



Occupational
Cancer
Research
Centre

OCCUPATIONAL CANCER RESEARCH CENTRE

YEAR 3 (2011-2012) YEAR END REPORT

May 15, 2012

Towards a cancer-free workplace

OCRC 2011-2012 YEAR END REPORT FOR YEAR 3

Introduction

The Occupational Cancer Research Centre (OCRC), established in 2009, is based at Cancer Care Ontario and is jointly funded by the Workplace Safety and Insurance Board (WSIB), the Ontario Division of the Canadian Cancer Society (CCS), and Cancer Care Ontario (CCO), with the support of the United Steelworkers. The goal of the Centre is to fill in the gaps in our knowledge of occupation-related cancers and to translate these findings into prevention programs to minimize workplace carcinogenic exposures and improve the health of workers.

The OCRC has been productive since its inception in 2009, but in Year 3 (2011-12) the Centre came into its own. By the end of Year 3, the OCRC had a full-time, permanent director, an associate director, four other scientists, four affiliated scientists, and a growing complement of staff and graduate students. It had established a governance structure and an expanding research portfolio that included many projects with provincial, national, and international collaborators.

Below is a short summary of the (1) research, (2) capacity building, (3) knowledge exchange, and (4) sustainability activities for Year 3, according to the four strategies outlined in the OCRC 5-Year Strategic Plan. This plan was developed and approved by the OCRC Steering Committee, a committee which is chaired by Jean-Yves Savoie and made up of representation from the four founding organizations, the Ministry of Labour, industry, and the Centre of Research Expertise in Occupational Disease. In Year 3, OCRC significantly expanded upon the number of initiatives it was engaged in in order to fulfill the Plan, making Year 3 the most productive year to date. Please note that this summary is attached to a full complement of evaluation appendices, the proposed budget for 2012/13, the Operating Plan for 2012/13, and an Interim Budget for Year 3.

Strategy 1: Build a Research Program

During Year 3 OCRC increased its number of scientists, research associates, and students, which has allowed it to expand its research program considerably. A list of OCRC personnel and their activities is provided in Appendices 1-4. The Centre began the year with 13 ongoing projects. At year-end there were over 20 studies of varying sizes (see Appendices 5-7). Research projects were conducted in all areas of focus (causation, surveillance, prevention & interventions). The projects that were started in Year 3 reflect the expansion to a larger diversity of exposures and different populations. Year 3 also saw OCRC beginning to engage in studies that had primary data collection and studies using a mix of research methods. The number of collaborators also expanded with most projects including the collaboration of researchers from across Ontario, elsewhere in Canada, the United States, and Europe. A number of the projects initiated in 2009 were completed, and Year 3 saw the beginning of the sharing of results with academic and other stakeholder communities through publications, presentations, and via the OCRC website.

1.1 Identification of Causes of Cancer in the Workplace

A major focus of the OCRC is to conduct epidemiologic studies on the causes of workplace cancer. For example, we are investigating the link between pesticide exposure and cancer to determine if exposure to multiple pesticides increases the risk of Hodgkin and non-Hodgkin lymphoma, multiple myeloma, and soft tissue sarcoma using data from the Cross-Canada Study of Pesticides and Health. This research is being done in collaboration with researchers in Saskatchewan, British Columbia, and the United States. A second example is the Centre's exploration of the causes of lung cancer using a Toronto lung cancer case-control study. The Centre is contributing data from this study to the Synergy project, a 14-country effort coordinated by the International Agency for Research on Cancer. Other ongoing projects include analyses of occupational exposure to diesel and gasoline emissions and the incidence of colorectal and bladder cancer, an updated analysis of the risk of cancer among Ontario uranium miners, and a study of the health risks among nuclear workers in Ontario who are exposed to internal sources of ionizing radiation. An exciting study launched this year will examine occupational risks for breast cancer among young women as part of a larger study that is exploring exposure to environmental contaminants. A complete list of epidemiologic projects is included in Appendix 5.

1.2 Surveillance of Occupational Cancers and Workplace Exposures

To this point, Canada does not have any comprehensive occupational cancer surveillance programs. In Year 3 OCRC received funding from the WSIB-RAC for two major surveillance proposals. One of the projects uses the linkage of the Canadian 1991 Census to the Canadian Cancer Registry, creating a database of 2.1 million people with national follow-up through to 2008. This project, conducted in collaboration with Statistics Canada and Health Canada, will allow OCRC to conduct research comparable to the Nordic cancer surveillance projects, which are acknowledged to be the best in the world. The second, smaller grant that the Centre received was to explore the feasibility of linking WSIB lost-time claims data with the Ontario Cancer Registry to create a provincial resource to examine risks in Ontario industries. The Centre is also increasing its work in the area of exposure surveillance. We are analyzing data collected by the Ministry of Labour to determine historic patterns and trends of exposure to many known and suspected carcinogens such as asbestos, benzene, tetrachloroethylene, silica and wood-dust. As well, OCRC researchers are collaborating closely with CAREX Canada to investigate new occupational exposure issues, such as the asbestos-contaminated Libby, Montana vermiculite, and to estimate the number of Ontarians potentially exposed and their levels of exposure. A complete list of surveillance projects may be found in Appendix 6.

1.3 Prevention & Intervention Studies

All OCRC research is designed to produce policy relevant results and contribute to cancer prevention by raising awareness and creating data necessary to set regulations and target prevention efforts. However, some projects are designed to more directly contribute to prevention efforts or assess their effectiveness, while others take different approaches, such as studies of factors influencing exposure and studies designed to raise awareness among decision makers in government, industry, and organized labour. Examples of projects in this area include studies of exposure to antineoplastic agents among nurses, factors influencing physician

recognition of occupational lung cancer and compensation, and a comparison of Ontario's Occupational Exposure Limits for Carcinogens (OELs) to those of other jurisdictions in Canada and in other countries. These studies are often targeted at specific populations and stakeholders. For example, the *Occupational Exposure Limits* report was submitted to the Ministry of Labour in early 2012 in response to its OEL consultation.

Another major intervention project with policy implications went through the planning stage in Year 3. It focuses on estimating the human and economic burden of occupational cancer in Ontario. By producing estimates of the human impact (deaths, sickness, and reduced quality of life) and the economic costs specifically associated with exposure to occupational carcinogens, the OCRC will provide evidence on the importance of workplace exposures as a significant causal factor in many Ontario cancer cases. Most significantly, these estimates will help to focus on priority areas where the greatest number of people will be impacted by intervention efforts. A complete list of prevention and intervention projects is attached in Appendix 7.

Strategy 2: Build Research Capacity

A goal of the Centre is to attract students and new researchers to occupational cancer research. In the beginning of Year 3, there were three graduate students; this number has expanded to four to six graduate students working at OCRC each semester. The number of graduate students fluctuates with each semester, but in Year 3, eight new students worked at the OCRC learning new analytic skills, expanding their knowledge of research methodology, being coached through the publication process, and gaining exposure to the diversity and urgent mandate of occupational cancer research (see Appendix 4). The Centre has also attracted an interdisciplinary group of Research Associates (see Appendix 3). Although most of the staff had little experience directly related to occupational cancer, they have brought a rich mix of skills and experience to the Centre that has enabled it to take on a very diverse set of studies.

To ameliorate the lack of in-depth background knowledge of occupational cancer and to encourage junior researchers to enter the field, the Centre conducts internal educational activities and encourages continuing education. We also conduct weekly meetings with staff and students discuss on-going projects and potential collaborations. These meetings include presentations by the Director and other scientists on relevant subjects such as the history, use of, and health effects of different workplace carcinogens; the impact of different exposures; and the classification system of occupational carcinogens, workplace organizational factors, and occupations. The research associates give presentations on their research projects and organize a monthly journal club where an article of interest is read and discussed. They also attend symposiums, workshops, conferences, and presentations on occupational cancer. Several research associates have completed methodological courses through the University of Toronto, York University and the Hospital for Sick Children to further develop their specialized skills and knowledge which directly impacts on the rigor of OCRC's research.

The OCRC also attempts to increase occupational cancer research capacity by enlisting other Canadian scientists as "affiliates" of the Centre, a status that the Centre is granting to researchers that have a more intense involvement in the Centre's mission, over and above

collaborating on a study (see Appendix 2). These affiliated scientists act as mentors to our students and junior staff and also increase the reach of the Centre beyond Cancer Care Ontario and the University of Toronto.

