

**British Columbia Environmental and Occupational Health Research Network**

**4<sup>th</sup> Scientific Exchange and Annual General Meeting  
November 7, 2008  
Vancouver**

**Poster Abstracts**



Name	Title	Abstract
Alamgir, Hasanat; Wei Li, Olivia; Yu, Shicheng; Gorman, Erin; Fast, Catherine; Kidd, Catherine	<i>Using A Ceiling Lift Takes Too Long! Does It Really?</i>	<p>The objective was to compare the time spent to perform various patient-transfer tasks using ceiling lifts and floor lifts. The preparation, actual and total time to complete bed-to-chair transfers, chair-to-bed transfers, and repositioning was measured by observers. The average time for both bed-to-chair and chair-to-bed transfers was longer for floor lifts compared to ceiling lifts. For repositioning tasks, ceiling lifts took significantly longer to complete when compared to manual techniques.</p> <p>Overall, patient transfers required a shorter amount of time to complete using ceiling lifts. This knowledge should be translated to staff to reduce the barriers to ceiling lift compliance.</p>

Name	Title	Abstract
Alamgir, Hasanat; Yu, Shicheng; Chavoshi, Negar; Karen Ngan	<i>Occupational injury among full-time, part-time, and casual healthcare workers</i>	<p>This objective was to investigate whether work-related injury rates differ by employment category (part time, full time or casual) for registered nurses (RN) in acute care and care aides (CA) in long-term facilities. The overall rates of injuries among RN were 7.4, 5.3 and 5.5 per 100 person-years for full-time, part-time and casual, respectively. The overall rates of injuries among CA were 25.8, 22.9 and 18.1 per 100 person-years, respectively. In conclusion, full-time direct patient care occupations have greater risk of injury compared to part-time and casual workers within the healthcare sector.</p>

Name	Title	Abstract
Alamgir, Hasanat; Yu, Shicheng; Chavoshi, Negar; Karen Ngan	<i>Potential Allergy and Irritation Incidents among Workers in the Health Care Industry</i>	This study describes the types, causes, and outcomes of potential irritation and allergy incidents among workers in British Columbia's health care industry. Younger workers, female workers, facility support service workers, laboratory assistants and technicians, and maintenance and acute care workers were found to be at higher risk for allergy and irritation incidents. Major causes of allergy and irritation incidents included chemicals, blood and body fluids, food and objects, communicable diseases, air quality, and latex. A larger proportion of chemically induced incidents resulted in first aid care only, whereas non-chemical incidents required more emergency room visits.

Name	Title	Abstract
Barzan, Cris	<i>Development and evaluation of assessment method for aerosolized antineoplastic agents</i>	

Name	Title	Abstract
Beking, Kris; Ward, Helen; Beveridge, Bree; Chan-Yeung, Moira	<i>The Influence of Physical Factors on the Quality of Life of Seniors</i>	Quality of life is a broad concept of health that includes physical, emotional, mental, and social aspects. While health may deteriorate with increasing age, certain physical factors (overweight, waist girth, exercise) may be more important for healthy aging than disease or aging itself. The objective was to determine what associations exist between physical factors and quality of life among active seniors, and assess their relative importance in contrast to aging and presence of disease. While a few quality of life domains were reduced among overweight seniors, regular cardiovascular exercise was associated with higher quality of life for most domains.

Name	Title	Abstract
Brisbois, Ben; Spiegel, Jerry	<i>IDRC vector-borne disease Ecohealth projects in Latin America and considerations of primary health care</i>	This research compared the International Development Research Centre's Ecohealth program to concepts in the Alma Ata Declaration (AAD). On paper, the Ecohealth program bears a distinct stamp of the AAD, but differs as to the role of the state in ensuring population health. Projects funded by the IDRC to address vector-borne diseases in Latin America suggest that the Ecohealth approach is compatible with health system strengthening, as called for in the AAD. Further research may show if the Ecohealth program's community-level methodology can improve population health at large scales, and address the negative effects of globalization.

