British Columbia Environmental and Occupational Health Research Network

3rd Scientific Exchange and Annual General Meeting
January 25, 2008
Vancouver

Poster Abstracts

Name	Title	Abstract
Badenhorst, C **Rudiuk, E** **Russell, R** **Hussein, Y** **Gallivan, G** **MacPherson, T** **Routledge, M** **Bowman, S** **Cathcart, B** **MacDonald, J**	*Bacterial quality of water samples from private wells tested at provincial laboratories in two communities in Nova Scotia (1999-2004)*	More than 40% of Nova Scotians still rely on private wells as their primary source of drinking water and there are no reports available reflecting the bacteriological quality of these wells. Determining prevalence rates of total coli and E coli in water samples tested at local laboratories over a 5-year period (2001-2004) as well as potential environmental risk factors which could explain bacteriological tests outcomes, statistical analyses showed that at least 40% of water samples tested was positive for total coli and 6% for E coli. Current legislation and policies need to be reviewed to ensure safe drinking water from private wells, particularly in urban or high-risk areas.

Name	Title	Abstract
Barnjak, Tom	*Cytotoxic Drug Exposure in Hospital Pharmacies in British Columbia*	Cytotoxic drugs are commonly used in healthcare facilities to treat a range of medical ailments including cancer. Theses drugs are know carcinogens and even at low contamination levels pose a risk to healthcare practitioners and general public. To address this issue a highly sensitive wipe test for the most commonly used drugs was developed at the SOEH laboratory with the purpose of assessing the contamination levels at various locations BC hospitals. Our findings show that despite engineering controls and cleaning protocols already in place most hospitals had trace level contamination.

Name	Title	Abstract
Barzan, Cris **Chu, Winnie**	*Potential Hazard from cleaning carcinogenic antineoplastic drugs*	No effective cleaning procedures are present to eliminate healthcare workers' exposures to carcinogenic substance, such as some chemotherapy drugs. Currently, sodium hypochlorite solution (household bleach) is being used to clean cytotoxic drugs, such as cyclophosphamide (a IARC group I substance). However, bleach oxidizes cyclophosphamide and cleaves the nitrogen-phosphorous bond; which produces the potentially volatile nor-nitrogen mustard. Exposure to mustard gas, a chemical warfare gas used in World War I, causes DNA damage, powerful irritation and increases lung and respiratory tract cancer. We have determined nor-nitrogen mustard as a by-product created by cleaning cyclophosphamide with household bleach.

Name	Title	Abstract
Bilsker, Dan **Samra, Joti**	*Supported Self Management for Mental Health in a Healthcare Setting*	The project had three goals: deliver training in supported self-management for depression to family physicians, distribute the Antidepressant Skills Workbook (ASW; Bilsker & Patterson, 2005), and evaluate the dissemination project. 152 physicians in VCHA have been trained as of October 2007. As of September 1, 2007, 984 patient requests for the manual had been received from patients of the physicians in this study. The skills emphasized in the ASW (reactivating your life, realistic thinking, problem solving) were positively rated by both physicians and patients.

Name	Title	Abstract
Chu, Winnie **Schaap, Allison** **Reveley, Summer**	*Characterizing Lumbar Muscle Fatigue with MMG and EMG*	This study is investigating the relationship between mechanomyography (MMG) and electromyography (EMG) signals obtained during isometric muscle contractions in the lower back. EMG, which measures the electric potential across a muscle group, is the current gold standard for analyzing muscle activity during fatigue. However, EMG systems are costly and bulky. The MMG system we have developed measures the physical vibrations of a muscle with an accelerometer from which the magnitude and frequency of back muscle oscillations are calculated. Preliminary results suggest that MMG can be a valuable and cost-effective predictor of muscle fatigue and useful in the prevention of injury.

Name	Title	Abstract
Daines, Donna **Cash, Penny** **von Tettenborn, Linda** **Doyle, Rose** **Philippe-Welton, Carmen** **Parkes, Maureen**	*A Qualitative Journey along a Quantitative Path: Quality Workplace Environments for Nurse Educators*	This poster depicts the experience of developing an initial understanding of the complex, dynamic relationship of nurse educators and their institutional systems. The development of a research tool is outlined as well as some emerging information on critical elements in a quality workplace environment for nurse educators. While current Health Human Resource planning initiatives acknowledge a faculty shortage, they fall short on concrete recommendations to address the issue. This work offers an opportunity to consider the implications of a quality workplace environment in the recruitment and retention of nurse educators and, with the tool, identify some of the most critical elements to be addressed in enhancing the workplace.

