Prevention Knowledge Synthesis: 4/420/215)	70
Workplace Musculoskeletal Health Intervention Research Program (Workplace MSK Health Intervention: 4/420/216)	72
Conceptual Framework, Methodology and Application of the Economic Evaluation of Workplace Interventions (Economic Evaluation: 4/420/218)	74

Evaluation of Participatory Ergonomics Interventions in Large and Small Industry (Manufacturing Interventions: 5/420/730)	76
Prevention of WMSD in the Ontario Clothing Industry: A Focus on Small Business (UNITE Intervention Study: 5/420/795)	78
Safety Climate: Measurement, Intervention, and Evaluation in a Manufacturing Setting (Safety Climate: 5/420/214)	80
WMSD: Evaluating Interventions Among Office Workers (Star-SONG Phase III: 5/420/430)	82

Prevention Knowledge Synthesis

Short Title & Budget Code: Prevention Knowledge Synthesis: 4/420/215

Project Status: Ongoing 2004.

Introduction: Workplace decision-makers and the Occupational Health & Safety Council of Ontario (OHSCO) partners frequently request guidance from research organizations like the Institute on the best evidence for the effectiveness of workplace OHS prevention interventions. It is not always feasible to initiate and conduct original research to address these needs of workplace parties in a timely fashion. One modern approach to supporting the use of high quality evidence by workplace parties in the design of prevention policies and practices is to produce rigorous reviews of the existing international research. The Institute has established a well-respected research synthesis function in the area of clinical practice, the Cochrane Back Review Group. Drawing upon the expertise of this group, the Institute will systematically search, review and summarize the international research literature to address areas of uncertainty concerning the effectiveness of OHS prevention interventions.

Objectives:

- ▶ Identify stakeholder priorities regarding summaries of the international research literature on the effectiveness of specific workplace OHS interventions.
- ▶ Produce user-friendly summaries of the research evidence, applying clear and transparent procedures for evaluating the quality of the research incorporated in the review.

Methods:

- ▶ Develop taxonomy for classifying OHS interventions through consideration of existing OHS interventions and possible axes for classification.
- ▶ Consult with stakeholders, likely through interviews/focus groups, concerning their priorities for evidence of OHS intervention effectiveness
- ▶ Use systematic methods for searching bibliographic databases, extracting information from publications, and summarizing results
- ▶ With the collaboration of knowledge transfer and exchange staff, develop user-friendly summaries of the research evidence and delivering them to knowledge users

Results: Some work on defining the scope of the taxonomy, defining relevant concepts, and exploring potential taxonomy dimensions has been completed. WSIB has accepted a proposal to fund this initiative as a four year pilot as of January 2004.

Researchers: Tony Culyer (Coordinator), Lynda Robson, Cameron Mustard, Judy Clarke

Stakeholder Involvement in Project Development: Stakeholder priorities regarding summaries of the international research literature on the effectiveness of specific workplace OHS interventions will be determined through interviews/focus groups.

Potential Audiences and Significance: Workplace parties can use well-defined knowledge products for workplace prevention to inform their decisions about the workplace.

External Funding: Pilot funded, approved by WSIB for 2004-2007.

Presentations: None to date.

Publications: None to date.

Workplace Musculoskeletal Health Intervention Research Program

Short Title & Budget Code: Workplace MSK Health Intervention: 4/420/216

Project Status: Ongoing 2004.

Introduction: The burden of workplace-associated injury, particularly musculoskeletal disorders, has been attributed to both physical and social aspects 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 (Norman and Wells, 2000) or to healthier organizational design (Sauter et al., 2002) are the disinterest in research evidence or, among those interested, the lack of sufficient rigorous and persuasive intervention research.

Objectives: Through a layered process, program researchers and partners will seek to better characterize those workplaces willing to share information on interventions underway or participate in pro-active workplace intervention research. Among the latter, researchers will undertake systematic evaluations of the effectiveness of diverse workplace interventions, designed with workplace parties and tailored to their specific needs and interests, to improve injury and musculoskeletal health outcomes. Long-term follow-up through existing data sources will be planned for workplaces working with partners and/or participating in assessments, and demonstration intervention projects. The team is working with system partners to develop the strategies and tools required to fulfill these objectives and to mobilize the resources needed to implement the research program.

Methods: Broad design options have been sketched out with a phased approach to capture information and engage in recruitment.

Results: Recruitment for key informant survey through telephone calls considerably slower than expected. Alternative recruitment options being explored. Links with Quebec partners under development.

Researchers: Donald Cole (Principal Investigator), Gail Hepburn, Emile Tompa, Sue Ferrier, Dwayne Van Eerd, Dee Kramer, Michael Swift, Roman Dolinschi, R. Wells - IWH Adjunct Scientist, N. Theberge - IWH Adjunct Scientist (University of Waterloo), N. Vezina, A. Beauvais (University of Quebec at Montreal), J. Barling (Queen's University), M. St. Vincent (IRRST)

Stakeholder Involvement in Project Development: In Ontario, the WSIB Prevention Group, IAPA, Ministry of Labour and Canadian Auto Workers all involved in partner advisory group.

Potential Audiences and Significance: Workplace parties and practitioners, insurers including the WSIB (high priority) and policy makers (e.g., informing guidelines and regulations).

External Funding: 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 Development Grant: \$99,500; 2003-2004.

Presentations:

Cole DC. Evaluating your interventions. Mar 2003; Toronto, ON: Health and Safety Association workshop on Research Transfer and Knowledge Exchange.

Cole DC, Hepburn G, Tompa E, Theberge N, Wells R, Barling J, Vezina N. Workplace health intervention research (WHIR) program development. Oct 2003; Markham, ON: Kinesiologist Knowledge -Brokers Workshop.

Publications: Shannon HS, Cole DC. Making workplaces healthier: generating better evidence on work intervention research. Social and Preventative Medicine (in press)

Conceptual Framework, Methodology and Application of the Economic Evaluation of Workplace Interventions

Short Title & Budget Code: Economic Evaluation: 4/420/218

Project Status: Ongoing 2004.

Introduction: As part of an ongoing Workplace Intervention Studies theme at IWH we need to develop a coherent framework for the economic evaluations as part of our workplace intervention research projects. 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 (e.g. Health Canada, WSIB's RAC) have solicited literature reviews and sought a greater emphasis on economic evaluation. Earlier work on RSI and economics (IWH Occasional Paper #4) examined the literature on economic evaluation of health care interventions, while Norman and Wells' chapter in Injury and the New World of Work (T. Sullivan, Ed.) describes methods for undertaking an evaluation of ergonomic interventions. This project began by focusing on developing a conceptual framework and methodology for undertaking economic evaluations of workplace interventions aimed at improving health or reducing injury. Economic evaluations are a counterpart to effectiveness studies and need to be built into the study design from the very beginning. Hence, the methodology paper will also include a framework for undertaking an ergonomic intervention. The continuation of this project will be an application of this framework and methodology to data collected from The Woodbridge Group (TWG)Whitby/Tilbury Foam participatory ergonomics intervention study.

Objectives:

- ▶ Synthesize current conceptual and empirical literature (including unpublished work) on the economic evaluations of workplace interventions aimed at improving health or reducing injury.
- ▶ Undertake an environmental scan of current practices with economic evaluations, including the experience of IWH and Ontario colleagues (both practitioners and academics).
- ▶ Develop a conceptual framework and methodology for ergonomic and economic evaluations that can be implemented as part of workplace intervention research projects.
- ▶ Write working/occasional paper.
- ▶ Apply framework and methodology in an empirical analysis using data from TWG Whitby/Tilbury Foam Study.

Methods: Literature search of case studies to be undertaken using various electronic journal databases. Synthesis of the methods to be undertaken and the TWG study will be used in an application of the methods.

Results: None to date.

Researchers: Emile Tompa (Coordinator), Donald Cole, Roman Dolinski, Scott Trevithick

Stakeholder Involvement in Project Development: TWG was actively involved in the intervention study and the collection of data that will be used in this project

Potential Audiences and Significance: This project is highly relevant to workplace parties, the WSIB, insurers and policy makers in the labour and health fields at the provincial and federal levels.

External Funding: Wells RW, Brawley L, Cole DC, Frazer M, Kerr MS, Kerton R, Norman R, Theberge N. Benefits and costs of a participative ergonomics change process industry. WSIB: \$270,756; 2001-2003 (Administered at University of Waterloo)

Presentations: None to date.

Publications: None to date.

Evaluation of Participatory Ergonomics Interventions in Large and Small Industry

Short Title & Budget Code: Manufacturing Interventions: 5/420/730

Project Status: Ongoing 2004 but merged with Economic Evaluation (Project #218) as primary data collection finished.

Introduction: This Ergonomic Intervention research program, led by University of Waterloo colleagues, is conceived of as a series of longitudinal intervention studies in different workplaces using parallel measures. The hypothesis is that ‘participative ergonomics interventions can reduce risk factors and improve pain of the workforce in a sustainable way that does not harm productivity.’

Objectives:

- ▶ Document the process of ergonomic change.
- ▶ Understand the role of evidence in decision-making about interventions.
- ▶ Improve the available evidence on effectiveness of ergonomic interventions.
- ▶ Examine the costs and production impacts of such processes and interventions.

Methods: Evaluation is based on three components in each workplace: 1) repeat cross-sectional surveys of perceived demands and symptoms prior to and after the intervention; 2) workplace production and human resource outcomes monitoring; and 3) qualitative documentation of the ergonomic change process.

Results: Two pairs done (two lines, two plants). Two U of Waterloo master’s theses completed and initial papers on both process of ergonomic change and impacts submitted. Initial results positive for participative processes but mixed on reductions of physical demands, pain and economic impacts. Epidemiology master’s thesis protocol approved (Irene Rivilis, University of Toronto) for the final intervention-referent comparison. Administrative data post intervention continues (two depots, two plants). Reports on results were provided to participating workplace parties.

Researchers: Donald Cole (IWH Coordinator), Mickey Kerr, Sue Ferrier, Selahadin Ibrahim, Michael Swift, R. Wells (Principal Investigator for WSIB award and IWH Adjunct Scientist), R. Norman, L. Brawley, M. Frazer, R. Kerton, N. Theberge - IWH Adjunct Scientist, and others (University of Waterloo)

Stakeholder Involvement in Project Development: Workplace parties (management & labour) of each of the participating companies involved at each stage of the scoping, implementation and evaluation process.

Potential Audiences and Significance: Workplace health and safety organizations, ergonomists, WSIB Prevention Division, unions. Musculoskeletal disorders remain the predominant occupational health problem in Canada, both in terms of costs and frequency. This project will be important for demonstrating the cost-effectiveness of primary prevention programs which will in turn help demonstrate the utility of risk factor research carried out at the Institute.

External Funding: WSIB Research Advisory Council renewed for 2001-2003: \$270,756. (Administered at University of Waterloo)

Presentations:

Cole DC, Manno M, Ferrier S. Changes in WMSD risk factors and burden with implementation of an ergonomic policy. Oct 2003; Montreal, PQ: 2nd National Symposium of the Canadian Association of Research in Work & Health Symposium (CARWH).

Reid MJ, Frazer M, Cole DC, Wells R. A case study on the impact of reducing belt speed on the warehouse of a company in the transportation sector. Oct 2003; Windsor, ON: Association of Canadian Ergonomists.

Cole DC, Granow K, Theberge N, Frazer M, Laing A, Wells R, Norman R. Participatory processes in organizational interventions for injury reduction. Mar 2003; Toronto, ON: Work, Stress and Health.

Wells RP, Cole DC, Norman RW, Frazer MB, Theberge N, Kerr MS. Ergonomic intervention research in North America. Feb 2003; Iguarru, Brazil: The 27th International Congress on Occupational Health.

Theberge N, Cole DC, Granzow K, Frazer M, Laing A, Norman R, Wells R. Negotiating ergonomics: An analysis of the evolution of a participatory ergonomics process in an industrial setting. Oct 2002; Banff, AB: Association of Canadian Ergonomists.

Frazer MB, Wells R, Laing AC, Norman RW, Theberge N, Cole DC, Kerr MS. Evaluation of the effects of a proactive ergonomic design change on physical exposure and workers' perceptions. Oct 2002; Banff, AL: Association of Canadian Ergonomists.

Kerr MS, Hepburn G, Ibrahim S, Cole DC, Norman RWK, Wells R, Frazer M, Neumann P. Distinguishing between the psychological and physical demands of work: Modifications to Karasek's psychological demand scale. Aug 2002; Montréal, QC: Abstract at XVI IEA World Congress of Epidemiology.

Publications:

Cole DC, Wells R, Kerr MS, Laing A, Neumann P, Frazer M and the Ergonomic Intervention Evaluation Research Group. Methodological issues in evaluating workplace interventions to reduce work-related musculoskeletal disorders through mechanical exposure reduction. *Scandinavian Journal of Work Environment and Health* 2003; 29(5):396-405.

Theberge N, Granzow K, Cole DC, Laing A, and the Ergonomics Intervention Evaluation Research Group. (2003) Negotiating participation: understanding the 'How' in a workplace ergonomic change project. (IWH Working Paper #220) Submitted: *Applied Ergonomics*.

Wells R, Van Eerd D, Hagg G. Mechanical exposure concepts using force as the agent. *Scandinavian Journal of Work & Environmental Health* (in press).

Laing AC, Frazer MB, Cole DC, Kerr MS, Wells RP, Norman RW, and the Ergonomics Intervention Evaluation Research Group. Effectiveness of a participatory ergonomics intervention in reducing worker pain severity through physical exposure pathways. Submitted: *Ergonomics*.

Prevention of WMSD in the Ontario Clothing Industry: A Focus on Small Business

Short Title & Budget Code: UNITE Intervention Study: 5/420/795

Project Status: Completed in 2003.

Introduction: It is widely acknowledged that work-related musculoskeletal disorders (WMSD) in the clothing industry is a major problem, but both workers and employers in many workplaces have been frustrated by a lack of progress in addressing the issue. The purpose of this research project was to implement and evaluate an ergonomic program for the prevention of work-related musculoskeletal disorders in the Ontario clothing industry.

Objectives:

- ▶ Develop successful ergonomic programs for small businesses in the clothing industry.
- ▶ Compare the effectiveness of ergonomic programs that involve passive versus active participation of the company in the process.
- ▶ Increase the awareness and knowledge base surrounding WMSD throughout the clothing industry.

Methods: Three plants were recruited to take part in the project with each identified as either active, passive, or control with questionnaires to be administered at baseline and follow-up. A participatory model in one plant (active) involved management, workers, union representatives and researchers who worked as an ergonomics change team. The second plant (passive) was provided with external expert advice. The third “delayed intervention” plant (control) was used as a referent. Job operations were assessed with a risk factor checklist and videotape. Meetings were held with the ergonomic change team regularly to disseminate information and twice with plant owners in the passive and control plants to disseminate information.

Results: A consistent pattern emerged among those workers who experienced ergonomic improvements compared to their coworkers who did not. They reported decreases in pain and fatigue in body parts especially in the upper extremity, a decrease in the effort required to do their job as well as a decrease in the psychological demands placed upon them and an increase in productivity.

In the two intervention companies, awareness and knowledge surrounding WMSDs was increased. Based upon results from the questionnaires and interviews, the ergonomic interventions were effective. In addition, the participatory approach was the more effective.

Researchers: Sue Ferrier (IWH Coordinator), Mickey Kerr, R. Wells (University of Waterloo), J. Natale (UNITE), S. Naqvi (Occupational Health Clinics for Ontario Workers), E. Frumin (UNITE - USA), J. Eaton (University of Toronto)

Stakeholder Involvement in Project Development: This project receives funding from the WSIB-RAC grants program and was led by a principal investigator from the University of Waterloo.

Potential Audiences and Significance: This research will be of significance to policy makers and institutional stakeholders, including senior management and labour, most directly within the garment sector, but also more broadly within the manufacturing sector (smaller scale).

External Funding:

WSIB Research Advisory Council: \$90,000; 1999-2000.

WSIB Research Advisory Council: \$250,240; 2001-2003. (Administered at the University of Waterloo).

Presentations:

Natale J. Ergonomics: Second Nature? October 2002; Gananoque, ON: UNITE Canadian conference.

Natale J, Eaton J, Ferrier S, Frumin E, Gunning J, Kerr MS, Naqvi S, Wells R. Implementation of a participatory ergonomics program in small businesses in the Ontario clothing industry. October 2002; Banff, Alberta: Conference Proceedings of The Association of Canadian Ergonomists.

Natale J. Reducing WMSDs in the clothing industry. April 2002; Toronto, ON: IAPA conference.
Natale J, Frumin E. Health, safety and ergonomics in North America. 2002 May; Montreal, PQ: UNITE General Executive Board Meeting.

Natale J. WMSDs in the Ontario clothing industry. February 2002; Guelph, ON: RSI Day at the University of Guelph.

Natale J. WMSDs in the Ontario clothing industry. February 2002; Kitchener, ON: RSI Day with the WSIB Manufacturing Sector Team in Kitchener.

Workplace Safety & Insurance Board Research Advisory Committee Meeting. Nov 1999; Toronto, ON (Poster).

Publications:

Gunning JL, Kerr MS, Eaton J, Ferrier S, King A, Maltby J, Frumin E. Work-related Musculoskeletal Disorders in the Ontario Clothing Industry: Exploring the Link Between Work Organization, Ergonomic Conditions and Reported Injuries. (Working paper #158)

Gunning J, Eaton J, Ferrier S, Frumin E, Kerr M, King A, Maltby J. Ergonomic handbook for the clothing industry. Union of Needletrades, Industrial and Textile Employees, the Institute for Work & Health, and the Occupational Health Clinics for Ontario Workers, Inc., 2001.

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

Short Title & Budget Code: Safety Climate: 5/420/214

Project Status: Ongoing 2004.

Introduction: 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 behavior 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.

Objectives:

- ▶ We will determine both the reliability and predictive validity of a recently developed multi-level safety climate measure. The measure meets many of the conceptual challenges that plague existing measures of safety climate.
- ▶ Safety climate is a ‘leading indicator’ of safety performance and injury outcomes. Periodic measurement of safety climate combined with feedback to the relevant parties, in this case, work group supervisors, should promote positive change. We will design and implement intervention workshops that involve feedback and goal setting strategies based on the validated safety climate measure.
- ▶ We will then evaluate the effectiveness of our intervention workshops to improve safety climate and safety performance within work groups and reduce injury outcomes.

Methods: 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.

Results: Funding application to the WSIB-RAC was successful. Funds were released in September 2003. The project received ethics approval at the University of Toronto. Dov Zohar joined IWH as a Visiting Scientist in August 2003.

Researchers: Gail Hepburn (Principal Investigator), D. Zohar (Technion-Israel Institute of Technology), Donald Cole, Dee Kramer, Sue Ferrier, Alysha Williams

Stakeholder Involvement in Project Development: The Industrial Accident Prevention Association (IAPA) supported the project and agreed to assist the team with the recruitment of research sites.

Potential Audiences and Significance: This work will be of interest to those investigating the link

between work organization and health: researchers, human resource professionals and policy makers.

External Funding: Hepburn CG, Zohar D, Cole DC, Kramer D, Ferrier SE. Safety climate: measurement, intervention and evaluation in a manufacturing setting. WSIB: \$262,443; 2003-2005.

Presentations: None to date.

Publications: None to date.

WMSD: Evaluating Interventions Among Office Workers

Short Title & Budget Code: Star-SONG Phase III: 5/420/430

Project Status: Ongoing 2004.

Introduction: Workplace parties have expressed considerable interest in evidence of effectiveness, evaluation of workplace programs designed to prevent and limit work-related musculoskeletal disorders of the neck and upper limb (WMSD). This phase of collaborative research with the Star-SONG workplace partners aims to assess the impact of a joint labour-management directed program on primary, secondary and tertiary prevention of WMSD among office workers in the newspaper industry.

Objectives:

- ▶ Assess whether the “Stop RSI” Program results in a workforce wide reduction in self-reported exposures to physical and psychological risk factors for WMSD with a concomitant reduction in the self-reported period prevalence and severity of WMSD- related symptoms and their associated disability.
- ▶ Evaluate an enhanced workplace WMSD surveillance system for risk factor and symptoms of WMSD.
- ▶ Monitor baseline levels of symptoms, function, work performance limitations and self-efficacy among those reporting WMSD to the occupational health centre and receiving a variety of individually focused worksite interventions and clinical treatments funded by the workplace.
- ▶ Model changes in rates of sickness absence, rates of health care utilization and associated costs for WMSD, to assess whether these measures are different across organizational units of the company or across groups of employees reporting different levels of risk factors, and to determine whether the “Stop RSI” Program results in reductions in these measures over time.

Methods: Qualitative methods were used to document the nature of interventions and their implementation. The primary comparison was between self-reported risks for WMSD, symptoms of WMSD and disability associated with WMSD before the intervention program and after 1.5 years of implementation, using a repeat cross sectional survey.

Results: Among a group of the workforce undergoing reorganization, changes in physical and psychological exposures were measured and these measures compared with those of job-matched reference groups experiencing different degrees of workstation change and reorganization. Health outcomes-based monitoring was implemented on those reporting a WMSD and receiving physiotherapy at the workplace. Secondary data on absenteeism, health care utilization and workers’ compensation was received from a sub-sample of participants to permit estimation of associated costs and to determine if the program results in reduced absenteeism and cost savings compared with prior years. Analysis of these data continue, but a preliminary report was presented to NIOSH/NIH in December 2003.

Researchers: Donald Cole (Principal Investigator), Sheilah Hogg-Johnson, Dorcas Beaton, Harry Shannon, Sue Ferrier, Michael Swift, Hyunmi Lee, Michael Manno, Peter Subrata, Carol Kennedy, Dwayne Van Eerd, Paul Bryan, M.F. Polanyi (University of Regina), R. Wells (University of

Waterloo), A. Moore (York University) plus adjunct scientists B. Amick (University of Texas) and G. Pransky (Liberty).

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

Potential Audiences and Significance: Workplace parties and practitioners, insurers including the WSIB (high priority) and policy makers (e.g., informing guidelines and regulations).

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:

Beech-Hawley L, Wells R, Cole DC, and the Worksite Upper Extremity Group. (2003) A multi-method approach to deadlines, workload and WMSD risk in newspaper workers. Work (in press).

Cole DC, Manno M, Hogg-Johnson S, Ferrier S, Ibrahim S, Wells R, Swift M, Moore A, Polanyi MF, Van Eerd D, Kennedy C, Lee H, Subrata P, Beaton DE, Shannon HS.(2003) Changes in WMSD risk factors and burden with implementation of an ergonomic policy in an office setting. (IWH Working Paper #242)

Ferrier S, Facey M, Cole DC. (2003) The social construction of work-related musculoskeletal disorders at a large metropolitan newspaper. (IWH Working Paper #243).

Lee H, Hogg-Johnson S, Cole DC, and the Worksite Upper Extremity Research Group. (2003) Changes in newspaper employee health care utilization over a decade. (IWH Working Paper #253).

Mazumder A, Hogg-Johnson S, Van Eerd D, Wells R, Moore A, Cole DC. (2003) Uncertainty in transforming physical exposure measures: measurement error, linking error, and sampling error. (IWH Working Paper #249).

Moore A, Wells R, Van Eerd D, Hogg-Johnson S, Cole DC, Krajcarski S. (2003) In Situ task specific EMG activity during office work. (IWH Working Paper #252) .

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.

Subrata P, Shannon HS, Ferrier S. (2003) The effect of organizational change on upper extremity pain. (IWH Working Paper #244).

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

Van Eerd D, Mazumder A, Hogg-Johnson S, Wells R, Moore A, Cole DC. (2003) Relationships between physical exposure measures in an office environment. (IWH Working Paper #247).

Van Eerd D, Mazumder A, Hogg-Johnson S, Wells R, Moore A, Cole DC. (2003) Quantifying tasked in an office environment and predicting exposure. (IWH Working Paper #246).

Wells R, Moore A, Cole DC, Van Eerd D, Hogg-Johnson S, Mazumder A. (2003) Changes in physical exposure among office workers associated with a move and reorganization. (IWH Working Paper #251).

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

Polanyi MF, Cole DC, Ferrier S, Facey M, and the Worksite Upper Extremity Research Group. (2002) Paddling upstream: a contextual analysis of a worksite intervention to reduce upper limb musculoskeletal disorders. (IWH Working Paper #192) Submitted: *Applied Ergonomics*.

Measurement of Health and Function

Overview

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. The Institute for Work & Health has made original contributions to both the conceptualization of musculoskeletal disorders and the measurement of functional deficit.

With regard to the conceptualization of musculoskeletal disorders, in 2003 we have been working on a series of papers on the development of an innovative new approach to classifying upper extremity disorders. This work funded in part through a grant from Johns Hopkins University, Center for VDT and Health Research resulted in the development of a working classification system which captures individual and combined patterns of clinical signs and symptoms.

Recent 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 the release in late 2003 of the QuickDASH an 11 item version of the questionnaire. The DASH is now available in 11 languages and the QuickDASH promises to be equally useful to clinicians and clinical researchers.

Work in this area is most relevant to the *Occupational Diseases, Injury and Health Services Research* priority.

Project Titles:

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Measurement Methodology Studies

Short Title & Budget Code: Measurement Methods: 4/410/925

Project Status: Ongoing 2004.

Introduction: This is a group of studies/projects which focus on the measurement issues in a study rather than answering an applied research question. This would include 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). There is overlap with other projects as data gathered from other studies is often used in measurement methodology work. The focus here is on the measurement issues.

Objectives:

New:

- ▶ To deepen our understanding of the meaning of “therapists expectations of recovery”.
- ▶ To investigate the meaning of health across cultures.
- ▶ To describe the effect the “format” of a dependent variable has on the factors found to be associated with that outcome.
- ▶ To study techniques to model and differentiate mediators and moderators in structural equation modeling.

Ongoing:

- ▶ To document reliability, validity, and responsiveness of different outcome measures used in Institute research through both literature reviews and primary data collection.
- ▶ To continue to advance the understanding of responsiveness and minimal clinically important difference.
- ▶ To develop new ways to describe change and recovery.
- ▶ To continue to develop our methodology in item response theory.

Methods: Analysis specific.

Results: RASCH analysis of DASH and WOMAC completed; completed review of instrumentation in IWH projects and initiated work on instrument data (M. Swift); worked a taxonomy of responsiveness in the literature; Dorcas Beaton, project coordinator completed second year of being course coordination for Measurement in Clinical Research at the University of Toronto; Two research internships completed based on projects from Measurement course, both submitted for publication. Anusha Raj successfully advanced our ability to analyse the ECC Quality of Life data (project #695) which will return to this project description as she enters the cluster analysis of trajectories of recovery; protocol under review at the REB at St Michael’s Hospital for the study comparing use of computers in data collection returning to this project line from the e-health (#112); concept of recovery work with P. Cote was submitted to CIHR for funding, along with two other projects where Beaton was co-investigator in testing of theoretical frameworks.

Researchers: Dorcas Beaton (Institute Coordinator), Carol Kennedy, Sheilah Hogg-Johnson, Claire Bombardier, S. Solway (University Health Network), J. Katz IWH Adjunct Scientist (Brigham and Women’s Hospital, Harvard University), J. Wright (Hospital for Sick Children, University of Toronto), P. Stratford (McMaster University).

Stakeholder Involvement in Project Development: N/A

Potential Audiences and Significance: Information gained will increase the depth of understanding of the properties of health-related self-report measures in different populations, and help inform a more uniform approach to data collection and analysis by researchers at the Institute and in the research community at large.

External Funding: None.

Presentations:

Beaton DE. Are you better? The meaning of recovery in persons with upper limb musculoskeletal disorders. May 2003. Toronto, ON: WSIB Grand Rounds,

Beaton DE. Outcome measurement and interpretation of the scores. Feb 2003; Tampa, Florida: American Physical Therapy Association – Combined Section Meeting.

Beaton DE. Responsiveness is in the eyes of the beholder. 2000 American Society of Shoulder and Elbow Therapists.

Publications:

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Beaton DE, Bombardier C, Katz JN, Wright JG, Wells GA, Boers M, Strand V, Shea B, and the OMERACT MCID Working Group. Looking for *important* change/differences in studies of responsiveness. *J Rheumatol* 2001;28:400-405.

Bombardier C, Hayden J, Beaton DE. Minimally clinically important differences in the Roland and Oswestry scales. *J Rheumatol* 2001;28:431-438.

Wells GA, Beaton DE, Shea B, et al. Minimal clinically important differences: review of methods. *J Rheumatol* 2001;28:406-412.

Wells GA, Anderson JA, Beaton DE, Bellamy N, et al. Minimally clinically important difference module: summary, recommendations and research agenda. *J Rheumatol* 2001;28:452-454.

Beaton DE. Understanding the clinical relevance of measured change through studies of responsiveness. *Spine* 2000; 25(24):3192-3199.

Development and Testing of the DASH (Disabilities of the Arm, Shoulder and Hand) Outcome Measure

Short Title & Budget Code: DASH Manual: 4/410/425; DASH Instrument: 4/410/475

Project Status: Ongoing 2004.

Introduction: These multi-year projects involve the development and ongoing testing of the DASH, a 30-item self-completed questionnaire of upper-limb disability and symptoms, designed to be used as an outcome measure for people with any or multiple disorders of the upper limb. A short version, the 11-item *QuickDASH* is nearing completion (2002). A second version of the full DASH is under consideration. The DASH User's Manual, first published in 1999, was developed to be an all encompassing guide to the DASH Outcome Measure and contained documentation on how to use the DASH as well as information on the development of the tool. The second edition of the manual was released in 2002 and includes new information including answers to frequently asked questions, details on a new recommended scoring method and updated information on reliability and validity testing. It also includes new chapters on responsiveness testing and interpreting scores for individual patients.

Objectives:

- ▶ To further test the DASH Outcome Measure (reliability, validity, responsiveness, scaling) and develop guidelines for interpretation of the scores.
- ▶ To analyze the general population (normative) data gathered on the DASH.
- ▶ To develop the optimal shortened version of the DASH (*QuickDASH*) that retains the reliability and validity of the DASH.
- ▶ To revise and continue to market the DASH Manual.
(*Additions as per 2003 Activity Plan update*)
- ▶ To test the *QuickDASH* and DASH Version II using secondary analysis of various data sets to ensure that it has retained the reliability and validity of the DASH .
- ▶ To develop administrative support for the DASH in collaboration with communication and knowledge transfer. This includes establishing guidelines for “for profit” use of the DASH and clarifying copyright.

Methods:

Results: The DASH Outcome Measure is available free of charge to any interested party. It is currently part of two major outcomes databases: the American Academy of Orthopaedic Surgeons (AAOS) sponsored database, and the Canadian Physiotherapy Association (CPA) database. It is also being used in a variety of clinical practices and research projects around the world. Guidelines for cross-cultural adaptation of the DASH and other health status instruments were developed and recently published in *Spine* 2000; 25(24). The guidelines are used by the Institute for Work & Health and the AAOS as standards for adaptation. Results of reliability and validity testing of the instrument are summarized in the DASH manual and in a growing number of publications by international researchers. A review article is now available in the *British Journal of Hand Therapy* (Beaton et al, 2001). The manuscript for the *QuickDASH* development and testing has been submitted to the *Journal of Bone and Joint Surgery*.

Further research to compare the DASH with other measures and to evaluate its ability to track client progress over time has been completed (See Beaton 2001 below, and also CPO project 4/410/355). The DASH was as valid and responsive to clinical change as two other joint specific measures (wrist/hand and shoulder), confirming its utility across the upper limb. New projects are underway to continue testing how to interpret the DASH scores, and how to integrate it into clinical practice. Several translations of the DASH have now been approved and, if agreeable with the developers, are now placed on the DASH website. They include Swedish, French, Hebrew, Italian, Chinese, Armenian, and several others (see website).

The QuickDASH was developed, and compared three methodological approaches to item-reduction to ensure we had the “best” shortened instrument. The results were comparable, though the one based on the retention of the key domains of interest ranked highest in psychometric properties and in Nov 2003 was adopted by the IWH and the AAOS as the official “*QuickDASH*”.

The QuickDASH was used in the Toronto Star project prior to its official release, and this offers us a first glimpse at its performance as a stand alone instrument. Results confirm retention of reliability ($\alpha = 0.90$) and a great deal of responsiveness to self-reported change in health. The QuickDASH is up on the DASH website, and to facilitate reader access to both measures we will be developing an interactive component of the website so that persons can enter the DASH responses and have a summary report printed automatically.

The Web activity for the DASH (ie, copies downloaded) has steadily increased, taking on a more international distribution than was seen when surface mail was the venue used. The DASH Manual, a comprehensive, user-friendly manual about the use, development and testing of the DASH Outcome Measure sold out first printing in six months and was re-printed to accommodate additional orders. Almost 300 copies have been sold to date. The second edition (released in 2002) is also quite popular. The DASH is well used in the musculoskeletal outcomes literature.

Researchers: Dorcas Beaton/Claire Bombardier (Coordinators), Sheilah-Hogg Johnson, Peter Subrata, Michael Manno, Carol Kennedy, Sherra Solway and other representatives of the original DASH working group (the Upper Extremity Collaborative Group) as indicated. P. Stratford (McMaster University)

DASH Manual Team: TBD (Coordinator), Dorcas Beaton, Claire Bombardier, Kathy Chapeskie, Carol Holland, Rhoda Reardon, S. Solway (Toronto Rehabilitation Institute).

Stakeholder Involvement in Project Development: Consultation with clients, clinicians, educators, professional organizations, regulatory bodies and other researchers have and will continue to occur throughout the development and fulfillment of these projects.

Potential Audiences and Significance: There is established interest in the DASH among clinicians, researchers and educators. Professional organizations such as the CPA, AAOS and regulatory colleges, have also demonstrated their support. Orthopaedic implant manufacturers have contacted the Institute regarding the use of the DASH in trials of new products. Anyone who is interested in outcome measurement to reflect the client’s perspective could be a potential user, for example, nurse case managers from the WSIB. The Manual has enjoyed equal popularity and utility.

External Funding:

American Academy of Orthopaedic Surgeons \$60,000 US, 1996 -1998.

American Academy of Orthopaedic Surgeons (for development of the cross cultural adaptation guidelines): \$4,000 Cdn.

American Academy of Orthopaedic Surgeons (for development of Manual): \$5,000 Cdn.

Medical Research Council of Canada (PhD fellowship for Dorcas Beaton) September 1997-August 2000.

American Society Surgery of the Hand (Grant to collaborators in Boston for data collection in validity study - \$10,000).

Presentations:

Beaton DE, Katz JN, Wright JG. Development of the QuickDASH using three different approaches. Nov 2003; Prague, CZ: International Society for Quality of Life Research.

Beaton DE. The DASH Outcome Measure and its use in workplace situation. Sept 2003; Toronto, ON: OECOM annual meeting.

Beaton DE. Assessment of UE function using the DASH outcome measure. Sept 2003; Toronto, ON: OEMAC meeting.

Beaton DE. The DASH outcome measure. Nov 2000; Toronto, ON: In-service, outpatient rehabilitation, St. Michael's Hospital.

Beaton DE. It all began.....measuring health status using the DASH outcome measure. Jan 2000; Toronto, ON: WSIB/IWH Clinical Grand Rounds.

Beaton DE. The DASH outcome measure (Disabilities of the arm, shoulder and hand). Oct 1999; Toronto, ON: Teleconference presentation for the Canadian Physiotherapy Association National Database Program.

Beaton DE. Measuring the whole or the parts? Oct 1999; Philadelphia, PA: American Shoulder and Elbow Surgeons Closed Meeting.

Beaton D, Bombardier C, Katz JN, Wright JG. Responsiveness is in the eyes of the beholder: evidence for the context-specific nature of responsiveness. Oct 1999; Philadelphia, PA: American Society of Shoulder and Elbow Therapists Annual Meeting.

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Turchin D, Beaton DE, Richards RR. Validity of observer-based aggregate scoring systems of the elbow. March 1998; New Orleans, LA: American Academy of Orthopaedic Surgeons Annual Meeting.

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Publications:

Beaton DE, Wright JG, Katz JN, and the upper extremity collaborative group. Abstract: Comparison of item reduction techniques in the development of the QuickDASH Outcome Measure. Quality of Life Research 2003.

Beaton DE, Wright JG, Katz JN, and the upper extremity collaborative group. Comparison of item reduction techniques in the development of the QuickDASH Outcome Measure. Abstract: Quality of Life Research 2003.

Beaton DE, Katz JN, Fossel AH, Tarasuk V, Wright JG, Bombardier C. Measuring the whole or the parts? Validity, reliability and responsiveness of the DASH outcome measure in different regions of the upper extremity. Journal of Hand Therapy 2001 Apr-June 14(2):128-46.

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Beaton DE. Are you better? Describing and explaining changes in health status in person with musculoskeletal disorders. PhD Dissertation. Toronto: University of Toronto Press, 2000

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Marx RG, Bombardier C, Hogg-Johnson S, Wright JG. How should importance and severity ratings be combined for item reduction in the development of health status instruments? *Journal of Clinical Epidemiology* 1999;52(3):193-197.

Turchin DC, Beaton DE and Richards RR. Validity of observer-based aggregate scoring systems as descriptors of elbow pain, function & disability. *Journal of Bone & Joint Surgery*. 1998;80A(2):154-162.

Beaton DE, Amadio P, Bombardier C and the Upper Extremity Collaborative Group. Measuring disability and symptoms of the upper limb: A validation study of the DASH Questionnaire. *Arthritis and Rheumatism* 1996;39(9):S112.

Hudak, P, Amadio PC, Bombardier C and the Upper Extremity Collaborative Group. Development on an upper extremity outcome measure: The DASH (Disabilities of the Arm, Shoulder and Hand). *American Journal of Industrial Medicine* 1996;29:602-608.

Marx R. A comparison of clinimetric and psychometric techniques for item reduction in the development of an upper extremity disability measure. MSc Thesis: Clinical Epidemiology, University of Toronto 1996.

Upper Extremity Collaborative Group. Development of an upper extremity outcome measures: The DASH (Disabilities of the Arm, Shoulder and Hand). *Arthritis and Rheumatism* 1996; 39(9):S112.

The Measurement of Work Disability

Short Title & Budget Code: Work Limitations/Disabilities: 4/410/910

Project Status: Ongoing 2004.

Introduction: This research consists of conceptual and methodological work on the measurement of work disability, defined as difficulties in the tasks of work. The measures in which we are interested attempt to identify the impact of an injury or illness on work activities through self-reported limitations at work. These may be markers for changes in productivity and may be precursors to lost time. An example of this type of measure is the Work Limitations Questionnaire (WLQ) [Lerner and Colleagues 2001].

Objectives:

- ▶ To understand better the development, use and measurement properties of currently existing measures of work disability and work productivity.
- ▶ To test the reliability validity and responsiveness of a modified version of the WLQ, the WLQ-16.
- ▶ To make recommendations for the role self-report measures of work disability in workplace studies at IWH and in the broader community.

Methods: Analysis has commenced, examining the psychometric properties of the 16-item WLQ, adapted from the 25-item Amick & Lerner WLQ, for use in Phase II of a study in a large urban newspaper plant (5/420/430). Future analysis will be conducted on data collected from Phase III of The Toronto Star study, and the work module from the DASH Outcome Measure (Cole and Amick completing this).

