This Annual Report was produced by:

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About the Partnership for Work, Health and Safety

The partnership between WorkSafeBC (BC’s Workers’ Compensation Board) and the University of British Columbia (UBC) aims to address current and emerging issues of work-related health in BC. The Partnership takes the lead in work-related health research by developing and promoting the use of routinely collected health and compensation data from multiple sources via our data partner, Population Data BC. The data allows us to conduct research on the entire working-age population over a 25 year period, providing a unique and comprehensive portrait of the health and well-being of BC’s workers. Partnership researchers are also active in developing and enhancing the occupational and exposure data holdings of Population Data BC.

The Partnership team is comprised of a diverse and multidisciplinary group of faculty, students, and staff, situated in the School of Population and Public Health in the Faculty of Medicine at UBC. The research leads are Drs. Mieke Koehoorn and Chris McLeod. Prior to May 2012, the Partnership for Work, Health and Safety was called the WorkSafeBC-Centre for Health Services and Policy Research (CHSPR) Research Partnership.

Goals of the program of research

- To conduct surveillance of occupational diseases and injuries in BC.
- To assess the effectiveness of WorkSafeBC policies, regulations and practices in reducing work-related injuries and diseases and in promoting timely and successful return to work.
- To lead the development of WorkSafeBC data for research use in BC and across Canada.

For more information about the Partnership for Work, Health and Safety, please visit www.pwhs.ubc.ca.
About the School of Population and Public Health

The School of Population and Public Health (SPPH) aims to improve the health of communities and to promote health equity at home and around the world by acting on the socioeconomic, cultural, biological, developmental, environmental and genetic determinants of health and their interactions. SPPH is part of the Faculty of Medicine at UBC. Many Partnership student trainees are SPPH graduate students.

For more information about SPPH, please visit www.spph.ubc.ca.

About Population Data BC

Population Data BC is a multi-university, nationally active and recognized data and education resource facilitating interdisciplinary research and teaching on the determinants of human health, well-being and development. While respecting and adhering to legislation and protocols governing access to sensitive information and protecting individual privacy, our work strives to ensure that:

- Researchers have timely access to data and training.
- Researchers have access to data that address research questions on human health, well-being and development.
- Research using these data informs policy-making and leads to healthier communities.

For more information on Population Data BC, please visit www.popdata.bc.ca.
2011–2012 Research Highlights

Our activities in the past year have focused on:

1. Mesothelioma compensation
2. Serious work-related injuries
3. Understanding the relationship between sex, gender, work injury, and disability duration
4. Data development
5. Knowledge translation

Mesothelioma compensation

Mesothelioma is a rare form of cancer with a single, well-established cause: exposure to asbestos or related minerals. More than 80% of mesothelioma cases are caused by workplace exposures, and because of the long latency between exposure and disease, cases of mesothelioma are expected to peak between 2015 and 2019. Our previous research has shown that less than half of individuals with mesothelioma listed in the BC Cancer Registry file a workers’ compensation claim for their disease.

Through a grant from WorkSafeBC’s Innovation at Work, this past year we have investigated reasons why individuals do or do not seek compensation, as well as avenues for effectively communicating information to them about occupational disease and compensation. We have also investigated why physicians may or may not provide advice or recommendations to patients on occupational disease and compensation.

Mesothelioma patients were recruited to participate in our study between July 2011 and September 2012. Twenty-six patients, family members, and close friends participated in a semi-structured interview. The interview collected information about the patient’s medical history, work history and asbestos exposure, and experiences with issues relating to workers’ compensation. Between October 2011 and May 2012, 24 physicians, including thoracic surgeons, respirologists, and medical oncologists, were recruited to participate in a brief telephone interview that presented a patient vignette as well as questions addressing the physicians’ knowledge of, and attitudes towards, occupational disease and workers’ compensation.

Preliminary results suggest that physicians are the first, primary, and often only source of information about compensation. Most patients rely on a family member or friend as an advocate to initiate the claim, but this process seems to work most smoothly when the physician initiates the claim process. Family and friends may also be successful, but report difficulties with understanding the application process and that the amount of time between diagnosis and first contact with WorkSafeBC can be frustrating.

“So at this point I’m kind of relying on my oncologist. He’s supposed to be the specialist. And [I] buffer everything else with what he has to say.”    ~ Sample interview quote from a patient
Serious work-related injuries
While there has been a reduction in overall workplace injuries in Canada over the past two decades, serious injuries and fatalities have not decreased commensurately in some worker populations. Serious injuries result in severe medical diagnoses, longer periods of disability, and higher compensation costs, and thus are key targets for injury prevention and control initiatives.