Name	Title	Abstract
Choice, Edward; Copes, Ray	<i>Summary and conclusions of eight major reviews concerning exposure to second hand tobacco smoke</i>	Based on the analysis of eight major reviews, this poster presents a summary of evidence on the developmental, respiratory, carcinogenic and cardiovascular effects of exposure to second-hand tobacco smoke.

Name	Title	Abstract
Davies, Hugh	<i>Joint Effects of Noise and Air Pollution and CVD</i>	Epidemiological studies have shown increased risks for cardiovascular disease (CVD) in relation to exposure to ambient air pollution and exposure to environmental noise. Because automobile traffic is a major source of both air and noise pollutants, the relationship between them and CVD is likely complicated and might result in confounding. In the current study, we are examining the potential interactions between these two exposures by analyzing the association of residential noise exposure and CVD and the interaction of noise and air pollution and CVD among adults living in the Metro Vancouver region.

Name	Title	Abstract
Demers, Paul; Nicol, Anne-Marie; Setton, Eleanor; Peters, Cheryl; Hystad, Hysta; Hurrell, Christie; Koehoorn, Mieke; Davies, Hugh; Karlen, Barbara	<i>Surveillance of Environmental and Occupational Exposures for Cancer Prevention</i>	In Canada, many substances present in work and community environments are known or suspected to cause cancer. However, there are currently limited data on who is exposed to these substances and where or how they are exposed. We developed the CAREX Canada (CARcinogen EXposure) project in order to identify: The number of Canadians exposed to specific carcinogens at work and in their communities; Where Canadians come into contact with carcinogens; The levels at which they are exposed.

Name	Title	Abstract
Dimich-Ward, Helen; Arbour, Laura; Teschke, Kay; Ratner, Pam; Spinelli, John; DyBuncio, Anne; Beking, Kris; Gallagher, Richard; Le, Nhu	<i>Congenital Anomalies among Nurses' Offspring Associated with Field of Employment during Pregnancy</i>	Nurses are potentially exposed to teratogens such as anaesthetic gases in their daily work. This study aims to determine whether working during pregnancy in certain fields of employment increases the risk of congenital anomalies in the offspring. A retrospective cohort of BC registered nurses was linked with BC birth and health status registries from 1986 to 2000. Employment information was obtained through annual registration data. There were higher risks found for some congenital anomalies according to employment in hospitals and by specific field of employment.

Name	Title	Abstract
Dods, Patti; Choice, Edward; Copes, Ray	<i>An evaluation of interventions designed to reduce ultraviolet radiation exposure</i>	Ultraviolet radiation from sunlight is the main risk factor for the development of skin cancer. This risk can be greatly reduced by following responsible sun protection measures and avoiding artificial ultraviolet radiation. This poster summarizes the evidence behind interventions aimed at reducing ultraviolet radiation exposure.

Name	Title	Abstract
Dods, Patti; Choice, Edward; Copes, Ray	<i>Clean up instructions for small mercury spills</i>	Spilled liquid mercury forms droplets and create a vapour that is colorless and odorless which can be toxic to the human nervous system. Regardless of quantity, mercury spills should be treated seriously and clean up correctly. This poster details the cleanup recommendations based on best management practices used by environmental health practitioners. They are derived from the experiences of individuals at the BC Centre for Disease Control and guidelines written by other jurisdictions.

Name	Title	Abstract
Dods, Patti; Choice, Edward; Copes, Ray	<i>Clandestine amphetamine-derived drug laboratory cleanup guidelines.</i>	Residual chemicals resulting from clandestine manufacturing process of drugs such as methamphetamine (Meth), methylenedioxyamphetamine (MDMA) and methylenedioxyamphetamine (MDA) may pose a health risk to re-occupants of the structure. Very little research has evaluated the effectiveness of clandestine lab cleanup procedure. Due to the chemical similarity between ecstasy and methamphetamine, we recommend that a similar cleanup method be followed for both chemicals. These steps are described in the present poster.