In 2004 we will conduct a cross sectional study comparing four measures of at-work disability in a specialty clinic of the WSIB.

Results: Working paper produced on the WLQ-16. Protocol developed. REB approval at St. Michael's Hospital and Sunnybrook obtained for a study comparing different measures of at-work disability. Data collection to start March 2004.

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

Stakeholder Involvement in Project Development: The WSIB is a stakeholder, and is also coordinating the WSIB shoulder and elbow specialty clinic where our study will be conducted. The clinic medical director is a co-investigator on the study, and study staff will be involved in this study.

Researchers: S. Solway (Toronto Rehabilitation Institute), Dorcas Beaton, Claire Bombardier, Sheilah Hogg-Johnson, Robin Richards (Sunnybrook and Womens), Emma Irvin and B. Amick IWH Adjunct Scientist (University of Texas). OT Student: Shanley Pitts.

External Funding: Support from the WSIB specialty clinic (via contract with Beaton)

Presentations: None to date.

Publications: Beaton DE, Kennedy CA. (IWH Working Paper #237) Beyond return to work. Testing an outcome measure of at-work disability.

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

Short Title & Budget Code: CPO Project: 4/410/355

Project Status: Ongoing 2004.

Introduction: This was 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.

Objectives:

- ▶ The main objectives of the CPO project (prognosis, description of the course) have been successfully completed and delivered in a technical document, as well as forthcoming working papers and publications. Below are the objectives we continue to work on.

Measurement related:

- ▶ To examine the magnitude and nature of the systematic shift in responses associated with recall of previous health states (Then-test).
- ▶ To observe the responsiveness of the DASH outcome measure to observed changes in functional status associated with the treatment of rotator cuff pathology, as well as to estimated important changes in functional status (MCID work with Paul Stratford).
- ▶ To assess validity and responsiveness of the shortened version of the DASH (QuickDASH).
- ▶ To perform item level analysis (Rasch) of the DASH.
- ▶ To benchmark DASH scores against other data sets (field testing, pre-op rotator cuff tendinopathies, AAOS).
- ▶ To examine the conceptual differences in the prediction models for three different formats of DASH outcomes (final state, change in state and patterns of recovery).

Methods: 81 randomly selected physiotherapists from three geographic regions participated in the study. Each was asked to log all eligible shoulder clients (criteria given) and to document participation/non-participation in the study. Therapists were asked to enrol and submit data on a target of five patients. In total 361 patients were enrolled and had their data submitted. Data was completed by the client (self-report) at admission to physio, 4 weeks, discharge and about 3 weeks after discharge. Therapists completed a form documenting their clinical findings at admission and discharge. If clients were still on care at 12 weeks, the "discharge" package was administered at that time. The post-discharge data (~3 weeks after discharge) was gathered by the Regina Health District, Wascana Rehabilitation Centre and also included the Wascana patient centredness of care satisfaction survey which was accessible only to the College. Data entry was completed at the Institute for Work & Health who were blind to the identity of the individual therapists. The data sets were created at IWH and analysis completed. A final report including copies of the SAS data sets was sent to the college in July 2001.

Results: A full technical report has been created and was approved by the College of Physiotherapists of Ontario (CPO) in September 2003. This report is available through the IWH website (in pdf).

The DASH was responsive to the changes experienced by this group of patients. Work has been completed to describe minimal clinically important changes on the DASH in this application. This was presented as a poster presentation at the ISOQOL 2003 meeting. A working paper is in progress.

During the study, patients were asked to re-describe their admission health state. This is called a “then” test. Recall of the previous health state differed from the actual baseline health state, but became relatively stable between discharge and post-discharge periods. The pattern of the recall was not consistent with response shift (a different but stable conceptualization of health). This was presented at ISOQOL 2002 meeting. A working paper is in progress.

In collaboration with the Institute’s Knowledge Transfer and Exchange group, work is progressing in the development of a clinical decision-making tool. This clinical tool will use the four distinct patterns of response that were identified using Cluster analysis (largely dependent on the starting level of disability (high/low) and speed of recovery. Creation of this clinical decision-making tool will help clinicians project the recovery group for individual patients based on their baseline and 4-week DASH scores.

The four CPO working papers (cluster paper, prognosis-final and change in disability, prognosis cluster, conceptual differences in prediction models for different outcomes) have been completed and will be submitted to peer-reviewed journals.

Researchers: Dorcas Beaton (Principal Investigator), Sheilah Hogg-Johnson, Carol Kennedy, Sandra Sinclair, Michael Swift, Rhoda Reardon, M. Manno (University Health Network), M. Nayer (College of Physiotherapists of Ontario)

Stakeholder Involvement in Project Development: Collaboration with CPO

Potential Audiences and Significance: It is important that we learn how to interpret the DASH questionnaire with different populations. The results of this study will be of interest to clinicians, nurse case managers, researchers, insurers, and others involved in the rehabilitation of shoulder tendinopathies.

External Funding: College of Physiotherapists of Ontario; \$18,000

Presentations:

Beaton DE, Wright JG, Katz JN, Bombardier C, UECG. MCID - differences according to methodological approach. Nov 2003 ; Prague, CZ: International Society for Quality of Life Research.

Beaton DE, Katz JN, Wright JG. Development of the QuickDASH using three different approaches. Nov 2003; Prague, CZ: International Society for Quality of Life Research

Beaton DE. Assessment of UE function using the DASH outcome measure. Sept 2003; Toronto, OEMAC meeting.

Publications:

Beaton DE, Kennedy C, Subrata P, Dwight M. (2003) A prospective cohort of workers attending a workplace-based physiotherapy clinic.(IWH Working Paper #250)

Beaton DE, Kennedy C, McKenzie D, Manno M, Hogg-Johnson S, Sinclair S, Swift M, and the CPO Working Group. (2003) Practice review of physiotherapy management of soft-tissue disorders of the shoulder. Report prepared for the College of Physiotherapists of Ontario; CPO/IWH technical report to be posted on IWH website.

Kennedy CA, Haines T, Beaton DE. (2003) 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: Quality of Life Research.

Kennedy CA, Haines T, Beaton DE. (2003) Prognosis in soft tissue disorders of the shoulder: predicting patterns of response during the course of physiotherapy. (IWH Working Paper #255) Submitted: Journal of Clinical Epidemiology.

Kennedy CA, Manno M, Hogg-Johnson S, Haines T, Hurley L, McKenzie D et al. (2003) Prognosis in soft tissue disorders of the shoulder: predicting change in and level of disability after treatment. (IWH Working Paper #254) Submitted: Physical Therapy.

Kennedy CA, Beaton DE.(2003) Outcomes and self-efficacy of workers presenting to occupational health unit with upper limb or lower back pain. (IWH Working Paper #238) Submitted: Journal of Occupational and Environmental Medicine.

Classification of Upper-Extremity Disorders in Work-Related Musculoskeletal Disorders (WMSDs): A Multi-pronged Approach to the Classification of Upper-Extremity WMSD in Video Display Terminal (VDT) Workers

Short Title & Budget Code: UE Classification: 4/410/750

Project Status: Completed 2003.

Introduction: Classification of upper-extremity disorders is highly variable across studies, leading to inconsistent estimates of burden of disease rates. In order to advance our understanding, some consensus on classification must be reached. This project, which began in 1998, using the survey and physical examination data from Phase II of the Star/SONG project (5/420/430), evaluated the convergence of three approaches to the classification of WMSD in video display terminal (VDT) workers.

Objectives:

- ▶ To apply existing classification systems to the data and assess agreement between the systems in this one set of data.
- ▶ To complete an inventory of the clinical tests used in the assessment of WMSD of the upper extremity.

Methods: As described in the objectives, three approaches were used. The first one applied existing criteria and described and analyzed the agreement and disagreement. The second one followed a factor analytic approach modeled after Haley's work with Gulf War Syndrome. The final one used a more inductive approach, allowing the "story" of each subject to be depicted graphically, then physically sorted into clusters by a group of experts.

Results: Our study was unique because it approached classification using methods that allowed the systems to fit around the workers' experiences rather than trying to fit the workers into a given system's categories. Likewise in the factor analysis, the frequency and pattern of findings in our workers were responsible for the resultant findings. The results showed groupings of workers in ways that do not fit traditional biomedical models. Some individuals had more than one area affected, perhaps reflecting more than one disorder. Others had symptoms but no signs, or patterns related more to signs than symptoms (muscle weakness clumped together in factor analysis).

Over the course of our study, over 30 international researchers and clinicians participated in workshops, reliability testing and/or item selection. A core group of eight actively contributed to several aspects. Therefore, the results of this study do not represent an "in house" view of classification of WMSD, but are the consequence of hard-won consensus across several parties. Several individuals stated an interest in continuing to explore the applicability of these classifications to other data.

In the end we suggested a working classification system that captured patterns of signs and symptoms - individually and in combination - which we believe will facilitate better communication between epidemiologists and clinicians. Further testing may result in refined definitions of "regional" and "diffuse" to facilitate consistent pattern assignment, or changes in the physical examination, but we feel the contribution of this descriptive system may be enough to start shifting people towards a middle ground between specific diagnoses and surveillance case definitions.

Researchers: Dorcas Beaton (Institute Coordinator), Claire Bombardier, Donald Cole, Sheilah Hogg-Johnson, Dwayne Van Eerd, Selahadin Ibrahim

Expert Panel: P Amadio (Rochester, MN), C Novak (St Louis, MI), B Evanoff (St. Louis, MI), S Carrette (Toronto, ON), Carol Kennedy, G Pransky IWH Adjunct Scientist (Boston, MA), E Viikari-Juntura (Seattle, WA).

Stakeholder Involvement in Project Development: Over the course of our study, over 30 international researchers and clinicians participated in workshops, reliability testing and/or item selection. Included in this group were a number of clinicians from Ontario. A core group of eight actively contributed to several aspects. Therefore, the results of this study do not represent an “in house” view of classification of WMSD, but are the consequence of hard-won consensus across several parties. Several individuals stated an interest in continuing to explore the applicability of these classifications to other data.

Potential Audiences and Significance: Clinical and population epidemiologists will be able to more accurately define, track and research trends in WMSD of the upper extremity to advance our understanding of the disorder. Clinicians and injured workers will benefit from more consistent diagnosing and treatment. WSIB and other payers will be able to make more informed and consistent treatment and compensation decisions.

External Funding: Johns Hopkins University Center for VDT and Health Research: \$46,342. U.S. 1999-2000.

Presentations:

Van Eerd D, Beaton DE, Hogg-Johnson S, Cole DC, Bombardier C, Haines T. Agreement among upper limb musculoskeletal classification systems. Oct 2003; Orlando, Florida: ACR/ARHP Annual Scientific Meeting.

MSc Thesis Defense Presentation:

Van Eerd D. A comparison of classification systems for upper limb musculoskeletal disorders. (Health Research Methodology); McMaster University: Sept 2003.

Beaton DE, Cole DC, Hogg-Johnson SA, Van Eerd D, Bombardier C, Ibrahim S. Multi-pronged approach to developing a classification system for work-related musculoskeletal disorders of the upper limb (WMSD). 2001 Sept; Amsterdam, The Netherlands: PREMUS Conference.

Publications:

Mazumder A, Hogg-Johnson S, Van Eerd D, Wells R, Moore A, Cole DC. (2003) Uncertainty in transforming physical exposure measures: measurement error, linking error, and sampling error. (IWH Working Paper #249).

Mazumder A, Hogg-Johnson S, Van Eerd D, Wells R, Moore A, Cole DC. (2003) Using hidden Markov models as a pattern recognition method for EMG data: a model-based indicator of musculoskeletal disorders. (IWH Working Paper #248).

Moore A, Wells R, Van Eerd D, Hogg-Johnson S, Cole DC, Krajcarski S. (2003) In Situ task specific EMG activity during office work. (IWH Working Paper #252)

Van Eerd D, Beaton DE, Cole DC, Lucas J, Hogg-Johnson S, Bombardier C. Existing classification systems for upper-limb work-related musculoskeletal disorders in workers: a review of the literature. (Working Paper #141) *Journal of Clinical Epidemiology* 2003; 56(10):925-936.

Van Eerd D, Beaton DE, Bombardier C, Cole DC, Hogg-Johnson S. Classifying the forest or the trees? *Journal of Clinical Epidemiology* 2003; 56:940-942.

Hogg-Johnson S, Ibrahim S, Beaton DE, Cole DC, Van Eerd D, Bombardier C. (2002) Searching for the syndromes and configuring the whole: a data-driven approach to the classification of musculoskeletal disorders of the upper extremity. (IWH Working Paper #142).

Beaton DE, Cole DC, Hogg-Johnson S, Van Eerd D, Bombardier C and the Clinical Expert Group. (2001) Reliability and validity of a classification system for upper limb musculoskeletal disorders. (IWH Working Paper #145).

Beaton DE, Bombardier C, Cole DC, Hogg-Johnson S, Van Eerd D and the Clinical Expert Group. (2001) Classification of work-related musculoskeletal disorders of the upper limb: A pattern-recognition. (IWH Working Paper #144).

Cole DC, Beaton DE, Van Eerd D, Hogg-Johnson S, Ibrahim S, Bombardier C. (2001) A comparison of the classification systems for neck and upper limb pain developed using different methodological approaches on the same set of data.(IWH Working Paper #146).

Hogg-Johnson S, Beaton DE, Cole DC, Ibrahim S, Van Eerd D, Bombardier C. (2001) Combining expert judgement and factor analysis to classify work related musculoskeletal disorders of the upper extremity. (IWH Working Paper #143).

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

Short Title & Budget Code: Recovery Model: 5/410/115

Project Status: Ongoing 2004.

Introduction: This project tests 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 change in health state which are 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. Roughly 250 patients have been recruited from St. Michael's Hospital and Sunnybrook and Women's Health Sciences Centre. Data collection is complete, analysis is well under way.

Objectives:

- ▶ To test a model of recovery from a patient's perspective.
- ▶ To describe the prevalence of resolution of symptoms, adaptation, or redefinition in people saying they are better.
- ▶ To test factors felt to be associated with outcome (SES, gender, age, baseline severity, expectations, satisfaction).

Methods: This study is a cross-sectional survey of persons 1.5 - 2 years after an operatively managed fracture of the extremity. Mailed surveys were used. This study builds on the qualitative work "Are you better?" by modelling patient's perception of being better using traditional markers of health state, but also indicators of coping, adaptation and redefining life.

Results: An abstract has been submitted to the Canadian Orthopaedic Association annual meeting describing the initial findings. There was a discordance between what the physician perceived and what the patient perceived. We are planning our more detailed analysis including the cluster analysis and the path analysis.

Researchers: Dorcas Beaton, (Coordinator), E. Schemitsch (St. Michael's Hospital), Renée-Louise Franche, A. Davis (Toronto Rehabilitation Institute), M. Gignac IWH Adjunct Scientist (ACREU), G. Devins (Sunnybrook & Women's Health Sciences Centre), H. Cruder (University Health Network), Claire Bombardier, Rhoda Reardon.

Stakeholder Involvement in Project Development: N/A

Potential Audiences and Significance: Several audiences will be interested. Certainly clinical stakeholders who deal with patients who have perceptions of their health that might differ from the severity or state of the injury. The WSIB and workplaces would be interested in understanding how patients/workers come to the perception of themselves as whole, and as "better" as this is the state from which the worker will resume their occupational roles.

External Funding: Funds administered at St. Michael's Hospital

Presentations:

Beaton DE. Are you better? A qualitative study of the meaning of recovery. May 2003; Toronto, ON: WSIB Grand Rounds.

Publications:

Beaton DE, Wright J, Katz JN. (IWH Working Paper #209) Are you better or has your health state shifted? A study of the difference.

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

Short Title & Budget Code: Classification Systems for Shoulder & Elbow: 5/410/124

Project Status: Ongoing 2004

Introduction: Work-related musculoskeletal disorders of the shoulder and elbow are common, costly and complicated disorders. The WSIB has established a specialty clinic to have 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 who were more likely to have a good or bad outcome. Using pain and disability data from workers in this specialty clinic we have developed a classification system which subdivides clinic attenders into four subgroups. The purpose of our study is to test how well the classification system works, first by reproducing it in a new group of workers and second by seeing if it will predict outcomes two to three years after clinic visit. We will then set up a computer system to allow the questionnaires to be immediately transferred into a summary report, identifying the sub-group the worker belongs to, so that this information is available to clinicians for their assessment. We will also assess how applicable our system might be to other workers or patients outside the specialty clinic.

Objectives:

- ▶ To compare numbers, costs, and duration of lost time for workers who attended the S&E Clinic between Jan 1st and Dec 31st, 2001 with all comparable workers in Ontario with a lost time claim.
- ▶ To describe the long-term (two to three year) outcomes of workers who attended the S&E Clinic in the year 2001 and to assess the ability of the subgroups to predict long-term outcomes.
- ▶ To assess the robustness of the classification system by repeating the analysis using identical data gathered from a prospective cohort of workers attending the S&E Clinic in 2003.
- ▶ To revise the methods used for routine data collection in the S&E Clinic in order to allow the team access to information used to classify workers prior to their assessment.

Methods: There are four objectives in this project.

- ▶ The first is to place the attenders within the broader context of injured workers in Ontario. This is done by using the administrative WSIB data to describe the workers in comparison to other similar workers in the province who did not attend the WSIB specialty clinic.
- ▶ The second objective is to conduct a follow-up study of persons attending the specialty clinic to see how they are managing 1-2 years after their visit. This is in terms of disability, pain, return to work etc.
- ▶ The third and fourth objectives relate to integrating the patient's perspective into the clinic practice. We will use technologies to help us create a clinical database that will be used to generate summary reports of health measures for the assessment team as well as creating an ongoing database for clinical research.

Results: The four objectives are well underway. We have just received approval for accessing the

WSIB data. We have completed the telephone follow-up of the clinic attenders. We have plans underway for reintroducing the questionnaire to the clinic and then integrating the technology as well.

Researchers: Dorcas Beaton (Principal Investigator), Dr. R. Richards (Sunnybrook and Women's), Sheila Hogg-Johnson; E. Harniman (St Michael's Hospital).

Stakeholder Involvement in Project Development: WSIB is funding this project, and the results will be presented to them regularly. The clinicians in the clinic are integrally involved in several stages of the project.

Potential Audiences and Significance: The main stakeholder is the WSIB.

External Funding: WSIB RAC operating grant May 2003-May 2005. \$179,665. (Funds administered at St. Michael's Hospital)

Presentations:

Beaton DE. Are you better? The meaning of recovery in persons with upper limb musculoskeletal disorders. May 2003. Toronto, ON: WSIB Grand Rounds,

Beaton DE. Solidified relationship with the WSIB shoulder and elbow clinic for conduct of research at that setting.

Publications: None to date.

Towards Best Practice of Functional Assessment: An Innovative Model for Research Dissemination Predicting Occupational Performance Project, Phase III

Short Title & Budget Code: POPP, Phases I, II & III: 5/410/350

Project Status: Completed 2003 (pending completion of final report to WSIB).

Introduction: Functional Assessments (FAs) are used to predict occupational performance in workers with soft tissue injuries. The Institute's work in the area of FAs began several years ago in collaboration with Susan Strong and Muriel Westmorland at McMaster University, with their background paper on Determining Claimant Effort and Maximum Voluntary Effort Testing. In 1999, Susan Strong, principal investigator, together with colleagues from the Institute, were funded by a Workplace Safety & Insurance Board Research Advisory Council (WSIB-RAC) award to document current assessment practices, their utilization, outcomes and influential factors (POPP: Phase I, II). Further funding was received in 2001 from the WSIB-RAC to examine the utility of a modified Future Search process as a dissemination method (Phase III) using findings from the earlier phases as a test case (Phase III). The Future Search conference was held in September 2002, and Action Groups that were created as part of that process have formed the Functional Assessment Network (FAN), and have gathered twice in 2003 to share their accomplishments and plan future actions.

Objectives:

- ▶ To promote evidence-based approaches to the delivery of FA services and use of FA findings.
- ▶ To evaluate the process and outcomes of an innovative method for research transfer and uptake designed to encourage reflective and research-informed practice.

Methods:

- ▶ Development of an enriched and modified Future Search process; recruitment and orientation of multi-stakeholder design team (Nov/01-May/02).
- ▶ Refinement of evaluation tools and preparation of learning materials (Jan-Sept/02).
- ▶ Baseline survey of intervention and comparison groups (June-Oct/02).
- ▶ Implementation and evaluation of conference (Sept-Oct/02).
- ▶ Pursuit of action plans which were developed during conference in multistakeholder working groups; continued dissemination of research findings (Sept/02-June/03).
- ▶ Follow-up Conference held April 9/03 and subsequent meeting in Sept/03.
- ▶ Evaluation of innovation, and dissemination of study's findings (Sept/02-Aug/03).
- ▶

Results: Phase I and II: The final report from the first two phases was submitted to WSIB in June, 2002. Funding obtained in WSIB-RAC's 2001 research competition allowed us to proceed with Phase III. The three-day Future Search conference was held in September 2002, and evaluations were completed by participants, with the overall response being very positive. On the last day of the conference, seven action groups were formed based on the thematic areas in which participants had envisioned change to FA practices. Each group took responsibility for continuing to work on one of these themes (Assessor Competency, Collaborative Approach, Education, Prevention, Research / Evidence Based Practice, Systematic Process and Whole Person). All the action groups came together again on April 9, 2003, and again on September 26, 2003 to discuss progress and support further action.

Results have been disseminated in various forms, including (1) Presentation by Sue Baptiste and Susan Strong: An innovative model for community development and research dissemination. May 2003. Canadian Association of Occupational Therapists Conference. (2) Poster presentation: "The McMaster Experience: Knowledge in the Hands of the Community" won first prize in poster competition. at WSIB/Insurance Bureau of Canada conference "Achieving Excellence through Collaboration (Sept 18/03)

Two additional papers accepted for publication in early 2004: (1) Strong S, Baptiste S, Cole DC, Clarke J, Costa M, Shannon HS, Reardon R, Sinclair S. Functional assessment of injured workers: a profile of assessor practices. Canadian Journal of Occupational Therapy, Feb 2004. (2) Strong S, Baptiste S, Clarke J, Cole DC, Costa M. Use of functional capacity evaluations in workplaces and the compensation system: a report on workers' and report users' perceptions. Work: Journal of Assessment, Prevention and Rehabilitation.

Researchers: Phase III: Judy Clarke (Institute Coordinator), S. Strong (Principal Investigator, McMaster University), M. Dobbins, S. Baptiste, C. Woodward, M. Costa (McMaster University), M. Polanyi (University of Regina).

Stakeholder Involvement in Project Development: A wide range of stakeholders supported the research proposal: M. Keatings, Coordinator, Nurse Case Managers, WSIB, S. Switzer-McIntyre, Practice leader, WSIB, A. King, Occupational Health Clinics for Ontario Workers, K. Crevar, Director, Ontario Network of Injured Workers Groups, A. Farquhar, Director, Office of the Worker Advisor, J. McLeod, Director, Office of the Employer Advisor, N. Gowan, FA Provider and Vocational Practices, Ontario Society of Occupational Therapists, C. James, Chair, WSIB Advisory Committee, Ontario Physiotherapy Association.

Members of the Conference Design Team included: D. Richardson (H&S Coordinator, City of Burlington), E. McKenna (Director, Professional Practice, WSIB), J. McLeod (Director, OEA), J. Renwick (Student and Injured Worker), N. Gowan (President, Gowan Health Consultants), T. Darby (Vocational Consultant, Crawford Healthcare), T. Chase (CAW/Ford National Ergonomic Coordinator), P. Lane (OHN, Siemens Westinghouse), R. Morrison (Director, WSIB Small Businesses, Hamilton & St. Catherines), S. Clement (Worker Advisor, OWA).

Potential Audiences and Significance: It is anticipated that this project will have an on-going impact on individual vocational practices, program management, policy and research by delivering a) a shared understanding of evidence-based FA practices; b) an increased capacity for collective research and action by participants; c) the development of a modified Future Search process as a method to disseminate information and encourage reflective, research-informed practice. Potentially, this innovative method offers a model for replication in other research areas. Possible indirect outcomes include expanded communication networks, development of working relationships, development of information and decision-making tools, and an increased appreciation of diverse perspectives among stakeholders.

External Funding: Workplace Safety & Insurance Board Research Advisory Council funding \$227,696 September 1999 - October 2001 (Phases I & II); \$253,568 November 2001 - October 2003 (Phase III) (administered from McMaster University).

Presentations:

Strong S, Costa M, Baptiste S, Woodward C, Clarke J, Polanyi MF. Poster: The McMaster experience: knowledge in the hand of the community. Sept 2003; Toronto, ON: Insurance Bureau of Canada Conference and the Workers' Safety and Insurance Board Rehabilitation Conference - "Achieving Excellence Through Collaboration". (*first prize*)

Reardon R. Assessing function in injured workers. May 2003; Toronto, ON: RTW/LMR Advisory Committee, WSIB.

Strong S, Baptiste S. An innovative model for community development and research dissemination. May 2003; Winnipeg, MB: Canadian Association of Occupational Therapists (CAOT) National Conference.

Findings have also been integrated into the Clinical Health Sciences Occupational Therapy Programme, McMaster University, Hamilton, Ontario.

Phase I & II findings have been presented as follows:

(1) three presentations at the 2002 CAOT National Conference, Saint John, N.B., May 26-28, 2002; (2) two meetings of Disability Managers at the Ontario Association of School Board Officials, (March 22/02, June 7/02); (3) to family physicians and interested health professionals as a half day continuing education program about managing work-related soft tissue injuries, sponsored by the Ontario Ministry of Labour, McMaster University, May 29, 2002; (4) to two support network groups (Hamilton Private Practice Network May 9/02; Ergonomic Network Group, May 6, 2002); (5) at the World Federation of Occupational Therapists, Stockholm, Sweden, June 25, 2002; (6) by teleconference to 12 sites of allied health professionals across Canada, CAOT Tel-Ed, November 12/02

Publications:

Strong S, Baptiste S, Clarke J, Cole DC, Costa M. Use of functional capacity evaluations in workplaces and the compensation system: a report on workers' and report users' perceptions. Work (in press).

Strong S, Baptiste S, Clarke J, Cole DC, Costa M, Reardon R, Shannon HS, Sinclair S. Assessment of a person's ability to function at work. Research Report. (WSIB Grant #980028) Hamilton, ON: Work Function Unit, School of Rehabilitation Science, McMaster University.

Strong S. Functional capacity evaluations: The good, the bad, and the ugly. OT Now, Jan/Feb, 5-9.

Gowan N, Strong S. The workplace: The expanding world of occupational therapy. OT Now, Sept/Oct, 9-14.

Strong S, Baptiste S, Clarke J, Costa M. Functional assessment – A time for consensus, a time for change, Conference Summary and Action Plans. Hamilton, ON: Work Function Unit, School of Rehabilitation Science, McMaster University. (shortly to be available at the WFU website).

Strong S, Baptiste S, Cole DC, Clarke J, Costa M, Shannon HS, Reardon R, Sinclair S. Functional assessment of injured workers. Accepted: Canadian Journal of Occupational Therapy.

Epidemiology of Disability

Overview

The health of Canada's workforce is an important factor affecting the productivity of the economy. A changing economic environment (e.g., the increasing globalization of markets) brings with it new opportunities and threats to the workplace. The latter may impinge differentially on sectors, industries and types of worker. As a result it is important to understand the factors that lead to disability at work and the effectiveness of therapeutic interventions in minimizing disability and restoring function.

Musculoskeletal pain is the largest single cause of work disability in Canada. Understanding the etiology of disability resulting from musculoskeletal disorders 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.

Projects within this theme, which focuses on the origins and course of disability, also look beyond musculoskeletal pain, to examine disability in specific populations, e.g., young workers and healthcare workers, and to examine mental ill-health issues specifically. Finally, one project, which builds on the Institute's expertise in analyzing WSIB claims data, is the possible development of an injury atlas describing the geographical variation in risk of workplace injury.

There are several ongoing studies of musculoskeletal disorders within this theme that emphasise the effectiveness (and in some cases cost-effectiveness) of interventions. One study reaching completion 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. These results will have direct applicability to policy makers at the WSIB. Another study, at the data collection stage, examines the cost effectiveness and cost-utility of medical (non-surgical) and chiropractic treatments for neck pain. A third study, also focused on neck pain and conducted in collaboration with The Decade for Bone and Joint 2002-2010 World Health Organization Task Force on Neck Pain and Its Related Disorders will contribute to the development of a clinical practice guideline for the treatment of neck pain. All three of these projects are strongly linked to the *Occupational Disease, Injuries and Health Services Research* priority.

A new initiative within this theme of research will be the submission of a grant in early 2004 to a special call for proposals from the Musculoskeletal Health and Arthritis Research Institute (MHARI) of CIHR. The MHARI has set aside funding to facilitate the establishment of new research collaborations and training of new investigators focusing on the enhancement of quality of life for this population. Institute researchers will be taking the lead in developing a proposal to create a national and international research team interested in exploring the methods and existing datasets which can assist in our understanding of the determinants and course of work-relevant musculoskeletal conditions.

The Institute's experience in using and access to WSIB datasets will be fundamental to this program of work. The results will be most relevant to the *Occupational Disease, Injuries and Health Services Research* priority.

Project Titles:

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The Arizona State University Healthy Back Study: A Study of the Cost
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The Bone and Joint Decade 2000-2010 Task Force On Neck Pain and Its
Associated Disorders (Neck Pain Task Force: 5/410/550) 120

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(Atlas: 4/430/365) 133

Development of a New Prospective Cohort Study of Individuals with Musculoskeletal Conditions

Short Title & Budget Code: Chronic MSK Cohort: 4/410/825

Project Status: Ongoing in 2004.

Introduction: There is an ongoing commitment to design a cohort study that will enhance our understanding of the prognostic factors that affect the small percentage of individuals who develop chronic pain after a musculoskeletal injury.

Objectives: To develop a study that will enhance our understanding of the course and prognostic factors that contribute to the development of chronic musculoskeletal pain.

Methods: The research questions, conceptual framework and study design are still being discussed.

Results: Researchers from the Health Services Research area held two meetings in 2000 to explore possible research questions, definitions of disability, population to be studied and study designs. Additional background activities included an invitation early in 2001 to L. Badley, to discuss disability frameworks and other discussions with a group of internal and external researchers to explore the pros and cons of different cohort study designs, and the adaptation of a framework by which to classify the prognostic literature. These discussions led to the development of a conceptual model for the study of the course of musculoskeletal pain in the general population. The new model integrates the episodic nature of musculoskeletal pain and a framework of recovery that includes resolution of the disorder, readjustment of life to accommodate the disorder and redefinition of the meaning of health.

In March 2002 we presented a sketch of our model to RAC and in May 2002, we held another consultation with external experts (R. Buchbinder, C. Dionne) at Forum V on Primary Care Research for Low Back Pain in Montreal.

Recognising that much preliminary research was necessary before designing the new cohort study, we conducted research in three different fields. First, we conducted two simulation studies to understand the impact of attrition bias in cohort studies and to determine whether imputation methods can be used to correct for attrition bias. Second, we analysed data from the Saskatchewan Health and Back Pain Survey to map the course of neck and back pain in the general population. Finally, we are currently designing a grant proposal to develop a new model of recovery that integrates the ICF model of disability to the model of recovery developed by Dorcas Beaton.

Researchers: Pierre Côté (Institute Coordinator), Claire Bombardier, Dorcas Beaton, Judy Clarke, Chantelle Garrity, Renée-Louise Franche, Andrea Furlan, Jill Hayden, Sheilah Hogg-Johnson, Carol Kennedy, Vicki Kristman, Vicki Pennick, Sandra Sinclair

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

Potential Audiences and Significance: There is a general recognition among most professionals

involved in the management of musculoskeletal injuries, that only a small group of individuals go on to develop chronic pain, and 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.

External Funding: Côté P, Beaton DE, Cassidy J, Carroll L, 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; 2003-2005.

Presentations:

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. 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. October 2003; Toronto, ON.

Côté P, Cassidy JD, Carroll L, 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 L, 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:

Carroll L, Cassidy JD, Côté P. Factors associated with onset of an episode of depressive symptoms in the general population. *Journal of Clinical Epidemiology* 2003; 56:651-658.

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

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

Short Title & Budget Code: The ASU Healthy Back Study: 5/410/555

Project Status: Ongoing 2004.

Introduction: 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.

Objectives: To establish the cost effectiveness of chiropractic versus medical care in returning injured workers with occupational low back pain to work.

Methods:

- ▶ Cohort study of injured workers from four large employers in the United States.
- ▶ Prospective collection of low back pain severity data and health outcomes for up to six months after return to work.
- ▶ Linkage of survey data to workers' compensation insurance claim data.

Results: Pilot study completed in June 1999. Recruitment of subjects was completed on December 31, 2001. Follow-up was concluded in June 2003.

Researchers: Pierre Côté (Institute Coordinator), W.G. Johnson IWH Adjunct Scientist (Arizona State University), M. Baldwin (Arizona State University), John Frank (CIHR, University of Toronto, Institute for Work & Health)

Stakeholder Involvement in Project Development: Clinicians (physicians, chiropractors); Researchers (economists, epidemiologists)

Potential Audiences and Significance: This study will provide new evidence about the cost-effectiveness of the two most common types of therapy used for occupational low back pain. The results will be directly relevant to workers' compensation boards in the U.S. and Canada.

External Funding: National Chiropractic Mutual Insurance Company.

Presentations:

Baldwin ML, Côté P, Johnson WJ. Patterns of care for occupational back pain. Nov 2003; San Francisco, California: 131st Annual Meeting of the American Public Health Association.

Baldwin ML, Côté P, Johnson WJ. Patterns of care for occupational back pain. June 2003; Nashville, Tennessee: Academy for Health Services Research and Health Policy, 20th Annual Research meeting.

Baldwin ML, Côté P, Johnson WJ. Patterns of care for occupational back pain. May 2003; Linköping, Sweden: Forum VI for Primary care Research on Low Back Pain.

Johnson WG, Baldwin ML, Côté P. Costs and outcomes of occupational back pain. Nov 2002; Philadelphia, USA: Annual Meeting of the American Public Health Association.

Johnson WG, Baldwin ML, Frank JW, Côté P. A prospective study of the cost-effectiveness of medical and chiropractic methods of care for back pain. 1999 March; Cambridge, Mass: Workers' Compensation Research Group.

Publications:

Côté P, Baldwin ML, Johnson WG. (2003) Early patterns of care for occupational back pain. Submitted: Spine (IWH Working Paper #205).

Baldwin ML, Côté P, Frank JW, Johnson WG. Project design for a prospective study of the costs and outcomes of medical and chiropractic care for back pain. Spine 2001; 1:138-147.

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

Short Title & Budget Code: Neck Pain Task Force: 5/410/550

Project Status: Ongoing 2004.

Introduction: 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 most of them. 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, Japan, Australia and Switzerland.

Objectives:

- ▶ 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.
- ▶ To develop clinical guidelines for the treatment of neck pain.

Methods:

- ▶ Systematic review of the literature: using best evidence synthesis method.
- ▶ Risk of manipulation and NSAIDs: case-control study using Saskatchewan Health administrative data.
- ▶ Patient preference: decision analysis study using prospectively collected patient survey and published data.

Results: None to date.

Researchers: Pierre Côté (Institute Coordinator, TFSS), Sheilah Hogg-Johnson (TFSS), Vicki Kristman, Claire Bombardier (TFAG), Dorcas Beaton (TFAG), Gabrielle van der Velde (TFSS), J.D. Cassidy IWH Adjunct Scientist (Toronto Western-Research Institute), L. Carroll (University of Alberta), S. Haldeman (President, Scientific Secretariat), E. Hurwitz (University of California, Los Angeles), P. Peloso (University of Saskatchewan), Å. Nygren (Karolinska Institute).

Stakeholder Involvement in Project Development: Clinicians (physicians, chiropractors, physiotherapists, psychologists), Researchers (epidemiologists, clinical epidemiologists, biostatisticians)

Potential Audiences and Significance: The Task Force will synthesize and produce new knowledge that will be relevant to patients, clinicians, researchers, insurers and policy makers. The guidelines will inform all stakeholders about the best current practice for the treatment of neck pain and the research community about research priority.

External Funding: Canadian Chiropractic Protection Association and National Chiropractic Mutual Insurance Company: \$3,000,000. \$12,000 to the Institute 1999-2000; \$45,468 to the Institute 2003-2004.

Presentations: None to date.

Publications: None to date.

Decision Analysis of Non-surgical Treatments for Neck Pain

Short Title & Budget Code: Treatments for Neck Pain: 5/410/122

Project Status: Ongoing 2004.

Introduction: Neck pain (NP) is a musculoskeletal condition that is common but whose treatment lacks a scientific foundation. Clinicians deciding on NP treatments are forced to rely mostly on anecdotal and professional experience. The result is an inconsistent standard of care, with widely varying and often costly treatment approaches. A comprehensive overview of the benefits and risks of NP treatment that incorporates patient-based preferences is therefore needed. One approach is to synthesize existing evidence in a Decision Analytic model that includes the relevant outcomes associated with each treatment.

Objectives:

- ▶ Obtain patient-based preferences (utilities and values) for health outcomes associated with NP and its treatments.
- ▶ Obtain estimates of NP treatment effectiveness and complication rates, identified by systematic literature review (this objective is linked with the objectives of the Bone and Joint Decade 2000-2010 Task Force on Neck Pain).
- ▶ Describe the natural history of NP in an untreated sample of the general population, by performing a secondary analysis of existing data from the Saskatchewan Health and Back Survey. This objective is necessary for comparing minimal care to other treatment options in the decision analysis since no studies exist in the literature that describe the natural history of untreated NP.
- ▶ Construct and validate a Markov decision analytic model which will include the utility and probability functions for treatment effectiveness / risk, and data about the course of untreated NP obtained via meeting specific Objectives 1-3.

Methods:

- ▶ Elicit quality-of-life measures (generic, specific and utility) by interviewing 2 samples of NP patients (Longitudinal sample = Toronto - Grade II Whiplash-associated Disorder patients; Cross-sectional sample = Los Angeles - chronic non-specific NP patients).
- ▶ Perform systematic literature review within the context of *The Bone and Joint Decade 2000-2010 Task Force on Neck Pain and Its Associated Disorders*. Several investigators of this project (#122) are involved with the Task Force (Members of the Scientific Secretariat: G. van der Velde, S. Hogg-Johnson, J.D. Cassidy; Members of the Advisory Committee: A. Maetzel, M. Krahn).
- ▶ Secondary analysis of *Saskatchewan Health and Back Survey* to describe and compare the course of treated and untreated NP patients in this sample.
- ▶ Construct and validate a Markov decision analytic model.
- ▶ Run simulations to estimate the clinical consequences of various NP treatment options, including medical, physical therapy, chiropractic, and minimal care.
- ▶ Perform probabilistic sensitivity analyses to test the sensitivity of results to changes in individual utility and probability variables.
- ▶ Perform Bayesian Value of Information analyses to provide information to identify priorities in future research.