Over the past year, the Partnership team has investigated the burden of serious work-related injuries and fatalities using population-based data from WorkSafeBC. The findings from this research have provided policy makers with new evidence and insight on where to focus occupational health and safety programs in BC, and can be viewed in the open-access journal *PLoS ONE*, in a guest blog post on the *BC Medical Journal* website, and in a feature article in the May/June issue of *WorkSafe Magazine*.

We are now focusing on an integrated occupational injury surveillance program that examines serious injuries as a key outcome measure across several studies. This research, led by Partnership co-leads Drs. Mieke Koehoorn and Chris McLeod, will provide a comprehensive understanding of the causes and consequences of these injuries, and will inform the development of occupational health and safety programs to protect BC’s workforce.

Understanding the relationship between sex, gender, work injury, and disability duration
Socioeconomic changes in Canada have resulted in the entry of more women into the labour force and into a wider variety of occupations and industries. And, as the participation rate of women has increased, so has the number of work-related injuries and illnesses experienced by women. Over the past 30 years, for example, there has been an increase in the proportion of accepted time-loss claims for female workers in Canadian jurisdictions.

There is a growing recognition that disparities exist in health care access, utilization and health outcomes for men and women. For example, men and women may experience different workers’ compensation and return to work outcomes based on gender (i.e., social expectations and role differences between men and women) and sex (i.e., biological differences between males and females). Men and women may also have variations in risk and exposures even within the same job title, suggesting that biological, interpersonal, or institutional differences by sex/gender may lead to differential exposures or responses to workplace risks; or differences in the way men and women seek, receive, and utilize treatment and health services following injury or illness.

However, there is little known about sex/gender differences in work-related injury and illness, workers’ compensation, or disability outcomes within the Canadian context. Understanding these disparities
by sex/gender is key to developing effective injury prevention and workers’ compensation policies, especially since women now make up half of the labour force in Canada and both men and women are working in greater numbers in non-traditional occupations.

Our research team, led by Partnership co-lead Dr. Mieke Koehoorn, is conducting a CIHR-funded study to examine gender/sex differences in work injury and illness rates among workers in the same occupation and industry, as well as differences in workers’ compensation experiences for the same work injury or illness. This study will provide new evidence and insight into potential gender/sex differences in workers’ compensation experiences (as measured by work injury/illness rates, work-related disability outcomes, and health care utilization measures), and will inform a longer-term research agenda that investigates why differences may exist in risk or exposures for men and women, or in the way women and men seek, receive, or accept health care benefits and services for the same injury or illness.

Data development
Using routinely collected data for research allows us to investigate important occupational health-related questions in a cost-effective and timely manner. We are proud to act as leaders in providing WorkSafeBC data expertise and guidance to the research community nationally and internationally as well as to our partner Population Data BC.

This past year, our data analysts successfully designed and built a new research database that became part of the Population Data BC holdings, using the data from WorksafeBC’s new Claims Management System (CMS). The Partnership team developed extensive documentation and was able to validate and include new variables in Population Data BC’s Data Access Application checklist, available at [www.popdata.bc.ca/data/internal/occupational/wsbc](http://www.popdata.bc.ca/data/internal/occupational/wsbc).

The current focus of the Partnership’s data development work is expanding the use of claims-level and firm-level data, as well as validating the detailed return-to-work/disability and cost data.
Knowledge translation and exchange
The Partnership team is committed to ensuring that the results of its research activities are relevant and available to researchers, practitioners, and occupational health policy makers. Throughout 2011-2012 we have placed special emphasis on communicating our findings to knowledge users. Our communication strategy has focused on reaching our audience through diverse channels, including our web site, conference presentations, community engagement, and publication in online, open-access journals. We are pleased to report that our work has also been shared by others in a variety of newsletters, presentations, and web postings.

The new Partnership web site
In May 2012 we launched a new web site, at www.pwhs.ubc.ca. The home page features the results of recent Partnership research projects, lists regularly-updated news items, and invites readers to further explore our four research areas (injury and disease surveillance; determinants of work injury and illness; policy and program evaluation; and data development). The site also features an extensive, searchable database of our publications, including journal articles, reports, and posters and slide presentations from conferences, and it provides information about the mission and history of the Partnership and its staff, faculty, and collaborators.