Another way that OCRC is building capacity is through stakeholder engagement. Paul Demers gives presentations on a regular basis to stakeholder audiences (see Appendix 11). He is responsive to stakeholder queries that come either through the media or directly from practitioners based at the Ministry of Labour, the Canadian Cancer Society, Cancer Care Ontario, the health and safety associations, and organized labour. In recent months, he has delivered presentations on current knowledge in the field of occupational cancer, the goals of OCRC, the achievements of CAREX Canada, the IARC classification of carcinogens, the carcinogenicity of shiftwork, and the impact of asbestos on lung cancer and mesothelioma. The goal of these engagement efforts is not only to increase awareness, but also to increase support for and collaboration with occupational cancer research and to increase the capacity among stakeholders to productively use the results of research to promote prevention. A complete list of presentations delivered in Year 3 may be found in Appendix 11.

Strategy 3: Deliver and Exchange Knowledge.

In Year 3, the Centre created a knowledge transfer & exchange strategy that focused on exchanging knowledge with stakeholders to build awareness of occupational cancer, encourage the emergence of new research questions, and inform policy and practice. The Centre's KTE strategy is four fold: (1) the creation and dissemination of multiple communication products containing research-based messages; (2) the involvement of stakeholders on research projects as partners (an integrated knowledge transfer strategy); (3) the engagement of knowledge brokers to directly connect and built relationships with key decision-makers (an intensive knowledge transfer strategy); and (4) tracking the impact of the KTE initiative through a knowledge transfer evaluation framework.

3.1 Creation and dissemination of multiple communication products

The Centre is creating multiple products to communicate our research findings to stakeholder audiences. These include one-page summaries, presentations, posters, articles for newspapers, factsheets, newsletter articles, handouts, and plain-language reports. The website continues to be the major vehicle that is engaged to profile the syntheses of OCRC's research findings (<http://occupationalcancer.ca>). Summaries of each of the Centre's projects can now be found on the website, as can new evidence as it emerges. Presentations and posters are also created for research projects that lend themselves to being communicated to stakeholder audience. These are for both academic and stakeholder conferences and symposiums. In Year 3, the Centre had a significant presence at Workplace Safety North and submitted abstracts for presentations and posters for another major stakeholder conference, Partners in Prevention.

OCRC also communicates with the media to bring our research findings to a broader audience. A recent series of articles produced by CBC was on occupational cancer and they profiled and quoted OCRC researchers. These articles can be found on the OCRC website. In Year 3, the Centre held two public forums to increase awareness and knowledge of the causes and

prevention of, and interventions for occupational cancer. In the spring of 2011, the Centre held a full-day event, Research Day, which highlighted our research to our broad stakeholder community. In early 2012, the Centre held an educational workshop on how the International Agency for Research on Cancer (IARC) classifies carcinogens. These events have been well attended (with the audience made up of physicians, clinicians, hygienists, labour representatives and industry representatives).

3.2 Integrated Knowledge Transfer

OCRC has a strong commitment to collaborative research. Most of the Centre projects include the collaboration of researchers across Ontario, Canada, and internationally. This is a major and significant strength of the Centre. However, in Year 3 the Centre initiated an integrated KTE strategy that involves bringing the users-of-research into the research process. For example, a cross-Canada team-grant research proposal submitted to the Canadian Cancer Society's Research Institute (CCSRI) in early 2012, built into its structure the full engagement of the Canadian Cancer Society (CCS) into the research process and communications. A smaller study that was initiated earlier in 2011 includes the Occupational Health Clinics for Ontario Workers as research partners. There are plans for this study to be expanded with the concurrent expansion of this partnership.

3.3 Intensive Knowledge Transfer

OCRC has multiple stakeholder groups who are invested in the findings of the Centre's research: industry, organized labour, workers, clinicians, physicians, and policy decision-makers. They each need evidence-based knowledge focused on their needs and their decision-making process. OCRC is very aware that policy makers in particular, can have the most significant impact on the reduction of present workplace exposures. The Centre supports the idea of having a dedicated person – a knowledge broker – engaging with key stakeholders. In Year 3, a Centre research associate attended a week-long knowledge broker professional certification course, and she has begun to take on the role of KTE knowledge broker for the Centre.

3.4 Knowledge Transfer and Exchange Method of Evaluation (KEME)

The Centre has begun to incorporate an evaluation framework to evaluate the impact of the KTE initiatives within many of our research proposals. This will enable us to ensure that our KTE initiatives are well targeted to specific audiences, delivered by the most credible messenger, and using the most effective strategies to achieve impact.

Strategy 4: Build a Sustainable Centre

The final focus of OCRC's Strategic Plan is to build a sustainable research centre. This objective encompasses actively seeking out additional partners and additional core funding from traditional granting institutions, government agencies, and non-governmental organizations beyond the initial five years of funding. It also includes the need to ensure that the expanding list of projects are served by the right number of people with the right skills and expertise, leveraging the strength of internal resources to increase capacity, and maintaining and expanding relationships to ensure that the right people with the right expertise are attracted as

collaborators on Centre research. Finally, there is the priority to ensure that the Centre's research is kept current and is of interest to stakeholders to maintain the need and the relevance of the Centre.

Building a sustainable centre is more of an ongoing process than a milestone. It is a long-term goal that requires constant attention especially as Year 3 closes and Year 4 or the five-year grants begin. We have developed a strong core of researchers, staff, and students with an effective infrastructure. Additionally, the provincial, national, and international reputation of the Centre is growing, with an increase in the number of researchers who wish to collaborate on OCRC research. During Year 3 we strengthened our relationships with the other occupational disease research centres funded by the WSIB (the Centre of Research Expertise for the Prevention of Musculoskeletal Disorders, the Centre for Research Expertise in Occupational Disease, and the Institute for Work & Health). We have collaborative research projects, collaborative stakeholder events, and sit on multiple committees with our research partners.

OCRC applied for and received funding from research-granting agencies and organizations within Canada. This leveraged funding comes from the Canadian Institutes for Health Research (\$20,000), and from the Workplace Safety and Insurance Board's Research Advisory Council's open-grant competitions (\$424,600 for four grants, plus a portion of a fifth grant for \$846,000 which will have a section dedicated to occupational exposures). Finally, in Year 3, OCRC applied for a \$1,000,000 national team grant from the Canadian Cancer Society Research Institute to assess the human and economic costs of occupational cancer in Canada. The decision on this grant application will become public in Year 4. A full list of the grants received can be found in Appendix 8.

Finally, OCRC is also seeking to deepen and broaden its institutional support. Within CCO we have worked to have occupational cancer research and prevention become part of the CCO strategic plan, and to strengthen our connections with other units within the Prevention and Cancer Control portfolio. This has allowed us to take advantage of CCO's strong reputation and connections to the health care community and puts us in a positive position to request additional support for OCRC's activities, particularly in the area of prevention. We have also been involved in discussions with both the Ontario Division and the National Office of the Canadian Cancer Society around potential support for mutual high priority activities, such as toxic use reduction, and for OCRC to act as the occupational node of a national cancer prevention network funded by CCS and their partners. Lastly, we continue to explore, with the assistance of Jean-Yves Savoie, other potential sources of institutional support, such as both competitive and non-competitive support from federal funding agencies and ministries.