Results: No results at this time. Data collection (interview) under development and being piloted. Recruitment and patient accrual expected in 2004.

Researchers: Gabrielle van der Velde (Coordinator, PhD candidate), Sheilah Hogg-Johnson, M. Krahn, (Toronto General Hospital), H. Llewellyn-Thomas, (Dartmouth University), A. Maetzel (Toronto General Hospital), J.D. Cassidy IWH Adjunct Scientist (The Toronto Western Hospital).

Stakeholder Involvement in Project Development: Focus groups will be conducted with clinicians and content experts; The *Bone and Joint Decade 2000-2010 Task Force on Neck Pain and its Related Disorders* systematic literature review results will provide probabilities for the model (Neck Pain Task Force, 5/410/550); Grade II Whiplash-associated Disorder patients sample will be compared to source population statistics provided by Insurance Bureau of Canada; The Canadian Back Institute has (final approval pending) accepted to allow recruiting in their Greater Toronto Area clinics; The Southern California University of Health Sciences has (ethics pending) has accepted to allow recruiting in their outpatient clinics.

Potential Audiences and Significance: The results of this study will have direct practical application in clinical decision-making as well as private and provincial treatment reimbursement policy decisions for NP. The availability of a Canadian model will be invaluable resource for clinicians who struggle with 'trade-offs' associated with NP management, and to policy makers who strive to make available the best possible care under conditions of fiscal restraint. In addition, the results of this study will help to identify gaps in the scientific NP literature and future research priorities.

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.

Canadian Chiropractic Protective Agency (through the Bone and Joint Decade 2000-2010 Task Force on Neck Pain and It's Associated Disorders: \$70,000.

Description of WSIB Lost Time Claims for Occupational Neck Pain

Short Title & Budget Code: Occupational Neck Pain: 5/430/370

Project Status: Ongoing 2004.

Introduction: 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 them as a separate entity.

Objectives:

- ▶ Develop a methodology to define and identify Occupational Neck Pain (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 utilisation (type of health care provider(s), frequency of visits, diagnoses, type of service) of claimants with ONP one year before and two years after their injury. Specifically, we will describe the health care utilisation of claimants with ONP as they transit through the acute, subacute and chronic phase 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 utilisation for ONP claims in Ontario.

Methods: We designed a cohort study of Ontario injured workers who made a lost-time claim for neck pain to the Ontario WSIB between 1997-1998. We will form the cohort by accessing the WSIB claims database. A preliminary analysis of the WSIB database suggests that approximately 7,000 claims/year are eligible for the study. Claims and health care billings data will be obtained for a period of one year prior, and two years after the date of injury. The WSIB claims and health care data will be linked to the Ontario Health Insurance Plan data (OHIP) for the same period. The linked data will include demographic information, injury data, duration of claim, employer data, comorbidities, and health care utilization data. Definitions of ONP will be developed based on clinical criteria obtained through consensus of experienced clinicians using the *part of body* codes (head, neck and shoulder) and *nature of injury* codes (sprains and strains, occupational injury unspecified, and inflammation) recorded in the WSIB database. The sensitivity and specificity of these definitions in identifying ONP cases will be validated through detailed abstraction of clinical information from a random sample of WSIB files. Based on these definitions we will compute the prevalence and incidence of ONP. Kaplan-Meier estimates of the time on wage replacement benefits will be used to describe the course of ONP claims. Cox models will be used to identify the predictors of the duration of wage replacement benefits. Descriptive statistics will be used to document health care utilization. This analysis will be stratified according to the nature of the billings: 1) billings related to the ONP claim to the WSIB and OHIP, and 2) billings for all other health conditions to OHIP. To describe the impact of *Bill 99* (which was implemented on January 1, 1998) on the prevalence, incidence, course and health care utilization, we will stratify the analysis by year of claim (1997 and 1998).

Results: Data collection in progress. Classification scheme for WSIB injury codes has been developed.

Researchers: Pierre Côté (Coordinator), Sheilah Hogg-Johnson, Claire Bombardier, Dorcas Beaton, Vicki Kristman, Dwayne Van Eerd

Stakeholder Involvement in Project Development: Ontario Ministry of Health and Long Term Care; WSIB.

Potential Audiences and Significance: Documenting the epidemiology and health care utilization of occupational neck pain will inform policy makers on future funding and resource allocation; will facilitate the formulation of testable hypotheses for future research on secondary prevention strategies, and will help clinicians more clearly understand the clinical course of occupational neck problems.

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.

Presentations:

Bone and Joint Decade 2000-2010 Task Force on Neck Pain and Associated Disorders. The epidemiology and health care utilization for occupational neck pain in Ontario. Dec 2002; Toronto, ON: Advisory Committee Meeting December.

Publications: None to date.

Prognostic Modeling of Upper-Extremity Soft Tissue Disorders

Short Title & Budget Code: ECC-QOL and UE Prognosis: 4/410/695

Project Status: Completed 2003.

Introduction: Upper-extremity disorders continue to represent a large proportion of lost time claims in Ontario. In 1992, approximately a quarter of total workers' compensation claims were upper extremity claims. The total U.S. workers' compensation costs for upper-extremity cumulative trauma disorders in 1989 was estimated to be \$6.1 billion. This figure did not include indirect costs, such as administrative costs for claims processing, lost production time if disability occurred, or costs to train new workers hired to replace the disabled worker. Although few data exist to estimate the indirect costs, it has been estimated that total costs are two to three times direct compensation costs. In addition, the 25% of workers, with the longest claims, accounted for 89% of workers' compensation costs. Hence, there is a need to model the clinical course of recovery in order to define the characteristics of these workers at high risk of chronic disability. This will also allow clinicians to identify patients who are at risk for slower recovery or chronicity and customize health care accordingly. This study will model the prognosis of upper-extremity soft tissue disorders in the early claimant cohort using the primary health outcome, health-related quality of life (HRQOL). The ICF (International Classification of Functioning, Disability and Health) model will be adapted to examine HRQOL in terms of impairment, activity limitation and participation restriction. Pain was chosen as a proxy for impairment while functional status and role limitations were chosen to represent activity limitation and participation restriction respectively. This exploratory model will be built using as a starting point, those factors from the literature that have shown predictive value.

Objectives:

- ▶ To narratively review the existing literature on the factors that predict pain in a workforce-based population with upper-extremity soft tissue disorders.
- ▶ To model the prognosis of upper-extremity soft tissue disorders using pain, functional status and role limitations as outcome measures, and based in part on potential factors suggested in the literature.

Methods:

- ▶ A narrative review was done to identify the potential predictors of pain in injured workers with upper-extremity soft tissue disorders using Medline, Embase and CINAHL.
- ▶ The Early Claimant Cohort data was used to build prognostic models for the three health dimensions; impairment, activity limitation and participation restriction. Outcome measures included the Acute Pain Grade, Modified ASES and Role-Physical Subscale of the SF-36.

Results: The literature search yielded 2834 publications. Titles and abstracts were screened according to the inclusion/exclusion criteria and only eleven primary studies fulfilled all the criteria. Seven of the studies were done in the Scandinavian countries, three in the United States and one in Canada. The studies were generally of poor quality; none of the studies used an inception cohort, a third of the studies were able to follow-up at least 80% of their original cohort for a year, only two studies conducted multivariate analyses and only one study reported adjusted odds ratios. Potential prognostic factors included number of days on sick leave, influence on own work situation, gender, headache, shoulder pain, repetitive movements, sleep problems, ergonomic intervention, duration of symptoms, history of recurrence, other health conditions, change of job and exercise.

Three prediction models were built in this study for the 16-week post-injury outcomes of pain, functional and role limitations in injured worker with upper-extremity soft tissue disorders. Across all models, the predictors were from the broader domains of demographics, symptom/function, workplace psychosocial and expectations/perceptions. Two variables, functional status at 4 weeks' and 'recovery expectations' were common across all three models. The other predictors of pain were 'pain difference between baseline and 4 weeks' and 'gender'. The models for functional status and role limitations overlapped on a third predictor, 'perceived risk of re-injury upon return to regular job'. The final predictors of functional status and role limitations were 'individual earnings' and 'other health conditions' respectively.

Patient perceptions are important in determining health outcomes. Self-report measures, in addition to being inexpensive, are also invaluable for clinicians and claims managers for identifying injured workers at risk for worse health outcomes and therefore more intensive intervention.

Researchers: Anusha Raj (Coordinator), John Frank, Sheilah-Hogg Johnson, Dorcas Beaton, E. Badley (University of Toronto)

Stakeholder Involvement in Project Development: None. Analysis of existing 1990's IWH dataset which had not previously been analyzed fully.

Potential Audiences and Significance:

- ▶ WSIB and other insurance companies: Economic savings, accruing from more effective disability management of high-risk cases, if this occurs.
- ▶ Clinicians: Aid in identifying patients who are at higher risk for chronicity.
- ▶ Employers: Economic savings and increase in productivity of injured workers, accruing from more effective disability management of high-risk cases, if this occurs.
- ▶ Employees: Faster recovery and reduced risk of chronic disability, accruing from more effective disability management of high-risk cases, if this occurs.

External Funding: None

Presentations:

MSc Thesis Defense Presentation

Raj A. Prognostic modeling of upper-extremity soft tissue disorders. November 2003; Toronto, ON: University of Toronto

Raj A. Poster: Prognostic modeling of health-related quality of life for injured workers with upper extremity soft tissue injuries in the early claimant cohort. June 2003; Halifax, NS: Canadian Society of Epidemiology and Biostatistics Biennial meeting.

Publications: None to date.

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

Short Title & Budget Code: BC Young Workers & Consequences: 5/420/248

Project Status: Ongoing 2004.

Introduction: 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 remains 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.

Objectives:

- ▶ 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.
- ▶ To identify at what point in time relative to injury date does health care utilization increase and for how long it is sustained.
- ▶ To investigate if higher health care utilization differs by type of occupation or type of injury.

Methods: This is a retrospective database linkage study. The Centre for Health Services and Policy Research under contract with the Ministry of Health extracted all records for workers' compensation claimants aged 15 to 24 years during the follow-up period 1985-2000 (n~110,000). The Centre further linked claimants with their health care records for these same years and provided a confidential linked data file to the research team. A similar data set for a comparison population matched on age, gender and geographic residence was drawn from the BC client registry and provided as part of the linked research data file. For the claimant population, we will describe claim experiences by demographic, occupational and injury factors. Using the longitudinal data files for claimants and the matched comparison group, we will describe patterns of health care utilization and investigate differences in utilization among both groups.

Results: This project received funding from the Workers' Compensation Board of BC in September 2002. The data file has been extracted and the research data file cleaned. Descriptive analyses of the study and comparison population, the types of claims, and health care utilization are currently underway.

Researchers: Mieke Koehoorn (Principal Investigator), Curtis Breslin

Stakeholder Involvement in Project Development: Workers' Compensation Board of British Columbia (Prevention Division, Divisional Young Workers' Team, Young Workers' Steering Committee)

Potential Audiences and Significance: Workers' compensation boards (Prevention Division and Young Worker Safety Steering Committee), youth advocacy groups (BC National Youth, Student Voice), safety associations (BC Safety Council, BC Restaurant and Food Services Associations) and ministries of health, education and labour. The intent of the study is to highlight occupational injuries

among young workers as a key public health policy issue and to provide fundamental evidence to inform the process of resource allocation, the on-going development of prevention initiatives and the establishment of regulatory priorities aimed specifically at young workers.

External Funding: Workers' Compensation Board of British Columbia (\$76,068; 2002-2004). (Administered at the University of British Columbia)

Presentations:

Koehoorn M. Breslin C. Patterns of work and work-related injuries among B.C. youth. Presentation to the Young Workers' Team, Prevention Division, Workers' Compensation Board of British Columbia, Feb 2003, Richmond: BC.

Research Secretariat, Workers' Compensation Board of British Columbia, July 2002.

Publications: None to date.

Studying the Health of Health Care Workers

Short Title & Budget Code: Health of Health Care Workers: 5/420/810

Project Status: Ongoing 2004.

Introduction: This project is in three phases. To understand the health of health care workers and encourage changes to promote worker health, the first phase of this project involves the construction of a comprehensive database from linking several administrative databases from British Columbia. The database will be used in Phase II of the project to construct profiles of health and health care utilization for the study population and to examine their differences over time. Phase III will analyze relationships between workplace characteristics and employee health outcomes. The linked database will also provide the first opportunity to access data on long-term disability (LTD) benefits for health care workers. Using survival analysis, we will investigate predictors of LTD claims for musculoskeletal injuries and mental disorders, the predominant and fastest-rising sources of disability in the health care sector respectively.

Objectives:

- ▶ Describe differences in health and health care utilization outcomes across demographic, occupational, and workplace groups in the health care sector, and evaluate to what extent these differences vary or remain the same across the 10-year study period (1991-2000).
- ▶ Investigate predictors of long-term disability claims for musculoskeletal disorders and mental disorders.
- ▶ 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.

Methods: Investigators linked administrative data routinely collected by the Ministry of Health and other agencies (private insurance provider, WCB of BC) to create a person-specific longitudinal database (1991-2000) of ~100,000 health care employees, nested in ~100 BC workplaces. For the descriptive phase, health and health care utilization outcomes (medical services, hospital discharges, workers' compensation claims, long-term disability claims, extended benefits, mental health services, cancer incidence, mortality) will be compared across demographic, occupation and workplace level groups and by year over the 10- year retrospective follow-up period. Survival analysis will be used to investigate predictors of LTD, and multi-level analysis will be used to investigate the influence of workplace level variables on health outcomes.

Results: The employee registration, extended health and long term disability files have been extracted and cleaned. The employee file has been linked with the WCB of BC files and the Ministry of Health files, with the exception of the hospital separation files (pending November 2003). Preliminary analyses of extended health benefits utilization and long-term disability claims (sub analysis from 95-99) revealed the following:

	1995	1996	1997	1998	1999
Number of workers (acute hosps)	34,265	34,787	34,749	35,994	33,752
Gender - % female	86.6	86.4	86.5	86.5	85.6
Age – mean yrs (SD)	43.9 (9.6)	44.4 (9.4)	44.9 (9.3)	45.3 (9.3)	45.4 (9.2)
Years experience – mean yrs (SD)	13.7 (7.0)	13.5 (7.0)	13.3 (6.9)	12.8 (7.0)	12.4 (7.1)
Extended health claims / worker					
Total no. of claims	5.66	6.05	6.47	6.62	7.14
Medication claims	3.46	3.66	3.82	4.11	4.49
Depression medication	0.31	0.34	0.37	0.41	0.49
Depression rate* / 100 workers	7.0	7.9	8.8	9.3	10.6
Long term disability rate / per 1000 employees					
All causes LTD	14.5	15.7	15.4	17.6	18.5
Mental health LTD	2.4	2.6	2.4	2.9	2.7

*Defined by the presence of at least one pharmaceutical claim for depression

The findings from the preliminary analyses indicate that mental disorders are a major source of disability among health care workers and have been increasing over the past decade. Depressed workers have increased extended health benefits (EHB) utilization and long-term disability (LTD) claim rates in comparison to non-depressed workers. In the year preceding an incident LTD claim, significant increases in EHB utilization are apparent, and elevated levels of utilization remain for at least two years after an LTD claim.

Researchers: Mieke Koehoorn (Principal Investigator), Donald Cole, Selahadin Ibrahim, C. Hertzman, A. Ostry - IWH Adjunct Scientist (University of British Columbia); J. Dufton (MSc Student at the University of British Columbia).

Stakeholder Involvement in Project Development: 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.

Potential Audiences and Significance: 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, the health care sector, compensation systems and the Ministry of Health.

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)

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:

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. How much or when? Work exposures and the risk of musculoskeletal injury among health care workers. Aug 2002: Vancouver, BC: International Society of Exposure Analysis (ISEA): Linking Exposures and Health. Abstract: *American Journal of Epidemiology* July 2002.

Atlas of Work Injury

Short Title & Budget Code: Atlas: 4/430/365

Project Status: Ongoing 2004.

Introduction: 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.

Objectives: To identify geographical variation in claims rates. Objectives of various steps of the project are as follows:

- ▶ To identify pertinent fields in the WSIB data bases which relate to the geographical location of the firm, of the injury circumstance, and of the injured worker (e.g., postal codes or county codes)
- ▶ To link with Russell Wilkins at Statistics Canada and obtain mapping algorithms which map postal codes to latitude, longitude, census tract, public health district etc.
- ▶ 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, to fit a statistical model which accounts for important confounders (age and sex composition of workforce, rate group (standing in for nature of work), etc.) and analyses whether geographical differences in claims rates exist

Methods: First, identify key WSIB variables which could be used to geographically classify claimants, location of injury and/or firms. If any of these are postal codes, then we will be able to apply the algorithm developed by Russell Wilkins at Statistics Canada and convert the postal codes into a number of geographic fields (e.g., census tract, quintile of income, public health district etc.). In this way, we can use geographical classifications to describe claims experience.

Second, we would like to control for potential geographical variation in the nature of the businesses, in order to assess whether observed geographical variations can be explained by geographical differences in the types of work being done. To that end, we propose using the WSIB Rate Group classification. We will need to check feasibility of doing this, since we may have too imbalanced a distribution of rate groups across geographical regions to adequately control for this.

Third, determine whether there are there other variables we can control for - e.g., age and sex distribution of workers within each geographical area.

Fourth, create an analysis data set for the year 2000 claims to explore modelling frameworks, investigate the relative appropriateness of Poisson vs negative binomial models for this data.

Fifth, develop and fit a statistical model for the year 2000 (if previous checks of feasibility suggest this is appropriate)

Results: Our initial explorations suggest there may be some geographical variability in claims rates, but this is preliminary. Analysis will continue.

Researchers: Sheilah Hogg-Johnson (Coordinator), Marjan Vidmar, John Frank, Cameron Mustard

Stakeholder Involvement in Project Development: None to date.

Potential Audiences and Significance: The relationship between geographical location and injury risk is poorly described in Canada. Prevention policy will benefit from improved understanding of this relationship.

External Funding: None

Presentations: None to date.

Publications: None to date.

Evidence Based Practice

Overview

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 observation studies) as well as systematic assessment of actual health outcomes. The Institute for Work & Health has made major contributions towards evidence-based practices (EBP) for the most burdensome musculoskeletal conditions: low-back pain, neck pain, upper extremity conditions and chronic back pain. The Institute was created around the time of the release of the Acute Low-back Pain Guidelines from the U.S. Agency for Health Care Policy and Research (AHCPR). Consequently, the Institute was involved in the diffusion of these guidelines to relevant stakeholders in Ontario. Recently, the Institute has been 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.

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 will release a number of new evidence based reviews on the effectiveness of interventions for low back pain. To date the work of this group has been utilized substantially 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 2003 included involvement in a number of training initiatives for clinicians and health policy makers including participation in the University of Toronto Pain Week, a multidisciplinary training program on pain and pain management for medical, nursing and rehabilitation students. There will be increased focus in 2004 on the development of a series of evidence based practice/systematic review workshops for policy makers, clinicians and research trainees. The content of Cochrane reviews and the systematic review methodology are most relevant to clinicians and policy makers in the *Occupational Diseases, Injury and Health Services Research* areas.

Project Titles:

Preventing Occupational Injury, Injury and Disability: What Works and How Do We Know? – A Prevention Discussion Paper for Ontario's Occupational Health and Safety Stakeholders (Preventing Injury Paper: 4/410/116)	137
Cochrane Collaboration Back Review Group: Systematic Reviews of the Scientific Literature on Spinal Disorders (Cochrane Back Group: 4/410/440)	139
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Development of a Comprehensive Conceptual Model to Understand the
 Prognosis and Course of Low Back Pain (LBP Predictive Tool: 5/410/130) 154

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 Low-Back Pain (X-ray Decision-Aid Tool: 5/410/680) 156

Stakeholder Products: Linkages: Literature Synthesis and Diffusion;
 Journal of the Ontario Occupational Health Nurses' Association; BackGuide
JofOOHNA: 4/410/830; Linkages: 4/410/515; and BackGuide: 4/410/345 158

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

Short Title & Budget Code: Preventing Injury Paper: 4/410/116

Project Status: Ongoing 2004.

Introduction: 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.

Objectives: This “prevention paper” – which could end up looking more like a website or other electronic communication strategy, if that is preferred by stakeholders – would lay out, in non-technical language:

- ▶ a basic conceptual framework for the full spectrum of such preventive measures and their evaluation;
- ▶ a readable summary (non exhaustive) of several *exemplary* examples of primary and secondary preventive measures have been shown to make a difference;
- ▶ as comparators and “attention-grabbers,” some examples of widely-used interventions that appear not to be effective, such as “bed rest/aggressive diagnostic work-up for ordinary cases of early low back pain, or the use of back-belts;
- ▶ broad recommendations for disseminating this conceptual framework and effectiveness knowledge to stakeholders, and for dealing with probably very different organizational “cultures” with respect to what constitutes “sound evidence of effectiveness” in this field.

Methods: Literature review and consultation with OH&S stakeholders.

Results: 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."

Researchers: John Frank (Coordinator), Kim Cullen, Rhoda Reardon, Sandra Sinclair, Cameron Mustard, Curtis Breslin, Donald Cole, Pierre Cote, Renee-Louise Franche, Harry Shannon.

Stakeholder Involvement in Project Development: A small advisory group representing the main organizations/subunits of WSIB is in regular dialogue with the research (transfer) team.

Potential Audiences and Significance: If this project leads, among Ontario OH&S stakeholders, to healthier skepticism, and accurate awareness, of what occupational preventive interventions actually “work,” and how to determine this in general, the system could expect:

- ▶ more cost-effective programming and activities in Ontario workplaces;
- ▶ more consistent expert views on prevention being transmitted to Ontario workplaces;
- ▶ more widespread support for further applied research, in Ontario workplaces, to determine the effectiveness and feasibility of those many preventive interventions, for which we do not yet have enough high-quality evidence of effectiveness, to be sure of their merits.

External Funding: None

Presentations: Frank JW, Cullen K and the IWH Ad Hoc Working Group. Preventing injury, illness and disability at work: what works and how do we know. Mar 2003; Toronto, ON: IWH Scientific Advisory Committee meeting.

Publications: Frank JW, Cullen K, Reardon R and the IWH Ad Hoc Working Group. (2003) Preventing injury, illness and disability at work: What works and how do we know? A discussion paper for Ontario's occupational health and safety community. Toronto: Institute for Work & Health. (Undergoing external review).

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

Short Title & Budget Code: Cochrane Back Group: 4/410/440

Project Status: Ongoing 2004.

Introduction: The Cochrane Collaboration is an international network of individuals and institutions committed to preparing, maintaining, and disseminating systematic reviews of the scientific literature on the effects of health care. The Institute currently coordinates the Back Review Group, one of 51 review groups in the Cochrane Collaboration. 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.

Objectives:

- ▶ To develop standardized methods of randomized controlled trials in low-back pain research.
- ▶ To prepare, maintain and disseminate systematic reviews of the scientific literature on spinal disorders.
- ▶ To maintain a specialized database of trials on spinal disorders as a resource for those conducting literature searches; to help identify gaps in the literature and to suggest areas for further studies.

Methods:

- ▶ Reviewers register a title they wish to examine and have one year to submit their protocol.
- ▶ Editors from the Editorial and Advisory Board of the Back Review Group independently appraise the protocol using the updated Back Group Checklist.
- ▶ Once approved, the protocol appears in The Cochrane Library and the reviewers have one year to prepare the review, which is then evaluated independently by three editors.
- ▶ Once approved, the review is published in the Cochrane Library; if interested, the authors also have an option to publish in Spine.
- ▶ Reviews are to be updated every two years.

Results:

- ▶ 22 reviews and 11 protocols were published in the Cochrane Library (Issue #4, 2003).

Reviews:

- ▶ Muscle relaxants for non-specific low back pain, 2003.
- ▶ Radiofrequency denervation for neck and back pain, 2003.
- ▶ Work conditioning, work hardening and functional restoration for workers with back and neck pain, 2003.
- ▶ Advice to stay active as a single treatment for low back pain and sciatica, 2002.
- ▶ Multidisciplinary bio-psycho-social rehabilitation for chronic low back pain, 2002.
- ▶ Rehabilitation after lumbar disc surgery, 2002.
- ▶ Massage for low back pain, 2000; updated 2002.
- ▶ Surgery for cervical radiculomyelopathy, 2001.
- ▶ Transcutaneous electrical nerve stimulation (TENS) for chronic low back pain, 2001.
- ▶ Conservative treatment for whiplash, 2001.

- ▶ Bed rest for acute low back pain and sciatica, 2000.
- ▶ Behavioral treatment for chronic low back pain, 2000.
- ▶ Exercise therapy for low back pain, 2000.
- ▶ Non-steroidal anti-inflammatory drugs for low back pain, 2000.
- ▶ Lumbar supports for prevention and treatment of low back pain, 2000.
- ▶ Multidisciplinary biopsychosocial rehabilitation for subacute low back pain, 2000; updated 2003.
- ▶ Multidisciplinary biopsychosocial rehabilitation for subacute neck and shoulder pain, 2000; updated 2003.
- ▶ Acupuncture for low back pain, 1999.
- ▶ Back schools for non-specific low back pain, 1999.
- ▶ Injection therapy for subacute and chronic benign low back pain, 1999.
- ▶ Patient education for mechanical neck disorders, 1998 (Gross et al, withdrawn 2003).
- ▶ Physical medicine modalities for mechanical neck disorders, 1998 (Gross et al, withdrawn 2003).
- ▶ Surgery for degenerative lumbar spondylosis, 1998.
- ▶ Surgery for lumbar disc prolapse, 1998.
- ▶ TENS and acupuncture-like TENS for chronic low back pain, 1997 (Gadsby et al, withdrawn 2000).

Protocols:

- ▶ Botanical medicine for low back pain, 2003.
- ▶ Electrotherapy for neck disorders, 2003.
- ▶ Exercises for mechanical neck disorders, 2003.
- ▶ Manipulation and mobilisation for mechanical neck disorders, 2003.
- ▶ Patient education for low back pain, 2003.
- ▶ Prolotherapy for chronic low back pain, 2003.
- ▶ Medicinal and injection therapies for mechanical neck disorders, 2003.
- ▶ Neuroreflexotherapy for non-specific low back pain, 2001.
- ▶ Traction for low back pain with or without radiating symptoms, 2000.
- ▶ Antidepressants for nonspecific low back pain, 1999.
- ▶ Manual therapy for mechanical neck disorders, 1998 (Gross et al, withdrawn 2003).
- ▶ Drug therapy for mechanical neck disorders, 1996 (Peloso et al, withdrawn 2003).
- ▶ Spinal manipulation for low back pain, 1996.

Researchers: Victoria Pennick (Group Co-ordinator), Chantelle Garritty (Group Co-coordinator - on leave/interim), Doreen Day (Research Assistant), Andrea Furlan (Evidence-based practice co-ordinator), Rhoda Reardon (Research Transfer Associate), Emma Irvin, Sandra Sinclair

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

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

Consumer Representatives on Editorial Board: A. King (United Steelworkers of America, Canada); M. Schoene (The Back Letter, USA)

Stakeholder Involvement in Project Development: Clinical stakeholders are encouraged to 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, assisting with hand searching, or helping with strategies to make Cochrane reviews more accessible to clinical colleagues, students and the lay public.

Potential Audiences and Significance: 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 health care professionals, policy makers and payers.

External Funding:

Swedish Council on Technology Assessment in Health Care: \$30,000 Cdn; 1996-1998.

Canadian Institutes for Health Research: \$10,000; 2002.

Institute for Musculoskeletal Health and Arthritis: \$10,000; 2002.

Presentations:

Day D, Furlan A, Irvin E, Bombardier C. Poster: Comparing databases and search strategies for systematic reviews of musculoskeletal disorders. Nov 2003; Hamilton, ON: 3rd Canadian Cochrane Symposium.

Furlan AD, van Tulder MW, Bombardier C, Bouter L. Poster: Updated method guidelines for systematic reviews within the Cochrane Back Review Group. Nov 2003; Hamilton, ON: 3rd Canadian Cochrane Symposium.

Pennick V, Chapeskie K, Russo K, Reardon R, Garritty C, Furlan A, Bombardier C. Translating and transferring the evidence: a case study. Nov 2003; Hamilton, ON: 3rd Canadian Cochrane Colloquium.

Hayden JA, van Tulder MW, Côté P, Bombardier C. Descriptive analysis of quality criteria used in systematic reviews of prognostic studies. Oct 2003; Barcelona, Spain: 11th Cochrane Collaboration Colloquium; and Nov 2003; Hamilton, ON: 3rd Canadian Cochrane Collaboration Symposium.

Bouter L, Pennick V, Bombardier C. Cochrane back review group. Oct 2003; Barcelona, Spain: 11th Cochrane Colloquium.

Day D, Furlan A, Irvin E, Bombardier C. Comparing databases and search strategies for systematic reviews of musculoskeletal disorders. Oct 2003; Barcelona, Spain: 11th Cochrane Colloquium.

Furlan AD, Bombardier C. Poster: Controlled vocabulary associated with non-randomized studies of interventions for low-back pain. Oct 2003; Barcelona, Spain: 11th Cochrane Colloquium.

Pennick V, Chapeskie K, Russo K, Reardon R, Garritty C, Furlan A, Bombardier C. Translating and transferring the evidence: a case study. Oct 2003; Barcelona, Spain: 11th Cochrane Colloquium.

Bombardier C. Invited Speaker/Organizer. Evidence-based medicine, systematic reviews and the Cochrane Collaboration. Oct 2003; Toronto, ON: IWH Systematic Review Workshop.

Bombardier C, Bouter L, Pennick V. Cochrane back review group. May 2003; Linköping, Sweden: 6th International Forum for Primary Care Research on Low-Back Pain.

Clarke J, van Tulder M, Blomberg S, Bronfort G, van der Heijden G, de Vet R. Poster: Systematic Cochrane review of traction for low back pain with or without radiating symptoms. May 2003; Linköping, Sweden: 6th International Forum for Primary Care Research on Low-Back Pain.

Pennick V. Evidence-based practice and the Cochrane Back Review Group. June 2003; Oslo, Norway: Norwegian Back Pain Network Rounds.

Pennick V. Evidence-based practice. Mar 2003; Mississauga, ON: Occupational health nurses knowledge brokers workshop.

Bombardier C, Furlan A, Côté P, Hayden J, Manno M, van Tulder M. Systematic reviews: an overview. Nov 2002; Toronto, ON: Institute for Work & Health.

Pennick V, Furlan A, van Tulder M. Cochrane Back Review Group. Oct 2002; Toronto, ON: Scottish/Northern Ireland Preceptorship Program.

Furlan A. A synthesis of the scientific literature of massage for low-back pain. Oct 2002; Toronto, ON: WSIB Rounds for Ontario Massage Therapy Association Massage Awareness Week.

Van Tulder M. Closing the gap between research and practice: evidence-based medicine for low back pain. Sept 2002; Edmonton, AB: Back and Neck Pain: an Update.

Bombardier C. Reliability and validity of self-report-based measures commonly used in the evaluation of treatment for spinal disorders. Sept 2002; Toronto, ON: Symptom, Diagnostic and Disability Validity: Improving Patients Outcomes.

Bombardier C. D'hier a aujourd'hui: le changement de paradigme. Sept 2002; Quebec City, QC: College of Physiotherapy Symposium.

Van Tulder M, Waddell G, Linton SJ. Refresher course on low back pain. Aug 2002; San Diego, USA: IASP meeting.

Bouter L, Pennick V. The Back Review Group. Aug 2002; Stavanger, Norway: 10th Cochrane Colloquium.

Van Tulder M. Evidence-based medicine for low-back pain. June 2002; Toronto, ON: Educational Rounds, Comprehensive Pain Program, Toronto Western Research Institute, Krembil Neuroscience Centre, Toronto Western Hospital, University Health Network.

Pennick V. Evidence-based practice: an overview of a research program. May 2002; Toronto, ON: Delegation from the Expert Centre for Work-related Musculoskeletal Disorders, The Netherlands. Pennick V, Furlan A, van Tulder M, Sinclair S. Literature review on conservative interventions for the management of chronic low-back pain. May 2002; Toronto, ON: Program of Care Development Committee, WSIB.

Bombardier C. Standardization for the conduct of randomized controlled trials in low back pain. May 2002; Montreal, QC: Forum V: Quality Care in Low-Back Pain: How Many Does it Take to Tango?

Bombardier C. Overcoming the challenges: translating research findings into practice. May 2002; Toronto, ON: A Governor's Circle Lecture, AARC Foundation.

Bombardier C. Chronic low-back pain: tribulations of trial design. May 2002; Winnipeg, MB: Merck Frosst Satellite Symposium at Canadian Pain Society Meeting.

Garritty C, Ohlsson A, van Tulder, M. Reviewer Training Workshop. Feb 2002; Toronto, ON: Institute for Work & Health

Garritty C. Helping handsearchers distinguish randomized controlled trials & controlled clinical trials from other types of study reports. Dec 2001; Toronto, ON: Cochrane Handsearching Workshop.

Garritty C, Solway S. Evidence-based practice - what is evidence? Nov 2001; Toronto, ON: Evidence-based Practice and Designated Assessment Centres: Putting Evidence into Practice. Association of Designated Assessment Centres (ADAC) Conference.

Garritty C, Irvin E, Weiland S, Manheimer E. Handsearching the healthcare literature to identify randomized controlled trials and controlled clinical trials (Beginner). Oct 2001 ; Lyon, France: The 9th Annual Cochrane Colloquium.

Garritty C, Irvin E, Weiland S, Manheimer E. Handsearching the healthcare literature to identify randomized controlled trials and controlled clinical trials (Advanced). Oct 2001; Lyon, France: The 9th Annual Cochrane Colloquium.

Garritty C. Introduction to the Cochrane back review group. Sept 2001; Toronto, ON: Presentation to guests from the China Aerospace Science and Technology Corporation (CASC). Institute for Work & Health.

Furlan A. The principle of evidence-based practice. Jan 2001; Toronto, ON: Workshop for rehabilitation clinicians & researchers, Riverdale Hospital.

Garritty C, Peloso P. Cochrane systematic reviews workshop - a brief outline for the uninitiated. June 2000, Saskatoon, SK: The 88th Annual Canadian Pharmacists Association Conference.

Garritty C, Peloso P. Cochrane systematic reviews workshop - a brief outline for the uninitiated. 2000 June, Saskatoon, SK: Presentation to the Saskatchewan Physical Therapists Association & other Provincial Allied Health Care Professionals.

Furlan A. The work of a Cochrane review group. June 2000; Toronto, ON: HAD 5308H Systematic Review/Meta Analysis (Cochrane Reviews) course. Clinical Epidemiology and Health Care Research Program, Dept of Health Administration, University Health Network.

Furlan A. Invited lecturer: Systematic reviews of the literature using the Cochrane methodology. May 2000; Sao Paulo, Brazil: III Simposio Internacional da SOMA-SP.

Furlan A, Brosseau L, Welch V, Wong J. Massage for low back pain: a Cochrane systematic review of the literature. Mar 2000; Eilat, Israel: The 4th International Forum for Primary Care Research on Low Back Pain.

Furlan A, Bombardier C. The Cochrane back review group. 2000 Feb; Toronto, ON: Institute for Work & Health Plenary Session.

Furlan A. The Cochrane back review group. 1999 Oct; São Paulo, Brazil: XIV Brazilian Congress of Physical Medicine and Rehabilitation.

Bombardier C, Nachemson A. Back review of group for spinal disorders. The Cochrane Collaboration Back Review Group for Spinal Disorders: An International Initiative to Coordinate Systematic Reviews on the Effectiveness of Treatments for Back and Neck Pain. June 1999; Kona, Hawaii: International Society for the Study of the Lumbar Spine.

Guzmán J, Esmail R, Irvin E, Bombardier C. A systematic review of multidisciplinary team approaches for the treatment of chronic low back pain. October 1998; Manchester, UK: The 3rd International Forum for Primary Research on Low Back Pain Conference.

van Tulder M, Esmail R, Bombardier C, Koes B. The effectiveness of back schools in the treatment of low back pain: a systematic review within the Cochrane Collaboration Back Review Group for spinal disorders. September 1998; Helsinki, Finland: PREMUS/ISEOH '98, 3rd International Scientific Conference on Prevention of Work-Related Musculoskeletal Disorders/ 13th International Symposium on Epidemiology in Occupational Health.

Esmail R. Cochrane reviews for low back pain. Oct 1998; Manchester, England: A Satellite Meeting of the 3rd International Forum for Primary Care in Low Back Pain.

Esmail R. RevMan Software & Cochrane library demonstrations. April 1998; Toronto, ON: Canadian Cochrane Network, University of Toronto Site Workshop.

Bombardier C. The Cochrane collaboration and the MSK review group: A Progress Report. Jan 1998; Toronto, ON: Rheumatology Rounds.

Esmail R. RevMan Software & Cochrane library demonstrations. Jan 1998; Toronto, ON: Archie Cochrane Week activities.

Esmail R. Method guidelines for systematic reviews. Nov 1997; Hamilton, ON: Cochrane Workshop: Oct 1997; The Netherlands: 5th Cochrane Colloquium.

Esmail R. Overview of the back review group. Sept 1997; Toronto, ON: Toronto Cochrane Workshop.

Esmail R. RevMan software & Cochrane library demonstrations. Sept 1997; Toronto, ON: Toronto Cochrane Workshop.

Esmail R. RevMan software & Cochrane library demonstrations. April 1997; Toronto, ON: Toronto Cochrane Workshop.

Esmail R. Overview of Cochrane collaboration. Aug 1996; Toronto, ON: Institute for Work & Health Plenary.

Publications:

Assendelft WJJ, Morton SC, Yu EI, Suttorp MJ, Shekelle PG. Spinal manipulative therapy for low-back pain: A meta-analysis of effectiveness relative to other therapies. *Annals of Internal Medicine* 2003; 138:871-881.

Bouter LM, Pennick V, Bombardier C, and the Editorial Board of the Back Review Group. Cochrane Back Review Group. *Spine* 2003;28(12):1215-1218.

Niemistö L, Kalso E, Malmivaara A, Seitsalo S, Hurri H. Radiofrequency denervation for neck and back pain. A systematic review within the framework of the Cochrane Collaboration Back Review Group. *Spine* 2003; 28(16): 1877-1888.

Ostelo RWJG, de Vet HCW, Waddell G, Kerckhoffs MR, Leffers P, van Tulder MW. Rehabilitation after lumbar disc surgery. *Spine* 2003; 28(3): 209-218.

Schonstein E, Kenny D, Keating J, Koes B, Herbert RD. Physical conditioning programs for workers with back and neck pain: A Cochrane Systematic Review. *Spine* 2003; 28(19): E391-E395.

Van Tulder M, Touray T, Furlan AD, Solway S. Muscle relaxants for non-specific low back pain: a systematic review within the framework of the Cochrane collaboration. *Spine* 2003; 24(17): 1978-1992.

Van Tulder M, Furlan A, Bombardier C, Bouter LE, The Editorial Board of the Cochrane Collaboration Back Review Group. Updated method guidelines for systematic reviews in the Cochrane collaboration back review group. *Spine* 2003; 28(12):1290-1299.