Name	Title	Abstract
Elliott, Catherine **Copes, Ray**	*A framework for health impact assessment of air pollution*	We developed a framework for the health impact assessment of air pollution for public health practitioners to estimate the health effects of air pollution in their regions. Based on environmental hazard assessment principles, the framework highlights assumptions, suggests methods for sensitivity analysis and aids in interpretation. Attributable risk is calculated using a straightforward calculation with local PM 2.5 concentration and health outcome data and concentration response functions from the literature. We applied this framework to estimate the mortality burden of air pollution in Northern and Interior BC.

Name	Title	Abstract
Erickson, Anders **Chan, Laurie** **Yoshida, Eric** **Arbour, Laura**	*Primary Biliary Cirrhosis and First Nations Communities in British Columbia: What are the Environmental Factors?*	Primary biliary cirrhosis (PBC) is a rare autoimmune liver disorder among Canadian populations; however First Nations peoples living in British Columbia are eight times more likely to be referred for liver transplantation due to PBC than those of non-First Nations descent. A spatial analysis of PBC revealed that 48% of First Nations' cases lived on Vancouver Island versus 18% expected ($p < 0.05$). The purpose of this poster is to ask questions regarding the possible gene-environment interaction that is occurring in British Columbia that may explain the elevated prevalence of PBC among First Nations populations residing on the West Coast of British Columbia.

Name	Title	Abstract
Hon, Chun-Yip **Chu, Winnie**	*Assessment of the Occupational Dermal Exposure Risks to Antineoplastic Drugs to BC Healthcare Workers and an Evaluation of the Associated Cleaning Protocols for Drug-Contaminated Surfaces*	The objectives of our study were: 1) to identify and prioritize those surfaces that healthcare workers contact, 2) evaluate the potential occupational dermal exposure to antineoplastics due to contact with the surfaces identified in objective #1 and, 3) assess the effectiveness of current cleaning protocols to minimize the amount of drug contamination by comparing the drug levels on the surfaces pre- and post-cleaning.

Name	Title	Abstract
Horn, Charles	*Working Safe: Injury prevention programs in Aboriginal enterprises*	The poster presentation will summarize a current research project concerned with injury prevention programs in small to medium Aboriginal business enterprises in British Columbia. The project has two principle aims: 1) to generate knowledge about the implementation and utilization of HSE programs in Aboriginal enterprises; and 2) based on the findings, to recommend strategies and procedures to support safe work environments in Aboriginal enterprises. The presentation summarizes the project goals, methodologies, and dissemination of the research results.

Name	Title	Abstract
Johnson, John **Anderson, Taffy** **Bauer, Ernst** **Danyluk, Greg** **Duport, Philippe**	*Volume Reduction of Gas Line Filters*	This poster describes a company that has an alternative process to treat waste containing naturally occurring radio active material (NORM) at their Kamloops facility, operating under an Approval from the BC Ministry of Environment. The process is undergoing extensive validation by independent experts (including the authors herein) to determine volume reduction and depletion of radioactivity from NORM affected wastes. The process should augment or replace current storage and disposal practices for NORM in a commercially viable manner and also reduce health and environmental risks when compared to current methods.

Name	Title	Abstract
Koehoorn, Mieke **Boygo, Terry** **Chhokar, Rahul** **McCloskey, Ed** **McLeod, Chris**	*Descriptive epidemiology of a cohort of injured workers that underwent knee meniscus surgery between 2001 and 2005 in British Columbia*	Objectives: to describe the distribution of musculoskeletal surgeries in a cohort of injured workers by healthcare, demographic, and geographic characteristics between 2001 and 2005. Methods: injured workers that underwent musculoskeletal surgery were identified by surgical procedures codes from workers' compensation records. Results: for knee meniscectomies, 19.9% were conducted in public facilities on an expedited basis, 16.1% were performed in public hospitals on a non-expedited basis and 64% were performed in private surgical centers on an expedited basis. No significant differences were found for surgical setting by age, gender, or geographic location.

Name	Title	Abstract
Lam, Andrea **Emerson, Brian**	*Mandatory Reporting of Environmental Contaminant and Poisoning Exposure Indicators in British Columbia*	Historically, the reporting of communicable diseases in Canada has been mandated under provincial/territorial legislation to allow for more complete data collection and enable the rapid response of health authorities to potential disease outbreaks. However, mandatory reporting can be applied to non-communicable diseases. For example, the mandatory reporting of blood lead levels would allow for the immediate investigation of exposure sources, prevention of potential poisonings and monitoring of population exposure trends. This research project provides a rationale for the mandatory reporting of 15 proposed environmental contaminant exposures and poisoning indicators in BC. Three laboratory test result-based reporting protocol options are outlined.