Appendix 1: Scientists

Name	Affiliations	OCRC-related Activities
Dr. Paul Demers	<ul style="list-style-type: none"> · Director, OCRC · Scientific Director, CAREX Canada · Professor, Dalla Lana School of Public Health, University of Toronto 	Principal investigator or engaged in all projects listed in Appendices 5-7
Dr. Desre Kramer	<ul style="list-style-type: none"> · Associate Director, OCRC · Adjunct Professor, University of Waterloo, · Adjunct Professor, Ryerson University · Adjunct Researcher, Institute for Work & Health 	<ul style="list-style-type: none"> · Making the link between exposure and respiratory cancer in the clinical setting: What are the steps? · Pilot study of exposure to anti-neoplastic agents among Juravinski Clinic workers · Assessment of the human and economic costs of occupational cancer · Review of Compensated Workplace Fatality Trends and Patterns
Dr. Shelley Harris	<ul style="list-style-type: none"> · Associate Professor, Dalla Lana School of Public Health, University of Toronto · Scientist, Cancer Care Ontario 	<ul style="list-style-type: none"> · Cross-Canada Study of Pesticides · Occupational exposure to diesel and gasoline engine emissions and the incidence of colorectal and bladder cancer in Canadian men · Exposures to emerging environmental contaminants and risk of breast cancer in young women: a case-control study using biomarkers of exposure · Ontario uranium miner cohort: Linkage with national mortality and cancer incidence files
Dr. Loraine Marrett	<ul style="list-style-type: none"> · Senior Scientist and Director, Surveillance Unit, Cancer Care Ontario · Professor, Dalla Lana School of Public Health, University of Toronto 	<ul style="list-style-type: none"> · Health risks among nuclear workers in Ontario who have been exposed to internal sources of ionizing radiation: A feasibility study · Ontario uranium miner cohort: Linkage with national mortality and cancer incidence files · Development of an Occupational Cancer surveillance Program for Ontario · Mesothelioma patterns and projections in Ontario and Canada · Making the link between exposure and respiratory cancer in the clinical setting: What are the steps?
Dr. John McLaughlin	<ul style="list-style-type: none"> · Senior Investigator, Samuel Lunenfeld Research Institute, Mount Sinai Hospital · Professor, Dalla Lana School of Public Health, University of Toronto · Founding Director, Ontario Health Study 	<ul style="list-style-type: none"> · Cross-Canada Study of Pesticides · Toronto Lung Cancer Case-Control Study · Health risks among nuclear workers in Ontario who have been exposed to internal sources of ionizing radiation: A feasibility study · Ontario uranium miner cohort: Linkage with national mortality and cancer incidence files · Pilot Study of exposure to anti-neoplastic agents among Juravinski Clinic workers
Dr. Minh Do	<ul style="list-style-type: none"> · Epidemiologist, Public Health Agency of Canada · Research Fellow, R. Samuel McLaughlin Centre for Population Health Risk Assessment, University of Ottawa 	<ul style="list-style-type: none"> · Health risks among nuclear workers in Ontario who have been exposed to internal sources of ionizing radiation: A feasibility study · Ontario uranium miner cohort: Linkage with national mortality and cancer incidence files
Dr. Anne Harris*	<ul style="list-style-type: none"> · Post-Doctoral Fellow, OCRC 	<ul style="list-style-type: none"> · Occupational cancer surveillance using the 1991-2006 Canadian census mortality & cancer cohort · Development of an Occupational Cancer surveillance Program for Ontario · Sinonasal cancer surveillance and exposure to sinonasal carcinogens in Ontario · Shiftwork in Canadian industries: A probable cancer risk factor · The human and economic burden of occupational cancer in Ontario

* Although Anne Harris, as a post-doctoral fellow, is technically a trainee, her role within OCRC is closer to that of a scientist because she leads projects and mentors students and junior staff.

Appendix 2: Affiliated Scientists

Name	Affiliation	OCRC-related Activities
Dr. Aaron Blair	<ul style="list-style-type: none"> · Scientist Emeritus and former Chief, Occupational and Environmental Epidemiology Branch of the Division of Cancer Epidemiology and Genetics, National Cancer Institute · Interim Director, OCRC, 2009-2010 	<ul style="list-style-type: none"> · Cross-Canada Study of Pesticides · Women and minorities and other trends in occupational cancer research: An update · Systematic review of interventions for the prevention of occupational cancer · Member of OCRC's Scientific Advisory Committee
Dr. Paul Villeneuve	<ul style="list-style-type: none"> · Senior Research Scientist, Environmental Health Science and Research Bureau, Health Canada · Assistant Professor, Dalla Lana School of Public Health, University of Toronto 	<ul style="list-style-type: none"> · Occupational exposure to diesel and gasoline engine emissions and the incidence of colorectal and bladder cancer in Canadian men · Exposures to emerging environmental contaminants and risk of breast cancer in young women: a case-control study using biomarkers of exposure · Ontario uranium miner cohort: Linkage with national mortality and cancer incidence files
Dr. Kristan Aronson	<ul style="list-style-type: none"> · Professor, Department of Community Health and Epidemiology and in the School of Environmental Studies, Queen's University 	<ul style="list-style-type: none"> · Interventions mediating health risks among shift workers · Member of OCRC's Scientific Advisory Committee
Dr. Jack Siemiatycki	<ul style="list-style-type: none"> · Professor, Epidemiology, University of Montreal · Canada Research Chair and the Guzzo-SRC Chair in Environment and Cancer 	<ul style="list-style-type: none"> · Classification of carcinogens · Synergy lung cancer project · Member of OCRC's Scientific Advisory Committee

Appendix 3: Research Associates

Name	Education	Projects
Dr. Ann Del Bianco	MES (Environmental Causes of Esophageal Cancer), York University (2003) PhD (Environmental Studies), York University (2012)	<ul style="list-style-type: none"> · Pilot Study of exposure to anti-neoplastic agents among Juravinski Clinic workers · Assessment of the human and economic costs of occupational cancer · Review of Compensated Workplace Fatality Trends and Patterns
Kate Jardine	MSc (Chemistry), University of Toronto (2010)	<ul style="list-style-type: none"> · Toronto Lung Cancer Case-Control Study · Analyses of the Ontario MoL exposure database (MESU) · Creation of a database of Canadian studies that have measured exposure to workplace carcinogens · Libby Sister Sites in Ontario Investigation · Women and minorities and other trends in occupational cancer research: An update
Kris Moore	MA (Political Science), York University (2010)	<ul style="list-style-type: none"> · Making the link between exposure and respiratory cancer in the clinical setting: What are the steps? · Pilot Study of exposure to anti-neoplastic agents among Juravinski Clinic workers · Shiftwork in Canadian industries: A probable cancer risk factor
Manisha Pahwa	MPH (Occupational and Environmental Health), University of Toronto (2011)	<ul style="list-style-type: none"> · Cross-Canada Study of Pesticides · Assessment of the human and economic costs of occupational cancer · A comparison of Ontario Occupational Exposure Limits for Carcinogens to other jurisdictions in Canada and elsewhere · The human and economic burden of occupational cancer in Ontario
Priyanka Raj	MPH (Occupational and Environmental Health), University of Toronto (2010)	<ul style="list-style-type: none"> · Creation of a database of Canadian studies that have measured exposure to workplace carcinogens · Pilot Study of exposure to anti-neoplastic agents among Juravinski Clinic workers · Libby Sister Sites in Ontario Investigation · Women and minorities and other trends in occupational cancer research: An update · The human and economic burden of occupational cancer in Ontario
Dr. Victoria Arrandale (part-time)	MSc (Occupational Hygiene), University of British Columbia (2007) PhD (Medical Science), University of Toronto (2012)	<ul style="list-style-type: none"> · Analyses of the Ontario MoL exposure database (MESU) · Sinonasal cancer surveillance and exposure to sinonasal carcinogens in Ontario · Women and minorities and other trends in occupational cancer research: An update
Karin Hohenadel (part-time)	MSc (Health Studies and Bioethics), University of Toronto (2007)	<ul style="list-style-type: none"> · Cross-Canada Study of Pesticides · Women and minorities and other trends in occupational cancer research: An update · Systematic review of interventions for the prevention of occupational cancer