Name	Title	Abstract
Eakins, Darby	<i>Why Resilience? The Applicability of Resilience to the Study of Injury, Illness, and Disability</i>	Resilience is achieved by individuals who face significant adversity, and despite expectations, are able to negotiate health resources made available through appropriate contributions of the individual's family, community, and culture (Ungar, 2006). There is a paucity of literature examining resilience as it pertains to the experience of injury, illness, and disability in adults. This poster aims to outline the applicability of employing the concept of resilience as a framework to examine factors (i.e, vocational, environmental, family, culture, community) associated with the experience of illness, injury, and disability.

Name	Title	Abstract
Erickson, Anders	<i>The Secondary Analysis of Reproductive and Environmental Health Data: A Spatial Analysis of Adverse Birth Outcomes in British Columbia</i>	Exposure to contaminants during pregnancy is associated with certain adverse birth outcomes that require further investigation. We have produced preliminary data utilizing birth data obtained from the B.C. Perinatal Health Program and environmental contaminant data from the National Pollutant Release Inventory and other national and provincial sources. The perinatal data include birth outcomes (low birth weight, premature births, inter-uterine growth restriction, stillbirths) and numerous maternal and antenatal risk factor data for all singleton births in B.C from 2001 – 2006. The methods employed for this project incorporated spatial analytical techniques using geographical information systems (GIS) and epidemiological methods.

Name	Title	Abstract
Gan, Wenqi; Demers, Paul; McLeod, Chris; Koehoorn, Mieke; Xu, Fan	<i>Asbestosis surveillance in British Columbia (1991-2004)</i>	The purpose of this study was to compare the capability of health care and workers' compensation databases in identifying asbestosis cases and to determine the time trends of new asbestosis cases in BC. Three sources of administrative data within the BC Linked Health Database were used to identify asbestosis cases via ICD-9/-10 codes. Initial results indicated that the use of only one of the data sources would have substantially underestimated the total number of asbestosis cases. Moreover, new asbestosis cases were increasing from 1992 to 2004, indicating that occupational exposure to asbestos may still be an important public health problem.

Name	Title	Abstract
Ge, Calvin; Bartlett, Karen; Bandoni, Robert	<i>Growth of Cryptococcus gattii in minimal culture media and susceptibility of melanized cells against UV irradiation.</i>	Cryptococcosis associated with <i>Cryptococcus gattii</i> has become an endemic disease on Vancouver Island. The growth rate and cell size of <i>C. gattii</i> grown in soil extract broth (SEB) taken from endemic and non-endemic areas of British Columbia were compared with those grown in a control medium, 1/16 <sup>th</sup> strength malt extract broth. <i>C. gattii</i> produced proportionately more small cells when grown on SEB. In addition, phenoloxidase activities in SEB cultures produced melanized <i>C. gattii</i> cells that were resistant to UV irradiation. The melanized, small cells produced in SEB may be important factors in the organism's survival and dispersal in non-laboratory environments.

Name	Title	Abstract
Griffiths, Andrea; Buckler, Darren; Chu, Winnie	<i>Cytotoxic Drug Contamination outside of drug preparation areas in British Columbia Health Care Facilities</i>	In health care organizations across Canada, cytotoxic drugs are manipulated and administered to patients by health care workers to treat cancer and other conditions. Some of these drugs are classified as Group 1 carcinogens. Surfaces sampled at work sites that prepare cytotoxic drugs were found to be contaminated with these drugs inside and outside of pharmacy. To the best of our knowledge, this is the first time evidence has demonstrated contamination outside of the areas where drug preparation takes place in British Columbia. Therefore, the possibility exists that other health care personnel and the public could be exposed to these agents.

Name	Title	Abstract
Grover, Renuka	<i>BCEOHRN Members' Database</i>	Live demonstration of BCEOHRN members' and grey literature database.

Name	Title	Abstract
Hainer, Shannon	<i>Degradation of Natural &amp; Synthetic Estrogens by Isolated Bacteria From B.C. Waste Water Treatment Plants</i>	Human excretion releases natural and synthetic estrogens into wastewater. Inefficient breakdown in wastewater treatment plants allows biologically active estrogen to be released in the environment via the effluent. These compounds are known to affect the subtle hormonal balance in fish and mammals. In this study water samples obtained at the Kamloops Wastewater Treatment Plant were collected at various stages of wastewater treatment and enrichment cultures with estriol or 17-ethynylestradiol as a sole carbon source were created. Bacteria originating from the activated sludge were isolated and appear to be able to use estriol as a sole carbon source.