Brosseau L, Milne S, Robinson V, Marchand S, Shea B, Wells G, Tugwell G. Efficacy of transcutaneous electrical nerve stimulation for the treatment of chronic low back pain: a meta-analysis. *Spine* 2002; 27(6): 596-603.

Fouyas IP, Statham PFX, Sandercock PAG. Cochrane review on the role of surgery in cervical spondylotic radiculomyelopathy. *Spine* 2002; 27(7):736-747.

Furlan AD, Brosseau L, Imamura M, Irvin E. Massage for low-back pain. A systematic review of the literature within the framework of the Cochrane Back Review Group. *Spine* 2002; 27(17):1896-1910.

Hagen KB, Hilde G, Jamtvedt G, Winnem MF. The Cochrane review of advice to stay active as a single treatment for low back pain and sciatica. *Spine* 2002; 27(16):1736-1741.

Guzman J, Esmail R, Karjalainen K, Malmivaara A, Irvin E, Bombardier C. Multidisciplinary rehabilitation for chronic low back pain: systematic review. *British Medical Journal* 2001;322: 1511-1516.

Nelemans PJ, de Bie RA, de Vet HCW, Sturmans F. Injection therapy for subacute and chronic benign low back pain. *Spine* 2001; 26: 501-515.

Jellema P, van Tulder MW, van Poppel M, Nachemson A, Bouter LM. Lumbar supports for prevention and treatment of low back pain: a systematic review within the framework of the Cochrane back review group. *Spine* 2001;26: 377-386.

Karjalainen K, Malmivaara A, van Tulder MW, Roine R, Jauhiainen M, Hurri H, Koes B. Multidisciplinary biopsychosocial rehabilitation for subacute low back pain in working age adults: a systematic review within the framework of the Cochrane Collaboration back review group. *Spine* 2001; 26:262-269.

Karjalainen K, Malmivaara A, van Tulder MW, Roine R, Jauhiainen M, Hurri H, Koes B. Multidisciplinary biopsychosocial rehabilitation for neck and shoulder pain among working age adults: a systematic review within the framework of the Cochrane Collaboration back review group. *Spine* 2001; 26:174-181.

Hagen, K, Hilde G, Jamtvedt G, Winnem M. The Cochrane review of bed rest for acute low back pain and sciatica. *Spine* 2000; 25:2932-2939.

van Tulder MW van, Malmivaara A, Esmail R, Koes BW. Exercise therapy for low back pain: A systematic review within the framework of the Cochrane back review group. *Spine* 2000; 25 25:2784-2796.

van Tulder MW, Ostelo R, Vlaeyen JW, Linton SJ, Morley SJ, Assendelft WJ. Behavioral treatment for chronic low back pain: a systematic review within the framework of the Cochrane back review group. *Spine* 2000;25:2688-2699.

van Tulder, M.W.; Scholten R.; Koes, B.W.; Deyo, R.A.. Nonsteroidal anti-inflammatory drugs for low back pain: a systematic review within the framework of the Cochrane collaboration back review group. *Spine* 2000; 25:2501-2513.

Gibson JN, Grant IC, Waddell G. The Cochrane review of surgery for lumbar disc prolapse and degenerative lumbar spondylosis. *Spine* 1999;24(17):1820-1832.

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Bombardier C, In search of evidence: The Cochrane collaboration back review Group. *PT Magazine of Physical Therapy*. September 1998.

Karjalainen K, Malmivaara A, Van Tulder M, Roine R, Jauhiainen M, Hurri H, Koes B. Multidisciplinary rehabilitation for acute or subacute low back pain, neck pain, shoulder pain,

multilocational musculoskeletal pain, repetitive strain injuries, osteoarthritis and fibromyalgia among working age adults. A systematic Cochrane review. Book of abstracts of the 3rd International Scientific Conference on Prevention of Work-related Musculoskeletal disorders; 1998 Sept; Helsinki, Finland: Finnish Institute of Occupational Health, 1998:25.

Esmail R, Clarke J, Sinclair S, Irvin E, Bombardier C. Critical literature review of systematic reviews on the treatment of chronic low back pain. *Arthritis & Rheum*; 1998 Nov; 41:9(Suppl):S227.

Esmail R, Furlan A, Bombardier C. Evaluating the Cochrane collaboration back review group method guidelines. *Arthritis & Rheum* 1998;41:9(Suppl):S227.

Esmail R, Bombardier C. Most common criticisms of systematic reviews of therapies for low back pain and neck pain. *Arthritis & Rheum* 1997;40:9(Suppl):S312.

van Tulder MW, Assendelft WJJ, Koes BW, Bouter LM and the Editorial Board of the Cochrane Collaboration Back Review Group. Method guidelines for systematic reviews in the Cochrane collaboration back review group for spinal disorders. *Spine* 1997; 22 (20): 2323-2330.

Bombardier C, Esmail R and Nachemson AL. The Cochrane collaboration back review group for spinal disorders. *Spine* 1997; 22(8): 837-840.

Reviews of the Clinical Literature

Short Title & Budget Code: EBP Systematic Reviews: 4/410/670

Project Status: Ongoing 2004.

Introduction: In 1998, at the request of the WSIB, the Institute systematically reviewed the literature on the etiology, prognosis, prevention, treatment and disability management of chronic musculoskeletal pain. The Institute has also developed a database of systematic reviews of various treatments for chronic low-back pain. Many researchers at the Institute are authors (or co-authors) of systematic reviews, including Cochrane Reviews for the Back Review Group. As more reviews are conducted, discordance is often noted between the conclusions of the various research projects that are reported and the Institute's staff have developed expertise in solving problems with conflicts in the research reported in the literature.

Objectives:

- ▶ To conduct systematic reviews of health care interventions for chronic low-back pain.
- ▶ To maintain an updated database of systematic reviews of treatments for chronic low-back pain.
- ▶ To examine the potential sources of conflicts among systematic reviews of the same interventions.

Methods: Systematic Reviews

Results:

- ▶ van Tulder MW, Touray T, Furlan AD, Solway S, Bouter LM. Muscle relaxants for non-specific low back pain. *Cochrane Database Syst Rev.* 2003;(2):CD004252.
- ▶ Van Tulder MW, Touray T, Furlan AD, Solway S, Bouter LM. Muscle relaxants for nonspecific low back pain: a systematic review within the framework of the cochrane collaboration. *Spine.* 2003 Sep 1;28(17):1978-92.
- ▶ Van Tulder M, Furlan A, Bombardier C, Bouter L; The Editorial Board of the Cochrane Collaboration Back Review Group. Updated method guidelines for systematic reviews in the cochrane collaboration back review group. *Spine.* 2003 Jun 15;28(12):1290-9.

Researchers: Andrea Furlan (Coordinator), Claire Bombardier, Emma Irvin, Judy Clarke, Sandra Sinclair, Victoria Pennick, Jill Hayden, Pierre Côté, Maurits van Tulder IWH Adjunct Scientist (Vrije Universiteit, Amsterdam).

Stakeholder Involvement in Project Development: To be determined.

Potential Audiences and Significance: Clinicians, insurers and policy makers who do not have skills or time to search, appraise and summarize the scientific literature may use high quality systematic reviews in their decision making process.

External Funding: None

Presentations:

Sinclair SJ. Collaborative evidence-based approach to managing persistent low back pain. Dec

2003; Amsterdam, The Netherlands: E.U. Committee on the Development of European Guidelines for the Management of Back Pain.

Furlan AD, Clarke J, Esmail R, Sinclair S, Irvin E, Bombardier C. A critical review of reviews on the treatment of chronic low back pain. 2000 October; Philadelphia, PA: American Congress of Rheumatology 64th Annual Scientific Meeting.

Furlan A, Esmail R, Clarke J, Irvin E, Sinclair S and Bombardier C. Critical literature review of systematic reviews on chronic low back pain. 2000 March; Eilat, Israel: 4th International Forum for Primary Care Research on Low Back Pain.

Furlan A, Esmail R, Clarke J, Irvin E, Sinclair S and Bombardier C. Critical literature review of systematic reviews on chronic low back pain. 1999 November; Hamilton, Ontario: The Canadian Cochrane Symposium.

Furlan A, Esmail R, Clarke J, Irvin E, Sinclair S and Bombardier C. Critical literature review of systematic reviews on chronic low back pain. 1999 October; Rome, Italy: VII Cochrane Colloquium.

Bombardier C, Esmail R, Clarke J, Sinclair S, Irving E. Clinical literature review of systematic reviews on the treatment of chronic low back pain. 1999 June; Kona, Hawaii: International Society for the Study of the Lumbar Spine.

Publications:

Furlan AD, Sandoval JA, Taylor R, Mailis-Gagnon A. A systematic review of randomized controlled trials of spinal cord stimulators for chronic pain. *Pain Research Manage* 2003; 8(Suppl B): 40B.

Furlan AD, Pennick V, van Tulder M, Garritty C, Bombardier C. What is the optimal evidence-based management of chronic non-specific low-back pain? *Pain Research Manage* 2003; 8(Suppl B): 40B.

Clarke J, Garritty C, Furlan A, Pennick V, Sinclair S, Ervin E, Bombardier C. (2003) Psycho-educational management of chronic low back pain. A critical review and synthesis of systematic reviews. (IWH Working Paper #207)

Furlan AD, Clarke J, Esmail R, Sinclair S, Irvin E, Bombardier C. A critical review of reviews on the treatment of chronic low back pain. *Spine* 2001; 26(7):E155–E162.

Furlan AD, Clarke J, Irvin E, Pennick V, Garritty C, Sinclair S, Bombardier C. (2001) Pharmacological management of chronic low back pain: A critical review and synthesis of systematic reviews. (IWH Working Paper # 161)

Furlan AD, Clarke J, Esmail R, Sinclair S, Irvin E, Bombardier C. A critical review of reviews on the treatment of chronic low back pain. *Arthritis & Rheum* 2000;43:9(Suppl):S128.

Esmail R, Clarke J, Sinclair S, Irvin E, Bombardier C. Critical literature review of systematic reviews on the treatment of chronic low back pain. *Arthritis & Rheum* 1998;41:9(Suppl):S227.

Systematic Review Workshop

Short Title & Budget Code: Systematic Review Workshop: 4/410/114

Project Status: Ongoing 2004.

Introduction: The Institute for Work & Health is a leading institution, recognized internationally for its expertise in evidence-based practice. Many researchers and students at the Institute are involved with the Cochrane Collaboration and are first or co-author of many Cochrane and non-Cochrane reviews. The Institute has received increasing requests to share its expertise and to contribute to the education and training of educators, clinicians and future researchers.

In the past, the Evidence-based Practice group offered two Systematic Review Workshops to IWH staff (March 2001 and November 2002). In November 2003 we organized a Systematic Review Workshop for an external audience. This workshop was held over two days.

Objectives:

- ▶ To create a receptor capacity for systematic reviews.
- ▶ To influence the next generation of health-care professionals and research trainees by having them participate in the development and execution of various training initiatives.

Methods:

Program Day 1:

- ▶ Introduction to the Workshop
- ▶ Evidence-based medicine, systematic reviews and the Cochrane Collaboration
- ▶ Literature searches and study selection
- ▶ Methodological quality of randomized controlled trials.
- ▶ Exercise in small groups (quality assessment of a randomized controlled trial)
- ▶ Combining studies with and without meta-analysis. Reporting of systematic reviews.

Program Day 2:

- ▶ Systematic reviews of observational studies. Methodological quality of observational study
- ▶ Exercise in small groups (quality assessment of a cohort study)
- ▶ Clinical and statistical homogeneity. Statistical methods to combine studies. Bayesian meta-analysis
- ▶ Software for conducting meta-analysis.
- ▶ Using systematic reviews: finding them, critically appraising, standard reporting and interpreting conflicting conclusions
- ▶ Exercise in small groups (quality assessment of a systematic review)
- ▶ Dissemination, implementation and clinical practice guidelines

Results: The first Systematic Review Workshop for external audience was held on October 20 and November 17, 2003. There were 31 participants. This 2-day workshop was part of the Systematic Review Course (HAD 5308) offered in the Clinical Epidemiology program at the HPME Department of the University of Toronto. Six students were enrolled in this course. This course was coordinated by Claire Bombardier.

Researchers: Andrea Furlan (Coordinator), Claire Bombardier, Pierre Cote, Jill Hayden, Emma Irvin and J. Bayene (The Hospital for Sick Children)

Stakeholder Involvement in Project Development: None

Potential Audiences and Significance: The Systematic Review Workshops will be of particular interest to health care professional students, educators, clinicians, researchers, insurers and policy makers. This workshop was an accredited group learning activity under Section 1 of the Framework of CPD options for the Maintenance of Certification Program of the Royal College of Physicians and Surgeons of Canada (11 hours).

External Funding: None

Presentations: Furlan A. Software for conducting meta-analysis. Using systematic reviews: finding them, critically appraising, standard reporting and interpreting conflicting conclusions. Nov 2003; Toronto, ON: IWH Systematic Review Workshop.

Publications: None to date

Development of Minimum Set of Criteria to Include Observational Studies as an Efficacy or Effectiveness Study

Short Title & Budget Code: Effectiveness Trials & Observational Studies: 5/410/135

Project Status: Ongoing 2004.

Introduction: In the hierarchy of the quality of evidence on the effects of health care interventions, observational studies are usually rated low compared to randomized controlled trials (RCTs). Although RCTs (when feasible) are ideal for assessing the relative efficacy of an intervention, other study designs might be a useful complement to RCTs. Observational studies might, for example, be useful to assess 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 in 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 in early stages.

Objectives: To develop a minimum set of criteria to classify observational studies (cohorts and case-controls) to enable them to qualify as valid evidence of efficacy or effectiveness.

Methods: This project is divided in three phases with a total duration of three years. Phase I involves the development of a database of observational studies of interventions for back pain. Phase II involves a critical assessment of the observational studies and comparison of these studies with randomized controlled trials of the same interventions. Phase III will involve the development of a minimum set of criteria to allow observational studies to be used as valuable evidence when assessing effectiveness of interventions.

Results: Phase I is completed: 197 articles met the inclusion criteria and will be analyzed in Phase II.

Researchers: Andrea Furlan (PhD Candidate, Coordinator), Claire Bombardier, A. Jadad (University of Toronto and the University Health Network), G. Tomlinson (PhD Thesis Committee), Emma Irvin and members of the Cochrane Non-Randomized Studies Methods Group will be consulted on an ad hoc basis.

Stakeholder Involvement in Project Development: To be determined.

Potential Audiences and Significance: This research will be developed in the area of low-back pain, but the results will be valuable for clinical decision makers and researchers who are interested in combining all relevant evidence in the evaluation of many health care interventions. Further, it will build on the work of the Cochrane Collaboration Non-randomized studies methods group.

External Funding: None

Presentations:

Furlan A. Critical appraisal of the traditional taxonomy of study design. Dec 2003; Toronto, ON: 2nd Retreat of the University of Toronto Centre for the Study of Pain.

Furlan A. Critical appraisal of the traditional taxonomy of study design. Nov 2003; Toronto, ON: Clinical epidemiology rounds, Toronto General Hospital.

Furlan AD, Bombardier C. Poster: Controlled vocabulary associated with non-randomized studies of interventions for low-back pain. Oct 2003; Barcelona, Spain: XI Cochrane Colloquium: Evidence, Health Care and Culture.

Publications: None to date.

Development of a Comprehensive Conceptual Model to Understand the Prognosis and Course of Low Back Pain

Short Title & Budget Code: LBP Predictive Tool: 5\410\130

Project Status: Ongoing 2004.

Introduction: Low back pain (LBP) 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 with LBP whose condition proceeds to chronicity. The ability to accurately predict the clinical course early may lead to more effective management and would facilitate future investigation in LBP. Although there is an abundance of studies in the literature attempting to predict those LBP patients at risk of chronicity, conflicting results, complex prognostic models, and limited attention to prognostic factor prevalence provide limited usefulness to the practicing clinician.

Objectives:

- ▶ To identify key clinically useful factors that predict course and chronicity in low-back pain.
- ▶ To understand and manage potential sources of heterogeneity within the LBP prognostic literature.
- ▶ To map the state of the art in LBP prognosis on various models/frameworks of disability.
- ▶ To develop and test a comprehensive conceptual model to understand the epidemiology of non-specific LBP.
- ▶ To refine methodologies for systematic review, specifically in observational studies.

Methods: To address limitations of previous predictive models this study plan will use an evidence-based practice approach including a comprehensive and systematic review of the literature, as well as input from clinical practice, to fully understand clinically useful factors that predict chronicity in acute LBP patients. The analysis of the literature will include exploring and managing heterogeneity inherent in the LBP prognosis literature resulting from different clinical populations (source populations, inception points, outcomes measured), and various study design, analysis and measurement sources of heterogeneity. Using a model-based approach, information from the literature will be compiled, and the strength and consistency of predictive factors will be assessed. Clinical expertise will then be utilized to further explore prediction of chronicity in acute LBP. Qualitative research strategies will be used to investigate current usage, and acceptability of the predictive factors in clinical practice, and will explore trends and relationships observed, and those lacking information, in the literature.

Results: None to date.

Researchers: Jill Hayden (Coordinator, PhD Candidate), Claire Bombardier, Sheilah Hogg-Johnson, M.. van Tulder - IWH Adjunct Scientist (Vrije University Medical Centre and the Institute for Research in Extramural Medicine), G. Tomlinson (Toronto General Hospital, University Health Network)

Stakeholder Involvement in Project Development: None to date.

Potential Audiences and Significance: This study will provide high quality evidence regarding the course and prognostic factors for chronicity in low-back pain patients and will help to guide future research. For insurers and workers compensation boards, the findings have the potential to guide policy decisions regarding the allocation of the most appropriate care for individuals with low-back pain.

External Funding: Special Chiropractic Research Grant Ontario Chiropractic Association /Ministry of Health and Long Term Care:\$13,150; 2001 - 2003.

Presentations:

Hayden JA, van Tulder MW, Côté P, Bombardier C. Descriptive analysis of quality criteria used in systematic reviews of prognostic studies. Nov 2003; Hamilton, ON. 3rd Canadian Cochrane Collaboration Symposium; and Oct 2003; Barcelona, Spain. XI Cochrane Collaboration Colloquium.

Hayden JA, van Tulder MW et al. Analytical strategies in systematic review: Exercise therapy for treatment of low back pain. Nov 2003; Hamilton, ON: 3rd Canadian Cochrane Collaboration Symposium; and Oct 2003; Barcelona, Spain: Cochrane Colloquium.

Hayden JA. Program of research: prognosis and course of low back pain. Oct 2003; Toronto, ON: Canadian Chiropractic Research Foundation.

Hayden JA. Conducting a systematic review. Part of workshop: Systematic reviews: presentation to physiotherapy educational influentials. Sept 2003; Toronto, ON: Institute for Work & Health.

Hayden JA. Meta-Analysis. Workshop: Methods and results of systematic reviews of conservative treatments for low back pain. May 2003; Linköping, Sweden: Cochrane Back Group. Forum VI for Primary Care Research on Low Back Pain.

Hayden JA, van Tulder MW, Bombardier C. Poster: Descriptive analysis of quality criteria used in systematic reviews of prognostic studies. May 2003; Department of Health Policy, University of Toronto: Management and Evaluation Research Day.

Hayden JA. Analysis in systematic review. Part of internal workshop: Systematic Review and Meta-analysis. Nov 2002; Toronto, ON: Institute for Work & Health.

Publications: None to date.

Development of a Decision Aid Tool for X-ray Use in Patients with Acute Low-Back Pain

Short Title & Budget Code: X-ray Decision-aid Tool: 5/410/680

Project Status: Following pilot study major revisions and re-direction took place late in 2003. The project has been redesigned for 2004 under the title: “Adherence to clinical guidelines for plain film radiography in acute low back pain among chiropractic trainees”.

Introduction: A review of the literature suggests a high rate of x-ray use among chiropractors in both Canada and the US. This high rate is contrary to current evidence that suggests the vast majority of patients with acute low-back pain (LBP) have mechanical back pain, where x-rays are of limited use. A decision-aid tool may help chiropractors quickly and effectively assess the need for x-rays in patients with acute LBP. This research is aimed at improving the diagnosis of serious disease in acute LBP and developing a tool to reduce unnecessary x-ray use.

Objectives:

- ▶ To develop a decision aid tool aimed at ruling out serious pathology as a cause of acute LBP.
- ▶ To determine the sensitivity, specificity and predictive value of the tool.
- ▶ To assess current practice with respect to x-ray utilization for patients with acute LBP.
- ▶ To evaluate and compare the x-ray utilization rate using this tool for patients with acute LBP.

- ▶ To estimate the prevalence of serious disease in a sample of chiropractic patients with acute LBP.
- ▶ To compare patient characteristics and outcomes measures in acute LBP patients from chiropractic teaching clinics and field chiropractors.
- ▶ To assess prognostic factors in recovery of acute LBP.

Methods: A total of 2000 eligible patients with acute LBP will be followed prospectively over a maximum period of 12 months. Telephone interviews and administrative databases will be used to assess patient characteristics, LBP outcome measures and the presence of serious disease. Patient characteristics associated with serious disease will be assessed using univariate and multivariate analysis to develop a decision aid to rule out serious disease.

Results: A per project status, this study was halted following pilot work and is redesigned for 2004.

Researchers: Carlo Ammendolia (PhD Candidate, Coordinator), Claire Bombardier (thesis supervisor), Sheilah Hogg-Johnson, Vicki Pennick

Stakeholder Involvement in Project Development: Utilization data on chiropractic services in Ontario was obtained from OHIP and WSIB; of particular interest was x-ray utilization data.

Potential Audiences and Significance: A valid, reliable decision-aid tool will help set the parameters for the use of x-rays for individuals presenting with ALBP. This will help inform all clinical decision-makers for individuals with ALBP, clinicians and policy makers. An estimation of the prevalence of serious disease in chiropractic patients with ALBP and how representative patients from chiropractic teaching clinics are to general chiropractic practice will be valuable knowledge for future research.

External Funding: Ontario Chiropractic Association and the Ministry of Health and Long Term Care Special Chiropractic Research Fund; 2002-2004: \$187,450.

Presentations:

Ammendolia C. Implementing evidence-based guidelines for x-ray use in acute low back pain: a pilot project in a chiropractic community. Challenges and Opportunities. Invited presentation. State of the Art Conference. Evidence-based care for musculoskeletal disorders. 15 Oct 2003; Toronto, ON: American College of Occupational and Environmental Medicine.

Ammendolia C, Hogg-Johnson S, Glazier R, Bombardier C. Poster: Views on x-ray use for patients with acute low back pain among chiropractors in an Ontario community. 22-24 May 2003; Linkoping, Sweden: Forum VI Low Back Pain in Primary Care.

Publications: 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. *Journal of Manipulative Physiological Therapeutics* (in press).

Stakeholder Products: Linkages: Literature Synthesis and Diffusion; Journal of the Ontario Occupational Health Nurses' Association; BackGuide

Short Title & Budget Code: JofOOHNA: 4/410/830; Linkages: 4/410/515; and BackGuide: 4/410/345

Project Status: Ongoing 2004.

Introduction: Clinicians do not have the time and most lack the skills to keep abreast of the increasing body of new evidence generated in today's health care and research environment. The Institute's clinical stakeholders have highlighted the need for critiques of the research literature that also provide practical information on the appropriate application of research findings in the clinic or workplace. In response, *Linkages* was started as a feature within the Institute's newsletter, *At Work*. It is now a stand-alone publication that is distributed with *At Work* twice per year and is available in PDF through the Institute's Web site. *Linkages* critically reviews the best available evidence in the peer-reviewed literature in the area of soft tissue injury. The Journal of the Ontario Occupational Health Nurses' Association is the official publication of the Association and is published three times a year. "From the Research Frontier" is a regular feature, highlighting work of Institute researchers and colleagues that may be of import to our occupational health stakeholders. The BackGuide_{TM} is an educational web-site for health care providers who are involved with the management of low back pain. The BackGuide is based on research conducted by the U.S. Agency for Health Care Policy and Research (AHCPR), now known as the Agency for Health Care Research and Quality (AHRQ) and was developed by the Institute in collaboration with the University of Calgary. It is a tool designed to improve patient care and foster better use of valuable health care resources.

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

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

Results: See Publications and Presentations.

Researchers: Andrea Furlan, Vicki Pennick, Chantelle Garritty, Claire Bombardier, Emma Irvin, Sandra Sinclair, Kathy Chapeskie, Katherine Russo

Stakeholder Involvement in Project Development: Stakeholder feedback, obtained through contacts made by the area's knowledge transfer and exchange associate and scientific personnel, along with feedback obtained through the products themselves, guide the development and refinement of these products.

Potential Audiences and Significance: These products are meant to provide relevant information to our clinical and workplace stakeholders on a broad range of clinical and work-related subjects. It is important that the Institute forge relationships and partnerships with these individuals and continue to develop products from our research that inform and enable clinical decision-making.

External Funding: None

Presentations:

Pennick V. Evidence-based practice. March 2003; Mississauga, ON: Occupational Health Nurses Knowledge Brokers Workshop.

Publications:

Furlan A. (Winter 2003) Conservative treatments for Carpal Tunnel Syndrome. Linkages No. 12.

Furlan A. (Summer 2003) Mass media campaign reduces disability due to low-back pain. Linkages No. 11.

Pennick V. The evidence-practice gap. Journal of the Ontario Occupational Health Nurses Association 2003; 22(1):24-25.

Pennick V. The World Wide Web - information mother lode or Pandora's box? Journal of the Ontario Occupational Health Nurses Association 2003; 22(2): 26-27.

(Aug 2002) What is the optimal evidence-based management of chronic non-specific low-back pain? Linkages No.10.

(Dec 2001) Do multidisciplinary pain clinics help patients with persistent low-back pain? Linkages No. 9.

(June 2001) Massage therapy shows promising results for patients with subacute low-back pain. Linkages No. 8.

(Winter 2000) Activity is an important element in a good prescription for acute back pain. Linkages No. 7.

At Work - *Infocus*. Issue # 15a Spring 2000. The effectiveness of acupuncture in treatment of low back pain.

At Work. Issue #12a, Summer 1999. Steroid injections and shoulder pain.

At Work. Issue #11, Spring 1999. Evidence found supporting the effectiveness of manipulation for chronic low back pain.

At Work. Issue #10, Winter 1998-99. NSAIDs can provide short-term relief for low-back-pain sufferers.

At Work. Issue #9, Spring 1998. Multidisciplinary programs are shown to be helpful for chronic low back pain patients.

At Work. Issue #8, Winter 1997-98. Are there added benefits from TENS for acute low back pain patients?

Return to Work

Overview

Over the past decade, the Workplace Safety & Insurance Board has made a series of changes in the delivery of return-to-work services for injured employees. These changes significantly reduced the involvement of the WSIB and increased the responsibility of the workplace. More recently there has been renewed focus on return-to-work program development at the WSIB, and an interest in information on the quality, effectiveness and determinants of safe and sustainable return-to-work experiences. Achieving optimal return-to-work outcomes – outcomes that support the functional recovery of injured workers and minimize workplace and societal costs – is a complex challenge. Return-to work outcomes are shaped by the economic climate, workplace organizational factors, health-care delivery practices, insurance delivery and compensation policies and the needs and expectations of injured workers. Increasing attention is being given to the sustainability and quality of return-to-work experiences. Since it was founded, the Institute for Work & Health has contributed important research on return-to-work issues in Ontario.

The results of a pilot study on factors influencing return to work which was undertaken in 2002 with the assistance of the WSIB Research and Evaluation Branch will be forthcoming in 2004. The results of this cohort study will ultimately provide evidence-based directions for rehabilitation of injured workers and point to the most influential factors in a successful return to work process. Based on these results a larger study proposal with long term follow up of two years will be submitted for external funding.

Additional work undertaken at the request of the WSIB with expected completion early in 2004, involves a focus on the existing evidence on workplace-based initiatives which can have a positive influence on the return to work process. This broad systematic review of the literature has been undertaken with an acknowledgment that RTW processes and their implementation may well vary across workplaces based on sector, size, unionization status and a number of other factors. The eventual objective of this systematic review is to work with WSIB and other health and safety system partners to create practical tools for use with policy makers and workplace parties about evidence-based workplace strategies for optimal return-to-work. These examinations of factors influencing return to work are relevant to the *Fair Compensation and Ontario Workers' Compensation System Research* priority.

Project Titles:

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Return to Work in Small Workplaces: Worker and Employer Perspectives (RTW in Small Workplaces: 4/410/780)	163
Workplace-Based Return-to-Work (RTW) Interventions: A Systematic Review of the Literature (RTW Review of the Literature: 4/410/142)	166
Evaluation Research Protocols in Return to Work (Research Protocols in RTW: 4/410/127)	167
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Return-to-Work Cohort

Short Title & Budget Code: Return-to-Work Cohort: 4/410/340

Project Status: Ongoing 2004 - A grant application will be resubmitted to WSIB in February 2004.

Introduction: This prospective inception cohort study will follow injured workers for one year and will provide important descriptive and predictive information regarding important differences in return-to-work outcomes in Ontario. It will examine the relative contribution of organizational, individual/ psychological, insurer, and healthcare provider factors to return to work outcomes, using an interactional framework.

Objectives:

- ▶ Identify the critical workplace, psychological, insurer, and healthcare provider factors contributing to safe and sustainable RTW.
- ▶ Understand determinants of work accommodation offer, acceptance, and success, given work accommodation's pivotal role in successful RTW (Krause et al., 1998).

Methods: This prospective inception cohort of 600 Ontario lost-time claimants with back or upper extremity WRMSD will be recruited using the WSIB database, and surveyed by phone, 3-4 weeks, 6 months, and 12 months post-injury. Pilot work on 400 injured workers has confirmed the feasibility of recruitment and interviewing.

Results: Analysis of the pilot study, for which data collection was completed in May 2002, is ongoing. A grant application will be resubmitted during 2004 to apply for external funding from WSIB.

Researchers: Renée-Louise Franche (Coordinator), Cameron Mustard, Gail Hepburn, Pierre Côté, Curtis Breslin, John Frank, Sheilah Hogg-Johnson, Sandra Sinclair, Jason Pole, Marjan Vidmar, Judy Clarke, N. Krause IWH Adjunct Scientist (University of California, Berkeley), P. Loisel (Université de Sherbrooke).

Stakeholder Involvement in Project Development: WSIB staff have been involved in determining the main areas of research focus from the beginning of the project.

Potential Audiences and Significance: The one year follow-up of the cohort will address the issue of sustainability of RTW, which is of prime interest to workers, employers, healthcare providers, and insurers. The focus on modifiable factors such as work accommodation and depressive symptoms, will lead to substantive recommendations for healthcare, workplace, and WSIB interventions, and will have policy implications.

External Funding: None

Presentations:

Franche R-L, Mustard C, Breslin C, Hepburn G, Kosny A, Pole J, Sinclair S, Krause N, Hogg-Johnson S, Vidmar M, Clarke J, Beaton D. Organizational, individual, and healthcare factors associated with return to work after an occupational musculoskeletal injury: A cross-sectional study of Canadian lost-time claimants. Sept 2002; Barcelona, Spain: Poster presented at the 16th EPICOH Conference on Occupational Health.

Publications:

Franché R-L, Pole J, Hogg-Johnson S, Vidmar M, Breslin C. (2003) The impact of work-related musculoskeletal disorders on workers' caregiving activities. Submitted: American Journal of Public Health. (IWH Working Paper #235)

Kosny A, Franché R-L, Pole J, Krause N, Côté P, Mustard CA. (2003) Early healthcare provider communication with patients and their workplace following a lost-time claim for an occupational musculoskeletal injury. Submitted: Canadian Medical Association Journal. (IWH Working Paper #223)

Franché R-L, Krause N. (2002) Readiness for return-to-work following injury or illness: conceptualizing the interpersonal impact of healthcare, workplace, and insurance factors. Journal of Occupational Rehabilitation 2002; 12:233-256.

Return to Work in Small Workplaces: Worker and Employer Perspectives

Short Title & Budget Code: RTW in Small Workplaces: 4/410/780

Project Status: Ongoing 2004: Project is completed and initial report and paper written, but some additional papers planned.

Introduction: Successful return to work is of critical importance to workers, employers and the compensation system. Despite a growing research literature on return-to-work (RTW), we have insufficient understanding of its psychosocial dimensions, and of how it occurs in small workplace settings. That which we have 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.

Objectives:

- ▶ To further our understanding of the RTW process in workplaces employing fewer than 50 workers.
- ▶ To link different perspectives of employers, workers and rehabilitation professionals, and identify how their understandings of and responses to RTW are 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.

Methods: Qualitative interviews with a sample of workers and employers, sampled strategically to insure diversity in size of workplaces (up to 50 employees), type of work, type of illness/injury, involvement (or not) in compensation system, social characteristics of the workers/employers, and nature of experience with RTW. Some of the data collection was done by an injured worker. In several instances data from worker and employer in the same organization were acquired. Second and even third follow up interviews were conducted with certain participants to get more longitudinal understanding and to explore particular issues in greater depth. A small sample of professionals actively engaged in RTW issues in smaller workplaces were also interviewed to assist the analysis and interpretation of data. A variety of documentary materials (including RTW administrative forms and policy documents) were analysed in relation to the interview data. Verbatim interview transcriptions and documentary materials were analyzed using various methods of comparative interpretive analysis.

Results: Key individuals in interested organizations helped identify workers and employers, who were invited to participate in the study. Referrals came from Nurse Case Managers and Adjudicators in the Small Business Sector of the Ontario Workplace Safety and Insurance Board (WSIB), from the Office of the Worker/Office of the Employer Advisor (OEA), the Bancroft Institute, health/rehabilitation clinics and clinicians in Toronto, from cold calls to small business employers and from personal contacts. 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 include 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.

Researchers: J. Eakin (Principal Investigator, IWH Adjunct Scientist), Judy Clarke (IWH Coordinator), Ellen MacEachen (University of Toronto, and current Mustard Fellow in Work Environments and Health at IWH)

Stakeholder Involvement in Project Development: Supporters of the original research proposal included: Stephen Cryne, Director of the Office of the Employer Advisor, Alec Farquhar of the Office of the Worker Advisor, Ron House, Director of Occupational Health Clinic at St. Michael's Hospital, Marion Endicott of the Bancroft Institute, Judith Andrew of the Canadian Federation of Independent Business. Participants who were interviewed in the study included 22 injured workers, 17 employers in small business settings, six professionals working in the RTW area.

Potential Audiences and Significance: The project concerns topics of high stated priority to WSIB, and to both labour and management groups. It is relevant to those interested in RTW policy and service, as well as to those charged more generally with health and safety issues in the small business sector. The project has given "voice" to those who have not been much heard in the occupational health arena - the workers and employers in small workplaces. It has developed key concepts and hypotheses, that will inform future research. Findings have been presented to various stakeholder audiences, with a view to enhancing policy makers', service providers', employers' and injured workers' understanding of the psychosocial and organizational barriers and facilitators to effective RTW.

External Funding: WSIB Research Advisory Council; July 1999 - Nov 2001; \$62,000. (Administered from the University of Toronto)

Presentations:

Eakin J, Clarke J, MacEachen E. Return to work in small workplaces: a sociological account. Mar 2003; Toronto, ON: APA/NIOSH Conference on Work Stress and Health.

Eakin J. Return to work in small workplaces: A sociological account. November 2002; IWH Plenary.

Eakin J. Return to work in small workplaces. October 2002; Toronto, Ontario: Industrial Accident Prevention Association seminar for regional managers.

Eakin J. Return to work after occupational injury/illness: An ethnographic study in small enterprises in southern Ontario. May 2002; Toronto, Ontario: Canadian Sociology and Anthropology Association Annual Meeting, Learned Societies Conference.

Eakin J. Return to work in small workplaces. February 2002; Toronto, Ontario: Provincial directors of the Small Business Unit at the Ontario Workplace Safety & Insurance Board.

Publications:

Eakin JM, MacEachen E, Clarke J. Playing it smart with return to work: small workplace experience under Ontario's policy of self-reliance and early return. *Policy and Practice in Health and Safety* 2003;1(2):19-41.

Eakin J, Clarke J, MacEachen E. (2003) Return to work in small workplaces: sociological perspective on employers' and workers' experience with Ontario's strategy of self-reliance and early return. (IWH Working Paper #206)

Eakin J, Clarke J, MacEachen E. (2002) Return-to-work in small workplaces: Sociological perspective on workplace experience with Ontario's 'Early and Safe' strategy. Report to WSIB:

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

Short Title & Budget Code: RTW Review of the Literature: 4/410/142

Project Status: Ongoing in 2004.

Introduction: Employers, insurers and workers have expressed a growing interest in workplace-based 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 recent workplace-based RTW programs and of the most critical Canadian and international studies will be conducted.

Objectives:

- ▶ Provide an overview of the main RTW strategies, outcomes and benefits associated with workplace-based intervention programs.
- ▶ Provide guidelines regarding the most effective evidenced-based RTW workplace-based interventions.
- ▶ Develop a summary of effective evidenced-based RTW strategies - this product is intended for use by the WSIB.
- ▶ Conduct literature review of reviews of workplace-based RTW intervention studies for peer-reviewed publication.

Methods: A systematic review process will be used to conduct the literature search. Studies will be searched in Medline, Embase, Cinahl, Psycinfo, Psylit, Sociological abstracts and Canadian Business and Current Affairs (CBCA). Searches will be run from 1990 and up, which coincides with the implementation of the American Disability Act. Two reviewers will: 1) review titles and abstracts, 2) conduct quality appraisals of studies, and 3) conduct data extraction of selected studies.

Results: Not available yet.

Researchers: Renée-Louise Franche (Coordinator), Sandra Sinclair, Donald Cole, John Frank, Rhoda Reardon, Kim Cullen, Anusha Raj, Judy Clarke, Emma Irvin, Jeremy Dacombe, Cameron Mustard, Sheilah Hogg-Johnson, Jaime Guzman, Dwayne Van Eerd, Ellen MacEachen, Vicki Pennick.

Stakeholder Involvement in Project Development: This project will be conducted with WSIB input via discussions and meetings with Frances Share and Judy Geary.

Potential Audiences and Significance: This project will provide background knowledge and guidelines for WSIB, employers, EAP and unions regarding RTW strategies.

External Funding: None.

Presentations: None to date.

Publications: None to date.

Evaluation Research Protocols in Return to Work

Short Title & Budget Code: Research Protocols in RTW: 4/410/127

Project Status: On hold; no activity on this project in 2003 beyond initial discussions.

Introduction: Discussion with our WSIB colleagues and others in the OH&S community suggest growing interest and potential initiatives for 2003 to evaluate the effectiveness of policy and program innovations in RTW in the Ontario disability prevention system. IWH knowledge and understanding of the current research literature on RTW interventions as well as our methodological experience makes us appropriate partners in the development of an evaluation initiative undertaken by the WSIB in this area. In addition the potential for evaluation research initiatives with other stakeholders in the RTW field are also currently under consideration.