Appendix 4: Students and Trainees Supervised

Student Name	Program Type	Date	Principal Supervisor	Project
Linda Kachuri	MPH Practicum, Epidemiology, DLSPH, U of T	Jan 2012-present	Paul Demers	· Cross-Canada Study of Pesticides – exposure to multiple pesticides and the risk of multiple myeloma
Desiree Latour	MPH Practicum, Epidemiology, Dalla Lana School of Public Health, University of Toronto	Jan-May 2012	Paul Demers	· Toronto Lung Cancer Case-Control Study – occupations and the risk of lung cancer
Joanne Kim	MPH Masters Project, Occupational and Environmental Health, DLSPH, U of T	July 2011-present	Paul Demers	· Analyses of the Ontario MoL exposure database (MESU) and assessment of the human and economic costs of occupational cancer related to diesel engine exhaust · Pilot work on burden of cancer project
Jill Hardt	MPH Practicum, Epidemiology, DLSPH, U of T	May 2011-present	Paul Demers	· Toronto Lung Cancer Case-Control Study · Linkage of 1991 Census (20% sample) with tumour registry data – lung cancer in welders · Review of compensated workplace fatality trends and patterns
Garthika Navaranjan	MPH Practicum, Epidemiology, DLSPH, U of T	May 2011-present	Paul Demers	· Cross-Canada Study of Pesticides – exposure to multiple pesticides and the risk of Hodgkin lymphoma · Analyses of the Ontario MoL exposure database (MESU) – exposure to tetrachloroethylene in Ontario, 1981-1996
Caryn Thompson	MPH Practicum, Epidemiology, DLSPH, U of T	2011-present	Shelley Harris	· Exposures to emerging environmental contaminants and risk of breast cancer in young women: a case-control study using biomarkers of exposure
Lua Eriksson	MPH Practicum, Community Medicine, DLSPH, U of T	April-Sept 2011	Paul Demers	· Linkage of 1991 Census (20% sample) with tumour registry data – occupations and ovarian cancer
Manisha Pahwa	MPH Masters Project, Occupational and Environmental Health, DLSPH, U of T	2009-2011	Shelley Harris	· Cross-Canada Study of Pesticides – pesticide exposure, immunologic conditions, and the risk of non-Hodgkin lymphoma · Transitioned to Research Associate after finishing Masters degree

Appendix 5: Identification of Causes of Cancer in the Workplace

Project	Broad Objectives	OCRC Team and Collaborators	Funder, Budget and Timeline	Accomplishments/Plans Thus Far
<p>Cross-Canada Study of Pesticides</p> <ul style="list-style-type: none"> The effects of multiple pesticides in combination on cancer risk The potential for immunologic conditions and family history to act as effect modifiers for pesticides and cancer risk Pooled analyses with similar studies from US National Cancer Institute 	<p>To examine the risk of non-Hodgkin lymphoma, Hodgkin lymphoma, multiple myeloma, and soft tissue sarcoma associated with exposure to specific pesticides and combinations of pesticides</p>	<p><i>Staff:</i> Manisha Pahwa</p> <p><i>Students:</i> Garthika Navaranjan, Linda Kachuri</p> <p><i>Scientists:</i> Shelley Harris (PI), Paul Demers, John McLaughlin, Aaron Blair</p> <p><i>Collaborators:</i> John Spinelli (BC Cancer Agency), Punam Pahwa & James Dosman (University of Sask.), Nichole Garzia (UBC), Karin Hohenadel (PHO), Laura Beane-Freeman (US NCI)</p>	<p>Core funding</p> <p>Multiple projects with ongoing analyses</p> <p>Beginning pooled analyses with US NCI</p>	<ul style="list-style-type: none"> NHL multiple pesticides paper published in 2011 and presented at the North American Epidemiology congress NHL, pesticides, & immunologic conditions paper accepted for publication HL pesticides paper by Garthika Navaranjan in preparation MM pesticides paper by Linda Kachuri in preparation Pooled analyses with US studies in progress Papers accepted for CARWH 2012 meeting
<p>Toronto Lung Cancer Case-Control Study</p> <ul style="list-style-type: none"> Analyses of a lung cancer case-control dataset with information on occupational risk factors and smoking history Contribution of the Toronto data to the international SYNERGY pooled lung cancer case-control study coordinated by IARC 	<p>Examine associations within the Toronto dataset</p> <p>SYNERGY: create a massive dataset to:</p> <ul style="list-style-type: none"> examine dose-response relationships synergistic effects of multiple carcinogens and smoking examine associations with suspected carcinogens Possible analysis of pooled SYNERGY data by OCRC researchers 	<p><i>Staff:</i> Kate Jardine</p> <p><i>Students:</i> Jill Hardt, Desiree Latour</p> <p><i>Scientists:</i> John McLaughlin (co-PI), Paul Demers (co-PI)</p> <p><i>Collaborators:</i> Kurt Straif (International Agency for Research on Cancer), Hans Kromhout & Roel Vermeulen (Utrecht University)</p>	<p>Toronto Analyses: Core funding</p> <p>Ongoing analyses</p> <p>Possible future analyses of the SYNERGY pooled data</p>	<ul style="list-style-type: none"> Analyses of the Toronto data by Desiree Latour and Jill Hardt in progress Jill Hardt submitted abstract for X2012 meeting Draft paper on assessment of asbestos exposure in preparation Collaborate with international investigators on pooled analyses
<p>Occupational exposure to diesel and gasoline engine emissions and the incidence of colorectal and bladder cancer in Canadian men</p>	<p>To use the National Enhanced Cancer Surveillance System Data to examine the risk of cancer associated with sites other than the lung</p>	<p><i>Scientists:</i> Shelley Harris (PI)</p> <p><i>Collaborators:</i> Paul Villeneuve (Health Canada, U of T), Kenneth Johnson (Public Health Agency of Canada), Marie-Elise Parent (Institut national de la recherche scientifique, Quebec)</p>	<p>WSIB RAC</p> <p>\$161,000</p> <p>2011-2012</p>	<ul style="list-style-type: none"> Shelley is leading this study from CCO's Research Unit Data transfer from PHAC in progress Contract with INRS for coding of occupational exposures in place

Continued – Appendix 5: Identification of Causes of Cancer in the Workplace

Project	Broad Objectives	OCRC Team and Collaborators	Funder, Budget and Timeline	Accomplishments/Plans Thus Far
Exposures to emerging environmental contaminants and risk of breast cancer in young women: a case-control study using biomarkers of exposure	To examine the association between occupational exposure and the risk breast cancer among women aged 18-44	<i>Scientists:</i> Shelley Harris (PI) <i>Collaborators:</i> Paul Villeneuve (Health Canada, U of T), Michelle Cotterchio (CCO), Len Ritter (University of Guelph), Julia Knight (U of T)	CCSRI \$846,000 2011-2014	- Shelley is leading this study from CCO's Research Unit - Ethics have been approved - The study is facing challenges because of changes in rules regarding patient contact at CCO
Health risks among nuclear workers in Ontario who have been exposed to internal sources of ionizing radiation: A feasibility study	To assess the feasibility of an epidemiological study of nuclear workers in Ontario who have been exposed to ionizing radiation from internal emitters	<i>Staff:</i> Minh Do (Co-PI) <i>Scientists:</i> Loraine Marrett (Co-PI), John McLaughlin, Paul Demers <i>Collaborators:</i> Elisabeth Cardis (CREAL, Barcelona)	WSIB RAC \$29,000 Complete in 2012	- Feasibility study nearing completion
Ontario uranium miner cohort: Linkage with national mortality and cancer incidence files Creation of a pooled dataset of all 3 Canadian uranium miners studies	To continue to assess the risk of cancer, as well as cardiovascular disease among Ontario uranium miners	<i>Staff:</i> Minh Do <i>Scientists:</i> Loraine Marrett (PI), Paul Demers, John McLaughlin, Shelley Harris <i>Collaborators:</i> Paul Villeneuve (Health Canada, U of T), other members of the National Uranium Miners Working Group	Linkage funded by Canadian Nuclear Safety Commission Contract in negotiation for analysis (~\$150,000) 2012-2013	- Finalize agreement for external funding - Linkage completed at Statistics Canada - Analyses planned for 2012/2013