Name	Title	Abstract
Larcombe, Ellen	*Community Asset Mapping*	Community Asset Mapping (CAM) is an important and growing practice being embraced by academic, government and community groups. The Human Early Learning Partnership is engaged with CAM as it relates to our Early Child Development (ECD) research mandate. We have completed several projects that show resources and services that support children's development. These maps are used in collaboration with other ECD data to help understand disparities in children's health and well-being and to see where gaps in service provision exist. This poster will outline the process and practice of CAM.

Name	Title	Abstract
Mallach, Gary **Takaro, Tim** **Copes, Ray**	*The Attributable Exposure to Methyl Mercury through Consuming Sport-Caught Freshwater Fish in Vancouver Island Licensed Anglers*	Previous studies have identified freshwater anglers as a population at risk of elevated mercury levels because of high fish consumption. The goal of this research project is to determine whether Vancouver Island based licensed anglers have elevated mercury levels caused by consuming sport-caught freshwater fish. This will be accomplished through a mail out questionnaire examining consumption patterns of caught and bought fish, followed by a blood sample documenting mercury levels in survey respondents. This project is the thesis component of an MSc. In Population and Public Health from the Faculty of Health Sciences at Simon Fraser University.

Name	Title	Abstract
Marsden, Dawn **Mathias, Richard** **Wortman, Jay** **Sparrow, Jeri** **Auger, Jan** **Day, Linda** **MacPherson, Nancy** **Hannah, Roslyn** **Day, Diana**	*Indigenous Diet Project*	This project has been designed to increase research capacity by facilitating Indigenous community-focused, online knowledge mobilization, translation, research, dialogue and exchange regarding the research, community experiences and relationships between carb-restricted Indigenous diets and chronic disease. This is being accomplished through a series of public workshops on Indigenous diets, Web-based options and online health research methods, followed by team meetings to design a competitive research proposal for implementation of the website.

Name	Title	Abstract
McDowall, William **Hurrell, Christie** **Nicol, Anne-Marie**	*Innovative strategies for KT in environmental and occupational health*	One of the core aims of the Centre for Health and Environment Research (CHER) is to promote the translation of research findings into policy and practice. This poster outlines the four strategic elements adopted by CHER to promote knowledge translation (KT):1) Building human capital for KT (e.g. web and media training); 2) Targeting information (translating appropriate knowledge at the right time, not just disseminating more information); 3) Developing innovative tools (e.g. web monitoring and customised news feeds); 4) Learning about KT (research into best practices in KT).

Name	Title	Abstract
McLeod, Chris **Koehoorn, Mieke** **Kennedy, Susan** **Demers, Paul** **Tamburic, Lillian**	*Asthma in British Columbia: an administrative data approach to determine how much asthma is work related*	The purpose of this study was to determine the incidence and prevalence of asthma in BC; to derive an estimate of how much asthma is work related; and to compare these estimates with the amount of occupational asthma compensated by WorkSafeBC. Incidence and prevalence of asthma was derived from healthcare contacts for asthma diagnoses via the BC Linked Health Database. Applying a population attributable risk of 15%, approximately 27,000 people in BC experienced work related asthma in 2001 alone, while only 530 cases of occupational asthma were compensated between 1991-2001.

Name	Title	Abstract
McLeod, Chris **Xu, Fan** **Lorenz, Eric** **Koehoorn, Mieke**	*Work-related injury trends among high risk industries in British Columbia (BC)*	The purpose of this study was to estimate trends in work-related injuries in high risk industries in BC from 1987-2005 and to examine demographic and occupational risk factors that may have influenced these trends. Injury rates were calculated using census workforce estimates along with the BC Linked Health Database to identify workers with at least 1 accepted compensation claim. While work-related injury claims have declined in BC, there is significant variation among these trends by industrial sectors, age, and occupation. In particular, injury rates decreased more in the construction and forest sectors than in the healthcare sector.

Name	Title	Abstract
Montoya, Chris	*PTSD in central BC and its treatment with Melatonin*	The administration of pharmaceutical grade melatonin significantly ameliorated the Posttraumatic Stress Disorder syndrome in treated participants, when compared to the non-treated control group ($p<.005$). Typically, clinically diagnosed PTSD participants report day terrors and brilliantly coloured, animated nightmares. Many of these traditional symptoms disappeared following treatment. The evidence presented suggests that PTSD parasomnias may be the result of temporal lobe epileptiform activity, and may be neurochemically linked to bereavement apparitions and low melatonin levels.