Objectives:

- ▶ To develop a plan of work with WSIB and other OH&S colleagues to evaluate a range of RTW initiatives.
- ▶ To gain a better understanding of the the effectiveness of RTW programs within the Ontario context.
- ▶ To examine the characteristics of RTW initiatives which result in optimal outcomes.

Methods: N/A

Results: N/A

Researchers: John Frank, Cameron Mustard, Renée-Louise Franche, Sandra Sinclair, Kim. Cullen, Rhoda Reardon

Stakeholder Involvement in Project Development: Discussion under way with WSIB and other stakeholders interested in this issue.

Potential Audiences and Significance: WSIB, and the workplace parties ans well as disability management providers would find these results of considerable interest.

External Funding: None

Presentations: None to date.

Publications: None to date.

Training Initiatives

Short Title & Budget Code: Training Initiatives: 4/140/144

Project Status: Ongoing in 2004.

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

Objectives: To influence the next generation of health-care professionals and research trainees by participating in the development and execution of various training initiatives.

Methods: N/A

Results: N/A

Researchers: Claire Bombardier, Andrea Furlan, Victoria Pennick, Chantelle Garritty, Pierre Côté, Renée-Louise Franche, P. Loisel (Sherbrooke University), J. Hunter (Department of Physical Therapy, University of Toronto), Canadian Memorial Chiropractic College staff, Sheilah Hogg Johnson, Donald Cole, Dorcas Beaton, Carol Kennedy, Ellen MacEachen, Jaime Guzman.

Stakeholder Involvement in Project Development: Students, educators, health care providers, policy-makers, researchers and trainees may be consulted during the development of the various training initiatives. The systematic review workshops will be done in collaboration with the Toronto Cochrane Coordinator (R. Wong).

Potential Audiences and Significance: The IWH training initiatives will be of particular interest to health care professional students, educators, clinicians, and research trainees.

External Funding: The Work Disability Prevention Training program is funded by CIHR and the PI is Patrick Loisel from Université de Sherbrooke where the funds are administered.

Presentation: Sullivan TJ, Loisel P, Franche R-L, Durand MJ, Côté P. Training future researchers in work disability prevention: the work disability prevention CIHR strategic training program. May 2003; Linköping, Sweden: Forum VI for Primary Care Research on Low Back Pain.

Publications: None to date.

Statistical Methods and Data Tools

Overview

Strong measurement methods and rigorous analytic approaches are central to excellence in research and to clarifying the nature of the relationship between exposures and outcomes in epidemiologic studies. A key underpinning to the productivity of the Institute's research groups has been the expertise provided by the Institute's team of statisticians and programmer/analysts, as well as our information retrieval capacity and expertise. Many aspects of the study of work and health present complex challenges for statistical analysis. For example, a typical disease course in work-related musculoskeletal disorders will display patterns of recurrence over time, requiring statistical methods that can accommodate temporal change in function. It is also frequently the case that factors influencing health and safety will act at multiple levels simultaneously, for example, at the macroeconomic level, the level of the workplace and on the characteristics of individual workers. A family of statistical applications on the frontier of applied biostatistics, named multilevel modeling, is required to address this complexity.

The researchers in this area provide statistical, consulting and information technology solutions to each of the other research program areas. As such they are a repository of methodological expertise within the Institute. In addition they take the lead in the exploration, development and implementation of methodologies and approaches to access, collect, analyze, interpret, store and maintain 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. In 2004 these researchers will be further refining our capacity for on-line data collection and the documentation of our ongoing repository of WSIB historical databases at the Institute for research purposes. In addition they will continue to work on a Work Injury Atlas which will provide descriptive information on the risk of workplace lost time injury by occupation, duration of benefits and severity of injury over the past 10-15 years in Ontario. In 2004 we anticipate that this will yield a description of the geographical variation in soft tissue claims rates across the province.

The methodological expertise of these researchers and in particular their familiarity with and ability to access and interpret WSIB administrative data makes this work of relevance to all those who need and want to access WSIB data in their research. Institute researchers have frequently been consulted on and have been the point of access to this data for other researchers applying to the WSIB Research Advisory Council peer review grants program.

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Workplace Safety & Insurance Board Data Routine Statistics

Short Title & Budget Code: WSIB Routine Statistics: 4/430/845

Project Status: Ongoing 2004.

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

Objectives:

- ▶ Continually develop and maintain expertise in the data holdings of the WSIB.
- ▶ Explore the potential of the drug benefits database (RxPlus) for research purposes.
- ▶ Aid Institute researchers by providing information on the data holdings and their potential use for research projects.
- ▶ Respond to ad hoc requests for data extractions required for project planning purposes, etc.

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

Results: WSIB data extractions were completed for a large variety of projects. A yearly report on this activity is provided to the WSIB at year end. This report is available upon request.

Researchers: Sheilah Hogg-Johnson, Marjan Vidmar, Hyunmi Lee

Stakeholder Involvement in Project Development: Staff of Information Management at the WSIB, WSIB staff within the Research & Evaluation Branch, the Health Care/Data Team, Actuarial Services, Statistical Coding and the FOI Coordinator (E. Braun).

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

External Funding: None.

Presentations: None to date.

Publications: None to date.

WSIB Denominators

Short Title & Budget Code: WSIB Denominators: 4/430/845

Project Status: Ongoing 2004.

Introduction: The WSIB time loss injury claims contain information on the age and sex 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, however, no administrative source of denominators to estimate injury rates at the same levels of stratification available to describe claims. (WSIB does maintain an administrative source for denominators at the firm level). In 2001, this project commissioned detailed labour force counts, adjusted for the coverage rates of the WSIB, from the Canadian Labour Force Survey and the Canadian Census. The labour force counts have been tabulated for each of the two dominant occupational classification systems in use in Canada in the 1990s (SOC1980 and SOC1991). These labour force counts will be applied in a wide range of research applications.

Objectives:

- ▶ Develop a time series of accurate labour force denominators for the estimation of rates of workplace injury over the period 1987 to the present.
- ▶ Annually update the denominator information.

Results: Work completed in 2003 has examined gender differences in time-loss compensation claims in the Province of Ontario over the period 1900-2000. The absolute reduction in injury rates over this period for men was 2.20 / 100 full time equivalents (47.7% relative reduction) and for women was 1.04 (39.1% relative reduction). For both men and women, these declines have been driven by large decreases in injury incidence in manual occupations. The gender difference in the crude incidence of time-loss compensation claims can be explained by male/female differences in occupations.

Researchers: Cameron Mustard (Coordinator), Peter Smith

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

Potential Audiences and Significance: This project is primarily 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. The research work arising from this project should be of interest to a wide range of stakeholders.

External Funding: None.

Presentations: None to date.

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) Provisional acceptance and request of re-submission at Occupational and Environmental Medicine.

Smith PM, Mustard CA, Payne JI. A methodology for estimating the labour force insured by the Ontario Workplace Safety and Insurance Board. (IWH Working Paper #196) Submitted: Chronic Diseases in Canada.

Historical Data Depository

Short Title & Budget Code: Historical Data 4/430/303

Project Status: Ongoing 2004.

Introduction: The Ontario Workplace Safety & Insurance Board have immense data holdings of information on workers' compensation claims, claimants and covered firms. Recent developments at the WSIB have focused on modernizing the technical capacity to develop up-to-date tools 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 proposes to initiate a special project which would result in building a comprehensive collection of WSIB databases at IWH, for research purposes.

Objectives: Develop a repository at IWH for historical data holdings of the WSIB.

Methods:

- ▶ Identify key electronic sources of pre-1990 claimant and employer information.
- ▶ Investigate alternative media for long-term storage and access to data.
- ▶ Seek permission to access and convert data for long-term storage and access.
- ▶ Create dedicated IWH copies of identified data.
- ▶ Document contents of data sources, and how to access them.

Results:

- ▶ Key comprehensive sources of claimant (System 57) and firm level data (historical actuarial files) have been identified.
- ▶ After considering several options, we have opted to ask for dedicated storage space, either on disk or on tape, at the WSIB, accessible via their mainframe. The mainframe will allow us the computing power to deal with these extremely large files. We now need to apply to the WSIB to get the dedicated space.
- ▶ Permission to access the files has been granted already.
- ▶ Work has yet to begin on the actual programming and conversion.
- ▶ Documentation of the System 57 files is well underway, with hyperlinked documents for the record layouts, field definitions and coding structures. Documentation of the firm level information has not been undertaken yet.

Researchers: Sheilah Hogg-Johnson (Coordinator), Marjan Vidmar, Hyunmi Lee

Stakeholder Involvement in Project Development: Completion of the project will rely on the involvement of key individuals familiar with the data systems of interest - all current or former employees of the WSIB - in particular, we are fortunate to be able to consult with Wing Chan, formerly at the Research & Evaluation Branch of the WSIB.

Potential Audiences and Significance: The data themselves will be of interest to researchers at the Institute for Work & Health and possibly the Workplace Safety & Insurance Board.

External Funding: None.

Presentations and Publications: None to date.

Cohort Methods

Short Title & Budget Code: Cohort Methods: 4/410/120

Project Status: Ongoing 2004.

Introduction: 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.

Objectives:

- ▶ To test the impact of attrition bias on the results of cohort studies.
- ▶ To determine the impact of various attrition rates on the results of cohorts studies.
- ▶ To determine whether controlling for factors related to attrition (in multivariate survival models) can correct for the selection bias related to these factors.

Methods: Simulation studies.

Results: Attrition bias may be present in cohort studies even with high follow-up rate.

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

Stakeholder Involvement in Project Development: None to date.

Potential Audiences and Significance: 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.

External Funding:

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 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)

Data Dictionary

Short Title & Budget Code: Data Dictionary: 4/430/301

Project Status: Ongoing 2004.

Introduction: The Data Dictionary project is an attempt to create a searchable catalogue that documents the tools, resources and information on areas of research at the Institute. Staff beginning 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.

Objectives:

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

Results: At the end of 2003 a Beta version of the data dictionary had been completed and located at a specific site on the IWH intranet (<http://iwhdd/>). This site contains information on occupational and industrial coding, and issues around insurance coverage and denominator estimates for the Ontario labour force. Information on assessment tools is also included. The primary purpose of this tool is to provide an example of a utility in information communication.

Researchers: Emma Irvin, Peter Smith, Sheilah Hogg-Johnson, Hyunmi Lee

Stakeholder Involvement in Project Development: No external stakeholder involvement.

Potential Audiences and Significance: This project is primarily focused on compiling comprehensive documentation on IWH in-house resources, to limit duplication in effort. The products will mainly be of interest to internal staff only.

External Funding: None.

Presentations: None to date.

Publications: None to date.

Keyword Project

Short Title & Budget Code: Keywords 4/430/311

Project Status: Ongoing 2004.

Introduction: The Keyword project is an attempt to create a common nomenclature for the IWH which would be searchable. This nomenclature would be used for a variety of projects including: the Web, Refman, WPs. It would be generated using MeSH vocabulary and tailored to suit our own needs.

Objectives:

- ▶ To identify a frequency of terms that are representative of our work at the IWH.
- ▶ The next step in the refinement of this initiative is to get a consensus agreement on the structure of the tree.
- ▶ To flush out the tree and develop layers which would be dependent on the various uses.
- ▶ Cross reference the tree structure.
- ▶ Maintain.

Methods:

- ▶ Develop set of terms for IWH web search engine.
- ▶ Tag all material on Website.
- ▶ Tag all other material within IWH eg. Refman, Projects.
- ▶ Edit and maintain.

Results: This project met all of its targets for 2003, by year end we had developed a set of search terms for use at the IWH, specifically for the search engine on the web.

Researchers: Emma Irvin, Jeremy Dacombe

Stakeholder Involvement in Project Development: N/A

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

External Funding: None.

Presentations: None to date.

Publications: None to date.

Development of Instrument Database and Questionnaire Design Tools

Short Title & Budget Code: Development of Design Tools: 4/430/835

Project Status: Ongoing 2004.

Introduction: Several questionnaire instruments appear in Institute studies time and time again (e.g., SF-36, DASH, Chronic Pain Grade, Job Content Questionnaire, Effort-Reward Instrument, etc). The purpose of this project is to create Microsoft Access modules for the 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.

Objectives:

- ▶ To develop multi-purpose data entry modules for the most commonly used questionnaire instruments at IWH.
- ▶ Develop tools for use in designing data entry by allowing research staff to copy the instruments to another database and giving them the ability to design additional questions using templates.

Methods: Design multi-user application using a Runtime MS-Access Database. Consult with various staff members obtaining their suggestions and input as the application is being developed.

Results:

- ▶ Added data entry modules for the Scaled Instruments Database, which included: the Bradburn Affect Balance Scales, Buchanan Personality Scores: Five Factor Model, Conflict at Work (from NIOSH General Job Stress Questionnaire), General Health Questionnaire - 28 item, Job Stress Survey, Revised UCLA Loneliness Scale, Measures of Work Characteristics, Organizational Commitment Questionnaire, Panas-X: Positive and Negative Affect Schedule, Perceived Control Scale (from NIOSH General Job Stress Questionnaire), Safety Climate Questionnaire, Time Dimensions of Work, Work Autonomy Scales, Worker Control Scale and Work-Family Culture instruments. Currently there are modules for thirty-four different instruments.
- ▶ Each module was designed to consist of a main form with a combo-box for SubjectID and a Tab Control with each tab (Page) linked to a subform displaying the instrument's questions. There is also a tab in which the instrument score(s) for each subject is calculated. Although the Scaled Instruments Database was originally designed with MS-Access 97, it has been converted to a MS-Access 2000 database.
- ▶ The beta-version of the Health Instruments Database, which contains general information on instruments, descriptions of scoring methods, items on the instruments validity and reliability and records of contacts and references for the instruments, was finalized. The Instrument Intelligence person (Sherra Solway), who was the main user and administrator of the database, has since left the Institute. Further progress awaits additional staffing.
- ▶ Continuing with the design to extend the application tools for users to create a new database.

Users will be able to not only extract the existing instrument modules but to also construct additional questions for a new questionnaire. With these tools as well as the previous one, users will be able to design data entry programs for their questionnaires in a matter of a few hours.

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

Stakeholder Involvement in Project Development: External Researchers

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

External Funding: None

Presentations: Provided a live demo of the Instrument Database as well as the library modules to the Health Services Research Monitoring and Evaluation group. Dec 2000 to some internal staff.

Publications: None to date.

Knowledge Transfer and Exchange

Overview:

The first change for 2003 was a name change for the unit from Research Transfer to **Knowledge Transfer and Exchange (KTE)**. This name change signals the recognition that knowledge transfer is a two-way process. New research knowledge is shared with key decision-makers and key questions from these target audiences are returned to the Institute to assist in shaping future research and knowledge transfer priorities.

In 2003 KTE focused on four themes:

- 1. Further stakeholder and partnership development:**
 - ▶ Enhance linkages to priority stakeholders to improve receptor capacity for the transfer of IWH research.
 - ▶ Provide opportunities for knowledge exchange and to bring information back to IWH to assist with planning of research and research synthesis agendas.
- 2. Enhance the visibility of the Institute:**
 - ▶ Increase the recognition and awareness of the work of IWH with priority stakeholders.
 - ▶ Integrate stakeholder interests into IWH planning.
- 3. Deliver knowledge transfer and exchange projects to target audiences:**
 - ▶ Deliver effective knowledge transfer strategies to clinical, workplace and policy audiences.
 - ▶ Expand the prevention focus in our knowledge transfer activities.
 - ▶ Build in multiplier components to the interactions with the targeted audiences.
 - ▶ Set in place the knowledge exchange loop with these targeted audiences.
- 4. Increase knowledge transfer and exchange skills and tactics:**
 - ▶ Continue to build internal capacity to effectively transfer research knowledge.
 - ▶ Improve the evaluation processes for knowledge transfer activity.
 - ▶ Improve responsiveness to stakeholder issues and questions.

Project Titles:

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1.1 Stakeholder Survey

Project Status: Completed 2003

Introduction: The report of the Five-Year Review and some of our key stakeholders identified that the external knowledge of the Institute, as well as its links to the research needs of specific stakeholders could be strengthened. A well-designed stakeholder survey would provide baseline information about our key stakeholders.

Objectives:

- ▶ To obtain a clearer understanding from key stakeholders about their needs in terms of issues they are facing in their health and safety environments
- ▶ To learn more about how key stakeholders introduce research ideas into their environments.
- ▶ To identify key opinion leaders in the sectors most related to IWH research and to identify stakeholders who are interested in becoming knowledge conduits for exiting research
- ▶ Utilize key research interests to set priorities for the research synthesis unit and KTE activity.
- ▶ Provide input into the Research and KTE planning process.

Message: N/A

Achievements/Results:

- ▶ IBM consultants hired through RFP process to complete survey
- ▶ Work completed in two phases;
- ▶ Phase one: nine in-depth one on one interviews, and
- ▶ Phase two: focus groups and three additional one on one interviews.
- ▶ Workplace trends and priorities identified,
- ▶ Confirmed IWH continued focus on WMSK, Safety Culture, stress and mental health
- ▶ Occupational diseases also identified as area requiring more research
- ▶ Small business trends identified: non unionized, high turnover, limited resources for health and safety, close working relationship between worker and employers.
- ▶ Reviewed by Board of Directors June 2003
- ▶ Reviewed by Staff at Plenary in September 2003
- ▶ Used as input into the planing process for 2004

Team: Jane Brenneman Gibson, Kathy Knowles Chapeskie, Robin Kells, Cameron Mustard, Sandra Sinclair, IBM Consulting (Neil Stuart, Elizabeth Keller, Marta Yurcan)

Stakeholder Involvement: Participate in key informant session in phase one and participate in focus groups in phase two.

Audience: Key stakeholders, IWH Executive, Board of Directors, researchers and KTE.

1.2 Foster Targeted Linkages with WSIB

Project Status: Ongoing 2004, project elements redistributed into 2004 plan.

Introduction: In the Five Year Review and in discussion with executives of WSIB, it has been noted that knowledge of IWH and its interactions with its key funder are not well known by the WSIB. This project will target specific individuals and units at WSIB to enhance knowledge of the Institute and its work and our ongoing interactions with WSIB.

Objectives:

- ▶ Improve knowledge within the units of WSIB about the work of IWH (Prevention, Policy and Research, small business unit).
- ▶ Provide WSIB with regular report card of IWH/WSIB interactions.
- ▶ Review the concept of a secondment program (part -time) with staff of WSIB and IWH.
- ▶ Provide WSIB with feedback on stakeholder survey.

Message: N/A

Achievements / Results:

Report card provides monitoring device and point of discussion with WSIB directors and managers. WSIB approached IWH KTE to assist with planning and implementation of their Joint Conference with IBC on September 18, 2003.

Increased participation of WSIB staff at targeted IWH events, i.e., evaluation workshop.

Secondment initiative did not proceed as budget increase was not approved.

Executive decision was made to keep Stakeholder Survey as an internal document to assist with planning; shared with WSIB members on Board of Directors.

Team: Jane Brenneman Gibson, Kathy Knowles Chapeskie, Rhoda Reardon, Dee Kramer, Vickie Cullmann, IWH Executive Committee

Stakeholder Involvement: Directors and staff at WSIB in key units

Audience: WSIB Divisions: Prevention, Policy and Research and Small Business.

1.3 Partnership Development with Health and Safety Associations

Project Status: Ongoing 2004 and integrated into the Prevention Partners Network project.

Introduction: Given the size and scope of the business and industrial sector in Ontario it is possible for KTE to reach only a small percentage of the target audiences directly. By creating “conduits” we anticipate we can extend the reach of knowledge transfer. The Health and Safety Associations work with various sectors of the Ontario economy as part of their mandate and they are well placed to be “knowledge conduits”. Creating partnerships with HSAs has also enhanced the feedback or knowledge exchange the Institute receives about key questions from the workplace.

Objectives:

- ▶ Continue to strengthen HSA Liaison Committee for knowledge transfer and exchange.
- ▶ Develop and implement projects with individual HSAs (see section 3).
- ▶ Partner with WSIB RAC and OHSCO to hold workshop for HSA consultants (Spring 2003).
- ▶ Support the work of OHSCO on the Centre of Excellence and determine ongoing need for separate HSA Liaison Committee.
- ▶ Include cross section of HSAs in IWH stakeholder survey.

Message: N/A

Achievements / Results:

- ▶ HSA Liaison Committee (HSALC) established as mechanism for sharing research results, building capacity in HSA partners and exchanging information and research inquiries.
- ▶ HSALC effective in assisting with planning of two workshops, (1) KTE and WMSK and (2) Making Evaluations Work for You.
- ▶ IWH supports the Centre of Excellence project.
- ▶ HSA partners participate in Stakeholder Survey and knowledge of IWH research is shown to be high.

Team: Jane Brenneman Gibson, Kathy Knowles Chapeskie, Dee Kramer, Rhoda Reardon, Vickie Cullmann, Robin Kells, Greer Palloo, WSIB RAC, OHSCO

Stakeholder Involvement: HSA Liaison Committee (IAPA, HCHSA, OSSA, EUSA, Workers’ Centre), OHSCO, WSIB and WSIB RAC.

Audience: Health and Safety Associations of Ontario and the sectors they serve.

1.4 Building Our Partnerships with Workplace Parties Through a Network Model of Knowledge Transfer

Project Status: Ongoing 2004.

Introduction: Research into knowledge transfer has demonstrated the advantage of having stakeholders involved in research from its initial design stage. In 2002, this principle was endorsed by the IWH SAC, and the IWH Five Year Review.

Objectives:

- ▶ Transfer knowledge about primary prevention of injuries and the creation of a healthy workplace.
- ▶ Identify critical issues for the synthesis and research agendas.
- ▶ Establish links based on identification of interests and IWH research.
- ▶ Improve knowledge utilization by increasing stakeholder buy-in on the research agenda.
- ▶ Create a network-model of knowledge transfer.

Message: By engaging target audiences early in the research process, their sense of ownership is enhanced and the likelihood that they will adopt and apply the research findings is increased.

Achievements / Results: Multiple interactions with partner stakeholders were undertaken, in order to build trust and credibility, negotiate mutual expectations, and create an atmosphere of cooperation. Ensured a continuous and reliable exchange of resources, information, activities and learning.

- ▶ Developed an evaluation plan that includes an evaluation matrix, a conceptual model, and a logic model.
- ▶ Developed a lexicon of stakeholders; there are four levels of possible involvement with the WHIR study from partners, to intervenors, involved workplaces, and the wider industrial network. The network includes 25 organizations.
- ▶ Conducted telephone interviews with the partner organizations to determine their level of involvement.
- ▶ Developed a knowledge transfer and utilization questionnaire with before and after measures, to be utilized with three of the stakeholder groups.
- ▶ Established an ongoing matrix of stakeholder involvement that is shared by the research group.
- ▶ Initiated the first of many regular Bulletins that will be sent to the wider industrial network and an evaluation questionnaire to measure receptivity and relevance.
- ▶ Developed Conflict of Interest guidelines for the intervenor stakeholder group in the project.
- ▶ Developed a framework for focus groups that will take place during the assessment phase of the research study.
- ▶ Developed a framework for the three feedback workshops that will follow the assessment phase.

Team: Dee Kramer, Jane Brenneman Gibson, Donald Cole, Gail Hepburn.

Stakeholder Involvement: The Workplace Health Intervention Research (WHIR) project has involved multiple stakeholders. For the development grant from CIHR (2003), there are four stakeholder groups that were involved on the Advisory Committee: Ministry of Labour (MoL), Workplace Safety and Insurance Board (WSIB), the Industrial Accident Prevention Association

(IAPA), and the Canadian Auto Workers (CAW). These four groups met with individuals on the Scientific Committee on a number of occasions, and as a group twice in 2003 (May 12, July 23).

Audience: The industrial sector, workplace decisions makers.

1.5 Clinical/Disability Management Knowledge Brokers

Project Status: Ongoing 2004.

Introduction: There are a number of providers who practice outside the more traditional clinical settings and focus on the work/health interface. They may work within workplaces in primary/secondary prevention roles and/or return to work, they may work in close association with workplaces, delivering treatment and/or disability management or may have a significant practice focus on workers, particularly with MSK disorder. Disciplines in this group include occupational health nurses, occupational therapists and kinesiologists. There are multiple research messages from IWH that would be relevant and useful to these groups and, equally, there is a practice expertise and knowledge that these groups possess that would be useful and relevant to IWH as research and knowledge transfer activities are planned. This project will set up a *knowledge transfer & exchange mechanism* that can be used over time, with multiple messages. Specifically, this project will see partnerships developed with professional bodies who represent or regulate these disciplines. The goal of the partnership will be to systematically identify within the discipline, those individuals across the province who are “opinion leaders”. A systematic process for identifying the opinion leaders will be employed, e.g., the Hiss methodology. Once identified, the opinion leaders will be convened to seek their cooperation in an ongoing role as “*knowledge broker*” to facilitate a two-way exchange of stakeholder information and opinion into IWH and flowing research knowledge to their peers. The opinion leaders may be convened in a unit or multidisciplinary forum.

Objectives:

- ▶ Forge partnerships with relevant professional bodies.
- ▶ Systematically identify opinion leaders.
- ▶ Convene opinion leaders to gain their cooperation as knowledge brokers.
- ▶ Plan and deliver knowledge exchange sessions (research messages out; stakeholder wisdom in).
- ▶ Focus on prevention messages.

Message:

Acute LBP Management: When a focused history and physical exam rules out red flags, neither x-rays nor lab tests are necessary. Intervention should be kept to a minimum and patients should be reassured about the normal course, educated in self management of pain, and encouraged to stay active and resume normal activities as soon as possible.

Sub-acute LBP Management: Patients who have not improved by four weeks after onset of pain continue to need education and reassurance and should be assessed for ‘yellow flags’ which may impact recovery. Some may require a coordinated approach which involves the collaboration of multi-disciplinary care-givers, employers and RTW parties to design an exercise program geared to job demands and to coordinate a transition to (suitable) work as soon as possible.

RTW: In progress.

Achievements / Results:

- ▶ Educational Influentials (EI) Networks with both Occupational Health Nurses (OHN) and Kinesiologists (KIN) have been established with EI ‘practice profile’ databases completed.
- ▶ Full day KTE sessions were held for both OHN EI opinion leaders and Kin EI opinion leaders.
- ▶ Informal discussions with the College of OT indicate their openness to a formal proposal to

collaborate on a project to identify OT opinion leaders.

Team: Rhoda Reardon, Dee Kramer, Vickie Cullmann, Vicki Pennick, Dwayne Van Eerd, Peter Subrata, Researchers as appropriate to messages. **Partners:** Ontario Occupational Health Nurses Association, Ontario Occupational Therapists Association, College of Occupational Therapists of Ontario, Susan Rappolt University of Toronto (U of T - OT Faculty) Ontario Kinesiology Association

Stakeholder Involvement: As in audience above.

Audience: Occupational Health Nurses, Occupational Therapists, Kinesiologists.

1.6 Expand Understanding of Policy Stakeholders, Deliver Relevant Research Knowledge and Exchange Processes

Project Status: Ongoing 2004 under a new theme and name.

Introduction: In order to better target KTE activities directed to the policy arena, it is important to understand the nature of the policy making environment, the levers, decision making processes etc. This project will first explore these areas and determine best approaches for interactions with key policy stakeholders to facilitate knowledge exchange and linkages. Two key areas of research are expected to develop in 2003-2004: LAD project and youth injury.

Objectives:

- ▶ To identify the key policy audiences and key contacts within each organization.
- ▶ To understand how each policy audience makes decisions and the factors that influence and motivate decisions and barriers to research uptake.
- ▶ To develop and deliver a KTE process appropriate for policy audience.
- ▶ To support PWS KTE initiatives with ongoing communications/media relations initiatives.

Message: Young workers are at an elevated risk for injury.
First month at job is highest risk for any new employee.

Achievements / Results: Several communications pieces were developed on the policy-related research of the Institute. As some research matures in late 2003 and early 2004, the policymakers KTE network and activities in this area are expected to become a higher priority in 2004.

Team: Kathy Knowles Chapeskie, Robin Kells, Jane Brenneman Gibson, Population/Workforce Studies researchers

Stakeholder Involvement: As in audience above.

Audience: Policymakers at the provincial and federal level including Ministry of Labour, Ministry of Health, Human Resources Development Canada (HRDC), Health Canada.

2.1 Improve Frequency and Quality of Interaction with Priority Stakeholders

Project Status: Ongoing 2004 under new name (Visibility Products #711)

Introduction: The Institute's Five-Year Review Panel suggested that IWH needs to increase its interactions with the stakeholder community to create profile and awareness of the Institute, its research, and work-health issues. A number of fora will be implemented based on the results of the Stakeholder Survey, in addition to other processes to increase contact and visibility with key audiences.

Objectives:

- ▶ Create specific forums for interaction:
 - breakfast meetings or other fora based on synthesis of research;
 - employer fora such as white paper on prevention.
- ▶ Identify champions in the stakeholder groups to spread messages:
 - increase linkage with stakeholders through regular contact;
 - deliver short two-pagers based on key stakeholder issues highlighted in the survey;
 - finalize mailing database, moving to new software.

Message: An evidence-based approach to research transfer increases audience uptake.

Achievements / Results: The Prevention paper developed by John Frank et al. was reviewed by key stakeholders and a forum held to discuss next steps. As a result a partnership with OSSA is in early development. In addition, the completion of the contact database, including development of a search function, was one of the primary accomplishment in this project.

Team: Kathy Knowles Chapeskie, Jane Brenneman Gibson, Robin Kells, Rhoda Reardon, Dee Kramer, Katherine Russo, Carol Holland, Greer Palloo, Vickie Cullmann, Hanh Ramond, Melissa Cohen

Stakeholder Involvement: Key informants through stakeholder consultation.

Audience: All stakeholder groups.

2.2 Continue to Build Proactive Media Relations Activities

Project Status: Ongoing 2004.

Introduction: Increasing the profile and visibility of the Institute with the commercial and trade media is an ongoing objective of the communications group. Several initiatives were begun in 2002 to lay the groundwork for the activity in 2003 including a media focus group which provided useful feedback considered in this plan.

Objectives:

- ▶ Target articles with partner publications.
- ▶ Increase profile in commercial and trade media.
- ▶ Continue to develop facts sheets and quick facts.
- ▶ Develop specific synthesis pieces of topical interest to the media.
- ▶ Media events around RSI Day and Workplace Wellness Week.
- ▶ Maintain and update media relations database.

Message: N/A

Achievements / Results: The Institute was featured in a number of news articles in 2003 a number of which were the result of Storylines and news releases. We continue to maintain relationships with key reporters at several trade and commercial publications and several of our research staff and graduate students are featured in a major article in the Canadian Chiropractic Journal in December.

Team: Kathy Knowles Chapeskie, Katherine Russo, Greer Palloo, Carol Holland, Hanh Ramond, Melissa Cohen, Evelyne Michaels

Stakeholder Involvement: None

Audience: Media, general public.

2.3 Strategically Target Outside Activities to Enhance Visibility

Project Status: Ongoing 2004.

Introduction: The Institute continues to engage in opportunities and activities to increase its visibility provincially, nationally and internationally. Throughout the year, there are key events and conferences in which the Institute participates, during which targeted information can be made available to stakeholder groups to raise awareness and profile.

Objectives:

- ▶ Continue to develop themed displays to meet targeted audiences, profiling the prevention theme where appropriate.
- ▶ To increase the visibility of the Institute.
- ▶ To coordinate and lend support to a calendar of key events.
- ▶ To take advantage of opportunities to increase awareness of the Institute's research and knowledge transfer activities.

Message: N/A

Achievements / Results: The Institute successfully enhanced its visibility through participation in several strategic events which included:

- ▶ International Awareness Day for Repetitive Strain Injuries, Metro Hall, Toronto, ON.
- ▶ Evidence to Action Workshop, Toronto, ON.
- ▶ APA/NIOSH Conference Reception, Toronto, ON.
- ▶ Industrial Accident Prevention Association Conference and Trade Show, Toronto, ON.
- ▶ The Institute's Annual General Meeting, Toronto, ON.
- ▶ Insurance Bureau of Canada (IBC) & Workplace Safety & Insurance Board (WSIB) Conference & Exhibits, Toronto, ON.
- ▶ Ontario Service Safety Alliance (OSSA) Regional Workshops (materials sent).
- ▶ AWCBC Public Forum, Montreal, QC.
- ▶ Making Evaluations Work For You Workshop, Toronto, ON.

A summary evaluation was done after each of the above events. The results show that with the exception of one conference - the APA/NIOSH - Institute staff who attended the above conferences generally rated them as well-selected and appropriate avenues for enhancing corporate visibility. This is evidenced by the fact that there was little or no return of corporate display items taken to those events. The APA/NIOSH conference was evaluated as an environment for networking opportunities rather than for distribution of Institute corporate materials.

Team: Greer Palloo, Jane Brenneman Gibson, Kathy Knowles Chapeskie, Carol Holland, Dee Kramer, Rhoda Reardon, Katherine Russo, Vickie Cullmann, Hanh Ramond, Melissa Cohen, Evelyne Michaels.

Audience: Institute's external and internal stakeholders; others on the Institute's database; other individuals/organizations doing similar work to or interested in the work of the Institute.

Stakeholder Involvement: N/A

2.4 Web Site Redevelopment

Project Status: Phase I redevelopment completed 2003; Phase II ongoing 2004 under new name and theme (Web site development #5.4).

Introduction: The Institute's web site is an important component of the "tool kit" used to support and enhance knowledge transfer exchange (KTE) activities. It is also a vehicle that keeps our external stakeholders up to date on current IWH activities and projects. The web site must reflect the growing and expansive research and KTE agendas and must serve as a resource for our stakeholders.

Objectives:

- ▶ Redevelop web site structure to improve navigability.
- ▶ Revamp and update content to include: training/development section; working paper summaries; revised online publications catalogue, etc.
- ▶ Research, write and develop web site promotional materials.

Message: N/A

Team: Katherine Russo, Kathy Knowles Chapeskie, Carol Holland, Greer Palloo, Communications Committee, Hanh Ramond, Melissa Cohen, Systems/Emma Irvin, external consultant.

Stakeholder Involvement: Input from HSAs.

Achievements / Results: The Institute's new web site was launched in Q3. The new web site offers easier access and more information to our target stakeholders. The site has a new, more powerful search engine that allows users to find information by audience, topic and author. The web site also contains a new section dedicated to KTE, downloadable version of some IWH working papers and bundled information to our target audiences.

Audience: External stakeholders.

2.5 Corporate Communications and Membership

Project Status: Ongoing 2004.

Introduction: The communications activities provide overall support to the Knowledge Transfer and Exchange and corporate activities of the Institute. These vehicles provide ongoing communication with stakeholders regarding Institute research, knowledge transfer and exchange projects, and Institute news. The main vehicles are: the Annual General Meeting, the newsletters *At Work*, *Infocus*, and *Linkages*; annual report, corporate brochures; web site, information and tool kits. In addition, the communications group responds to requests for information on a variety of topics and services its Associate Membership program.

Objectives:

- ▶ Production of *At Work*, *Infocus* and *Linkages* newsletters throughout the year.
- ▶ Delivery of additional information through alternative vehicles (other than newsletters) such as informative e-mail notices to key stakeholders.
- ▶ Revision of corporate materials: new corporate brochure, new information kit, review and revise publications' catalogue; review tool kit.
- ▶ Continue targeted communications to membership, increase awareness of one hour of consulting time.
- ▶ Monitoring information needs and respond to external requests.
- ▶ Use vehicles to support KTE and corporate messages, such as prevention, where appropriate.
- ▶ Production of annual report and other corporate documents as well as planning and implementation of Annual General Meeting.

Message: N/A

Achievements / Results:

- ▶ Themed mailings were sent to Associate Members.
- ▶ Membership program was terminated. One member – WCB, BC remains to be serviced.
- ▶ One hour consultation to members will be honoured to December 2004.
- ▶ One Presentation Skills workshop was successfully planned and implemented.
- ▶ Data collected from monthly and quarterly information reports show that 1,134 requests. Reports for the fourth quarter and year end will be completed in January 2004; these reports have been distributed as required.
- ▶ Requests for products were completed, on average, within three days.
- ▶ Four *AtWork & Infocus*, two *Linkages* newsletter were developed, produced and distributed.
- ▶ The Publications Catalogue was reviewed, revised and updated throughout the year.
- ▶ New Information Folders were designed and produced.
- ▶ Working and Occasional papers were printed as required throughout each quarter.
- ▶ The Annual Report, programs for the Annual General Meeting were developed, designed, produced and distributed.

Team: Greer Palloo, Jane Brenneman Gibson, Kathy Knowles Chapeskie, Carol Holland, Dee Kramer, Rhoda Reardon, Katherine Russo, Vickie Cullmann, Hanh Ramond.

Stakeholder Involvement: N/A

Audience: All external and internal stakeholders.

2.6 Intranet Phase II

Project Status: Ongoing 2004 – under new name “Internal Communications #622 and theme.

Introduction: The Institute’s intranet was launched in 2002. This tool is expected to enhance internal communications as well as house frequently-used documents (activity plan, RAC document, strategic plan, etc.).

Objectives:

- ▶ Continue to monitor and evaluate intranet traffic to ensure staff is using the tool.
- ▶ Design, build and launch phases II and III.
- ▶ Develop intranet promotion plan for phases II and III.
- ▶ Explore ongoing development and systems’ needs.

Message: N/A

Achievements / Results; The Intranet continued to be regularly updated and enhanced in 2003. A staff survey was conducted in Q4 to determine staff usage and content ideas. Work on phase II was conducted in Q4, which will continue in 2004.

Team: Greer Palloo, Katherine Russo, Kathy Knowles Chapeskie, Carol Holland, Melissa Cohen, Communications Committee.

Stakeholder Involvement: All staff, including Communications Committee.

Audience: All internal staff and researchers.

3.1 Health Care Workers and Decision-makers in the Health Care Sector: Creating a Healthy and Safe Workplace

Project Status: Ongoing 2004.

Introduction: Research has demonstrated effective knowledge transfer if there is a sustained, intensive, interactive engagement. This is a multi-faceted project, taking the Institute (and other international) research on how to create a healthier and safer workplace for healthcare workers to a number of organizations that can act as conduits for IWH research messages into the health care field. Examples of such conduit organizations include the HCHSA and Ontario Hospital Association (OHA).

Objectives:

- ▶ Primary prevention of injuries and the creation of a healthy workplace in the healthcare sector.
- ▶ Establish a partnership between organizations with a shared purpose.
- ▶ Improve the effectiveness of health care organizations in improving the health of employees.
- ▶ Improve the knowledge utilization of research by implementation organizations.
- ▶ Develop an integrated systematic model of health of healthcare workers in Ontario.

Message: In order to reduce injuries and create a healthy workplace, it is important to focus on both the physical and psychosocial (workplace organizational) factors.

Achievements / Results:

- ▶ A research study on the Knowledge Transfer and Utilization Questionnaire (KTUQ) to human resource/disability management practitioners in the health care sector did not receive funding.
- ▶ Presentations to the HCHSA consultants, and the OHA Safety Group by the scientists (Dov Zohar and Mardy Fraser, from the University of Waterloo) and KT Associate (Dee Kramer).