Appendix 6: Surveillance of Occupational Cancer and Carcinogens

Project	Broad Objectives	OCRC Team and Collaborators	Funder, Budget and Timeline	Accomplishments/Plans Thus Far
<p>Linkage of 1991 Census (20% sample) with tumour registry data</p> <p>Initial areas of interest include:</p> <ul style="list-style-type: none"> · Lung cancer in welders · Occupations & ovarian cancer · Cancer in wood workers · Cancer in firefighters & police · Shiftwork & cancer · Cancer in agricultural workers 	To create a platform that would allow the study of new and existing questions on occupational cancer	<p><i>Staff:</i> Anne Harris</p> <p><i>Students:</i> Jill Hardt, Lua Eiriksson</p> <p><i>Scientists:</i> Paul Demers</p> <p><i>Collaborators:</i> Michael Tjepkema, Paul Peters (Statistics Canada), CAREX Canada, Nordic Occupational Cancer Group, Finnish Institute for Occupational Health, Rick Burnett (Health Canada)</p>	<p>Initially core funded</p> <p>Currently funded by the WSIB-RAC</p> <p>\$312,000</p> <p>2012-2015</p>	<ul style="list-style-type: none"> - Initial round of feasibility work/pilot analyses completed - Papers on welders and ovarian cancer in preparation - Analyses of shiftwork levels using SLID - Analyses by exposure using MESU & CAREX being explored - Presentations to US NCI and NOCCA group - Abstract on firefighters accepted at CARWH - Abstract on the data linkage accepted at NAACCR
Development of an Occupational Cancer surveillance Program for Ontario	To create a new occupational surveillance platform based only on Ontario data	<p><i>Staff:</i> Anne Harris</p> <p><i>Scientists:</i> Paul Demers, Loraine Marrett</p>	<p>Funded by WSIB RAC</p> <p>\$29,800</p> <p>2012-2013</p>	<ul style="list-style-type: none"> - Ethics submitted - Developmental work under way
Cancer Among Nordic Firefighters	To collaborate with the NOCCA Study Group on a topic of mutual interest	<p><i>Scientists:</i> Paul Demers</p> <p><i>Collaborators:</i> Nordic Occupational Cancer Group, Finnish Institute for Occupational Health</p>	<p>Core funded</p> <p>Complete in 2012</p>	<ul style="list-style-type: none"> - Results from NOCCA study for firefighters supplied by Norwegian Tumour Registry - Results presented at EPICOH - Manuscript in preparation
Mesothelioma patterns and projections in Ontario and Canada	To predict future trends in mesothelioma in Ontario and the rest of Canada	<p><i>Scientists:</i> Loraine Marrett (Co-PI), Paul Demers</p> <p><i>Collaborators:</i> Mark Clements (Co-PI) (Australian National University)</p>	<p>Core funding</p> <p>Complete in 2012</p>	<ul style="list-style-type: none"> - Manuscript in preparation
Sinonasal cancer surveillance and exposure to sinonasal carcinogens in Ontario	To examine the descriptive epidemiology of sino-nasal cancer in relation to trends in exposure in Ontario	<p><i>Staff:</i> Anne Harris</p> <p><i>Scientists:</i> Paul Demers (PI)</p> <p><i>Collaborators:</i> Chris McLeod, Mieke Koehoorn, Cheryl Peters (University of British Columbia)</p>	<p>Core funding</p> <p>Completed in 2011</p>	<ul style="list-style-type: none"> - Analysis of tumour registry data complete and Cancer Fact released - Analysis of MESU exposure data completed - Comparison with parallel project in BC completed - Presented at CCRA research conference
Analyses of the Ontario MoL exposure database (MESU)	<p>To examine historical patterns of exposure to carcinogens in Ontario</p> <p>To use this data in collaboration with CAREX to create exposure matrixes that can be used for cancer surveillance and research</p>	<p><i>Staff:</i> Victoria Arrandale, Kate Jardine</p> <p><i>Students:</i> Joanne Kim, Garthika Navaranjan</p> <p><i>Scientists:</i> Paul Demers (PI)</p> <p><i>Collaborators:</i> Cheryl Peters (CAREX Canada)</p>	<p>CAREX Canada and core funding</p> <p>Ongoing analyses</p>	<ul style="list-style-type: none"> - Analyses using MESU dataset in progress - Reports on exposure to carcinogens in Ontario: 1981-1996 in progress - Creation of exposure matrixes for use with 1991 Census and Burden projects in progress

Appendix 7: Intervention, Prevention, Systematic Reviews, and Other Projects

Project	Broad Objectives	OCRC Team and Collaborators	Funder, Budget and Timeline	Accomplishments/plans thus far for 2011-2012
Assessment of the human and economic costs of occupational cancer	To raise awareness of the human and economic impacts of exposure to occupational carcinogens	<i>Staff:</i> Ann Del Bianco, Manisha Pahwa <i>Students:</i> Joanne Kim <i>Scientists:</i> Paul Demers (PI), Desre Kramer (co-PI) <i>Collaborators:</i> Hugh Davies, Anne-Marie Nicol, Cheryl Peters (UBC), Emile Tompa (IWH), Doug Hyatt (Rotman School, UT), Sarah Bouma (CCS), France Labreche (IRSST), Jerome Lavoue (UM), Patrick Curley (AHS), Lesley Rushton (Imperial College, London)	Initially core funded Team Grant Application to CCSRI for \$1,000,000 2012-2016	<ul style="list-style-type: none"> - Hosted meeting in Toronto with investigators of similar projects in Alberta, Quebec, UK, United States - Preliminary work underway while awaiting decision from CCSRI - Pilot model using diesel exhaust being developed by Joanne Kim
Making the link between exposure and respiratory cancer in the clinical setting: What are the steps?	Pilot study to identify optimal methods of occupational history taking and referral for workers' compensation Extension of initial pilot study to multiple centres across Ontario	<i>Staff:</i> Kris Moore <i>Scientists:</i> Loraine Marrett (Co-PI), Desre Kramer <i>Collaborators:</i> Linn Holness (Co-PI), Irena Kulda (St. Michael's Hospital), John Oudyk (OHCOW)	WISB RAC \$30,000 Pilot study complete in 2011/12 Extension to centres across Ontario planned	<ul style="list-style-type: none"> - Ethics approved - Data collection at Juravinski completed - Data collection at Princess Margaret underway - Abstract accepted at CARWH 2012 - Preliminary on broader project involving more centres underway
Pilot Study of exposure to anti-neoplastic agents among Juravinski Clinic workers	To study exposure to anti-neoplastic agents and feasibility of long-term surveillance of exposed healthcare workers	<i>Staff:</i> Ann Del Bianco, Krisy Moore, Priyanka Raj <i>Scientists:</i> Paul Demers, Desre Kramer, John McLaughlin (Lunenfeld)	Initial funding by Juravinski for pilot work and questionnaire \$50,000 (tentative) 2012/13	<ul style="list-style-type: none"> - Pilot study of questionnaire with history of exposure - Exploring model of using Ontario Health Study for long-term surveillance
Systematic review of interventions for the prevention of occupational cancer	To identify whether the impact of interventions on cancer rates can be documented using epidemiologic studies	<i>Scientists:</i> Aaron Blair (PI), Paul Demers <i>Collaborators:</i> Karin Hohenadel (PHO), Kurt Straif (IARC)	Core funding Complete asbestos in 2012	<ul style="list-style-type: none"> - Presented at EPICOH in Oxford - Manuscript for asbestos in preparation
Women and minorities and other trends in occupational cancer research: An update	To examine major trends in occupational epidemiology research To develop a database of Canadian studies for the Burden project and other uses	<i>Staff:</i> Priyanka Raj, Kate Jardine <i>Scientists:</i> Aaron Blair (PI), Paul Demers <i>Collaborators:</i> Sheila Hoar Zahm (U.S. National Cancer Institute), Karin Hohenadel (PHO)	Core funding Complete in 2012	<ul style="list-style-type: none"> - Data entry completed - Data cleaning almost completed - Manuscript preparation beginning

Continued – Appendix 7: Intervention, Prevention, Systematic Reviews, and Other Projects