Name	Title	Abstract
Henderson, Sarah	<i>Assessing forest fire smoke exposure and its association with respiratory and cardiovascular physician visits in BC</i>	The summer of 2003 was one of the worst fire seasons on record for the southern interior of British Columbia. More than 600 000 residents were potentially exposed to particulate matter concentrations elevated by smoke pollution, the health effects of which are not well-described. Here we examine the daily association between multiple smoke exposure metrics and physician visits for respiratory and cardiovascular ICD9 codes in a cohort of 440 000 subjects with persistent 6-digit postal codes. Odds ratios are estimated using the GENMOD procedure in SAS, and all results are stratified by age to examine its relevance in fire smoke epidemiology.

Name	Title	Abstract
Hon, CY; Bryce, EA; Yassi, A; Gamage, B; LoChang, J; Maultsaid, D; Shicheng Yu	<i>Assessing the Effectiveness of an E-learning Module to Transfer Knowledge on the Proper Use of Personal Protective Equipment (PPE)</i>	An e-learning module was developed which outlined selection and use of personal protective equipment (PPE) as well as handwashing. Our objective was to evaluate the effectiveness of the learning transfer from this module to worker practices using direct observation. Participants were asked to apply one of three isolation precautions during mock scenarios. Participants were scored based on their selection, donning, and doffing sequence prior to and immediately after taking the module. Results showed significant improvement in both PPE selection (p=0.043) and donning and doffing scores (p=0.001). The e-learning module effectively transfers knowledge on PPE selection and sequence of donning and doffing.

Name	Title	Abstract
Koshnood, Neda	<i>Pesticide Bylaws and Human Exposure to Cosmetic Use Pesticides</i>	We will investigate whether variability in pesticide use by-laws in southern British Columbia are associated with 2,4-D residues in house dust and the urine of preschool children and their caregivers. We will select an equal number of municipalities in the Lower Mainland and on southern Victoria Island with and without bylaws banning cosmetic use of pesticides. This project is critical for developing and refining subject recruitment methods, questionnaires, sample collection and storage procedures, and to generate pilot data on quantities and determinants of household pesticide exposures in different municipalities, which will be used to generate future funding.

Name	Title	Abstract
MacPherson, Nancy; Edwards, Tina	<i>Siska Salmon and Human Health Project: Cumulative Traditional Knowledge Indicators of Contaminants Exposure: Monitored at Fraser River, Siska Band, Nlaka'pmux First Nation, and; Effects of Environmental Contaminants in Up-river Migration in the Fraser and Thompson River Basins: Toxicity and Exposure Levels</i>	Salmon is integral to the ecosystem web from forest to ocean floor and to the diversity of First Nations to whom salmon is a cultural icon. The impacts of environmental contaminants threatening the survival of salmon therefore threaten the entire biological and cultural diversity of the Pacific Northwest. This current research program builds on much needed baseline information about the cumulative effects of environmental contaminants in salmon. To compliment the traditional knowledge indicators of contaminant exposure the scope of contaminant testing in the Fraser River was expanded during this project, to include testing of Late summer South Thompson Chinook salmon ( <i>Oncorhynchus tshawytscha</i> ) as well as Late summer Adam's River sockeye.

Name	Title	Abstract
McHugh, Gabrielle	<i>The development of a workplace wellness scale.</i>	This research is the first step in the development of an instrument that measures the workplace wellness climate. Workplace wellness is a composite of strategies that integrate preventive management, health promotion, occupational health and safety, and policy approaches (including benefits packages) that are collectively engaged to protect and promote the health and well-being of employees. Accordingly, this research captures employees' knowledge of organizational practices supporting workplace wellness in five subscales of: (1) work-wellbeing, (2) work safety, (3) medical absence support, (4) policies for early intervention, and (5) perceptions of early intervention. Preliminary data gathered from a Northern Health Authority supports these five dimensions.