Team: Dee Kramer, Fataneh Zarinpoush, Jane Brenneman Gibson, Mickey Kerr

Stakeholder Involvement: Ontario Hospital Association, Health Care Health and Safety Association.

Audience: Healthcare workers and decision-makers in the health care sector.

3.2 Manufacturing and Industrial Audiences: Safety Climate Message and Manufacturing Network

Project Status: Ongoing 2004.

Introduction: Safety climate is a combination construct that includes the change in workers perceptions on how safety is prioritized over productivity, the discrepancy between safety policies and procedures and actual practice, and objective observations of safety behavior. Research projects will be conducted in two workplaces. The research will assess the reliability and validity of a translated version of a Safety Climate scale, observe safety climate behavior, and conduct workshops with supervisors on safety climate behavior. KTE will provide facilitation to assist with transfer research knowledge to supervisors.

Objectives:

- ▶ Provide KTE support to the research study on Safety Climate by engaging help from partner organizations, soliciting interested workplaces, and conducting training workshops with supervisors.
- ▶ Improve the safety climate in workplaces.

Message: The safety climate of an organization can be improved by ensuring leadership commitment to improving safety climate, and training and coaching to supervisors on how to reinforce safe behavior.

Achievements / Results:

- ▶ Participated in the writing of the grant proposal.
- ▶ Found an experimental and control worksite and achieved commitment.
- ▶ Achieved union buy-in to the project.
- ▶ Solicited support letters from the IAPA, the workplaces and the unions.
- ▶ Involved OSSA in finding a third worksite as a backup for the research study.
- ▶ Achieved the support of an IAPA safety specialist to join the research team.

Team: Dee Kramer, Dov Zohar, Gail Hepburn, Sue Ferrier, Donald Cole

Stakeholder Involvement: IAPA, Employers and Employees.

Audience: Workers and supervisors (specifically in the industrial and manufacturing sectors)

3.3 Educational Influential Project in LBP Management

Project Status: Merged into project 617 Clinical Network.

Introduction: Research messages about the management of LBP (acute, subacute and chronic phases) as well as RTW, are relevant to physiotherapists. The use of opinion leaders to enhance knowledge uptake is established in the research transfer evidence. The “Hiss methodology” of identifying educational influentials has been applied to identify physiotherapy EIs. This project will see this group recruited to participate in a knowledge transfer and exchange initiative.

Objectives:

- ▶ Recruit EI physios to participate in a knowledge exchange initiative.
- ▶ Evaluate the effectiveness of using EIs for knowledge exchange.
- ▶ Focus on secondary prevention messages, i.e., management of LBP, acute, subacute and chronic phases and RTW messages.

Message: Evidence-based management of LBP.

Achievements / Results:

- ▶ Physiotherapy EI Opinion Leaders attended a day-long KTE session where the IWH clinical knowledge brokers network was explained and their participation invited.
- ▶ Andrea Furlan and Jill Hayden delivered a workshop of systematic review and the physios participated in an existing review on exercise therapy profile information collected for PT EI Opinion Leader database.

Team: Rhoda Reardon, Area 1 PT EI Project Steering Group, Peter Subrata, Claire Bombardier, Sandra Sinclair, Vickie Cullmann, Andrea Furlan, Jill Hayden

Stakeholder Involvement: Physiotherapists, College of Physiotherapists of Ontario.

Audience: Physiotherapists.

3.4 Return to Work – What Works for Workplaces

Project Status: Ongoing 2004.

Introduction: Interest in workplace-based RTW has grown and WSIB has a major initiative around return to work. IWH is assisting with this effort by generating a literature review (see Dr. Franche’s project overview, *Workplace-based Return-to-work intervention literature review*) and in partnering with WSIB to complete a knowledge transfer project to workplace audiences. The actual product(s) or tool(s) which may be used in this endeavour are not yet determined but they will rely on the evidence generated in the literature review. A KT project team will be built with relevant WSIB staff, KTE staff from IWH and other “knowledge conduits” as appropriate (e.g., HSAs). Other models of knowledge transfer will be consulted while the project plan is formulated (e.g., the knowledge transfer model created by the WSIB Prevention Branch in partnership with IWH, selected HSAs and WSIB business teams). The intention of the process will be to promote to employers and employees, their roles and responsibilities in ensuring effective RTW for all injured/disabled workers. The workplace audience will be stratified as appropriate (e.g., by size, by sector) and the transfer method will be tailored to the audience segments.

Objectives:

- ▶ Create a joint IWH/WSIB project team.
- ▶ With the project team, stratify workplace audiences.
- ▶ Using the literature review evidence, create useful tools and processes for KT.
- ▶ Design an evaluation of the KT project.
- ▶ Complete the KT and evaluation.

Message: RTW - What works in workplaces.

Achievements / Results:

- ▶ IWH/WSIB team struck.
- ▶ A process for message extraction from the literature review has been developed.

Team: Rhoda Reardon, Sandra Sinclair, Reneé-Louise Franche, John Frank, Donald Cole, Judy Clarke, Kim Cullan, Vicki Pennick, Literature review team

Stakeholder Involvement: WSIB, Ontario employers and employees.

Audience: WSIB staff, workplace parties.

3.5 Auto Insurance Knowledge Conduit Project

Project Status: Completed 2003.

Introduction: When Ontario residents acquire work-relevant disability resulting from an automobile accident, private insurers pay for “reasonable and necessary” rehabilitation and vocational interventions. Front line insurer staff (claims managers/adjusters) make decisions daily, at the individual claimant level, regarding whether treatment/intervention plans submitted for payment approval (by regulated health professionals) should proceed, or be subjected to a challenge regarding reasonableness/necessity. Dialogue begun with the Insurance Bureau of Canada (IBC) in 2001 (key informant meetings and focus group with insurance staff) indicate that insurers are eager to turn to research evidence to assist them in making such decisions and IWH’s messages around management of LBP and neck pain are of particular relevance to this decision-making. IWH must however, carefully consider the merits of partnering with insurers with regard to preserving our ongoing credibility with our clinical audiences. This project seeks to determine the appropriateness of forging a partnership with the IBC to develop materials and decision aids that would assist insurers and providers in providing evidence-based care for motor vehicle accident victims with WMSD.

Objectives:

- ▶ Determine the appropriateness of partnering with the IBC.
- ▶ If appropriate, create tools for adjusters based on research knowledge.
- ▶ Complete a small pilot to evaluate usefulness of tools.
- ▶ Implement tools more broadly as indicated from pilot.

Message: Evidence-based management of whiplash and LBP

Achievements / Results:

- ▶ Participated in planning a conference (hosted by IBC & WSIB) on collaboration and evidence in program development.
- ▶ Took responsibility for the ‘participants forum’ (facilitating break-out sessions to seek input from participants on designing, evolving and evaluating standard programs).
- ▶ Assisted with conceiving an evaluation plan for conference.
- ▶ Delivered conference (2 keynote speakers from IWH - Dr. Bombardier and Dr. Côté)
- ▶ Completed an on-site synthesis of participant break-out groups output and made a presentation to conference plenary

Team: Rhoda Reardon, Jane Brenneman Gibson, Cameron Mustard, Clarie Bombardier, Pierre Côté, Judy Clarke, Vickie Cullman, Kathy Chapeskie, Dee Kramer, Robin Kells

Stakeholder Involvement: Automobile insurers and providers.

Audience: Automobile insurers, clinicians providing care to those with WMSD from auto accident.

3.6 Stakeholder-Initiated Joint Projects (PEPWH, UNITE Ergonomic Project, WSIB Programs of Care, Centre of Excellence, IAPA Conference Steering Committees, Teaching Requests)

Project Status: Discontinued - ongoing activities merged with other projects in 2004.

Introduction: Stakeholders frequently request that members of the Knowledge Transfer and Exchange group (KTE) participate in endeavors in which they believe the knowledge, skills and abilities of the KTE staff would be helpful. Decisions to participate with these opportunities are evaluated from the perspective of how well they fit with ongoing or future work of the KTE group, with particular attention to the potential for creating or advancing useful partnerships and access to audiences and/or knowledge conduits. Five sub-projects will be described: PEPWH (Physician Education Project on Work & Health), UNITE Ergonomic Project; the WSIB Chronic LBP Program of Care; the Centre of Excellence (a WSIB/HSA initiative).

Objectives:

- ▶ **PEPWH:** Improve Ontario's medical education related to work and health and to better match the knowledge, skills and behaviour of physicians with patient needs and the evolving workplace. (Primary and secondary prevention).
- ▶ **UNITE Ergonomic Project:** Transfer research messages about WMSD risk in the clothing industry and low-cost ergonomic solutions to selected workplaces, to effect positive change in workplace attitude, knowledge, and behaviour. (Primary prevention).
- ▶ Assist the WSIB and their invited stakeholders to develop an evidence-based program of care for treating workers with chronic low back pain. (Secondary prevention).
- ▶ Contribute knowledge on knowledge transfer to the advisory team in the design stage of the Centre of Excellence.
- ▶ Provide strategic advice and guidance to Industrial Accident Prevention Association (IAPA) Conference Steering Committee and Health and Safety Way Committee.
- ▶ Continue on the Scientific Advisory Committee of Business and economic Roundtable on Mental Health in the workplace.
- ▶ Health Work and Wellness Annual Conference: Contribute to program development continuing to emphasize the use of evidence.
- ▶ Request for presentations/lectures to students at the University of Toronto (U of T) and McMaster University.

Message: N/A

Achievements / Results:

- ▶ Contributed to PEPWH by chairing a funding committee (goal to secure infrastructure funds for PEPWH).
- ▶ Delivered a two hour seminar to post-grad students at U of T on the IWH model and operational experience of Knowledge Transfer & Exchange.
- ▶ Assisted in planning and facilitated a one day session for Can Child using the IWH model of KTE with a group of clinical stakeholders.
- ▶ Delivered a presentation on the IWH KTE model to Safe Kids Canada.
- ▶ Assisted in planning the KTE content of the Ontario HIV Aids Treatment Network (OHTN) Research Day conference.

- ▶ Developed a 'IWH KTE Workbook' for planning research message transfer - piloted workbook in a workshop presentation at the (OHTN) Research Day.
- ▶ Delivered a KTE workshop at the Canadian Cochrane Colloquium.
- ▶ Developed a video for managers on disability management/RTW topics.

Team: Rhoda Reardon, Dee Kramer, Kathy Knowles Chapeskie, Carol Holland, Greer Palloo, Sandra Sinclair, Vicki Pennick, Jane Brennehan Gibson, Cameron Mustard, Joan Ekin, Evelyne Michaels

Stakeholder Involvement: PEPWH members, WSIB, HSAs (all 12 HSAs, including the IAPA and Workers' Centre), Clinicians treating injured workers with low back pain, Health and Safety System partner.

Audience: Physicians in training and practice, selected workplaces in the clothing industry, clinicians treating chronic low back pain, Health and Safety Association staff, IAPA and conference attendees.

3.7 Responding to Audiences Needs for Tools in the Workplace

Project Status: Ongoing 2004.

Introduction: Research into knowledge transfer has demonstrated the advantage of having sophisticated tools (the Employee Survey on the Working Environment (ESWE), Healthy Workplace Scorecard, Supervisor Social Support Skills (SSSS) curriculum, Ergonomics Blueprint, Backguide, Work-Ready, and Website).

Objectives:

- ▶ Primary prevention of injuries and stress of workers.
- ▶ Promote use of existing tools for use in the workplace and by clinicians.
- ▶ Work with researcher to develop new tools for the workplace, such as an ergonomic “Blueprint” Handbook, an updated book on Stress for the IAPA, a curriculum on supervisor social support skills, the Website, and an Evaluation Guide.
- ▶ Provide workshops that will aid workplace parties in implementing tools.
- ▶ Evaluate the effectiveness of the knowledge transfer process.
- ▶ Update the Backguide.com website to ensure ease of navigation.

Message: Both physical and workplace organizational factors contribute to reducing injuries and creating a healthier workplace.

Achievements/Results: The Ergonomics Blueprint was the focus of KTE activity in 2003.

- ▶ The Blueprint is now available on the Institute’s website.
- ▶ Held 17 meetings over one year.
- ▶ Over 150 people have now participated in a workshop on the Blueprint.
- ▶ Have met with most of the HSAs and prevention partners (IAPA, OHCOW, HCHSA, EUSA, WSIB, CSAO, PPHSA, OFSWA, MASHA, OSSA, CSAO, and the Workers’ Centre.
- ▶ Discussions with the IAPA, OHCOW, and EUSA on how the Blueprint can be incorporated in to the ergonomists, or consultants’ intervention work with workplaces.
- ▶ The Blueprint has been determined to be compatible with the HSAs existing consulting models, and their upper executive are aware of the research.
- ▶ The consultants see the Blueprint as a way of encouraging change in their consulting model.
- ▶ A tool-development guide has been created with the Institute and the University of Waterloo. The HSAs are creating sector specific tools, that incorporate the principles of the Blueprint.
- ▶ A journal article that focuses on how knowledge transfer and networking theory can enhance each other, has been submitted, using the Blueprint exercise as its illustration.

Team: Dee Kramer, Donald Cole, Richard Wells, Kathy Knowles Chapeskie,

Stakeholder Involvement: University of Waterloo, IAPA, OHCOW, HCHSA, EUSA, the WSIB’s Manufacturing Sector, Prevention Division and ergonomists, and management organizations.

Audience: The industrial and health care sectors, small to medium-sized companies

3.8 Service Sector Workers: Creating a RSI-free Workplace

Project Status: This project was not completed. This project will not be moved into 2004.

Introduction: The Star-SONG WMSD evaluation study among office workers in the newspaper industry is now in its third phase, and seventh year. It focuses on the evaluation of a workplace program for prevention and control of work-related musculoskeletal disorders of the neck and upper limb (WMSD). The evaluation assesses the impact of a joint labour-management directed program on primary, secondary and tertiary prevention of WMSDs.

Objectives:

- ▶ Primary prevention of WMSDs of workers in the service sector.
- ▶ Establish intervention programs for the prevention and control of WMSDs that are joint management-labour directed.
- ▶ Engage the consultants in the Ontario Service Safety Alliance (OSSA) with the research that has come out of this research project.
- ▶ Produce a poster that has guidelines on setting up a participative workplace project to prevent RSI.

Message: “The pain is real”

Achievements/Results: Although Repetitive Stress Injury was the subject of the IAPA conference booth, and received a significant amount of attention and interest, the project did not move forward. The scientist groups did not feel that the research was ready for further transfer activity.

Team: Dee Kramer, Donald Cole, Dorcas Beaton, Harry Shannon, Sue Ferrier, Vickie Cullmann

Stakeholder Involvement: OSSA, University of Waterloo

Audience: Workplace decision makers in the service sector.

4.1 Create an Advisory Oversight Group for Knowledge Exchange

Project Status: Ongoing 2004: KTE Advisory Committee will meet again in 2004.

Introduction: As the knowledge transfer function has evolved the need to develop an external advisory function to provide direction and assist with assessing the quality of the work has emerged. The Five Year Review Report suggested that IWH SAC take on this additional function, However SAC in its discussion of this suggestion indicated that it does not see this as an appropriate addition to its role as it requires individuals with significant expertise in knowledge transfer to provide good advice. SAC did not want to alter its membership to add this expertise to their table.

Objectives:

- ▶ Form a small advisory committee (3 to 5) of experts in knowledge transfer to provide guidance and advice for KTE at IWH.
- ▶ Meet annually to provide input to the planning process for KTE.
- ▶ Revise KTE goals and projects based on this advice.

Message: N/A

Achievements / Results:

- ▶ Committee set up and chaired by Dr John Lavis. Committee members are Dr. Jeremy Grimshaw, Sonya Corkum, Liz Scott and Nancy Hutchison.
- ▶ First meeting held May 23, 2004.
- ▶ Report completed and utilized in KTE planning and IWH strategic planning.

Team: All of KTE, John Lavis, Cam Mustard

Stakeholder Involvement: Share results with funder and key knowledge transfer conduits.

Audience: Internal

4.2 Continue to Update the Knowledge Transfer Tool Kit

Project Status: Ongoing 2004.

Introduction: This project was started in 2002. In 2003 we will continue to develop the tool kit and share the draft tool kit with other knowledge brokers, CRTN, the Knowledge Transfer and Exchange Advisory Committee (KTEAC).

Objectives:

- ▶ Update our documentation on how we undertake knowledge transfer at IWH.
- ▶ Continue to track research on knowledge transfer and integrate this into our approach .
- ▶ Share the tool kit with other knowledge brokers as appropriate.

Message: N/A

Achievements / Results:

- ▶ IWH KTE model accepted by KTE AC.
- ▶ Network paper completed and integrated into model.
- ▶ Workbook on KTE drafted and utilized in workshop format.
- ▶ Coordinated reference source.
- ▶ Consult with other research based organizations e.g., CAN, who are developing knowledge transfer capacity.
- ▶ Toolkit concept still not fully documented.

Team: Jane Brenneman Gibson, Dee Kramer, Rhoda Reardon, Kathy Knowles Chapeskie, Greer Palloo, Robin Kells, Vickie Cullmann, John Lavis

Audience: KTE staff, KTAC, other knowledge brokers and conduits.

4.3 Knowledge Transfer and Exchange Program Evaluation Skills

Project Status: Ongoing 2004, becomes Evaluation Framework in 2004.

Introduction: If the KTE group is to continue to advance its knowledge about the effectiveness of the KTE activities, projects must include a systematic and rigorous evaluation component. In addition, it has been our experience to date, that many of our stakeholders and partners in knowledge transfer activities look to us to bring evaluation knowledge/skill to joint projects. This includes the creation of evaluation frameworks, determining outcomes to track and data collection/analysis strategies. Although these skills reside in vary degrees in current KTE staff, it is an area where we have collectively agreed that further development is necessary. This project will identify resources, learning opportunities and creation of an archive of evaluation experience accruing from current and past KTE projects.

Objectives:

- ▶ Identify internal and external resources for program evaluation expertise.
- ▶ Link with other evaluation entities (e.g., Canadian Evaluation Society) to track learning opportunities.
- ▶ Create a useful and accessible archive of evaluation experience accruing from current and past KTE projects.

Message: N/A

Achievements / Results:

- ▶ Increased focus on evaluation of KTE activities.
- ▶ Development of draft KTE Evaluation framework, principles, audiences, outcomes.
- ▶ Partnership with Canadian Evaluation Society Ontario Chapter set up for workshop.
- ▶ Evaluation Workshop planned and implemented. KTE staff participate.
- ▶ Individual training not pursued as much as initially planned.

Team: All KTE staff, Anthony Culyer

Stakeholder Involvement: All stakeholders are the potential beneficiaries of this work.

Audience: KTE Staff

4.4 Link with Other Centres and Networks to Share Knowledge Transfer Best Practices

Project Status: Ongoing 2004 and listed as KTE Research Partnerships.

Introduction: There are several organizations that are leaders in research/knowledge transfer with whom the Institute would like to foster ongoing linkages in order to share and learn from our experiences. These institutions include the University of Toronto, McMaster University, IRSST, CHSRF and CIHR. In addition, a national network (CRTN) designed to link practitioners in the research/knowledge transfer and exchange field was launched in 2002. The Institute will continue to play a major role in this network in the coming year.

Objectives:

- ▶ To establish linkages with other leading centres and networks who are in the business of knowledge transfer and exchange.
- ▶ To increase the knowledge and skills of KTE staff through sharing of lessons learned and best practices with this group.
- ▶ To participate and help guide the early stages of the CRTN.
- ▶ To participate in the development of a national workshop on transfer and exchange.
- ▶ Explore opportunities to share research transfer Toolkit.

Message: N/A

Achievements / Results:

- ▶ Significant contribution made to CRTN through Kathy Knowles Chapeskie's work on the membership survey, list serves and Website development and Evidence to Action forum in Ottawa.
- ▶ Rhoda Reardon shares IWH KTE model through U of T course on KTE.
- ▶ Other KTE staff contribute to ongoing discussion of KTE in forums by CHSRF, AWCBC
- ▶ Assist other centres thinking through their KTE strategies e.g., Canadian Arthistis Network (CAN).

Team: Jane Brenneman Gibson, Kathy Knowles Chapeskie, Robin Kells, Rhoda Reardon, Dee Kramer

Stakeholder Involvement: N/A

Audience: KTE and other practitioners in research/knowledge transfer.

4.5 Communications Skills Update

Project Status: Discontinued (job specific training will be folded into other projects in 2004)

Introduction: The KTE department introduced some new communications vehicles in 2003 which required staff to upgrade their skills. In addition, we also identified a need to strengthen editorial and writing skills of staff to ensure high quality products.

Objectives:

- ▶ To upgrade the technical skills of communications staff through training to ensure skill set can meet demands of new projects.
- ▶ To improve writing and editorial skills.

Message: N/A

Achievements / Results: Communications team members completed skills updates in most areas including web-related program skills (Adobe Go Live, Java Script) and writing and editing courses.

Team: Kathy Knowles Chapeskie, Katherine Russo, Greer Palloo, Carol Holland, Hanh Ramond, Melissa Cohen

Stakeholder Involvement: N/A

Audience: Internal staff.

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Publications

Journal Articles: Peer Reviewed

Ammendolia C, Kerr MS, Bombardier C and the Canadian Task Force for Preventive Health Care. Use of back belt to prevent occupational low-back pain. Recommendation statement from the Canadian Task Force on Preventive Health Care. *Canadian Medical Association Journal* 2003; 169(3):213-214.

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Beaton DE, Kennedy CA. (2003) Beyond return to work. Testing an outcome measure of at-work disability. (IWH Working Paper #237)

Beaton DE, Kennedy C, Subrata P, Dwight M. (2003) A prospective cohort of workers attending a workplace-based physiotherapy clinic. (IWH Working Paper #250)

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

Clarke J, Garritty C, Furlan A, Pennick V, Sinclair S, Ervin E, Bombardier C. (2003) Psycho-educational management of chronic low back pain. A critical review and synthesis of systematic reviews. (IWH Working Paper #207)

Cole DC, Manno M, Hogg-Johnson S, Ferrier S, Ibrahim S, Wells R, Swift M, Moore A, Polanyi MF, Van Eerd D, Kennedy C, Lee H, Subrata P, Beaton DE, Shannon HS. (2003) Changes in WMSD risk factors and burden with implementation of an ergonomic policy in an office setting. (IWH Working Paper #242)

DeRango K, Amick BC, Robertson M, Rooney T, Moore A, Bazzani L. (2003) The productivity consequences of two ergonomic interventions. (IWH Working Paper #222)

Ferrier S, Facey M, Cole DC (2003) The social construction of work-related musculoskeletal disorders at a large metropolitan newspaper. (IWH Working Paper #243)

Kennedy CA, Manno M, Hogg-Johnson S, Haines T, Hurley L, McKenzie D. (2003) Prognosis in soft tissue disorders of the shoulder: predicting change in and level of disability after treatment. (IWH Working Paper #254)

Kerr MS. (2003) Neck and back disorders in Canada: an analysis of variation in prevalence and hospital-based treatment by region. (IWH Working Paper #234)

Lee H, Hogg-Johnson S, Cole DC, and the Worksite Upper Extremity Research Group. (2003) Changes in newspaper employee health care utilization over a decade. (IWH Working Paper #253)

Mazumder A, Hogg-Johnson S, Van Eerd D, Wells R, Moore A, Cole DC. (2003) Using hidden Markov models as a pattern recognition method for EMG data: a model-based indicator of musculoskeletal disorders. (IWH Working Paper #248)

Mazumder A, Hogg-Johnson S, Van Eerd D, Wells R, Moore A, Cole DC. (2003) Uncertainty in transforming physical exposure measures: measurement error, linking error, and sampling error. (IWH Working Paper #249)

Moore A, Wells R, Van Eerd D, Hogg-Johnson S, Cole DC, Krajcarski S. (2003) In Situ task specific EMG activity during office work. (IWH Working Paper #252)

Mustard CA, Boyle M, Duku E, Racine Y. (2003) Evaluation of sample loss in the Ontario Child Health Study 2001 follow-up. (IWH Working Paper #212)

Ostry AS, Edeer D, Hershler R, Chen L, Hargreaves S, Hertzman C. (2003) A longitudinal study comparing the effort-reward imbalance and demand control models using workers' compensation claims for all injury and injury due to a musculoskeletal disorder. (IWH Working Paper #230)

Payne JJ, Lavis JN, Mustard CA, Hogg-Johnson SA, Bombardier C, Lee H. (2003) Health-care utilization for work-related soft-tissue injuries: Understanding the role of providers. (IWH Working Paper #203)

Polanyi MF, Tompa E, Foley J. (2003) Labour market flexibility and insecurity: towards healthy and productive work in the new economy. (IWH Working Paper #239)

Robson LS, Cole DC, Eakin JM. (2003) Healthy workplace performance measurement. (IWH Working Paper #256)

Smith PM, Short SD, Mustard CA. (2003) The relationship between gender, occupational position, education and declines in self-rated health in the Canadian population, 1994-2000. (IWH Working Paper #178)

Subrata P, Shannon HS, Ferrier S. (2003) The effect of organizational change on upper extremity pain. (IWH Working Paper #244)

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

Theberge N, Granzow K, Cole DC, Laing A. (2003) Negotiating participation: understanding the 'How' in a workplace ergonomic change project. (IWH Working Paper #220)

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)

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

Tompa E, Scott H, Dolinski R, Trevithick S, Bhattacharyya S. (2003) Labour- market insecurity: theoretical constructs and Canadian trends. (IWH Working Paper #232)

Tompa E, Scott H, Trevithick S, Bhattacharyya S. (2003) Precarious employment and people with disabilities. (IWH Working Paper #240)

Van Eerd D, Mazumder A, Hogg-Johnson S, Wells R, Moore A, Cole DC. (2003) Relationships between physical exposure measures in an office environment. (IWH Working Paper #247)

Van Eerd D, Mazumder A, Hogg-Johnson S, Wells R, Moore A, Cole DC. (2003) Quantifying tasked in an office environment and predicting exposure. (IWH Working Paper #246)

Wells R, Moore A, Cole DC, Van Eerd D, Hogg-Johnson S, Mazumder A. (2003) Changes in physical exposure among office workers associated with a move and reorganization. (IWH Working Paper #251)

Institute for Work & Health Occasional Papers

Kosny A, Eakin J. (2003) The non-profit workplace: workers, working conditions and safety in non-profit organizations. (IWH Occasional Paper #24)

Other Papers, Reports and Reviews

Beaton DE. Completion of the background paper: Listening for directions in injury-post-injury/rehabilitation for CIHR/CIRNet/SMARTRISK with C. Mustard. Available on website: <http://www.injurypreventionstrategy.ca/research/>

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 to be posted on IWH website. Practice review of physiotherapy management of soft-tissue disorders of the shoulder. Report prepared for the College of Physiotherapists of Ontario by the Institute for Work & Health.

Beaton DE, Mustard C. Listening for Direction on Injury Prevention and Control. Summary Brief: Post-acute care and rehabilitation of injury. Prepared for CIHR Initiative. Sept 2003.

Breslin FC. Contributor to the Canadian Injury Surveillance Strategy Initiative co-sponsored by the Insurance Bureau of Canada, CIHI, Health Canada, Alberta Health and Wellness, August 2003.

Breslin FC. Contributor to report entitled, Unintentional injury prevention & priorities for research, capacity building and knowledge translation (BA Morrongiello) prepared as part of the: Listening for Direction on Injury Initiation, sponsored by CIHR and the Canadian Injury Research Network, August, 2003.

Chapeskie K, Breslin FC. (2003) Securing a safe and health future: the road to injury prevention for Ontario's young workers. *IWH Fall Infocus* (No. 34); *Rehab & Community Care* 2003; 12: 32-34.

Eakin J, Clarke J. The early and safe approach to return-to-work: how is it working in small businesses? *IWH Spring Infocus* (No. 32a); *Legal Focus on Risk & Insurance Strategies* 2003; 7(3):22-24; *Back to Work* 2003; 7(3):1-2.

Frank JW, Cullen K, Breslin C, Cole DC, Côté P, Franche R-L, Mustard C, Reardon R, Shannon H, Sinclair S. (2003) Preventing injury, illness and disability at work: What works and how do we know? Discussion paper for Ontario's Occupational Health and Safety Community. Toronto: Institute for Work & Health. (Undergoing external review)

Furlan AD. (Winter 2003) Conservative treatments for carpal tunnel syndrome. *Linkages* No. 12.

Furlan AD. (Summer 2003) *Linkages*: Mass media campaign reduces disability due to low-back pain. *Linkages* No. 11, Supplement to: *At Work* Issue #33.

Kerr MS, Laschinger HK, Shamian J, O'Brien Pallas LL, Thomson D, Koehoorn MW, LeClair S, McPerson D, Aiken L, Sochalski J. (2003) Monitoring the health of nurses in Canada. Report submitted to the Canadian Health Services Research Foundation.

Michaels E. Consortial Member Profile: Institute for Work & Health. *Canadian Chiropractic Association Journal* 2003; 47(4).

Mustard CA, Robson L. (2003) Measurement of leading indicators: workplace health and safety practices: revised questionnaire content. Preliminary Specifications, OHSCO Initiative. Toronto: Institute for Work & Health.

Pennick V. The World Wide Web - information mother lode or Pandora's box? *Journal of the Ontario Occupational Health Nurses Association* 2003; 22(2): 26-27.

Pennick V. The evidence-practice gap. *Journal of the Ontario Occupational Health Nurses Association* 2003; 22(1):24-25.

Robson LS. (2003) Evaluability assessment: Ontario's surface mining program. Toronto: Institute for Work & Health.

Shannon HS, Muir A, Haines T, Verma T. (2003) Mortality and cancer incidences in Ontario glass-fibre workers. Report to WSIB.

Theses

Raj, Anusha. Prognostic modeling of upper-extremity soft tissue disorders. MSc (Epidemiology); University of Toronto: November 2003.

Van Eerd, Dwayne. A comparison of classification systems for upper limb musculoskeletal disorders. MSc (Health Research Methodology); McMaster University: September 2003.

Multi Media

Bombardier C. "Osteoarthritis". Discovery Health, Toronto 1: Health on the Line with Avery Haines. 8 Oct 2003.

Breslin C. "On-the-job injuries happen most in youth". Quoted in Metro Today, 8 Oct 2003.

Presentations

External Scientific/Academic Presentations

Ammendolia C. Implementing evidence-based guidelines for x-ray use in acute low back pain: a pilot project in a chiropractic community. Challenges and Opportunities. Invited presentation. State of the Art Conference. Evidence-based care for musculoskeletal disorders. Oct 2003; Toronto, ON: American College of Occupational and Environmental Medicine.

Ammendolia C, Hogg-Johnson S, Glazier R, Bombardier C. Poster: Views on x-ray use for patients with acute low back pain among chiropractors in an Ontario community. May 2003; Linköping, Sweden: Forum VI Low Back Pain in Primary Care.

Baldwin ML, Côté P, Johnson WJ. Patterns of care for occupational back pain. May 2003; Linköping, Sweden: Forum VI for Primary care Research on Low Back Pain.

Baldwin ML, Côté P, Johnson WJ. Patterns of care for occupational back pain. Nov 2003; San Francisco, California. 131st Annual Meeting of the American Public Health Association.

Baldwin ML, Côté P, Johnson WJ. Patterns of care for occupational back pain. June 2003; Nashville, Tennessee: Academy for Health Services Research and Health Policy, 20th Annual Research meeting.

Beaton DE. The DASH Outcome Measure and its use in workplace situation. Sept 2003; Toronto, ON: OECOM annual meeting.

Beaton DE. Are you better? The meaning of recovery in persons with upper limb musculoskeletal disorders. May 2003; Toronto, ON: WSIB Grand Rounds.

Beaton DE, Wright JG, Katz JN, Bombardier C, UECG. MCID - differences according to methodological approach. Nov 2003; Prague, CZ: International Society for Quality of Life Research.

Beaton DE, Katz JN, Wright JG. Development of the QuickDASH using three different approaches. Nov 2003; Prague, CZ: International Society for Quality of Life Research.

Beaton DE. Outcome measurement. Feb 2003; Tampa, Florida: American Physical Therapy Association – Combined Section Meeting.

Beaton DE. Assessment of UE function using the DASH outcome measure. Sept 2003; Toronto, ON: OEMAC meeting.

Bombardier C. Keynote Speaker: "Back pain - don't take it lying down". Apr 2003; University of Manitoba, Dept. of Medicine, Medical Grand Rounds, Winnipeg, MB: Ogryzlo Memorial Lecture.

Bombardier C, Bouter L, Pennick V. Cochrane back review group. May 2003; Linköping, Sweden: 6th International Forum for Primary Care Research on Low-Back Pain.

Bombardier C. Sociopolitical challenges. June 2003; Montreal, QC: CIHR Training Program.

Bombardier C. What has low back pain research given us so far? What did the Forum add to future research questions? What are the most important research topics for the next 1-10 years? May 2003; Linköping, Sweden: Forum VI for Primary Care Research on Low Back Pain.

Bombardier C. The future of evidence-based care in rehabilitation. Sept 2003; Toronto, ON: Insurance Bureau of Canada (IBC) and the Workers' Safety and Insurance Board Rehabilitation Conference.

Bombardier C. Rheumatoid arthritis outcomes. Oct 2003; Orlando, Florida: American College of Rheumatology 67th Annual Scientific Meeting "Meet the Professor".

Bouter L, Pennick V, Bombardier C. Cochrane back review group. Oct 2003; Barcelona, Spain: 11th Cochrane Colloquium.

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. Baptism of fire: The relationship between job tenure and lost-time claim rates among adolescent, young adult, and adult workers. Oct 2003; Montreal, QC: 2nd National Symposium of the Canadian Association of Research on Work and Health.

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.

Brown J, Shannon HS, Mustard CA, McDonough P. The use of health care and social services by families of injured workers. Nov 2003; Pittsburgh, Pennsylvania: NOIRS.

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.

Cassidy JD, Carroll L, Côté P, Holm L, Nygren Å. Mild traumatic brain injury after traffic collisions: a population-based inception cohort study. May 2003; Stockholm, Sweden: 5th World Congress on Brain Injury.

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.

Cassidy JD, Carroll L, 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.

Clarke J, van Tulder, M, Blomberg, S, Brønfort G, van der Heijden G, de Vet R. Poster: Systematic Cochrane review of traction for low back pain with or without radiating symptoms. May 2003; Linköping, Sweden: Linköping Forum VI for Primary Care Research on Low-Back Pain.

Cole DC, Ibrahim S, Lewchuk W, Kerr MS, Wigmore D, Haines AT, Robertson D, Zsoldos J. Working blood pressure: point versus ambulatory comparisons. Mar 2003; Toronto, ON:

APA/NIOSH Conference on Work Stress and Health.

Cole DC, Wells R. Stop RSI: A six year intervention and evaluation study in the newspaper industry. Sept 2003; Holland, Michigan: 6th Annual Marconi Research Conference at Marigold: Epidemiologic Intervention Studies Among Computer Users.

Cole DC, Manno M, Ferrier S. Changes in WMSD risk factors and burden with implementation of an ergonomic policy. Oct 2003; Montreal, QC: 2nd National Symposium of the Canadian Association of Research in Work & Health Symposium.

Cole DC, Granow K, Theberge N, Frazer M, Laing A, Wells R, Norman R. Participatory processes in organizational interventions for injury reduction. Mar 2003; Toronto, ON: APA/NIOSH Conference on Work Stress and Health.

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

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."

Côté P. Clinical iatrogenesis and chronic whiplash: illusion or reality? Jan 2003; Toronto, ON: WSIB Research Advisory Council Grand Rounds.

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.

Côté P. Methodological quality assessment of randomized clinical trials. May 2003; Linköping, Sweden: Methods and results of systematic reviews of conservative treatments for low back pain - Cochrane Back Group.

Côté P, Cassidy JD, Carroll L, 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.

Day D, Furlan A, Irvin E, Bombardier C. Comparing databases and search strategies for systematic reviews of musculoskeletal disorders. Oct 2003; Barcelona, Spain: 11th Cochrane Colloquium.

Day D, Furlan A, Irvin E, Bombardier C. Poster: Comparing databases and search strategies for systematic reviews of musculoskeletal disorders. Nov 2003; Hamilton, ON: 3rd Canadian Cochrane Symposium.

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.

Eakin J, Clarke J, MacEachen E. Return to work in small workplaces: a sociological account. Mar 2003; Toronto, ON: APA/NIOSH Conference on Work Stress and Health.

Franché R-L, Krause N, Hepburn G, Kosny I, Mustard C, Pole J. Workplace correlates of work accommodation offers in a sample of Canadian lost-time claimants with an occupational musculoskeletal disorder. June 2003; Rome, Italy: Workcongress 6 Conference (postponed to 2004).

Franché R-L, Minore B, Roussy F, Grace S, Stewart D, Williams A, Fancott C, Kunkel G. Multiple role strain, health, and health risk behaviors in Ontario healthcare workers. Mar 2003; Toronto, ON: APA-NIOSH Conference on Work, Stress, and Health.

Franché R-L, Breslin C, Hepburn G, Clarke J, Kosny I, Mustard CA, Beaton DE, Sinclair S, Krause N. Readiness for return-to-work: Initial development and validation of a self-report scale assessing individual readiness to return to work in Canadian lost-time claimants following an occupational musculoskeletal injury. June 2003; Rome, Italy: Workcongress 6 Conference (postponed to 2004).

Furlan A, van Tulder M, Bouter L, Bombardier C. Poster: Compliance of reviews and protocols of the Back Review Group with method guidelines. Oct 2003; Barcelona, Spain: XI Cochrane Colloquium: Evidence, Health Care and Culture.

Furlan AD, Bombardier C. Poster: Controlled vocabulary associated with non-randomized studies of interventions for low-back pain. Oct 2003; Barcelona, Spain: XI Cochrane Colloquium: Evidence, Health Care and Culture.

Furlan AD, van Tulder MW, Bombardier C, Bouter L. Poster: Updated method guidelines for systematic reviews within the Cochrane Back Review Group. Nov 2003; Hamilton, ON: 3rd Canadian Cochrane Symposium.

Guzmán J, Cooper JE, Khokhar J, Yassi A. Community-based pilot trial of a communication tool to facilitate work-accommodation after work injuries. Oct 2003; Chicago, Illinois: 65th Annual Assembly of the American Academy of Physical Medicine and Rehabilitation.

Hayden JA. Meta-Analysis. Workshop: Methods and results of systematic reviews of conservative treatments for low back pain. May 2003; Linköping, Sweden: Cochrane Back Group. Forum VI for Primary Care Research on Low Back Pain.

Hayden JA. Experiences in systematic review. Oct 2003; Amsterdam, the Netherlands: EMGO Research Institute.

Hayden JA, van Tulder MW. Analytical strategies in systematic review: Exercise therapy for treatment of low back pain. Oct 2003; Barcelona, Spain. XI Cochrane Collaboration Colloquium; and Nov 2003; Hamilton, ON. 3rd Canadian Cochrane Collaboration Symposium.