Project	Broad Objectives	OCRC Team and Collaborators	Funder, Budget and Timeline	Accomplishments/plans thus far for 2011-2012
Creation of a database of Canadian studies that have measured exposure to workplace carcinogens	To contribute to CAREX to help fill in gaps in our knowledge of exposure in Canada To develop a database of Canadian studies for the Burden project and other uses	<i>Staff:</i> Priyanka Raj, Kate Jardine <i>Scientist:</i> Paul Demers <i>Collaborators:</i> Calvin Ge, Cheryl Peters (CAREX Canada)	Core funding Complete in 2012	- Database finalized except for French language publications - Poster accepted at CARWH
History of occupational cancer research in Ontario and Canada	To raise awareness about the role of Ontario in the history of occupational cancer research	<i>Students:</i> Patricia Liu <i>Scientists:</i> Paul Demers	Core funding Completed in 2011/12	- Full draft now being externally reviewed
Libby Sister Sites in Ontario Investigation	To identify sites where asbestos-contaminated vermiculite was shipped in Ontario	<i>Staff:</i> Priyanka Raj, Kate Jardine <i>Scientist:</i> Paul Demers <i>Collaborators:</i> Cheryl Peters, Alejandro Cervantes (CAREX Canada)	Core funding Complete in 2012	- Database acquired from US EPA sent by CAREX Canada - Identification of sites underway
A comparison of Ontario Occupational Exposure Limits for Carcinogens to other jurisdictions in Canada and elsewhere	To raise awareness regarding occupational exposure limits in Ontario To prepare a submission to the MoL when it revises its OELs	<i>Staff:</i> Manish Pahwa <i>Scientist:</i> Paul Demers <i>Collaborators:</i> Cheryl Peters, Calvin Ge (CAREX Canada)	Core funding Completed in 2012	- Recommendations submitted to MoL - Final report completed
Review of Compensated Workplace Fatality Trends and Patterns	Update of the 2006 “5 Deaths a Day Report” focusing on compensated cancer and occupational disease in Ontario and Canada	<i>Staff:</i> Ann Del Bianco <i>Students:</i> Jill Hardt <i>Scientists:</i> Paul Demers, Desre Kramer	Core funded Complete in 2012	- Cancer Fact completed - Brochure prepared for Day of Mourning - Report in preparation - Abstract accepted at CARWH

Appendix 8: Grants Received

Research Project	Funder	Principal Investigator(s)	Co-Investigators(s)	Budget	Timeline
Occupational Cancer Surveillance using the 1991-2006 Canadian Census Mortality & Cancer cohort	WSIB	<u>Demers PA</u>	<u>Harris A</u>	\$312,570	2012-2015
Exposure to Antineoplastic Agents among Juravinski Cancer Clinic Personnel	Juravinski Cancer Clinic	<u>McLaughlin J</u>	<u>Kramer D, Moore K, Raj P, Demers PA.</u>	\$50,000	2012-2013
Surveillance of occupational cancer through linkage of WSIB data to Ontario Cancer Registry	WSIB	<u>Demers PA</u>	<u>Harris A</u> , Koehoorn M (UBC), McLeod C (UBC)	\$29,800	2012-2013
Exposures to emerging environmental contaminants and risk of breast cancer in young women: a case-control study using biomarkers of exposure	Canadian Cancer Society Research Institute	<u>Harris SA</u>	Cotterchio M (Dalla Lana School of Public Health), Knight J, Ritter L (University of Guelph), <u>Villeneuve P</u>	\$846,000	2011-2014
Occupational exposure to diesel and gasoline engine emissions and the incidence of colorectal and bladder cancer in Canadian men	WSIB RAC	<u>Harris SA</u>	<u>Villeneuve P</u> , Johnson K (Public Health Agency of Canada), Parent M (Institut national de la recherche scientifique, Quebec)	\$161,000	2011-2012
Ontario uranium miner cohort: Linkage with national mortality and cancer incidence files	Canadian Nuclear Safety Commission	<u>Demers PA</u>	<u>Marrett L</u> , <u>Do M</u> , <u>McLaughlin J</u> , Members of the National Uranium Miners Working Group	\$150,000 (contract in negotiation)	2011-2012
Translating environmental health surveillance data for cancer prevention & policy development	Canadian Institutes for Health Research	Nicol AM (CAREX Canada)	<u>Demers PA</u> , Davies H (UBC)	\$98,980	2011-2012
Interventions mediating health risks among shift workers: Current knowledge and workplace practices	WSIB RAC	<u>Demers PA</u>	Mustard C (Institute for Work & Health), <u>Aronson K</u>	\$52,250	2011-2012
Making the link between exposure and respiratory cancer in the clinical setting: What are the steps?	WSIB RAC	<u>Marrett L</u> , <u>Holness L</u>	<u>Hohenadel K</u> , Kudula I (St. Michael's Hospital), Oudyk J (OHCOW)	\$30,000	2011-2012
Health risks among nuclear workers in Ontario who have been exposed to internal sources of ionizing radiation: A feasibility study	WSIB RAC	<u>Marrett L</u> , <u>Do M</u>	<u>McLaughlin J</u> (Samuel Lunenfeld Research Institute), <u>Cardis E</u> (CREAL, Barcelona)	\$29,000	2011-2012
Classification of Carcinogens (Knowledge Translation Grant)	Canadian Institutes for Health Research	<u>Demers PA</u>	<u>Siemiatycki J</u> , Ritter L (University of Guelph)	\$19,000	2011-2012
Occupational exposure to diesel and gasoline engine emissions and the incidence of colorectal and bladder cancer in Canadian men	WSIB RAC	<u>Harris SA</u>	<u>Villeneuve P</u> , Johnson K (Public Health Agency of Canada), Parent M (Institut national de la recherche scientifique, Quebec)	\$160,880	2010-2013

Continued – Appendix 8: Grants Received

Research Project	Funder	Principal Investigator(s)	Co-Investigators(s)	Budget	Timeline
Advanced spatial analyses to characterize environmental impacts on cancer risk: Phase 1*	Cancer Research Society, Quebec	<u>McLaughlin J</u>	<u>Harris SA</u> , Holowaty E (Dalla Lana School of Public Health)	\$120,000	2011-2013
Capacity Development for a Canadian Workplace Exposure Database*	Workers Compensation Board of Manitoba	Davies H (University of British Columbia, UBC)	<u>Demers PA</u> , Nicol A (CAREX Canada)	\$88,466	2011-2013
Seeking compensation for mesothelioma*	Worksafe BC	Koehoorn M (UBC)	McLeod C (UBC), Lee C, <u>Demers PA</u>	\$50,000	2011-2012
Educational Offerings in Occupational Health & Safety: A Survey of Canadian Schools*	Worksafe BC with WCB of NS & AB Human Services	Curran V (Memorial University)	Bartlett K, Bornstein S, Davies H, <u>Demers PA</u> , & Others	\$49,381	2011-2012
Tracking occupational diseases: an analysis of approaches for the Canadian context*	Worksafe BC with WCB of NS & AB Human Services	Bornstein S (Memorial University)	<u>Demers PA</u> , Koehoorn M, McLeod C, Oudyk J, & others	\$49,321	2011-2012
Capacity Development for a Canadian Workplace Exposure Database*	Worksafe BC	Davies H (UBC)	<u>Demers PA</u> , Nicol AM (CAREX Canada)	\$140,327	2010-2012
Capacity Development for a Canadian Workplace Exposure Database*	Saskatchewan Workers' Compensation Board	Davies H (UBC)	<u>Demers PA</u> , Nicol AM (CAREX Canada)	\$65,421	2010-2012

* The grants on this page are grants not held directly by OCRC, in which OCRC plays an important role.