Over the six months since the site launch, www.pwhs.ubc.ca has received 900 unique visitors, and half of all visits have been from returning visitors. Traffic has been increasing each month, with 216 visits in July 2012, 225 in August, 261 in September, and 275 in October. Visitors are primarily Canadian, with a small proportion visiting from 50 other countries. The most viewed sections have been the home page, the ‘About Us’ section, and the research page about serious injuries.
Presence at conferences
The Canadian Association for Research on Work and Health conference was hosted by WorkSafeBC in Vancouver in June 2012. Partnership faculty and staff contributed in myriad ways:

- Co-lead Dr. Chris McLeod served on the scientific advisory committee.
- Co-lead Dr. Mieke Koehoorn delivered a keynote presentation about using existing data for work and health research.
- Partnership researchers gave a series of presentations on gender differences in disability duration, wood dust exposure and sino-nasal cancer risk, and mesothelioma compensation.
- A Partnership booth provided information about our work and our web site, and was the site of many informal but fruitful conversations throughout the event.

Partnership research was also presented at several other conferences this year. In March 2012 Dr. Chris McLeod gave a presentation about age, gender, and serious injuries and a poster about risk of injury for BC tree-fallers at the International Commission on Occupational Health Congress 2012 in Mexico. In October 2012 Dr. Mieke Koehoorn gave a presentation about differences in disability duration for work-related injuries at the Advancing Excellence in Gender, Sex and Health Research conference in Montreal. Dr. Koehoorn also engaged directly with physicians about asbestos-related disease and workers compensation by speaking at the Royal College of Physicians and Surgeons Canadian Lung Cancer Conference in Vancouver in January 2012 and the Occupational and Environmental Medical Association of Canada Annual Scientific Conference in Vancouver in October 2012.

Presence in the community
The Asbestos-related Research, Education and Advocacy Fund (AREA Fund) hosted a community walk in Powell River, BC in June 2012 to raise awareness of the hazards of asbestos and to honour victims of asbestos-related disease. Guests include Winnipeg MP and asbestos activist Pat Martin, MLA Nicholas Simons, Mayor Dave Formosa, union leaders, and individuals from the medical and research community. Partnership researchers attended the event to support the AREA Fund, to recruit participants for our most recent mesothelioma research.
oma study, and to spread awareness of the Partnership among the asbestos-advocacy community.

Our mesothelioma compensation research was also featured in the *Powell River–Sunshine Coast edition* of *UBC In Your Community*, a newsletter produced by UBC Government Relations. The newsletter is distributed to local and provincial government officials.

**Research uptake**

Partnership research on serious injuries published in *PloS ONE* in June 2012 sparked attention in the *BC Medical Journal*, the *Speaking of Safety* blog, *WorkSafe Magazine*, and *Canadian Occupational Safety Magazine*. A feature article in the May/June edition of *Canadian Occupational Safety Magazine* was viewed over 1,400 times and led to 25 direct referrals to our web site.
Two new areas of research have emerged as strategic foci over the last year: the evaluation of occupational health and safety programs and regulations and the development of a national and international comparative research agenda. We are also increasing our focus on the effects of sex and gender on injury risk and disability duration. Providing evidence that supports the reduction of serious work injuries and illnesses and that reduces disability duration will continue to be a cross-cutting focus of Partnership research. We will also continue the occupational health surveillance of respiratory lung disease and cancer.

Evaluating the effectiveness of occupational health and safety programs and regulations

Occupational health and safety interventions, including regulatory approaches, programs and management systems, are key strategies for reducing worker injury and illness in BC and abroad. Examples include inspections, citations and penalties; the requirement for firms to have joint labour and management health and safety committees and/or to conduct routine hazard assessment; and the implementation of integrated health and safety management systems. The Partnership’s goal is to work with WorkSafeBC and other stakeholders to conduct rigorous evaluations of these programs in BC.

The Partnership is developing three projects in this WorkSafeBC priority area: management system and audit implementation, the FIOSA-MIOSA BC Safety Charter evaluation, and research on the impact of prevention activities. The Partnership will be evaluating the effect of voluntary occupational health and safety regulations on participating firms’ claim rates and health and safety experience. We are working with the FIOSA-MIOSA Safety Alliance of BC (the occupational health and safety association of the food processing and manufacturing industries) to evaluate their recent BC Safety Charter initiative. And, under the supervision of partnership co-lead Chris McLeod, PhD trainee Kim McLeod’s PhD dissertation will examine the effectiveness of WorkSafeBC prevention activities with a focus on inspections, citations and penalties.