Hayden JA, van Tulder MW, Côté P, Bombardier C. Descriptive analysis of quality criteria used in systematic reviews of prognostic studies. Oct 2003; Barcelona, Spain. XI Cochrane Collaboration Colloquium; and Nov 2003; Hamilton, ON. 3rd Canadian Cochrane Collaboration Symposium.

Hepburn G. Symposium Chair: Return to Work. Mar 2003; APA/NIOSH; Toronto, ON: 5th Interdisciplinary Conference on Occupational Stress and Health.

Hepburn CG. Beyond the talk: influencing executives' leadership behaviours to achieve healthier workplaces. Mar 2003; APA/NIOSH; Toronto, ON: 5th Interdisciplinary Conference on Occupational Stress and Health.

Hepburn CG, Corneil W. Outcomes of workplace aggression for executives in the Canadian Federal Public Service: A replication and extension. Mar 2003; APA/NIOSH; Toronto, ON: 5th Interdisciplinary Conference on Occupational Stress and Health.

Holder JC, Zohar D, Hepburn CG. Looking back, but moving forward - A town hall meeting. Mar 2003; Toronto, ON: American Psychological Association and National Institute of Occupational Safety and Health conference: 5th Interdisciplinary Conference on Occupational Stress and Health.

Ibrahim SA, McLeod CB, Cole DC, Shannon HS. Psychological and physical job characteristics and subsequent health care use: a prospective cohort study of Canadian workers. Nov 2003; Montreal, QC: IHSPR Conference.

Ibrahim S, Hepburn CG, Cole DC, Kerr MS. Work stressors and mental health: a longitudinal analysis of the National Population Health Survey (NPHS). June 2003; Halifax, NS: Canadian Society of Epidemiology and Biostatistics Biennial Meeting.

Irvin E. Simple searching - how many lines are really needed? and, Poster: Are search strategies reported accurately in reviews? Oct 2003; Barcelona, Spain: Cochrane Colloquium XI: Evidence, Health Care and Culture.

Irvin E. Poster: Are search strategies reported accurately in reviews? Nov 2003; Hamilton, ON. 3rd Canadian Cochrane Collaboration Symposium.

Kennedy CA, Beaton DE, Shupak R, Badley E, Lineker S, Ross S. Poster: Readiness for self-management, planning an educational program for patients with arthritis. Oct 2003; Orlando, Florida: American College of Rheumatology Annual Scientific meeting.

Kerr MS, Mustard CA, Franche R-L, Laschinger HK, Shamian J, Schwartz JE, Dusky S, Frank JW. Exploring Stress and cortisol differences between full-time and part-time nurses. Mar 2003; Toronto, ON: APA-NIOSH: 5th Interdisciplinary Conference on Occupational Stress and Health,

Kerr MS, Cole DC, Ibrahim S, Lewchuk W, Robertson D, Wigmore D, Haines T, Sale J, Zsoldos J. Industry-specific versus generic measures of the psychosocial work environment: data from a study of job strain and health in the automobile industry. Mar 2003; Toronto, ON: APA-NIOSH: 5th Interdisciplinary Conference on Occupational Stress and Health.

Koehoorn M, Breslin FC. Poster: Self-reported work patterns and work-related injuries among high school students in British Columbia. Oct 2003; Montreal, QC: Canadian Association of Workers Compensation Boards of Canada - 2nd Public Forum.

Kramer DM, Cole DC, Green L, Yassi A, Loisel P. Finding ways to bridge the gap between decision-makers and researchers. Mar 2003; Toronto, ON: APA-NIOSH Conference on Work, Stress, and Health.

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. Attrition in cohort studies: how much is too much? June 2003; Halifax, NS: Canadian Society for Epidemiology and Biostatistics Biennial Meeting.

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.

Lee H, Hogg-Johnson S, Cole DC and the Worksite Upper Extremity Research Group. Poster: Ten year trends in musculoskeletal (MSK)-related drug utilization before and during a collaborative workplace research project. June 2003; Halifax, NS: Canadian Society of Epidemiology and Biostatistics Biennial Meeting.

Lowe GR, Schellenberg G, Shannon HS. Correlates of employees' perceptions of a healthy workplace environment. Nov 2003; San Francisco, California: 131st Annual Meeting of the American Public Health Association.

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.

Pennick V, Chapeskie K, Russo K, Reardon R, Garritty C, Furlan A, Bombardier C. Translating and transferring the evidence: a case study. Oct 2003; Barcelona, Spain: 11th Cochrane Colloquium, and Nov 2003; Hamilton, ON: 3rd Canadian Cochrane Colloquium.

Polanyi MF, Tompa E. Poster: Rethinking models of work and health: listening to workers. Mar 2003; Toronto, ON: APA-NIOSH: 5th Interdisciplinary Conference on Occupational Stress and Health.

Pole JD, Mustard CA, Cole DC. Poster: The longitudinal association of asthma, back problems and depression: Is there a common underlying mechanism? June 2003; Halifax, NS: Canadian Society of Epidemiology and Biostatistics Biennial Meeting.

Raj A. Poster: Prognostic modeling of health-related quality of life for injured workers with upper extremity soft tissue injuries in the early claimant cohort. June 2003; Halifax, NS: Canadian Society of Epidemiology and Biostatistics Biennial Meeting.

Reid MJ, Frazer M, Cole DC, Wells R. A case study on the impact of reducing belt speed on the warehouse of a company in the transportation sector. Oct 2003; Windsor, ON: Association of Canadian Ergonomists.

Shannon HS, Vidmar M. How low can they go? Potential for reducing injury rates. Oct 2003; Pittsburgh, Pennsylvania: NOIRS.

Sullivan TJ, Loisel P, Franche R-L, Durand MJ, Côté P. Training future researchers in work disability prevention: the work disability prevention CIHR strategic training program. May 2003; Linköping, Sweden: Forum VI for Primary Care Research on Low Back Pain.

Van Eerd D, Beaton DE, Hogg-Johnson S, Cole DC, Bombardier C, Haines T. Agreement among upper limb musculoskeletal classification systems. Oct 2003; Orlando, Florida: ACR/ARHP Annual Scientific Meeting.

Wells RP, Cole DC, Norman RW, Frazer MB, Theberge N, Kerr MS. Ergonomic intervention research in North America. Feb 2003; Iguarru, Brazil: The 27th International Congress on Occupational Health.

Educational, Professional, Policy and Other Presentations & Consultations

Local and Provincial

Ammendolia C. Occupational musculoskeletal disorders epidemiology, evidence-based treatment and prevention. Mar 2003; Toronto, ON: Presentation to first year chiropractic student.

Ammendolia C. Ontario guidelines collaborative. Sept 2003; Guelph, ON: Guidelines Advisory Committee, Ontario Medical Association/Ministry of Health and Long Term Care.

Beaton DE. Are you better? A qualitative study of the meaning of recovery. May 2003; Toronto, ON: WSIB Grand Rounds.

Bombardier C. Approach to back pain. June 2003; Toronto, ON: University of Toronto/ Mt. Sinai Rheumatic Disease Unit.

Bombardier C. What's the clinical problem in acute low back pain in Ontario? What does the evidence show? What are the Barriers? Sept 2003; Guelph, ON: Ontario Guidelines Collaborative Retreat.

Bombardier C. Low back pain: what works, what doesn't and what is the evidence? Sept 2003; Toronto, ON: University of Toronto, Intracity Conference Rheumatology Rounds.

Bombardier C. Evidence-based medicine, systematic review and the Cochrane Collaboration. Oct 2003; Toronto, ON: IWH Systematic Review Workshop.

Bombardier C. Dissemination, implementation and clinical practice guidelines. Nov 2003; Toronto, ON: IWH Systematic Review Workshop.

Bombardier C. Industry relationships. Nov 2003; Toronto, ON: University of Toronto, Core Curriculum, Rheumatology Rounds.

Brenneman Gibson J. Knowledge transfer and exchange. July 2003; Toronto, ON: Ministry of Labour, Summer Experience Program.

Breslin FC. Youth work injury: making evaluations work for you. Nov 2003; Toronto, ON: Workshop co-sponsored by IWH.

Cole DC. Evaluating your interventions. Mar 2003; Toronto, ON: Health and Safety Association workshop on Research Transfer and Knowledge Exchange.

Cole DC, Hepburn G, Tompa E, Theberge N, Wells R, Barling J, Vezina N. Workplace health intervention research (WHIR) program development. Oct 2003; Markham, ON: Kinesiologist Knowledge -Brokers Workshop.

Côté P. The effect of early clinical care on the recovery of whiplash injuries. Sept 2003; Toronto, ON: Insurance Bureau of Canada (IBC) and the Workers' Safety Insurance Board Rehabilitation Conference.

Côté P. System influences on the recovery of whiplash injuries. Achieving excellence through collaboration: best rehabilitation outcomes. Oct 2003; Toronto, ON: Insurance Bureau of Canada and the Workers' Safety and Insurance Board Rehabilitation Conference.

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.

Cullen KL. Assessing function for return to work. May 2003; Hamilton, ON: McMaster University MSc PT students.

Etches J. The social distribution of health. Apr 2003; Toronto, ON: Lupina Seminar Series, Munk Centre for International Studies, University of Toronto.

Frache R-L. Readiness for self-management of arthritis. Jan 2003; Toronto, ON: Professional Education Day for the Arthritis Center at St. Michael's Hospital.

Frache R-L. Return-to-work: evidenced-based strategies and future challenges. May 2003; Toronto, ON: Workplace Safety and Insurance Board.

Frache R-L. Return-to-work: evidenced-based strategies and future challenges. Oct 2003; Toronto, ON: Ontario Kinesiology Annual Meeting.

Furlan A. Facilitator for small group sessions. Mar 2003; Toronto, ON: The Pain Week. University of Toronto Centre for Study of Pain.

Furlan A. Using systematic reviews. Sept 2003; Toronto, ON: IWH Systematic Review Workshop for physiotherapy educational influential.

Furlan A. Methodological quality assessment of randomized controlled trials. Oct 2003; Toronto, ON: IWH Systematic Review Workshop.

Furlan A. Critical appraisal of the traditional taxonomy of study design. Nov 2003; Toronto, ON: Clinical epidemiology rounds, Toronto General Hospital.

Furlan A. Software for conducting meta-analysis. Using systematic reviews: finding them, critically appraising, standard reporting and interpreting conflicting conclusions. Nov 2003; Toronto, ON: IWH Systematic Review Workshop.

Furlan A. Critical appraisal of the traditional taxonomy of study design. Dec 2003; Toronto, ON: 2nd Retreat of the University of Toronto Centre for the Study of Pain.

Gibson J. Determinants of health of populations: choosing effective action to address determinants of health. Mar 2003; Hamilton, ON: McMaster University.

Guzman J. Evidence-based rehabilitation for people with neck pain. Nov 2003; Toronto, ON: University of Toronto Division of Physiatry Grand Rounds.

Hogg-Johnson S. Survival analysis. Apr 2003; Toronto, ON: Lecture to Epidemiology Methods 2, University of Toronto.

Kells R. Impact of occupational injury on families and prevention strategies. Apr 2003; Toronto, ON: University of Toronto, Faculty of Medicine, Determinants of Community Health -Year 1.

Kells R. Monitoring and benchmarking: leading indicators in workplace health and safety. July 2003; Toronto, ON: Ministry of Labour, Summer Experience Program.

Kerr MS. Monitoring the health of nurses in Canada. Feb 2003; Hamilton, ON: McMaster University, Dept of Clinical Epidemiology and Biostatistics, Occupational Health and Toxicology Rounds.

Kramer DM. Knowledge transfer and exchange. Jan 2003; Toronto, ON: Organizational Planning and Improvement Division, Industrial Accident and Prevention Association.

Kramer DM. Evaluating your safety interventions. Mar 2003; Toronto, ON: Ontario Hospital Association safety group.

Kramer DM. Safety climate: making a difference in the workplace. Mar 2003; Toronto, ON: School of Public and Occupational Health, Ryerson University.

Kramer DM. Becoming a champion of new research. Apr 2003; Toronto, ON: IAPA Health and Safety Conference.

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

Lavis JN. Knowledge transfer and exchange: The challenge for research organizations. May 2003; Toronto, ON: Centre for Health Economics and Policy Analysis (CHEPA) Advisory Council.

Mustard CA. Measurement of socio-economic status in population health research. Jan 2003; Toronto, ON: Measurement in health care: how, what why? Institute for Clinical Evaluative Sciences Annual Conference.

Mustard CA. Growing health care costs: what might be some remedies? May 2003; Waterloo, ON: Health and Safety Solutions Conference.

Mustard CA. From child and youth development to human development. May 2003; Sparrow Lake, ON: 14th Annual meeting, Sparrow Lake Alliance.

Pennick V. Evidence-based practice. Mar 2003; Mississauga, ON: Ontario hospital nurses knowledge brokers workshop.

Reardon R. Assessing function in injured workers. May 2003; Toronto, ON: RTW/LMR Advisory Committee, WSIB.

Reardon R. KTE Basics - IWH KTE model and facilitation of a focus group (topic: knowledge transfer strategy re: CanChild motor measurement tools) June 2003; Toronto, ON:

Reardon R. Facilitated Strategic Planning session for 'Threads of Life'. June 2003; Toronto, ON

Reardon R. EI networks for KTE. July 2003; Toronto, ON: Ministry of Labour visitors.

Reardon R. Achieving excellence through collaboration. Sept 2003; Toronto, ON: Insurance Bureau of Canada and the Workers' Safety and Insurance Board Rehabilitation Conference.

Reardon R. KTE Day. Oct 2003; Toronto, ON: EI Kinesiologists (presenters and facilitator).

Reardon R. Making research relevant through knowledge transfer and exchange. Nov 2003; Toronto, ON: Ontario HIV Treatment Network Research Conference. Invited workshop - Knowledge Transfer & Exchange - A Practical Approach.

Robson LS. Concepts in the measurement of workplace leading indicators. May 2003; Toronto, ON: Measuring Leading Indicators: An OHSCO Initiative, IWH Workshop.

Shannon HS. Stress in the workplace. Mar 2003; Southwest Region Health Information Partnership.

Shannon HS. Organizational factors and workplace safety. May 2003, London, ON: University of Western Ontario.

Strong S, Costa M, Baptiste S, Woodward C, Clarke J, Polanyi MF. Poster: The McMaster experience: knowledge in the hand of the community. Sept 2003; Toronto, ON: Insurance Bureau of Canada Conference and the Workers' Safety and Insurance Board Rehabilitation Conference. (*first prize*)

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.

National

Amick BC, Mustard CA. Labour markets and health: a social epidemiological perspective. June 2003; Washington DC: NICHD Conference on Work, Family and Well-Being.

Ammendolia C. Canadian Chiropractic Research Foundation Fund Allocation Committee, May 2003, Ottawa, ON.

Ammendolia C. Listening for direction on injury. Oct 2003; Toronto, ON: Canadian Institute for Health Research Workshop.

Bombardier C. Chronic low back pain. Sept 2003; Sherbrooke, QC: Centre hospitalier Universitaire de Sherbrooke, Grand Rounds.

Breslin FC, Smith P. Poster: How do the provinces compare? Self-reported work injury rates for youth and adults in the Canadian Community Health Survey. Oct 2003; Montreal, QC: 2nd Association of Workers' Compensation Boards of Canada Public Forum

Breslin FC. Co-convened workshop entitled, Passport to Safety Research Advisory Group: Evaluation Framework Development. Dec 2003; Toronto, ON: Institute for Work & Health.

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. Nov 2003; Regina, SK: Saskatchewan Government Insurance.

Guzman J. Physicians' role in return to work. What do they think and what would they do about it? Feb 2003; Winnipeg: MB: University of Manitoba Dept. of Community Health Sciences Colloquium.

Guzman J. Low back pain and disability prevention. Jan 2003; Winnipeg, MB: University of Manitoba Rehabilitation Medicine Grand Rounds.

Hayden JA. Program of research: prognosis and course of LBP. Oct 2003; Toronto, ON: Canadian Chiropractic Research Foundation.

Koehoorn M, Breslin C. Patterns of work and work-related injuries among BC youth. Feb 2003; Richmond, British Columbia: Divisional Young Workers Team, Prevention Division, Workers' Compensation Board of British Columbia.

Koehoorn M, Breslin FC. Injuries among high school students in British Columbia. Feb 2003; Richmond, British Columbia: Divisional Young Workers Team, Prevention Division, Workers' Compensation Board of British Columbia.

Koehoorn M. Consultation-occupational and environmental needs assessment. June 2003; British Columbia: Workers' Compensation Board of British Columbia, B.C. Centre for Disease Control and University of British Columbia.

Koehoorn M. Young worker symposium. Oct 2003; British Columbia: Workers' Compensation

Board of British Columbia.

Koehoorn M. Occupational injuries among youth. Dec 2003; Vancouver, BC: British Columbia Injury Research and Prevention Unit, Children's and Women's Hospital Seminar Series.

Lavis JN. How can research organizations more effectively transfer research knowledge to decision-makers? Apr 2003; Montréal, QC: Groupe de Recherche Interdisciplinaire en Santé (GRIS), Université de Montréal.

Mustard CA. Population health and the workplace. Apr 2003; Banff Springs, AL: Second Annual Healthy Outcomes Conference.

Smith P, Mustard CA. In the deep end: examining the prevalence of occupational health and safety and orientation training for employees in their first year of a new job. Montreal, QC: 2nd AWCBC Public Forum. Young people and occupational health and safety at work

van der Velde G. Outcomes measures Ad Hoc Task Force, Pre-Approved Framework Sub-committee of the Insurance Bureau of Canada Health Professions Coalition Working Group.

International

Breslin FC. Member of committee to review applications for Maintenance of Long Term Behavioral Change RFA (SSS-N-50 July 2003), National Institutes of Health, Washington, DC.

Hayden JA. Experiences in systematic review. Oct 2003; Amsterdam, the Netherlands: EMGO Research Institute.

Karasek R, Landsbergis P, Kerr MS, Cole DC, Reardon R, Resendes E. Job content questionnaire (JCQ) workshop. Mar 2003; Toronto, ON: Institute for Work & Health.

Lavis JN. How can research organizations more effectively transfer research knowledge to decision-makers? Mar 2003; Geneva, Switzerland: World Health Organization

Pennick V. Evidence-based practice and the Cochrane Back Review Group. June 2003; Oslo, Norway: Norwegian Back Pain Network Rounds.

Sinclair SJ. Collaborative evidence-based approach to managing persistent low back pain. Dec 2003; Amsterdam, The Netherlands: E.U. Committee on the Development of European Guidelines for the Management of Back Pain.

IWH Plenary Series

External Speakers

Spence N, Cichello J. WSIB. Claims adjudication... service delivery team/occupational disease. 14 January.

Schofield M, Bujeya S. WSIB. Role of the health-care providers and labour market re-entry services. 11 February.

Aronson K. Queen's University, Department of Community Health & Epidemiology. Prostate cancer risk associated with occupational physical activity and shift work. 25 March.

Smith G, Guilmet-De Simone H. WSIB. Revenue policy and benefits policy. 1 April.

Anderson GM. Professor, University of Toronto and Senior Adjunct Scientist, ICES. Can health care reduce health disparities? Harmonizing the perspectives of population health and evidence-based medicine. 6 May.

Gignac M. The Toronto Western Research Institute, The University Health Network. Adaptation to work limitations: an examination of the behavioural coping efforts of people with arthritis. 17 June.

Killham D, Clark L-A. Workers Health & Safety Centre. Workplace health and safety conditions: a survey of Ontario workers. 14 October.

Barling J. Queen's University. Some new data and thoughts on workplace safety: views from organizational psychology. 28 October.

Amick B. School of Public Health, University of Texas Health Sciences Centre - Houston. The impact of an office ergonomics intervention on health and productivity. 25 November.

Pickett WL. Community Health and Epidemiology, Emergency Medicine, Queen's University. Systematic review of pediatric farm injuries prevention strategies. 9 December.

Internal Speakers

Kramer D. From transfer to transformation: A knowledge transfer intervention at an automotive plant. 4 February.

MacEachen E. RSI in Ontario: newspaper, workplaces: how managers deal. 18 February.

Lavis J. KTE: The challenge for research organizations. 25 February.

Robson L. Healthy workplace performance measurement. 4 March.

Kristman V. Attrition in cohort studies: how much is too much? 8 April.

Data & Information Systems Group. An extended overview of work-in-progress. 15 April.

Tompa E, Trevithick S, McLeod C. Insurance and regulatory incentives for firm level injury and illness prevention: a systematic review of the literature ? April.

Population Workforce Studies Group. An extended overview of work-in-progress. 29 April.

Tompa E. Systematic review of literature on workers' compensation system and occupational health and safety features and their consequences for work-related injury experiences. 20 May.

Cole DC, Hepburn G, Kramer D, Robson L, Shannon HS. Workplace Studies Group Plenary: An extended overview of the past, current and future research agenda . 3 June.

Reardon R. From research report to shop floor. 10 June.

Cullen K, Furlan A, Irvin E, McLeod C, Trevithick S. Systematic reviews. 24 June.

Brenneman Gibson J. IWH Stakeholder Survey. 9 September.

Guzman J. A program of research to prevent disability in back pain and arthritis. 23 September.

Kosny I. Are non-profit organizations healthy workplaces? 7 October.

Mustard C. Disability insurance in Canada. Current policy issues and research opportunities. 21 October.

Shannon HS, Vidar M. How low can they go? Potential for reduction of work injury rates. 4 Nov.

Rueda S. Health-related quality of life effects following return to employment in persons living with HIV/AIDS. 11 November.

Zohar D. Technion - Israel Institute of Technology. Recent development in safety climate research and applications. 18 November.

Furlan A. A critical appraisal of the traditional taxonomy of study designs. 2 December.

Theberge N. University of Waterloo. Implementing a participatory approach to ergonomic change: Observations from an effort in the manufacturing sector. 16 December.

Grants and Awards * Principal Investigator is External

Research Project Funding - Awarded

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 Research Advisory Council: \$179,655; 2002-2004. (Administered at St. Michael's Hospital)

Beaton DE, Schemitsch E, Gignac M, Davis A, Cruder H, Franche R-L. How are you now? Testing a model of recovery from a patient's perspective one year after a traumatic fracture of an extremity. CIHR: \$82,226; 2002-2003.

* 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)

Bombardier C. Co-Investigator/Coordinating Editor, Cochrane Collaboration Back Review Group: Systematic Reviews of the Scientific Literature on Spinal Disorders. \$70,000/year Institute for Work & Health; \$10,000; 2003-01/2003-03 CIHR President's Special Grant.

* 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 to IWH; 2003-2004. (Full grant administered at McMaster University)

* Boyle M, Zeesman A, Willms D, Murray S, Mustard C, 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, Tompa E, Hogg-Johnson SA, Amick B. Work injury and young people: a prospective study. NIOSH. \$100,000 U.S.; 2004-2006. (Approved for funding Feb 2004)

Breslin C, Smith P, Koehoorn M, Vidmar M. Prevalence and determinants of work-related injuries among young workers. WISB Research Advisory Council: \$138,200; 2002-2004.

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 Research Advisory Council: \$147,844; 2002-2004.

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, 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.

Côté P, Beaton DE, Cassidy J, Carroll L, 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; 2003-2005.

Franche R-L, Minore B, Mustard CA, Feldberg G, Stewart D. The impact of multiple roles and gender role beliefs on health and health behaviors in parents of young children. SSHRC: \$198,600; 2001-2003.

* Gnam W, Koehoorn M, Breslin FC, Mustard CA. Profiling the mental health and service utilization of workers' compensation claimants. \$110,310; 2002-2004. (Funds are from the Workers' Compensation Board of British Columbia, but administered at the Centre for Addiction and Mental Health, Ontario)

Guzman J. Prevention of disability from work-related low-back pain. Winnipeg Health Sciences Centre: \$24,931.

Hayden J, Bombardier C, Beaton DE, Hogg-Johnson S. A systematic review and comprehensive rating of the low back pain prognosis literature, and development of clinical predictive rules for LBP management in primary care practice. Special Chiropractic Research Fund – Ontario Chiropractic Association and the Ministry of Health and Long Term Care: \$13,150; 2001-2003.

Hepburn CG, Zohar D, Cole DC, Kramer D, Ferrier SE. Safety climate: measurement, intervention and evaluation in a manufacturing setting. WSIB: \$262,443; 2003-2005.

* 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, Lougheed 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)

Kerr MS, Mustard CA, Franche R-L, Laschinger HK, Shamian J, Schwartz JE. Exploring stress differences between full-time and part-time nurses. University of Toronto, Nursing Effectiveness, Utilization and Outcomes Research Unit: \$26,800; 2001-2003.

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)

Koehoorn M, Breslin FC. Investigating the consequences of work-related injuries among young workers in British Columbia. Workers Compensation Board of British Columbia: \$76,068; 2002-2004. (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)

* Laschinger HKS, Kerr MS. Predictors of nurses mental and physical health with a climate of hospital restructuring: pilot testing a model. University of Toronto, Nursing Effectiveness Utilization and Outcomes Research Unit: \$7,482; 2001-2003. (Administered at the University of Western Ontario)

* 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)

* Lemyre L, Corneil W, Hepburn CG, Barette J. The federal public service as a 'learning organization': a national study on stress and learning in executives. SSHRC: \$193,000; 2002-2005. (Administered at the University of Ottawa)

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: \$184,000; 2002-2004.

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: \$109,800; 2003-2004.

* 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)

* Raina P, MacArthur C, Morrongiello B, Breslin C, Shannon HS. From knowledge generation to knowledge translation: a systems approach to reducing the burden of injury in Canada. CIHR: \$198,900 (Administered at McMaster University)

* 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: \$124,012; 2003-2004. (Administered at McMaster University)

* Strong S, Dobbins M, Polanyi MF, Baptiste S, Clarke J, Costa M, Gibson E. Towards best practices for functional assessment: an innovative model for research dissemination. WSIB RAC: \$253,589; 2001-2003. (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. Occupational safety and health research: Post accident earning and benefits adequacy and equity. NIOSH: \$150,000; 2004-2006 (Funded Feb 2004).

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.

Wells RW, Brawley L, Cole DC, Frazer M, Kerr MS, Kerton R, Norman R, Theberge N. Benefits and costs of a participative ergonomics change process industry. WSIB: \$270,756; 2001-2003 (Administered at University of Waterloo)

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, Eaton J, Kerr MS, Ferrier SE, King A, Gunning J, Frumin E, Polanyi MF. Prevention of WMSD in the Ontario clothing industry: a focus on small business. WSIB: \$250,240; 2001-2003.

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.

Etches J. Thesis Proposal: A cross-national comparison of trends in social inequality in health, and policy-relevant covariates. Comparative Program on Health & Society Doctoral Fellowship Munk Centre for International Studies, 2002-2003.

Furlan A. Post-doctoral Fellowship Award, CIHR: 2002-2005.

Furlan A. University of Toronto Centre for the Study of Pain Clinician-Scientist Award: 2002-2003.

Gildiner A. Mustard Fellowship in Work Environment and Health; IWH: 2001-2003.

McEachen E. Mustard Fellowship in Work Environment and Health; IWH: 2003-2005.

Hayden J. Mary H. Beatty Top-Up Scholarship from the University of Toronto, Dept of Public Health Sciences.

Hayden J. Post-doctoral Fellowship Award, CIHR: 2001-2004.

Pole J. Thesis proposal: Socioeconomic status and asthma related illness amongst Ontario children: Is there an association? K.M. Hunter/CIHR Doctoral Award (3 years of funding)

van der Velde G. A cost-effectiveness decision analysis of non-surgical treatments for non-specific neck pain. CIHR, Institute for Health Policy and Research, Post-doctoral Fellowship 2002-2005.

Other Awards

Bombardier C. 2003 (Sept) University of Toronto, Dales Award in Medical Research "Evaluation of Health Interventions and the Measurement of Patient Outcomes.

Guzman J. Award for best essay by a resident. Association of Rehabilitation Medicine of Manitoba.

Kerr MS. University of Western Ontario Faculty Research & Retention Award.

Mustard CA. Conference Board of Canada/Spencer Stuart National Awards in Governance - Not-for-profit Sector. CIHI Board of Directors.

Other External Funding

* Shannon HS, Lewchuk W, MacDermid J, Westmorland M and 15 others including Kerr MS, Hepburn CG, Eakin J. Letter of intent accepted. Work organization and prevention of illness and injury. \$9,546 to develop a full proposal for a Centre. (Administered at McMaster University)

Pending

Guzman J. A program of research to help prevent disability in back pain and arthritis. Connaught start-up funds, University of Toronto.

* 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 personnel avant des troubles musculo-squelettiques. FRSQ: Programme en sante et society; \$800,000.

Research/Professional Collaborations and Networks, Appointments and Offices

Ammendolia C

Member, Research Fund Allocating Committee, Canadian Chiropractic Research Foundation.
Member, Canadian Chiropractic Association.
Member Ontario Chiropractic Association.
Member, Ontario Council of Acupuncture.
Advisor, Guidelines Advisory Committee, Ontario Medical Association and the Ministry of Health and Long Term Care.

Beaton DE

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, Advisory Committee, Neck Pain Task Force.
Member, Quality of Life Methods Working Group, Cochrane Collaboration.
Member, American Society of Shoulder and Elbow Therapists, Member of Research Committee (95 to present), Member at Large (1999-2003).
Member, Canadian Association of Occupational Therapists.
Member, Ontario Society 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).

Bombardier C

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 Mtg (WAAB), 2002 to present.
Member, Merck Frosst Rheumatology Medical Advisory Council (MEDAC), 2002 to present.
Member, Canadian Arthritis Network "Disease Management Core Instrument Committee", 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.

Brenneman Gibson J

Member, OHSCO (shared with Cam Mustard).
Member, Centre of Excellence Steering Committee.
Member, Scientific Advisory Committee Business and Economic Roundtable on Mental Health in the Workplace.
Health Work and Wellness Conference Planning Committee.
Chair, HSA Liaison Committee.

Advisory Committee member for research project on Retention of Clinical Practice guidelines in LTC facilities in Ontario, P.I's. Whitney Berta and Gary Teare, University of Toronto.

Breslin C

Member, Grant review Committee for the Ontario Mental Health Foundation.
Member, Young Workers' Evaluation Advisory Committee, a subcommittee of OSHCO.
Member, IWH Strategic Planning Committee, Jan - May 2003.
Member, IWH Joint Health and Safety Committee, ongoing in 2003.
Member, Plenary Committee at IWH, ongoing in 2003.
Member, Review Committee to Assess Research Data Centre proposal, SSHRC.
Member, Committee to review applications for Maintenance of Long Term Behavioral Change RFA (SSS-N-50 July 2003), National Institutes of Health, Washington, DC.
Member, Committee to review occupational health and safety abstracts for 7th World Conference for Injury Prevention and Safety Promotion.

Cole DC

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, Selection Committee, PHS Epidemiology Program.
MHSc Community Health & Epidemiology Program re-design Group.
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.
Gage Occupational & Environmental Health Unit.

Côté P

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 It's 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.
Consultant, WHO Collaborating Centre for Neurotrauma, Prevention, Management and Rehabilitation Task Force on Traumatic Mild Brain Injury.
Member, University of Toronto Epidemiology Executive Committee.

Franche R-L

Member, Ontario College of Psychologists.
Member, Canadian Psychological Association.

Furlan A

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.

Gildiner A

Member (Post-Doc), Centre for Health Economics and Policy Analysis, McMaster University

Guzman J

Fellow, Royal College of Physicians and Surgeons of Canada, 2003 to present.
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.
Resident Member, The Royal College of Physicians and Surgeons of Canada, 1999-2003.
Member, Mexican Society of Rheumatology, 1991 to present.

Hepburn CG

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 S

Member, Scientific Secretariat, The Bone & Joint Decade 2000-2010 Task Force on Neck Pain and It's Associated Disorders.

Kerr MS

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.
Assistant Professor (status only), Department of Public Health Sciences, Faculty of Medicine;
Associated Member, Limited status, School of Graduate Studies, University of Toronto.
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 for 'Protecting the "faces" of health care workers: current knowledge on protection against respiratory infection and priorities for actions'. The Change Foundation and The Ontario Hospital Association, 2003-2004.

Project Steering Committee for 'Adverse events in the hospital setting - a Research Synthesis'. The Change Foundation and The Ontario Hospital Association, 2003-2004.

Project Steering Committee for 'Healthy work environments best practice guidelines'. Partnered by Health Canada, Office of Nursing Policy and the RNAO Centre for Professional Nursing Excellence, 2003.

Knowles Chapeskie K

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.

Koehoorn M

Member, Public Population and Community Health Committee, CIHR.

Member, Health Canada Grant Review Committee, Health Policy Research Programs.

Board Member, Canadian Association of Researchers on Work and Health (CARWH).

Member, Young Workers' Steering Committee, WCB of B.C.

Consultation-Occupational and Environmental Needs Assessment; WCB of B.C., B.C. Centre for Disease Control and University of B.C.

Delegate, Ontario Women's Health Council.

Collaborator, National Survey of Nursing Personnel. Joint initiative with Health Canada, Office of Nursing Policy Research, Statistics Canada and CIHI.

Qualified Health Researcher, Centre for Health and Environmental Research, Michael Smith Foundation for Health Research.

Member, Canadian Society of Epidemiology and Biostatistics.

External Advisor, Regional Health Authority Management of Employee Health & Wellness, Auditor General of B.C.

Lavis JN

Member, Centre for Health Economics and Policy Analysis, McMaster University.

Liberty Health Scholar, Population Health Program, CIAR.

Associate Member, Department of Health Administration, University of Toronto.

Canada Research Chair (Tier 2) in Knowledge Transfer and Uptake, 2001-2006, once renewable. Fife House Foundation, Inc.

Member, Advisory Panel for Employment Action Program Evaluation, 2002 to present.

Member, Board of Directors (appointed Aug 2002-Nov 2002; elected Nov 2002-Nov 2005).

Member, Canadian Public Health Association, 1992 to present.

Member, Academy for Health Services Research and Health Policy.

Member, Toronto HIV Primary Care Physicians' Group, 1996 to present.

Member, Canadian Political Science Association, 1996 to present.

Member, American Political Science Association, 1996 to present.

Member, American Public Health Association, 1996 to present.
Member, Canadian Health Economics Research Association, 1996 to present.
Member, International Health Economics Association, 1996 to present.

McLeod C

Member, Program in Policy Decision-Making, McMaster University.

Mustard CA

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.
Member, Institute Advisory Board, Institute for Aboriginal Peoples' Health, CIHR. 2000 -2003.
Chair, CPHI Council, 1999 to present.
Board Member at Large, CIHI, 1st Term: 1997-2000; 2nd Term: 2000 to present.

Pennick V

Registered Nurses Association of Ontario.
Communications Officer, Region 7, 1990-2003.
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 R

Member, Physicians Education Committee on Work and Health.
Member, Ministry of Health and Long Term Care, Rehabilitation Reference Group.

Robson LS

Member, System Measurement Sub-Committee of the Occupational Health and Safety Council of Ontario.

Shannon HS

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 P

Member, Public Health Association of Australia (PHAA).
Member, special interest group on injury prevention (PHAA).

Sinclair SJ

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 E

Member, International Health Economics Association.
Member, Centre for Health Economics and Policy Analysis Review Group (Polinomics).

van der Velde G

Member, Scientific Secretariat, The Bone & Joint Decade 2000-2010 Task Force on Neck Pain and its Associated Disorders.

Teaching, Educational and Service Activities

Ammendolia C

Teaching/Educational Role

Canadian Memorial Chiropractic College, Dept of Graduate Studies and Research, 1996 to present.

Service Activities

Grant Committees: Canadian Chiropractic Research Foundation; Fund Allocating Committee.

Journal Referee: Canadian Chiropractic Association Journal.

Beaton D

Teaching/Educational Role

Assistant Professor, Occupational Therapy, University of Toronto, Oct 1995 to present.

Associate Core Faculty, Clinical Epidemiology and Health Care Research Program, University of Toronto, Jan 1996 to present.

Course Coordinator, Measurement in Clinical Research, HPME graduate program, University of Toronto to present.

Two OT students started working on their research projects: Shanley Pitts is coordinating the comparison of four measures of work disability, and Kim Urbanski is working on defining a conceptual framework for a measure of readjustment or redefinition. Shanley will be working out of the WSIB shoulder and elbow clinic and IWH, Kim will be analyzing data which is housed at St Mikes.

Measurement theory in the new millennium - Graduate Department of Rehabilitation Sciences

Outcome measurement: measurement properties.

Completed second year of teaching and coordinating the Measurement in Clinical Research course (HPME).

Service Activities

Grant Committees: External Reviewer: Medical Research Council of Canada (now CIHR), The Arthritis Society, Hospital for Sick Children Foundation.

Journal Referee: Journal of Clinical Epidemiology, Medical Care, JAMA International Journal of Epidemiology, Quality of Life Research, Spine, Journal of Rheumatology.

Bombardier C

Teaching/Educational Role

Professor, Medicine/Health Administration, University of Toronto.

University Courses: Measurement in Clinical Research, Research Internship.

MSc Thesis - Supervisor: Carol Hagino, Bindu Nair, James Pencharz, Joel Gagnier, Roselynn Chuong, Shanas Mohamed

PhD Thesis - Supervisor: Linda Li, Andrea Furlan, Jill Hayden, Carlo Ammendolia.

Member of Committee: Hans Oh (transferred to PhD program).

Director, Clinical Decision Making and Health Care, Research Division, Toronto General Research Institute, Toronto General Hospital, University Health Network, (formerly The Wellesley Toronto Arthritis and Immune Disorder Research Centre (AIDRC), 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 to present.
Staff Physician, Rheumatic Disease Unit, Mount Sinai Hospital, Toronto.

Service Activities

Grant Committees:

Chair: Data Safety and Monitoring Board (DSMB). National Institute of Musculoskeletal and Skin Diseases (NIAMS), 2002 to present

Member (Ad Hoc Reviewer): The Abbott Scholar Award in Rheumatic Diseases Program. 2002 to present.

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, ECRI (Emergency Care Research Institute); Review Committee for 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.

Cochrane Collaboration Back Review Group.

Associate Editor, Arthritis Care and Research - Current Science Limited.

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 J

Teaching/Educational Role:

Lecture, McMaster University, CHS 730 Determinants of the Health of Populations, March 13, 2003.

Workshop: Developing Knowledge Transfer and Exchange (KTE) Capacity for your Research Organization, The Canadian Cochrane Network and Centre, 3rd Canadian Symposium, Hamilton November 21-22, 2003.

Breslin C

Teaching/Educational Role

Assistant Professor, Department of Psychiatry, University of Toronto; Co-Instructor with Harvey Skinner, "Health Behaviour Change", Department of Public Health Sciences, University of Toronto (2002, Q1).

Co-instructor, Health Behavior Change (CHL5804S) at Department of Public Health Sciences (University of Toronto), Jan - April, 2003.

Served on MSc and PhD. Student selection committee, Health Behavior Sciences stream, Department of Public Health Sciences (University of Toronto), March, 2003.

Serving on committee to develop qualifying exam policy for Health Behavior Sciences stream, Department of Public Health Sciences (Univ. of Toronto), April-May, 2003.

Service Activities

Journal Referee: Journal of Psychology of Addictive Behaviors.