Appendix 9: Publications

Table 1: Peer-Reviewed Publications

Citation	PubMed ID	Open Access	Journal Impact Factor*
Peters CE, Nicol AM, <u>Demers PA</u> . Prevalence of exposure to solar radiation (UVR) on the job in Canada. <i>Canadian Journal of Public Health</i> (manuscript accepted March 2012).	N/A	N/A	N/A
<u>Kramer DM</u> , Wells RP, Carlan N, Aversa T, Bigelow P, Dixon S, McMillan K. Did you have an impact? A theory-based method for planning and evaluation knowledge-transfer and exchange activities in occupational health & safety. <i>International Journal of Occupational Safety and Ergonomics</i> (in press).	N/A	N/A	N/A
<u>Pahwa M</u> , <u>Harris SA</u> , <u>Hohenadel K</u> , <u>McLaughlin JR</u> , Spinelli JJ, Pahwa P, Dosman JA, <u>Blair A</u> . Pesticide use, immunologic conditions, and risk of non-Hodgkin lymphoma in Canadian men in six provinces. <i>International Journal of Cancer</i> 2012 Mar 7. doi: 10.1002/ijc.27522. [Epub ahead of print].	22396152	No	4.926
<u>Hohenadel K</u> , <u>Harris SA</u> , <u>McLaughlin JR</u> , Spinelli JJ, Pahwa P, Dosman JA, <u>Demers PA</u> , <u>Blair A</u> . Exposure to multiple pesticides and risk of non-Hodgkin lymphoma in men from six Canadian provinces. <i>International Journal on Environmental Research and Public Health</i> 2011;8(6):2320-2330.	21776232	Yes	N/A
<u>Blair A</u> , <u>Marrett LD</u> , Beane-Freeman L. Occupational cancer in developed countries. <i>Environmental Health</i> 2011;10(Suppl 1):S9.	21489219	Yes	N/A
<u>Hohenadel K</u> , <u>Pichora E</u> , <u>Marrett L</u> , Bukvic D, Brown J, <u>Harris SA</u> , <u>Demers PA</u> , <u>Blair AE</u> . Priority issues in occupational cancer research: Ontario stakeholder perspectives. <i>Chronic Diseases and Injuries in Canada</i> 2011;31(4):147-151.	21978637	Yes	N/A
Leon ME, Beane Freeman L, Douwes J, Hoppin J, Kromhout H, Lebailly P, Nordby KC, Schenker M, Schüz J, Waring S, Alavanja M, Annesi-Maessano A, Baldi I, Dalvie A, Ferro G, Fervers B, Langseth H, London L, Lynch C, <u>McLaughlin J</u> , Merchant J, Pahwa P, Sigsgaard T, Stayner L, Wesseling C, Yoo K, Zahm S, Straif K, <u>Blair A</u> . AGRICOH: A Consortium of Agricultural Cohorts. <i>International Journal of Environmental Research and Public Health</i> 2011;8(5):1341-1357.	21655123	Yes	N/A
Pahwa P, Karunanayake CP, Dosman JA, Spinelli JJ, <u>McLaughlin JR</u> , Cross-Canada Group. Soft-tissue sarcoma and pesticides exposure in men: Results of a Canadian case-control study. <i>Journal of Occupational and Environmental Medicine</i> 2011;53(11):1279-1286.	22068131	No	1.98
Ghosh S, <u>McLaughlin JR</u> , Spinelli JJ, Dosman JA, McDuffie HH, Pahwa P. Multiple Myeloma and Occupational Exposures: A Population-Based Case-Control Study. <i>Journal of Occupational and Environmental Medicine</i> 2011;53(6):641-646.	21654434	No	1.98
Camargo MC, Stayner LT, Straif K, Reina M, Al-Alem U, <u>Demers PA</u> , Landrigan PJ. Occupational exposure to asbestos and ovarian cancer: A meta-analysis. <i>Environmental Health Perspectives</i> 2011;119(9):1211-1217.	21642044	Yes	6.087
Gorman Ng M, Stjernberg E, Koehoorn M, <u>Demers PA</u> , Davies HW. Exposure to pesticides and metal contaminants of fertilizer among tree planters. <i>Annals of Occupational Hygiene</i> 2011;55(7):752-763.	21673126	No	2.014
Wong I, <u>Demers PA</u> , McLeod C. Shiftwork trends and risk of work injury among Canadian workers. <i>Scandinavian Journal of Work, Environment and Health</i> 2011;37(1):54-61.	20890587	Yes	N/A
Boffetta P, Colditz GA, Potter JD, Kolonel L, Robson PJ, Malekzadeh R, Seminara D, Goode EL, Yoo Y, <u>Demers P</u> , Gallagher R, Prentice R, Yasui Y, O'Doherty K, Petersen GM, Ulrich CM, Csizmadia I, Amankwah EK, Brockton NT, Kopciuk K, McGregor SE, Kelemen LE. Cohorts and consortia conference: A summary report (Banff, Canada, June 17-19, 2009). <i>Cancer Causes and Control</i> 2011;22(3):463-468.	21203821	Yes	N/A
Kirkham T, Koehoorn MW, McLeod CB, <u>Demers PA</u> . Surveillance of mesothelioma and workers' compensation in British Columbia, Canada. <i>Occupational and Environmental Medicine</i> 2011;68(1):30-35.	20876555	No	3.494

*ISI Web of Knowledge Journal Citation Reports 2010

Table 2: Articles Submitted for Peer-Review

Citation	PubMed ID	Open Access	Journal Impact Factor*
Harris SA, Boucher BA, Cotterchio M. Will women diagnosed with breast cancer provide biological samples for research purposes? <i>Cancer Epidemiology</i> (manuscript submitted March 2012).	N/A	N/A	1.182
Hon C-Y, Teschke K, Chu W, Demers PA, Astrakianakis G. Identification of determinants of antineoplastic drug contamination of work surfaces throughout the hospital medication system. <i>Annals of Occupational Hygiene</i> (manuscript submitted October 2011).	N/A	N/A	2.014

*ISI Web of Knowledge Journal Citation Reports 2010

Table 3: Non-Refereed Publications

Title	Authors	Description	Date
Occupational Exposure Limits for Carcinogens in Ontario Workplaces: Opportunities to Prevent and Control Exposure	<u>Pahwa M</u> , <u>Demers PA</u> , Ge C	Report	Submitted to the Ministry of Labour February 2012
OCRC looks at pesticides and the risk of non-Hodgkin lymphoma	<u>Hohenadel K</u> , <u>Jardine K</u> , <u>Kramer D</u> , <u>Demers PA</u>	Article, "News from the CREs" in the IWH <i>At Work</i> Newsletter	Fall 2011
Sinonasal cancers in Ontario reflect smoking and occupational exposures	<u>Harris MA</u> , <u>Demers PA</u>	Ontario Cancer Fact	May 2011
OCRC to assess the burden of work-related cancers in Ontario	<u>Silverman C</u> , <u>Hohenadel K</u>	Article, "News from the CREs" in the IWH <i>At Work</i> Newsletter	Spring 2011

Appendix 10: Conference Abstracts

Abstract	Presenters	Conference	Status
Occupational Cancer Research: Current State of Knowledge and Data Gaps	Demers PA	30 th International Congress on Occupational Health. Cancun Mexico, March 19, 2012.	Invited Plenary presentation
The Causes of Mesothelioma	Demers PA	Canadian Mesothelioma Symposium. Vancouver, British Columbia, January 28, 2012.	Invited oral presentation
Wood Dust Exposure and the Risk of Cancer	Demers PA	Canadian Cancer Research Alliance Conference. Toronto, November 27, 2011.	Invited oral presentation
Assessing the Burden of Asbestos-related Lung Cancer: Evidence Synthesis from Case-Control and Cohort Studies	Demers PA , McLeod K, McLeod C.	American Public Health Association Annual Meeting. Washington DC, November 2, 2011.	Invited oral presentation
Occupational Cancer in Canada: Current State of Knowledge and Data Gaps	Demers PA	Annual Meeting of the Occupational and Environmental Medical Association of Canada. Niagra-on-the-Lake, October 2011.	Invited oral presentation
Will women diagnosed with breast cancer provide biological samples for future research purposes?	Harris SA, Boucher B, Cotterchio M	23 rd International Conference of the International Society for Environmental Epidemiology (ISEE). Barcelona, Spain, September 13-16, 2011.	Poster Presentation
CAREX Canada: Occupational and Environmental Carcinogen Surveillance	Demers PA , Setton ES, Peters CE, Hystad P, Hall AL, Davies HW, Nicol AM	23 rd International Conference of the International Society for Environmental Epidemiology (ISEE). Barcelona, Spain, September 13-16, 2011.	Poster Presentation
Pursuing a Career in Multidisciplinary Research	Demers PA	23 rd International Conference of the International Society for Environmental Epidemiology (ISEE) - Student and New Researcher Workshop. Barcelona, Spain, September 13-16, 2011.	Panel Presentation
SkinJEM: A Job Exposure Matrix for Occupational Skin Cancer Risk	Peters CE, Demers PA	23 rd International Conference of the International Society for Environmental Epidemiology (ISEE). Barcelona, Spain, September 13-16, 2011.	Poster Presentation
Surveillance of Agricultural Pesticide Use and Potential Environmental Exposure in Canada	Garzia N, Poplawski K, Nicol AM, Demers PA	23 rd International Conference of the International Society for Environmental Epidemiology (ISEE). Barcelona, Spain, September 13-16, 2011.	Poster Presentation
Surveillance of Potential Environmental Exposure to Golf Turf Pesticides	Poplawski K, Garzia N, Nicol AM, Demers P	23 rd International Conference of the International Society for Environmental Epidemiology (ISEE). Barcelona, Spain, September 13-16, 2011.	Poster Presentation
The role of physicians in increasing workers' compensation benefits for individuals with mesothelioma in British Columbia, Canada	McLeod C, Koehoorn M, Tamburic L, Demers PA	22 nd International Conference on Epidemiology in Occupational Health (EPICOH). Oxford, UK, September 7-9, 2011.	Poster Presentation
Historical exposure to wood dust in Ontario, Canada	Peters C, Demers PA , Arrandale V	22 nd International Conference on Epidemiology in Occupational Health (EPICOH). Oxford, UK, September 7-9, 2011.	Poster Presentation
Cancer Incidence among Nordic Firefighters	Demers PA , Martinsen JI, Weiderpass E, Kjaerheim K, Lynge E, Sparén P, Pukkala E	22 nd International Conference on Epidemiology in Occupational Health (EPICOH). Oxford, UK, September 7-9, 2011.	Oral presentation
An asbestos exposure database for asbestos mine/mill workers (1976-1994)	Murphy T, Oudyk J, Demers PA , Bornstein S	22 nd International Conference on Epidemiology in Occupational Health (EPICOH). Oxford, UK, September 7-9, 2011.	Oral presentation
Establishment of a national Canadian workplace exposure database: progress and challenges	Hall A, Demers PA , Peters C, Davies H	22 nd International Conference on Epidemiology in Occupational Health (EPICOH). Oxford, UK, September 7-9, 2011.	Oral presentation
The effectiveness of asbestos-related interventions in reducing rates of lung cancer and mesothelioma; a systematic review	Hohenadel K , Straif K, Demers PA , Blair A	22 nd International Conference on Epidemiology in Occupational Health (EPICOH). Oxford, UK, September 7-9, 2011.	Poster Presentation
Occupational exposures and lung cancer risk by histologic type in Canada	Hystad P, Demers PA	22 nd International Conference on Epidemiology in Occupational Health (EPICOH). Oxford, UK, September 7-9, 2011.	Poster Presentation
Surveillance of occupational pesticide exposure on Canadian golf courses	Poplawski K, Garzia N, Nicol AM, Demers PA	22 nd International Conference on Epidemiology in Occupational Health (EPICOH). Oxford, UK, September 7-9, 2011.	Poster Presentation