A comparative research agenda

The Partnership is pioneering collaboration on comparative, inter-jurisdictional research in occupational health and safety and workers’ compensation.

Many Canadian provinces and international jurisdictions use similar outcome measures to assess system performance, including severe work-related injuries and long duration claims. Analyses of these outcome measures through a comparative approach are more powerful than those from single juris-
diction study because it is possible to control for additional sources of variation that may be driving the findings and to take advantage of natural policy experiments. Comparative investigations are occurring nationally among Canadian provinces and internationally among Canadian jurisdictions and other countries with similar occupational health and safety and compensation systems.

National collaboration
Our research team, led by Drs. Chris McLeod and Mieke Koehoorn, and co-investigators from the Institute for Work & Health in Ontario and the University of Manitoba have received funding from the Workers Compensation Board of Manitoba to identify the key drivers of severe injuries and long duration claims within and across BC, Manitoba and Ontario. The research builds on methods the investigative team have used and validated on workers’ compensation data in BC and Ontario.

International collaboration
Dr. Chris McLeod and Dr. Alex Collie of the Institute for Safety, Compensation and Recovery Research in Victoria, Australia are spearheading the development of an international collaboration to conduct cross-jurisdictional comparative research that enhances understanding of occupational health and safety and workers’ compensation systems and that leads to positive changes within the collaborating jurisdictions. The collaboration seeks to bring together knowledge users and researchers from Canadian provinces, Australian states and New Zealand. The goal over the next year is to formalize the collaboration, develop comparable data, conduct pilot research, and develop a research agenda that will use the comparative approach to inform policy and practice in BC and in other participating compensation systems.

Partnership co-lead Chris McLeod joins UBC School of Population and Public Health as Assistant Professor
Dr. Chris McLeod’s new position as Assistant Professor with the UBC School of Population and Public Health positions him to expand the national and international comparative research agendas and promises to strengthen the Partnership’s ability to lead, collaborate and secure funding.

“I am excited about the opportunity to work with SPPH, WorkSafeBC and our other partners to expand the Partnership agenda and its impact. My goal over the next five years is to see our research play a greater role in informing policy and practice in BC and beyond.”

~ Dr. Chris McLeod
Celebrating Trainees

The Partnership works with UBC graduate students interested in policy-relevant occupational health research. Over the past year, two of our trainees graduated and one earned an important research award.

- Kim McLeod (PhD student, SPPH) was successful in the WorkSafeBC 2012 Research Training Award competition. Her project, entitled *Workplace Safety Regulatory Activities in British Columbia: The Effect of Prevention Activities on Workplace Injury Rates* is part of her doctoral studies in SPPH and will make an important contribution to Partnership research.

- Billy Quirke (MSc, SPPH) worked on several Partnership projects as a research assistant. He graduated with an MSc in Occupational and Environmental Hygiene in May 2012. In September 2012 Billy was hired by the Partnership as a research coordinator. He is now responsible for several projects evaluating firm-level incentives and regulations.

- Imelda Wong (PhD, SPPH) investigated the association of shift work and the risk of work injury. Her paper *Shift work trends and risk of work injury in Canada* was published in the *Scandinavian Journal of Work, Environment and Health* in 2011 and received widespread media attention. She successfully defended her PhD dissertation in October 2012.
Evaluating the effect of prevention activities: Q and A with doctoral student Kim McLeod

SPPH doctoral student and Partnership trainee Kim McLeod is embarking on a project entitled *Workplace Safety Regulatory Activities in British Columbia: The Effect of Prevention Activities on Workplace Injury Rates.*

**Q.** What is the problem to be solved and how will the research attempt to solve the problem?

**A.** WorkSafeBC expends resources on prevention activities, such as inspections, education, and consultations, to prevent injuries, but has little BC-specific information on how effective these activities are. This project will investigate how injury rates at a workplace change due to the interventions of prevention activities, including inspections, orders and other punitive measures, but also more cooperative forms of prevention activity such as consultations and education, that may be taken to remedy compliance issues. The study will provide information on the following policy questions:

- How effective are prevention activities at reducing workplace injuries?
- What are the most effective prevention activities?
- Which types of firms respond to which types of prevention activities?

**Q.** How will the research be done?

**A.** The research will use longitudinal WorkSafeBC firm level data to examine the effect of various prevention activities on injury rates. In addition, this study will delve further into this question by attempting to explain what motivates firms to comply with regulation according to their response to inspection and enforcement activities, and identifying the types of firms that respond best to each type of prevention activity.