Name	Title	Abstract
Mohammadi, Ladan; Meech, John	<i>Risk Assessment of Oxygen Depletion and Hazardous Gas Emissions at Mine Reclamation Sites</i>	The failure to identify and/or recognize the presence of a hazard is one of the main causes of confined space accidents. Since each site has many unique characteristics, a mine is a difficult place to apply a consistent set of safety regulations and methods to assess confined space risk – particularly with mine waste management. Development of a risk assessment manual to assist managers, engineers and individual workers to identify the potential for a confined space hazard at a waste dump is suggested as a way to address this problem. This poster describes a confined space event that resulted in a tragedy at the Sullivan Mine in Kimberley, B.C. in May 2006.

Name	Title	Abstract
Montoya, D.E; Phagoora, M.S.; Robichaud, S. M.; Wikene, H. A.; McDonald K. R.; Sheppard J. W.; Montoya C. P.	<i>Transient Electromagnetic Pulses May Contribute to Air Traffic Accidents</i>	Historically, human error is considered a contributing factor in over 2/3 of all aviation accidents. Of practical importance is the possibility of reducing these incidents. Mayer et al. 2006 provided an extensive review examining visual misperceptions during emergency off airport landings. No one, however, has investigated the contributions of electromagnetically induced visual misperceptions to aviation accidents. Our data predicts that approximately 2/3 of pilots flying into the sun, while receiving Persinger like signals through their head sets, would experience moderate to severe temporal and spatial distortions.

Name	Title	Abstract
Nahid, Musarrat; Davies, Hugh; Kennedy, Susan; Nicol, Anne-Marie; Knight, Thomas	<i>Knowledge and risk perception: Noise induced hearing loss and engineered noise control in Food Products Manufacturing</i>	The study aims to identify the state of risk perception about noise induced hearing loss (NIHL) and knowledge of NIHL and engineered noise control among decision makers at workplaces and workers through a mail-out questionnaire survey.

Name	Title	Abstract
Nahid, Musarrat; Hodgson, Murray	<i>Noise in Eating Establishments: What control measures may improve verbal communication between customers?</i>	An eating establishment (EE) can be a noisy environment, impeding comfortable conversation between customers. The study attempts to provide suggestions on how to design an EE in order to optimize the acoustical conditions for speech, taking into account the Lombard effect. In other words, the study attempts to identify control measures that may improve the speech communication among customers, using software prediction, namely CATT Acoustics Software.

Name	Title	Abstract
Nicol, Anne-Marie; Hurrell, Anna-Christine	<i>Knowledge Translation and Occupational Health: A case study of machine shops and exposure to metal working fluids</i>	A feature of occupational health research is that it is often possible to translate research results into direct prevention activities in the workplace. As such, the process of knowledge translation and exchange (KTE) can be seen as having an immediate and profound effect on work-related morbidity and mortality. To date, however, our understanding of the factors that affect how occupational health research is translated to workplace policy and prevention activities is extremely limited. This research project investigated one occupational setting (small industrial machine shops) as an initial exploratory step towards developing a better understanding of KTE processes in occupational context.

Name	Title	Abstract
Pasca, Romana	<i>Assessing Occupational Stress in the Canadian Multicultural Workplace</i>	The present study aims to analyze the interconnected influence of workplace factors, social environment (family, social network), personal characteristics and cultural/ethnic background on work-related stress in Canadian born and/or Non Canadian born employees. Little research has yet compared unique samples such as immigrant, Canadian born, or other ethnic groups within the context of work. Consequently, the study proposes a comparative analysis between two main groups. Through this attempt, the researcher aspires to determine some of the differences that might exist among the participants in the Canadian workplace that could be valuable in determining how work-related stress affects individuals and whether specific groups have different perceptions of work-related stress.