Cole DC

Teaching/Educational Role

Associate Graduate Faculty, Department of Kinesiology, University of Waterloo: 1997 to present.

Associate Member, Graduate Faculty, Department of Community Health, University of Toronto: November 1998-2003.

Adjunct Appointment to School of Geography and Geology, McMaster University: 1998 to present.
Member, Program Committee, Community Medicine Residency Program, University of Toronto: 2001 to present.

MSc Epidemiology Program - Supervisor: Irina Rivilis, Work-site ergonomic intervention evaluation, University of Toronto: 2002 to present.

Co-Instructor for Epidemiology II, University of Toronto: 2002 to present.

Co-Instructor, Global Health Research Methods, University of Toronto: 2003 to present.

MSC Thesis

Gloria Cordoso. Healthy workplace indicators in hospital scorecards. Health Policy, Management and Evaluation: 2003.

Post-doc

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.

Theses examiner

Brian Murphy. Cost-shifting in health care: a pilot study explores the relationships between cost shifting, repetitive strain injury, the WSIB and publicly funded health care. York University, Law: 2003.

Heather Neilson. Factors influencing the reliability of self-reported occupational exposures. University of Toronto, Occupational and Environmental Health: 2003.

Anusha Raj. Prognostic modelling of health-related quality of life for injured workers with upper-extremity soft tissue injuries in the (IWH) early claimant cohort. University of Toronto, Epidemiology: 2003.

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 to present.

U.S. National Institutes of Health, Fogarty Centre: 2003 to present.

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 P

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, Department of Graduate Studies and Research, Canadian Memorial Chiropractic College: 1997 to present.

Teaching

Laboratory in Epidemiologic Protocol Design (CHL 5408). University of Toronto. Winter 2003. (Instructor).

Membership to University Committee

Member: Epidemiology Executive Committee, Dept of Public Health Sciences, Faculty of Medicine, University of Toronto.

Member of Graduate Student Committee

Carlo Ammendolia, PhD student; Institute of Medical Studies, University of Toronto.

Esther Waugh, PhD student; Clinical epidemiology, University of Toronto.

Richard Foty, MSc student; Epidemiology, University of Toronto.

Examiner – Master's Thesis

Sujitha Ratnasingham. Master's in Epidemiology. University of Toronto. The effect of body mass index on the change in disability and pain in hip/knee osteoarthritis.

Service Activities

Grant Committees:

Canadian Institutes of Health Research, Arthritis Society, Institut de Recherche en Santé et Sécurité au Travail du Québec (IRSST), Ontario Ministry of Health.

Editorial Boards: Journal of Canadian Chiropractic Association, Journal of Manipulative and Physiological Therapeutics, Cochrane Back Review Group.

Journal Referee

The Lancet, Journal of Psychosomatic Research, Occupational and Environmental Medicine, Medicine & Science in Sports & Exercise, The Spine Journal, Pain, Annals of Epidemiology.

Ferrier SE

Service Activities

Organizations:

Board Member and Executive of Fife House Foundation (provides supportive housing for people living with HIV/AIDS).

Grant Committees:

Reviewer for Canadian Working Group on HIV and Rehabilitation.

Franche R-L

Teaching/Educational Role

Professional Advisory Committee, CIHR Training Program in Work Disability Prevention: 2002 to present.

PhD Thesis committee member: Janet Parson, Institute of Medical Sciences, University of Toronto, thesis supervisor: Dr. E. Davis/J. Williams: 2002-2004.

Assistant Professor, University of Toronto, Faculty of Medicine, Dept of Public Health Sciences and Graduate Department of Public Health Sciences: 2001 to present.

Assistant Professor, Dept of Psychiatry, Women's Mental Health Program, Faculty of Medicine, University of Toronto: 2000 to present.

Associate Member, Women's Health Program, University Health Network: 2000 to present.

Service Activities

Grant Committees:

Reviewer for CIHR Health Information & Promotion (HIP) Committee of the Canadian Institutes of Health Research (CIHR) Operating grants competition.

Reviewer for the Arthritis Society Scientific Review Panel - Epidemiology/Health Services.

Reviewer for the WSIB Research Competition.

Reviewer for Fonds pour la Formation de Chercheurs et l'Aide à la Recherche and Canadian Innovation Funds.

Conference Abstract Referee:

Reviewer for abstracts for the 2003 NIOSH-APA Conference.

Journal Referee:

Journal of Psychosomatic Obstetrics and Gynecology.

Canadian Journal of Behavioural Sciences.

Frank J

Teaching/Educational Role

Supervised Pierre Côté (PhD completed) and Anusha Govinda Raj (MSc completed)
PhD Supervisor, Michael Ladouceur, Institute of Medical Sciences, U of T
Sit on PhD Committees of Ann-Sylvia Brooker, and a UCB Berkeley student, (Patsi Sinnott) working on a huge workers' compensation cohort
Prepared (with Cam Mustard) new U of T 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 A

Teaching/Educational Role

Facilitator for small group sessions. The Pain Week. University of Toronto Centre for Study of Pain: March 17-20, 2003.

Teacher Assistant. Systematic Reviews Course (HAD 5308). Clinical Epidemiology, Health Policy Management & Evaluation Department, University of Toronto: Fall 2003.

Tutorial in Review Manager 4.2. Decision Analysis Course. Clinical Epidemiology, Health Policy Management & Evaluation Department, University of Toronto. November 7, 2003.

Service Activities

Journal Referee:

Cochrane Collaboration Back Review Group

Planning Committee:

The Pain Week, University of Toronto Centre for Study of Pain. March 17-20, 2003.

Gildiner A

Teaching/Educational Role

Assistant Professor (tenure stream), Department of Political Science and Health Studies Programme, McMaster University: 2002 to present

Lecturer (Adjunct), Department of Physical Therapy, University of Toronto: 2001 to present.

Project Advisor, Module 10, Professional Issues in Evidence-Based Practice, Department of Physical Therapy, University of Toronto, Q1 2002 (ongoing from Q4 2001).

Facilitator, Interfaculty Education (Medicine, Rehabilitation, Nursing, Dentistry, Pharmacy), University of Toronto, Centre for the Study of Pain, Q1 2002.

Guzman J.

Teaching/Educational Role

Assistant Professor, Department of Internal Medicine, University of Toronto

Hayden J

Teaching/Educational Role

Lecturer (part-time), Canadian Memorial Chiropractic College, Department of Biological Sciences, 1999 to present.

Canadian Memorial Chiropractic College, Department of Graduate Studies and Research, 2000 to present.

Adjunct Professor, Canadian Memorial Chiropractic College, Department of Graduate Studies and Research, 2000 to present.

Service Activities

Journal Referee: Journal of the Canadian Chiropractic Association

Hepburn CG

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.

Ph.D. 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 to present.

Planning Committee:

American Psychological Association and National Institute of Occupational Safety and Health conference "Work, Stress and Health: New Challenges in a Changing Workplace", the Fifth Interdisciplinary Conference on Occupational Stress and Health, Toronto, Ontario, March 2003.

Hogg-Johnson S

Teaching/Educational Role

Assistant Professor, Department of Public Health Sciences, Faculty of Medicine, University of Toronto, 1995 to present.

Assistant Professor, Department of Health, Policy, Management and Evaluation, Faculty of Medicine, University of Toronto, 2001 to present.

Core Faculty Member, Graduate Program in Clinical Epidemiology and Health Services Research, University of Toronto, 1998 to present.

PhD Thesis (University of Toronto) - Supervisor: G. van der Velde

Committee Member: Anusha Raj

PhD Thesis (University of Toronto) Carlo Ammendolia, Lauren Griffith, Jill Hayden, S. McIntyre-Switzer, R. Martinussen, Karen Ghelani, Farah Ahmad.

Member Limited, School of Graduate Studies, Division of Community Health, University of Toronto.
Examiner on PhD Candidates: Dianne Zakaria (University of Western Ontario), Abhaya Kulkarni (McMaster University) - May 2003.

Mentor: Training Program on Work Disability Prevention, Longueuil, QC, Jan-June 2003.

Service Activities

Grant Committees:

External Reviewer: Workplace Safety & Insurance Board RAC.

Ibrahim S

Teaching/Educational Role

Lecturer, Department of Public Health Sciences, Faculty of Medicine, University of Toronto: 2002 to present.

Kennedy CA

Teaching/Educational Role

Lecturer, Department of Physical Therapy, University of Toronto: 1996 to present.

Kerr MS

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, Department of Public Health Sciences, Faculty of Medicine at the University of Toronto, with an Associate Member Limited status in the School of Graduate Studies.

Mentor - Determinants of Community Health Course, Medical Students, University of Toronto, Faculty of Medicine.

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.

PhD Thesis Examination Committee Member - Dianne Zakaria, 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

Conference Referee:

APA-NIOSH Work Stress and Health - Toronto 2003

Koehoorn, M

Teaching/Educational Role

Assistant Professor, Department of Health Care & Epidemiology, University of British Columbia.
Associate Scientist, Institute for Work & Health.
Associate Appointment, School of Occupational and Environmental Hygiene, University of British Columbia.
Affiliated Health Researcher, Nursing and Health Behaviour Research Unit, School of Nursing, University of British Columbia.
Qualified Health Researcher, Centre for Health and Environment Research.
Associated Health Researcher, NEXUS: Researching the Social Contexts of Health Behaviour .
Michael Smith Foundation for Health Research Infrastructure Research Unit.
Lecturer, Department of Public Health Sciences, University of Toronto: 1999 to present.
Assistant Professor, Department of Health Care & Epidemiology, University of British Columbia: 2002 to present.
Adjunct Faculty Member, School of Occupational and Environmental Hygiene, University of British Columbia: 2002 to present.
Scholar, Michael Smith Foundation for Health Research: 2002 to present.
Instructor, MSc/Ph.D. Research Seminar (Department of Health Care and Epidemiology): 2002 to present.
Faculty Mentor, CIHR/Michael Smith for Health Research Foundation Strategic Training Initiative: Bridging Public Health, Engineering and Policy Research: Sept-Dec 2003.

Courses:

HCEP 507/607, M.Sc./Ph.D. Research Seminar, Department of Health Care & Epidemiology, University of British Columbia: Jan-April 2003.
HCEP 507/607, M.Sc./Ph.D. Research Seminar, Department of Health Care & Epidemiology, University of British Columbia: Sept-Dec 2003.
OCCH 504, Advanced Occupational and Environmental Hygiene Issues, School of Occupational and Environmental Hygiene, University of British Columbia: Sept-Dec 2003.

Student Supervision:

John Dufton, M.Sc., Department of Health Care & Epidemiology, University of British Columbia: Sept 2001-Aug 2003.

JoAnne Palin, PhD Candidate, Department of Health Care & Epidemiology, University of British Columbia: 2002 to present.

Catherine Trask, M.Sc. Program, School of Occupational and Environmental Hygiene, University of British Columbia: 2003 to present.

Neil Bellack, M.Sc. Program, Department of Health Care & Epidemiology, University of British Columbia: 2003 to present.

Service Activities

Grant Committees:

External Reviewer, Canadian Institutes for Health Research 2000

Public, Community and Population Health Committee

Canadian Institutes for Health Research: 2001 to present.

Journal Referee:

American Journal of Industrial Hygiene

Canadian Journal of Public Health

Organizations:

Member, Young Workers Steering Committee, Prevention Division, Workers' Compensation Board of British Columbia: 2002 to present.

Member, Committee to Audit Occupational Health and Safety in Health Care, Office of the Auditor General of British Columbia.

Other Educational Activities:

Faculty Mentor, BRIDGE Program - CIHR Strategic Training Initiative

Kramer DM

Teaching/Educational Role:

Professor, Topics in Occupational Health & Safety, Certificate Program on Occupational Health & Safety, Ryerson Polytechnical University: 1999 to present.

Lavis JN

Scholarly and Professional Activities:

Visiting Scholar, Texas Institute for Society and Health.

Member, Selection Committee to Recommend a Director of the Centre for Health Economics and Policy Analysis.

Member, Graduate Education Committee for the Health Research Methods Programme: 1999 to present.

Chair, Admissions Committee for the Ph.D. Programme in Health Research Methods: 2002 to present.

Member, Basic and Clinical Disciplines Resource Group, Undergraduate MD Programme: 1999 to present.

Member, Faculty of Health Sciences Research Council: 2001-2003.

Member, Internal Review/Selection Committee for the Chair of the Department of Clinical Epidemiology and Biostatistics: 2002 to present.

Co-director (with Greg Stoddart), Educational Initiative in Health Economics and Health Policy Analysis for Health Professionals: 1997 to present.

Faculty Co-Supervisor (with Julia Abelson), Centre for Health Economics and Policy Analysis Knowledge Transfer Programme: 1998 to present.

Chair, Polinomics Group: Sept 2002 - June 2003.

Teaching/Educational Role

Assistant Professor, Department of Clinical Epidemiology and Biostatistics, McMaster University: Sept 1997 - June 2003.

Associate Professor (Continuing Appointment Without Annual Review), Department of Clinical Epidemiology and Biostatistics, McMaster University: July 2003 to present.

Associate Member, Department of Political Science, McMaster University: Sept 2002 - June 2006.

Assistant Professor (status only), Department of Health Policy, Management, and Evaluation, University of Toronto: July 2002 - June 2005.

Associate Member (limited term), School of Graduate Studies, University of Toronto: July 2002 - June 2005.

Course Coordinator: Determinants of Health of Populations (CHS-730).

Course Coordinator, HS-3GG3 Health Systems and Health Policy: Spring 2003.

Autobiographical Submissions' Assessor, Undergraduate MD Programme

Member, Selection Committee to Recommend a Director of the Centre for Health Economics and Policy Analysis.

Co-Director (with Greg Stoddart), Educational Initiative in Health Economics and Health Faculty Supervisor, Policy Analysis for Health Professionals, Centre for Health Economics and Policy Analysis Research Transfer Programme, McMaster University.

Co-Supervisor of individual study with J Abelson, McMaster University, L Mac, Arts and Science Programme, McMaster University.

Supervisory Activities

Undergraduate

McMaster University Student Advisor, Lauren Mac, Arts and Science Programme Year 4: Sept 2000 - June 2003.

Graduate

Supervisor, CHEPA Studentship, Vandna Bhatia, PhD, Department of Political Science, McMaster University: Jan 2002 to present.

Member, Doctoral Thesis Committee, Sergio Rueda, PhD, Department of Health Policy, Management, and Evaluation (Clinical Epidemiology Program), University of Toronto: May 2002 to present.

Chair, Doctoral Thesis Committee, John McLennan, PhD, Department of Clinical Epidemiology and Biostatistics, McMaster University: May 2002 to present.

Postgraduate

Co-supervisor (with Coleman W), Alina Gildiner, SSHRC Postdoctoral Fellowship: July 2002 - June 2004.

Service Activities

Grant Committees:

Chair, CIHR Health Policy and Systems Management Research Grants Committee: 2000 - 2003.

Journal Referee:

Social Science and Medicine

Health Affairs
Journal of Health Economics
Milbank Quarterly

Manno M

Teaching/Educational Role

Lecturer, Department of Public Health Sciences, Faculty of Medicine, University of Toronto: 1998 to present.

McLeod C

Teaching/Educational Role

Course Tutor, CHS-730, Determinants of the Health of Populations, McMaster University

Service Activities

Journal Referee:

American Journal of Public Health
Social Science & Medicine

Mustard CA

Teaching/Educational Role

Introduction to Public Health Sciences (CHL5004), Tutorial Group Leader: Fall 2003.

Empirical Perspectives on Social Organization & Health (CHL5419), Co-instructor with J.W. Frank: Winter 2003.

Professor, Public Health Sciences, University of Toronto: July 2002 to present.

Professor (Part-time), Clinical Epidemiology & Biostatistics, McMaster University: July 2003 - June 2006.

Reviewing Activity; Granting Agencies and Review Panels

Chair, CIHR Review Panel, Understanding and addressing the impacts of Physical and Social Environments on Health. Ottawa, March 3, 2003.

Chair, Health Research Fund Advisory Committee, Alberta Heritage Foundation for Medical Research. Edmonton, May 2003.

Member, Fellowship Award Panel, Comparative Program on Health and Society, Munk Centre for International Studies, University of Toronto

External Reviewer, Population Health Review Committee A, Canadian Institutes of Health Research: May 2003.

External Reviewer, Canadian Population Health Initiative: July 2003.

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

Pennick V

Teaching/Educational Role

Facilitator, Cochrane Systematic Review Workshop, Hamilton, ON: Nov 19-20, 2003.
Member, Course Planning Committee, Determinants of Community Health Course. Faculty of Medicine, University of Toronto: ongoing for 2003-2004 academic year.
Year 1 Tutor, Determinants of Community Health Course. Faculty of Medicine, University of Toronto: ongoing for 2003-2004 academic year.
Tutor, University of Toronto Centre for the Study of Pain Multidisciplinary Pain Week: March 17-21, 2003.

Reardon R

Teaching/Educational Role

University of Toronto, lecture: 'KTE - The IWH Model with an operational perspective'; post-grad course on knowledge translation: October 7, 2003.

Sinclair SJ

Teaching/Educational Role

Lecturer, School of Rehabilitation Science, McMaster University, 1996-2001.
Assistant Professor: 2002 to present.
Interviewer, BHSc(PT) Program Admissions committee, McMaster University.

Service Activities

Journal Referee:

American Journal of Industrial Medicine

Grant Committees:

External Reviewer: WSIB Research Advisory Committee

Shannon HS

Teaching/Educational Role

Professor, Clinical Epidemiology & Biostatistics, McMaster University, Continuing Appointment Without Annual Review: 1990 to present.
Adjunct Professor, Department of Public Health Sciences, University of Toronto: 1995 to present.
Member, Department of Community Health, University of Toronto: 1998-2003.
PhD Supervisor, Joanna Sale
PhD Co-supervisor, J Gilbert
PhD Thesis Supervisory Committee Member, S Anand
MSc. Supervisor, A Hill
MSc. Thesis Supervisor Committee Member, S Micucci, P Loney, I Scott, H McRobbie
MSc. Statistics, B Zhu

Advisor, K Trinh, E Hughes, D Sciberras

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 P

Journal Referee:

Australia New Zealand Journal of Public Health

Journal of Epidemiology and Community Health

Tompa E

Teaching/Educational Role

Adjunct Assistant Professor, Department of Economics, McMaster University: 2001 to present. Course Coordinator, Health Economics (ECON 2CC03)

Course Instructor, Advanced Topics in Health Economics (ECON 782)

Lecturer, Price Theory: The Math Approach (ECMB02) University of Toronto: 2002 to present.

Service Activities

Grant/Bursary Committees:

Syme Fellowship Committee

Journal Referee:

Journal of Health Economics

Theses:

External Examiner, for Kusiak T., M.A. Thesis Defence.

Thesis Committee Member, Scott H., Ph.D. Thesis, University of Toronto.

Thesis Committee Member, Alamgir H, Ph.D. Thesis, University of British Columbia.

van der Velde G

Teaching/Educational Role

Associate Professor, Divisions of Clinical Education, Graduate Studies and Research, Canadian Memorial Chiropractic College.

Assistant Professor, Division of Clinical Education, Canadian Memorial Chiropractic College: 1998-2003.

Service Activities

Journal Referee:

Editorial Board Member, Journal of the Canadian Chiropractic Association

Adjunct Scientists

Dr. Benjamin C. Amick III (since 1997)

Associate Professor, Houston School of Public Health, University of Texas Health Sciences Centre.

Dr. 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.

IWH Project/Activity involvement: Labour market experiences and self-reported health status and disability: The ten country study; Evaluating interventions among office workers (STAR-SONG Interventions); Measurement of work disability project; Framework of policy instruments which influence the health effects of labour market experiences project.

Dr. Peri Ballantyne, (since 2001)

Assistant Professor, Faculty of Pharmacy, University of Toronto.

Dr. Peri Ballantyne is an Assistant Professor in the Faculty of Pharmacy at the University of Toronto. She is also a Research Associate at the University's Institute for Human Development, Life Course and Aging. Her research interests include examining the social determinants of health such as work, retirement, income security, social integration, gender and age. She is also involved in health behaviour studies -- for example, how people make decisions about medication and how those with chronic illness use the health-care system. Dr. Ballantyne's work also focuses on how individuals and populations age, and how they experience health and illness over the life course.

IWH Project/Activity involvement: Principal Investigator on Pre-1990 Claimant study undertaken for WSIB: examining quality of life, and return to work issues for injured workers who sustained permanent and partial disability prior to 1990 and currently receiving life time pension benefits from WSIB. Sue Ferrier and Judy Clarke worked with Peri to conduct this study. Results presented at IWH Plenary Series 2002.

Dr. Michele Battié (2003-2006)

Professor, Department of Physical Therapy, University of Alberta.

Dr. Michele Battié is a Professor in the Department of Physical Therapy at the University of Alberta and holds a Tier 1 Canada Research Chair in Common Spinal Disorders. Her research focuses on the etiology and pathogenesis of lumbar disc degeneration and rupture, low-back pain and sciatica. She also has had a long-standing research interest in factors influencing work-related back pain complaints and associated disability, and their management. Dr. Battié is the recipient of four Volvo Awards from the International Society for the Study of the Lumbar Spine and the prestigious Kappa Delta Award from the American Academy of Orthopaedic Surgeons. She is also a former member of the Institute's Scientific Advisory Committee. IWH Project/Activity involvement: external reviewer of working papers.

Dr. J. David Cassidy (since 1997)

Senior Scientist, Division of Outcomes and Population Health, Toronto Western Hospital Research Institute.

Dr. 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'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.

IWH Project/Activity involvement: The Saskatchewan health and back pain survey; Population-based, inception cohort study of traffic injuries in Saskatchewan: an analysis of post-traumatic low back pain; member of Pierre Côté's PhD thesis committee; external examiner for Carlo Ammendolia's MSc thesis; The Bone and Joint Decade 2000-2010 Task Force on Neck Pain & Its Associated Disorders: Decision analysis of non-surgical treatments for neck pain.

Dr. Paul Corey (since 1997)

Associate Chair and Professor, Department of Public Health Sciences and Department of Preventive Medicine & Biostatistics, Faculty of Medicine, University of Toronto.

Dr. Paul N. 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.

IWH Project/Activity involvement: H. Wang's PhD thesis. External reviewer of working papers

Dr. Joan Eakin (since 1998)

Professor, Department of Public Health Sciences, Faculty of Medicine, University of Toronto.

Dr. Joan Eakin is a sociologist with a research interest in work and health. Her focus has been on the relationship between health and the social relations of work. She has had a particular interest for many years in health, safety and prevention in small workplaces, from both employer and worker perspectives. Using primarily qualitative methodology, Eakin's current projects include studies of return to work in small workplaces, home health care work, and the health of marginalized and unpaid workers. Several of her PhD students work at the IWH.

IWH Project/Activity involvement: Collaborated with Lilian Magalhaes, visiting sabbaticant on Interpretations of work disability/function questionnaires across cultures. Thesis supervisor to Ann-Sylvia Brooker. Power-centred approach to work stress. PI on WSIB RAC funded Return-to-work in

small workplaces: worker and employer perspectives project; Healthy workplace model review project; assistance on Healthy workplace scorecard for hospitals project.

Dr. Monique Gignac (2003-2005)

Scientist, Division of Outcomes & Population Health, Toronto Western Hospital.

Dr. 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.

IWH Project/Activity involvement: How are you now? Testing a model of recovery from the patient's perspective one year after a traumatic fracture of an extremity.

Dr. Alina Gildiner (2003 - one year)

Post-Doctoral Teaching Fellow, Department of Political Science, McMaster University.

Dr. 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.

IWH Project/Activity involvement: Unemployment, job characteristics and self-reported health status and disability in a cohort of Canadian adults, a cohort of American adults, a cohort of German adults and a cohort of Swedish adults. Work on Framework of policy instruments which influence the health effects of labour market experiences project.

Dr. William Gnam (since 2001)

Scientist, Centre for Addition and Mental Health and Institute for Work & Health

Dr. William Gnam is a physician, health economist and research scientist with the Health Systems Research and Consulting Unit, Centre for Addition and Mental Health, in Toronto. He is also a lecturer in the Department of Psychiatry at the University of Toronto. His background is in medicine (psychiatry) and health policy and his current research interests include psychiatric disability and workers' compensation. Gnam is currently completing a PhD in health policy (with an economics concentration) from Harvard University.

IWH Project/Activity involvement: Depression and disability: examining the causation hypothesis and gender differences in the general population. Principal Investigator on Profiling the mental health and service utilization of workers' compensation claimants, WCB of BC funded grant; Mental health disorder, treatment and work disability in the NPHS.

Dr. Morley Gunderson (since 1998)

Professor, Centre for Industrial Relations, University of Toronto.

Dr. 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.

IWH Project/Activity involvement: International research project on job retention/return to work strategies for disabled workers: Canada. Co-investigator: an international comparison of disability policy systems, CIHR funded grant.

Dr. Linn Holness, (since 2000)

Director, Gage Occupational & Environmental Health Unit, University of Toronto and St. Michael's Hospital.

Dr. Linn Holness is 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 Sciences, Medicine, Health Administration and the Centre for Industrial Relations at the University of Toronto. Dr. Holness' main research interest has been in occupational disease, particularly occupational respiratory disease and contact dermatitis, and occupational health programs.

IWH Project/Activity involvement: External reviewer of working papers.

Dr. William Johnson (2003-2006)

Professor, School of Health Administration & Policy, Arizona State University.

Dr. William Johnson is a Professor of Economics at Arizona State University (ASU) in the School of Health Administration & Policy and Department of Economics. His research focuses on the disabling effects of health conditions, as well as economic aspects of health care. He directs the Yuma County Community Health Data System project and the Maricopa Health Information project (M-HIP). Both projects use routinely collected data from the community to build a data system capable of tracking the health and health care and health insurance status of local populations over time. Dr. Johnson is also the principal investigator of the ASU Healthy Back Study, a prospective study of the causes and consequences of occupational back pain among 200,000 workers.

IWH Project/Activity involvement: Arizona State University healthy back study: a study of the cost effectiveness of chiropractic versus medical care in returning injured workers with occupational low back pain to work.

Dr. Jeffrey Katz (since 1998)

Rheumatologist, Department of Rheumatology, Brigham and Women's Hospital, Boston.

Dr. Jeffrey Katz is a rheumatologist at the Brigham and Women's Hospital in Boston and Associate Professor at the Harvard Medical School. He has a special interest in the following clinical conditions: spinal stenosis, carpal tunnel syndrome and upper-extremity (UE) problems in general. He has made substantive methodological contributions to the field of clinical- and patient-based outcomes. Dr. Katz has also collaborated with IWH scientists for the past few years in the development of the DASH, a patient-based outcome measure for UE problems. He was recently appointed to the Institute's Scientific Advisory Committee (effective 2004).

IWH Project/Activity involvement: Measurement methodology studies project; co-author for Development and testing of the DASH outcome measure project. Research Consultant and collaborator. Quick DASH Development and "Are you better or has your health state shifted: a study of the discordance"; grant protocol on response shift phenomenon.

Dr. Niklas Krause (2003-2006)

Assistant Professor of Medicine, Division of Occupational & Environmental Medicine, University of California at San Francisco.

Dr. 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 diseases and disability. 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. In 1998, Dr. Krause won the Volvo Award for a prospective study of psychosocial and ergonomic job factors predicting back and neck injury in San Francisco bus drivers.

IWH Project/Activity involvement: Return-to-work cohort.

Dr. Louise Lemieux-Charles (since 2000)

Associate Professor & Chair, Department of Health Policy, Management & Evaluation, University of Toronto.

Dr. 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.

IWH Project/Activity involvement: Accreditation of Canadian health care organizations project; with Donald Cole co-authoring papers on multilevel performance monitoring and quality of work life in health care organizations.

Dr. Aleck Ostry (2003-2006)

Assistant Professor, Department of Healthcare & Epidemiology, University of British Columbia.

Dr. Ostry holds a Canadian Institute for Health New Investigator Award and a Micheal Smith Foundation for Health Research Scholar Award and is an assistant professor in the Department of

Healthcare and Epidemiology at the University of British Columbia. He teaches courses on the social determinants of health and conducts a program of research on the social determinants of workplace health. In particular, he is interested in the impacts of work organizational change, unemployment, employment re-structuring, and job strain on worker's health. He is also an historian and conducts research on the history of public health and on work and health.

IWH Project/Activity involvement: Studying the health of health care workers project.

Dr. Glenn Pransky (since 1997)

Director, Centre for Disability Research, Liberty Mutual Research Centre for Safety & Health.

Dr. 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.

IWH Project/Activity involvement: Ongoing contact about various disability issues, training, review of articles. Consultant of secondary data analysis, including Liberty Insurance data, for the STAR-SONG project and other return to work discussions. Evaluating interventions among office workers (STAR-SONG Interventions). Classification of upper-extremity disorders in work-related musculoskeletal disorders: a multi-pronged approach to the classification of upper-extremity WMSD in video display terminal workers.

Dr. Robert Reville (2003-2006)

Director, RAND Institute for Civil Justice.

Dr. Robert Reville is Director of the ICJ and has been research director for the last three years. He holds a PhD in Economics from Brown University. As a labour economist, he has a national reputation in the United States on workers' compensation policy and the impact of disability on employment. He has written extensively on workers' compensation in California, New Mexico, and other states. Dr. Reville is currently the principal investigator for an evaluation of workers' compensation to the permanently disabled in California.

IWH Project/Activity involvement: WSIB lost-time injuries and income sources post-injury.

Dr. Judith Shamian, (2001-2003)

Executive Director, Faculty of Nursing Policy, Health Canada.

Dr. Judith Shamian is 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 in the International Hospital Outcomes Consortium, for which she recently led the Ontario arm of the study. She has collaborated on a number of IWH studies examining the health of health-care workers.

IWHProject/Activity involvement: Exploring stress differences between full-time and part-time nurses; Monitoring the health of nurses in Canada.

Nancy Theberge (2003-2004)

Professor, Department of Kinesiology, University of Waterloo.

Dr. Nancy Theberge is a Professor with the Department of Kinesiology at the University of Waterloo. Her areas of teaching expertise are the sociology of sport and physical activity, sociology of the body, gender relations and the sociology of health. In the past, she has done research on participatory ergonomics and the impact of different forms of involvement on reported outcomes and how to implement a participatory ergonomics process.

IWHProject/Activity involvement: Workplace musculoskeletal health intervention research program; Assessment of effectiveness of evidence-based ergonomic decisions in workplaces on prevention of work-related musculoskeletal disorders, and evaluation of participatory ergonomics interventions in large and small industry.

Dr. Maurits van Tulder (2003-2006)

Epidemiologist, Institute for Research in Extramural Medicine and Department of Clinical Epidemiology & Biostatistics, Vrije University Medical Centre, the Netherlands.

Dr. Maurits van Tulder is an epidemiologist at the Institute for Research in Extramural Medicine and the Department of Clinical Epidemiology & Biostatistics of the Vrije Universiteit Medical Centre in Amsterdam. He is the author of numerous scientific papers in peer-reviewed scientific journals and has written several book chapters. He is also editor of two books on conservative management for low-back pain. Dr. van Tulder's current interest includes economic evaluations of therapeutic interventions for musculoskeletal disorders. He recently spent one year at IWH as a visiting scientist.

IWHProject/Activity involvement: Member of editorial board for Cochrane Collaboration back review group; Reviews of the clinical literature project; Development of a framework to identify clinically useful predictive factors for low back pain.

Dr. Leah Vosko (2002-2004)

Canada Research Chair, School of Social Sciences, Atkinson Faculty of Liberal and Professional Studies, York University.

Dr. Leah Vosko holds a Canada Research Chair in the School of Social Sciences (Political Science), Atkinson Faculty of Liberal and Professional Studies, at York University. She is the Principal Investigator of a Social Sciences and Humanities Research Council (SSHRC)-funded Community University Research Alliance on contingent work; and is the Principal Investigator of the Gender and Work Data Base project. Dr. Vosko is also the Principal Investigator of "Rethinking Feminization" a project examining changing employment relationships at a global level; and a co-investigator on a SSHRC project on workers and social cohesion.

IWH Project/Activity involvement: Precarious work and people with disabilities.

Dr. Richard Wells (since 1998)

Professor, Department of Kinesiology, University of Waterloo.

Dr. Richard Wells is a Professor in the Department of Kinesiology at the University of Waterloo. He specialized in applied mechanics with application to human function and injury; head injury in boxing and the description of human gait using assistive devices. Since joining the Department of Kinesiology, he has pursued similar work concerning seat belt loads and neck injury in head first impacts. For the last decade main research and training interests have been work-related musculoskeletal disorders of the upper-extremity and low back in industrial and office settings. Wells is Director of the Ergonomics and Safety Consulting Service at the University of Waterloo, an information dissemination and consulting centre.

IWH Project/Activity involvement: Star-SONG project and Ergonomics Intervention evaluation project with WSIB funding; Principal Investigator in Assessment of effectiveness of evidence-based ergonomic decisions in workplaces on prevention of work-related musculoskeletal disorders, and evaluation of participatory ergonomics interventions in large and small industry; Workplace musculoskeletal health intervention research program.

Dr. Kathryn Woodcock (since 2001)

Associate Professor, School of Occupational and Public Health, Ryerson University.

Dr. Katherine Woodcock is an Associate Professor, School of Occupational and Public Health, Ryerson University. Her research interests cover a range of topics in health and safety and injury prevention. They include hazard perception, 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 Project/Activity involvement: Systematic Review of the Literature on Workers' Compensation System and Occupational Health and Safety Features and their consequences for work-related injury experiences project; External reviewer of working papers.

IWH Staff - 2003

Research

Ammendolia, Carlo; DC, MSc, PhD student

Antal, Joan; BA, Senior Research Administrator

Beaton, Dorcas; PhD, BScOT, MSc, Scientist

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Cole, Donald; MD, DOHS, MSc, FRCPC(C) Senior Scientist

Côté, Pierre; DC, MSc, FCCSC, PhD, Scientist

Cullen, Kim; BSc Kin, MSc, Research Associate

Culyer, Tony; CBE, BA, Hon. D.Econ, Hon FRCP, FRSA, FMedSci, Chief Scientist

Dacombe, Jeremy; Library Technician (covering Library Management, April 2002 - Jan 2003 for maternity leave)

Day, Doreen; BSc, Research Assistant

Dolinschi, Roman; MSc, Research Associate, Analyst

Etches, Jacob; MSc, Research Associate, PhD Student

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Frank, John; MD, MSc, Senior Scientist

Furlan, Andrea; MD (Brazil), Physical Medicine/Rehabilitation Specialist (Brazil), PhD student

Gildiner, Alina; PhD, Mustard Fellow in Work Environment & Health, Associate Scientist

Harlowe, Linda; Research Operations Administrative Coordinator

Hayden, Jill; DC, PhD student

Heath, Charmaine; Dip. Business Administration. Administrative Assistant

Hepburn, Gail; PhD, Scientist

Hogg-Johnson, Sheilah; PhD, Scientist, Manager Management and Analysis of Data

Ibrahim, Selahadin; MSc, Research Associate, Statistician

Irvin, Emma; BA, Manager, Information Systems and Library

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MacEachen, Ellen; PhD Mustard Fellow in Work Environment and Health
Manno, Michael; MSc, Research Associate, Biostatistician
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Mazmunder, Anjali; MSc student
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Pennick, Victoria; RN, BScN, MHSc, Senior Clinical Research Project Manager, Cochrane Back Review Group Coordinator
Pole, Jason; MSc, Research Associate
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Reardon, Rhoda; Dip. P&OT. Knowledge Transfer Associate
Resendes, Elizabeth; BA, Administrative Assistant
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Rivilis, Irina; MSc student
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Sale, Joanna; MSc, PhD Student, Research Associate
Scott, Heather; MSc, Research Associate

Severin, Colette; MSc, Research Associate (Maternity leave)
Shannon, Dan, Library Assistant
Shannon, Harry; PhD, Senior Scientist
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Sinclair, Sandra; Dip. P&OT, MSc. Associate Scientist, Director Research Operations
Slater, Morgan; Co-op student
Smith, Peter; MPH, Research Associate, Programmer/Analyst (PhD Student)
Subrata, Peter; MSc, Research Associate
Swift, Michael; MSc, Research Associate, Data Manager/Programmer
Tompa, Emile; MBA, PhD, Scientist
Trevithick, Scott; MA, Research Associate
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Williams, Alysha; BA(H), MSc, Research Associate
Yao, Grant; Network Administrator/Systems Analyst
Yu, Richie, Systems Support
Zarinpoush, Fateneh; PhD, Research Associate
Zohar, Dov; PhD, Visiting Scholar

Staff – Knowledge Transfer

Brenneman Gibson, Jane; MA, Director, Knowledge Transfer & Exchange
Cohen, Melissa; BA, Administrative Assistant
Cullmann, Vicki; Dip. Administrative Assistant
Holland, Carol; Graphic Designer and Production Coordinator
Knowles Chapeskie, Kathy; Dip. Corporate Communications, Post-Graduate Program, Dip. Radio & Television Broadcasting, Manager, Communications
Kramer, Dee; MES, MSc, PhD, Knowledge Transfer Associate
Michaels, Evelyn; MA, Journalism, Writer/Editor
Palloo, Greer; BSc, Information & Events Coordinator
Ramond, Hanh; Administrative Assistant (Maternity leave)

Reardon, Rhoda; P&OT, Knowledge Transfer Associate

Russo, Katherine; Dip. Journalism, Communications Associate

Staff – Corporate Services

Cicinelli, Mary; BA, CHRP, Manager H.R. & Corporate Services

Hirani, Tazim; Q.A.A., Administrative Assistant

Kells, Robin; MA, Assistant to the President, Board Relations and Special Projects

Lee, Sharon; BA, Accountant

McPherson, Kerry-Ann; Dip. Business Accounting, Accounting Clerk

Mustard, Cameron; ScD. President and Scientific Director (SD until Oct 2003)

Sir, Cathy; CMA, Accountant (Maternity leave)

Glossary

- A**
- AASCIF – American Association of State Compensation Insurance Funds
 - 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
 - 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
CIBC	–	Canadian Imperial Bank of Commerce
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	DAC	– Designated Assessment Centre
	DASH	– Disabilities of the Arm, Shoulder and Hand
E	EBP	– Evidence-based Practice
	ECC	– Early Claimant Cohort Study
	EI	– Educational Influential
	EPICOH	– Epidemiology in Occupational Health
	ERI	– Effort-reward Imbalance
	ESAO	– Education Safety Association of Ontario
	ESWE	– Employee Survey of the Working Environment (IWH)
	EUSA	– Electrical & Utilities Safety Association
G	GLADnet	– Global Applied Disability Research and Information Network on Employment & Training
	GM	– General Motors
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
	IBC	– Insurance Bureau of Canada
	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 (IWH)
K	KTE	– Knowledge, Transfer & Exchange (IWH)
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
	OECOM	–
	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
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 (IWH)
	SARS	– Severe Acute Respiratory Syndrome
	SHARP	– Safety and Health Assessment and Research for Prevention (Washington State)
	SRC	– Systems Review Committee (IWH)
	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