**Q.** Why is the research important and how does the research support WorkSafeBC’s mandate?

**A.** This project has direct relevance to WorkSafeBC. There has been a recent increase in enforcement activity in BC—the evidence from this study will provide evidence to justify these types of decisions and inform future prevention policies. This study will be the first to examine the effectiveness of inspections and orders in BC. It will also be one of the first studies to examine more cooperative measures to promote compliance, such as education and consultations.

**Q.** How will we know if the research has been successful in solving the problem?

**A.** A policy synthesis document will be created to ensure that the study goes beyond answering research questions and addresses policy concerns regarding prevention activities.
Publications and Awards

Published


In preparation


Presentations (peer-reviewed, oral)


Presentations to stakeholders


Awards held by partnership investigators and students during 2011-2012

<table>
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<tr>
<th>Granting agency</th>
<th>Subject</th>
<th>Total $</th>
<th>Year</th>
<th>Awarded to</th>
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<tr>
<td>WorkSafeBC</td>
<td>The effect of prevention activities on workplace injury rates</td>
<td>$45,000</td>
<td>2012–14</td>
<td>Kim McLeod</td>
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<td>Michael Smith Foundation for Health Research</td>
<td>Health and the work environment</td>
<td>$500,000 ($250,000 supporting Partnership research)</td>
<td>2007–12</td>
<td>Mieke Koehoorn</td>
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Grants held during 2011-2012

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<th>Granting agency</th>
<th>Subject</th>
<th>Total $</th>
<th>Year</th>
<th>Principal investigator</th>
<th>Co-investigator(s)</th>
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<tr>
<td>Workers Compensation Board of Manitoba</td>
<td>A comparative analysis of work-related injuries and long duration claims in three Canadian provinces</td>
<td>$199,246</td>
<td>2013–15</td>
<td>Chris McLeod, Mieke Koehoorn</td>
<td>C Mustard, B Amick, A Kraut, S Hogg-Johnson</td>
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<td>Canadian Institutes of Health Research</td>
<td>Gender, sex and work injury, illness and disability</td>
<td>$436,884</td>
<td>2012–15</td>
<td>Mieke Koehoorn</td>
<td>C McLeod, K Lippel, S Hogg-Johnson</td>
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<td>WorkSafeBC</td>
<td>Seeking compensation for mesothelioma: Investigating why individuals do or do not seek workers’ compensation benefits in British Columbia</td>
<td>$50,000</td>
<td>2011–12</td>
<td>Mieke Koehoorn</td>
<td>G Pomaki, C McLeod, C Lee, P Demers, C Hurrell</td>
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<td>WorkSafeBC</td>
<td>Workplace fatal and serious injuries in British Columbia: comparison of case ascertainment across data sources</td>
<td>$100,510</td>
<td>2010–12</td>
<td>Mieke Koehoorn</td>
<td>C McLeod, P Demers, H Alamgir</td>
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## Partnership affiliated grants during 2011-2012

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<th>Granting agency</th>
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<th>Total $</th>
<th>Year</th>
<th>Principal investigator</th>
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<tr>
<td>WorkSafeBC</td>
<td>Association of past hysterectomy with low back injury: A retrospective study of direct healthcare workers</td>
<td>$30,000</td>
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<td>Mieke Koehoorn</td>
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<td>WorkSafeBC</td>
<td>Early opioid prescriptions for work-related musculoskeletal disorders of the back: Understanding utilization patterns, determinants, and impact on work disability</td>
<td>$64,855</td>
<td>2011-13</td>
<td>Sheilah Hogg-Johnson</td>
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<td>WorkSafeBC</td>
<td>Assessment of beryllium disease risk in pre-selected BC industries</td>
<td>$294,268</td>
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<td>Tim Takaro</td>
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<td>WorkSafeBC</td>
<td>A comparative analysis of the occupational health and safety incentives of workers’ compensation premium Setting in British Columbia and Ontario</td>
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<td>2009-11</td>
<td>Emile Tompa</td>
<td>C Mustard, C McLeod, I Moore</td>
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<td>WorkSafeBC</td>
<td>Examining determinants and consequences of work injuries among older workers</td>
<td>$225,000</td>
<td>2009-11</td>
<td>Peter Smith</td>
<td>M Koehoorn, C McLeod, C Mustard, D Beaton and 5 others</td>
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