Name	Title	Abstract
Ramos Vieira, Edgar	<i>Creating a Research Program in Musculoskeletal Injury Prevention &amp; Ergonomics in Healthcare</i>	My evolving research program is on the causation and prevention of musculoskeletal disorders and injuries (MSI). MSI may occur due to overexertion or cumulative loading (e.g. patient transfers-related low back MSI) or as a result of accidents (e.g. fall-related MSI). I hope to design, implement, and evaluate interventions to reduce MSI among healthcare users and providers. I will summarize studies that I completed or that are in progress to assess: risks for low back MSI related to patient transfers and handling tasks in acute care; risks for MSI related to bariatric patient transfers, and risks for falls among older adults in rehabilitation and long term care facilities.

Name	Title	Abstract
Schultz, Laura	<i>Reducing risk: keeping BC community health workers safe</i>	Incidents of occupational injury and disease among community health workers are higher than those employed in acute care facilities. Community health workers face uncontrolled work environments that can adversely impact their physical and mental well being. Serious musculoskeletal injuries can result from lifting and transferring patients. Slips, falls, blood and bodily fluid splashes, aggressive and violent behavior from clients, isolated work environments and high workload volumes can also attribute to injury. In this study publicly available data from WorkSafe BC, case studies, and stakeholder interviews are used to develop policy options. These options are designed to increase awareness and reduce the risk of injury among workers.

Name	Title	Abstract
Setton, Eleanor	<i>Population Data BC Platform</i>	Population Data BC is part of the Michael Smith Foundation for Health Research's (MSFHR) Population Health Data Access and Analysis Platform which is a collaboration between Simon Fraser University, the University of Victoria and the University of British Columbia. <a href="http://www.popdata.bc.ca/">http://www.popdata.bc.ca/</a> .

Name	Title	Abstract
Tamburic, Lillian; McLeod, Christopher; Xu, Fan; Demers, Paul; Kennedy, Susan; Lynd, Larry; Koehoorn, Mieke	<i>Investigating Asthma Among BC Workers: A Pilot Surveillance Project Using New Occupational Research Capacity in the BC Linked Health Database</i>	The objective of this study was to investigate the relationship between asthma rates and work characteristics using a newly developed industry of employment variable in the BC Linked Health Database. Asthma risk groups were assigned to working age adults in BC based on their industry of employment using an asthma-specific job-exposure matrix. Rates of active asthma (identified using a combination of health services data in the BCLHD) were higher for women than for men. Higher rates were observed for men in high- and medium-risk industries compared to low-risk industries. No significant difference was observed for women across risk levels.

Name	Title	Abstract
Trask, C., Koehoorn, M., Village, J., Johnson, P., Chow, Y. and Teschke, K.	<i>Evaluating Exposure Assessment Methods For Physical Demands: Feasibility, Costs And Overcoming Challenges In The Field'</i>	Measuring low back injury risk factors in field research presents challenges not encountered in laboratory environments. We compared the data collection successes, challenges, costs, and data detail of five measurement methods (observations, interviews, electromyography, inclinometry, and vibration monitoring) for 223 worker days in 50 heavy-industry worksites in western Canada. Measurement success rates varied from 42.2% to 99.6%. Costs per successful measurement ranged from 23 dollars to over 500 dollars. Costs and successful field performance need to be weighed against the added data detail gained from monitoring equipment when making choices about exposure assessment techniques for epidemiological studies.

Name	Title	Abstract
Verhille, Sophie; Choice, Edward; Copes, Ray	<i>Are point-of-use water filters effective for removal of turbidity and protozoa?</i>	Particles may inhibit or reduce chemical disinfection of water, enhance the regrowth of pathogens in drinking water, or be associated with the presence of pathogens including <i>Cryptosporidium</i> oocysts. This poster summarizes the existing evidence on the applicability of Point-of-use water filter for removing turbidity and oocysts as an alternative to water boil advisories.

Name	Title	Abstract
Winters, Megan	<i>Using GIS to characterize urban form and bikeability</i>	To determine which aspects of urban form are supportive for cycling the Cycling in Cities employed GIS to map travel data for >4,000 trips in the Vancouver area alongside select measures of land use, topography, cycling infrastructure, and the transportation network. The analysis indicates which features of the built environment correlate with a higher likelihood of traveling by bicycle, and contribute to the development of an index that can be use to create a "bikeability" map of the region.