Continued – Appendix 10: Conference Abstracts

Abstract	Presenters	Conference	Status
Occupational pesticide exposure surveillance for agriculture in Canada	Garzia N, Poplawski K, Nicol AM, <u>Demers PA</u>	22 nd International Conference on Epidemiology in Occupational Health (EPICOH). Oxford, UK, September 7-9, 2011.	Poster Presentation
Pneumoconioses in British Columbia, Canada 1995-2006	Mooney D, McLeod C, Peters C, Xu F, Koehoorn M, <u>Demers PA</u>	22 nd International Conference on Epidemiology in Occupational Health (EPICOH). Oxford, UK, September 7-9, 2011.	Poster presentation
Occupational and Environmental Skin Carcinogens: Overview	<u>Demers PA</u> , Peters CE	5 th International Conference on Occupational & Environmental Exposure of Skin to Chemicals. Toronto, June 2011.	Invited oral presentation
Estimating occupational exposure to skin carcinogens in Canada	Peters CE, Nicol AM, <u>Demers PA</u>	5 th International Conference on Occupational & Environmental Exposure of Skin to Chemicals. Toronto, June 2011.	Conference oral presentation
Exposure to multiple pesticides and risk of non-Hodgkin lymphoma in men from six Canadian provinces	<u>Hohenadel K</u> , <u>Harris SA</u> , <u>McLaughlin JR</u> , Spinelli JJ, Pahwa P, Dosman JA, <u>Demers PA</u> , <u>Blair A</u>	3 rd Annual North American Congress of Epidemiology. Montreal, Quebec, June 21-24, 2011.	Poster presentation
Cancer Incidence among Nordic Firefighters	<u>Demers PA</u> , Martinsen JI, Weiderpass E, Kjaerheim K, Lynge E, Sparén P, Pukkala E	3 rd Annual North American Congress of Epidemiology. Montreal, Quebec, June 21-24, 2011.	Oral presentation
Progress in the Development of a Canadian Workplace Exposure Database	Hall AL, Davies HW, <u>Demers PA</u> , Peters CE	American Industrial Hygiene Conference and Expo. Portland, Oregon, May 2011.	Oral presentation
Wood Dust and Cancer	<u>Demers PA</u>	International Wood Dust Symposium sponsored by the U.S. National Institute for Occupational Safety and Health. Portland, Oregon, May 2011.	Invited plenary presentation

Appendix 11: Presentations

Title	Presenters	Conference	Status
Occupational Cancer in Canada: Current State of Knowledge and Data Gaps	Demers PA	Alberta Occupational and Environmental Health Symposium. Calgary, Alberta, March 7, 2012.	Invited oral presentation
The OCRC and the role of Research in Occupational Cancer Prevention	Demers PA	CCS-BCY/UBC Reducing Exposures to Occupational Carcinogens Workshop. Vancouver, British Columbia, March 6, 2012.	Invited oral presentation
Carcinogens in the Environment	Demers PA	First Nations Environmental Health Innovations Network. Winnipeg, Manitoba, February 21, 2012.	Invited oral presentation
Occupational cancer surveillance using a Statistics Canada cohort	Harris A , Hardt J , Demers PA	University of British Columbia School of Population and Public Health's Occupational and Environmental Seminar Series. British Columbia, February 17, 2012.	Oral presentation
Asbestos Exposure and the Burden of Asbestos-related Disease in Canada	Demers PA	Asbestos Symposium organized by the Occupational Health Clinics for Ontario Workers. Toronto, November 4, 2011.	Invited oral presentation
Exposure to Multiple Pesticides from Different Classes and the Risk of Hodgkin Lymphoma in Canadian Men	Navaranjan G , Hohenadel K , Harris SA , McLaughlin J , Spinelli JJ, Pahwa P, Dosman JA, Demers PA , Blair A	Partners in Prevention Forum North Health and Safety Conference and Trade Show. Thunder Bay, Ontario, November 1-2, 2011.	Poster Presentation
Occupational exposure limits for carcinogens in Ontario workplaces: Opportunities to prevent and control exposure	Pahwa M , Demers PA , Ge C	Partners in Prevention Forum North Health and Safety Conference and Trade Show. Thunder Bay, Ontario, November 1-2, 2011.	Poster Presentation
Canadian exposure study database	Raj P , Jardine K , Ge C, Demers PA	Partners in Prevention Forum North Health and Safety Conference and Trade Show. Thunder Bay, Ontario, November 1-2, 2011.	Poster Presentation
Exploring New Models for Occupational Cancer Surveillance in Canada	Demers PA , Harris A	Special seminar. US National Cancer Institute, Bethesda, Maryland, October 31, 2011.	Invited oral presentation
Occupational Cancer and the Research Program of the OCRC and CAREX Canada	Demers PA	Research Exchange Series of the Centre for Health and Safety Innovation. Mississauga, Ontario, October 18, 2011.	Invited oral presentation
How Widespread is Exposure to Environmental Carcinogens in Canada?	Demers PA	McMaster Institute for Environment and Health lecture series. Hamilton, September 29, 2011.	Invited oral presentation
Preliminary Occupational Cancer Surveillance Results from a Canadian Census and National Tumour Registry Linkage	Demers PA	Workshop on occupational cancer surveillance hosted by the Nordic Occupational Cancer (NOCCA) Study Group. Mariehamn, Finland, August 29-31, 2011.	Invited oral presentation
Challenges and Opportunities in the Assessment of Burden	Demers PA	Symposium on the Assessment of the Burden of Work-Related Diseases hosted by the Finnish Institute for Occupational Health. Helsinki, Finland, August 26, 2011.	Invited oral presentation
How Widespread is Exposure to Environmental Carcinogens in Canada?	Demers PA	Canadian Partnership Against Cancer's Lunch and Learn lecture series, Toronto, July 19, 2011.	Invited oral presentation
How Widespread is Exposure to Environmental Carcinogens in Canada: Results from the CAREX Canada Project	Demers PA	Toronto Cancer Prevention Coalition. Toronto, June 14, 2011.	Invited oral presentation
How Does Something Get Labeled a Carcinogen?	Demers PA	Canadian Partnership Against Cancer's Cancer 101 lecture series. Toronto, April 6, 2011.	Invited oral presentation