Name	Title	Abstract
Mooney, Dawn **Watson, Diane** **Black, Charlyn** **Wong, Sabrina** **Peterson, Sandra** **McKendry, Rachael** **Young, Ella**	*Mapping the Primary Health Care Workforce in BC*	This project uses maps and graphics to offer new information about health human resources to policymakers responsible for primary health care (PHC) renewal. We use mapping as an effective method for exploring spatial patterns and temporal trends in numbers and distribution of PHC practitioners and as a powerful tool for knowledge transfer to policymakers and practitioners. Building on earlier work mapping disparities in health status and PHC service utilization, this project provides important insights into the state of the PHC system in BC. It also offers insight into the power of maps and graphics in translating research results into knowledge.

Name	Title	Abstract
Ronning, Christine	*Boundary Definitions to Improve Health Service Delivery and Population Health Planning*	Objective: Define geographic boundaries to augment current administrative boundaries (Local Health Areas) to allow British Columbia Health Authorities to better understand sub-Local Health Area populations and more effectively plan for health services. Methods: Using MapInfo mapping software, Statistics Canada 2001 Dissemination Area (DA) census boundaries were aggregated to form sub-LHA boundaries as guided by a deprivation index. Results: Select Local Health Areas, meeting defined parameters, within British Columbia can be sub-divided into analysis units that will provide more distinctive data about populations previously combined with larger or multiple communities. Conclusions: These boundaries will ensure population health and health services planners better understand the utilization needs and health of the populations in these sub-LHA units.

Name	Title	Abstract
Samra, Joti **Coleridge, Peter**	*Workplace Mental Health & Addiction: Research Gaps & Opportunities*	A comprehensive overview of workplace mental health and addiction research gaps and opportunities is presented. Key areas are systematically addressed; in particular, this project examines the research gaps in the scientific literature (e.g. operationalization of measures, evaluation of efficacy of different treatment modalities), gaps in research and practice (e.g. documenting burden, risk factors), necessary data sources (e.g. HR data, rates of turnover), emerging areas (e.g. self-management strategies, knowledge transfer), future research (e.g. addiction), and next steps (e.g. identifying existing frameworks utilized in applied settings).

Name	Title	Abstract
Samra, Joti **van der Leer, Gerrit** **Goldner, Eliot**	*Clinical Tools On Suicide For Clients, Families, And Health Care Providers*	Three clinical tools on suicide are presented. Coping with Suicidal Thoughts, is for individuals who are currently experiencing suicidal ideation and/or have a plan or made an attempt to hurt themselves. Hope and Healing: A Practical Guide for Survivors of Suicide, is designed to help survivors after the loss of someone by suicide. Working with the Suicidal Patient: A Guide for Health Care Professionals, is a tool for providers without a mental health background.

Name	Title	Abstract
Samra, Joti **van der Leer, Gerrit** **Goldner, Eliot**	*Suicide and the Workplace*	Working With the Client Who is Suicidal: A Tool for Adult Mental Health and Addiction Services provides an overview of recommended practices in assessing and treating suicidal behaviour in adults. This document responds to the following goals identified Blueprint for a Canadian National Suicide Prevention Strategy developed by CASP (2004): increase training for key gatekeepers, volunteers, and professionals regarding recognition of risk factors, warning signs and at-risk behaviours; provide effective interventions; and develop and promote effective clinical and professional practice to support clients, families and communities.

Name	Title	Abstract
Vasilenko, Ekaterina **Muttray, Annette** **Baldwin, Susan**	*Genomic biomarkers for mollusc haemic neoplasia in the aquatic environment*	Mussels are widely used as indicator organisms for monitoring the health of the marine environment. Mussels can develop haemic neoplasia, which is thought to be caused by a combination of transmissible and/or environmental challenges and genetic background. Our research program investigates changes in gene expression and gene mutation of the tumour suppressor gene family p53 in relation to haemic neoplasia. The goals are two-fold: First, to evaluate whether variations in gene expression or mutations are potential biomarkers of haemic neoplasia, to be used in toxicogenomic approaches to environmental monitoring, and second, to investigate haemic neoplasia (which is similar to leukemia in vertebrates) and the invertebrate p53 network as a biomedical model in the environment.

Name	Title	Abstract
Wolff, Angela **Ratner, Pamela** **Robinson, Sandra** **Oliffe, John** **McGillis Hall, Linda**	*Diversity in Age, Education, Ethnicity and Work Values: Do Differences Among Nurses in the Workplace Produce Conflict and Professional Burnout?*	This quantitative study examines whether relational diversity is directly or indirectly associated with conflict and professional burnout of nurses employed in acute care hospital units in BC. We propose a *theoretical model* grounded in organizational behaviour that explains how changing workforce demographics and generational differences in work values (referred to as diversity) can lead to conflict within workgroups, which in turn, leads to burnout. Data was collected from a population-based sample of 600 nurses (80% response rate). Latent variable modeling is used to examine the complex linkages between diversity and job stress/burnout and the mediating effects of interpersonal conflict.