

EHS Newsletter

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Message from **Dr. Robert Brunham** Provincial Executive Director, BCCDC

I am delighted to read the inaugural issue of the BCCDC Environmental Health Services (EHS) newsletter. Environmental Health Services, under the leadership of Dr Tom Kosatsky, is one of the core areas of expertise at the BCCDC in support of province-wide programs and is a key component of the public health system in BC. Environmental Health is the oldest element of public health and was originally described by Hippocrates in the fifth century BC in his masterpiece "On Airs, Waters and Place". Remarkably, this book is still read today and resonates with contemporary environmental health thinking. The BCCDC EHS organizational chart (page 5) even shows traces of airs, water and places in its structure. EHS at BCCDC has been identified as a national resource and the Service Line hosts the National Collaborating Centre for Environmental Health (NCCEH).

EHS, like all areas of public health at BCCDC, works in support and partnership with the BC Ministry of Health (BC MoH) and the Regional Health Authorities (RHAs) to identify and mitigate threats to health that originate from the environment. The partnerships are guided by an EH Policy Advisory Committee chaired by the Provincial Health Officer (Dr. Perry Kendall) and the Assistant Deputy Minister of Health (Arlene Paton).

This newsletter provides a comprehensive review of current EHS activities. I draw your attention to key surveillance and monitoring results regarding automated hot weather warnings and forest fire air quality effects which are beginning to influence public health practice in RHAs. These advancements began as problem-based research and subsequently translated into public health action.

Environmental Health Services (EHS) is mandated to act as a resource to the Provincial Health Officer (PHO), the BC Ministry of Health (BC MoH), and BC's Regional Health Authorities (RHAs) on matters related to environmental health policy, practice, and research. This is accomplished through a mix of activities that can be broadly categorized into the following four areas: Policy Coordination and Support, Provision of Consultative Resources, Environmental Health Capacity Expansion Through Research and Education, and Direct Service Provision. EHS acts as Secretariat to the BC Environmental Health Policy Advisory Committee. The National Collaborating Centre for Environmental Health has a pan-Canadian mandate to promote knowledge translation and its application, and the BC Drug and Poison Information Centre offers telephone and electronic advice to BC residents and clinicians around exposure to hazardous substances.

EHS - Automated Hot Weather Warning Calls

Since the spring of 2010 EHS has been working with Vancouver Coastal Health, Fraser Health, and Environment Canada to determine when heat health emergency responses should be initiated across the Lower Mainland during very hot weather. In the summer of 2011 EHS established a surveillance system with two key functions. Early every morning it automatically combines mortality data from Vital Statistics with temperature data from

Environment Canada, and launches an internal email alert to EHS if any anomaly is detected. Every afternoon it automatically combines the 2:00 pm observed temperatures at Vancouver and Abbotsford airports with forecasted highs for the next day, and launches an external email alert to the Health Authorities if the heat health emergency conditions are met. The system will be evaluated and updated annually.

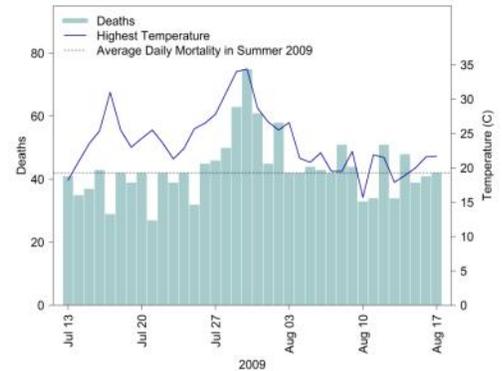


Figure: Time series of daily deaths and temperature in Vancouver, July and August 2009. Green bars indicate the number of daily deaths and the blue line indicates the maximum temperature measured at the Vancouver international airport on that day. Average daily mortality during the summer of 2009 was 42 deaths. Maximum mortality observed during the hot weather event was 75 deaths. EHS estimates an excess of approximately 110

EHS - Forest Fire Health Assessments

Over the past decade BC has seen four of the worst forest fire seasons on record, partly because of the widespread mountain pine beetle infestation. While the fires themselves can threaten nearby property and lives, the smoke they generate can affect air quality province-wide. Over the past two years EHS has combined health outcomes, air quality, and remote sensing data to examine how fire smoke affects public health in BC. EHS systematically classified 28 local health areas (LHAs) with air quality monitors as “fire-affected” and “non-fire-affected” using remote sensing data, and then assessed how the dispensations of medications used to relieve asthma and other obstructive lung diseases

changed with increases in fine particulate air pollution (PM_{2.5}). The figure shows the risk of increased dispensations of medications to relieve symptoms of obstructive lung diseases with a 10 ug/m³ rise in ambient PM_{2.5} concentration in fire-affected and non-fire-affected local health areas across BC. The shaded point is the combined risk for all fire-affected or non-fire-affected LHAs. The increases were significant in fire-affected LHAs, but not evident in non-fire-affected LHAs. This suggests that fire smoke may exacerbate obstructive lung diseases more than particulate matter from other sources, such as traffic. EHS has developed weekly surveillance of obstructive lung disease reliever

medications to help provincial Medical Health Officers understand the impacts of fire smoke in their jurisdictions. EHS intends to include more health outcomes and environmental data in coming years based on the results of evaluations.

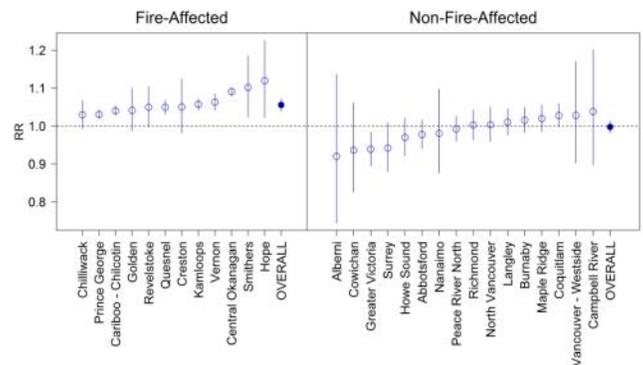


Figure: Risk of increased dispensations of medications used to relieve exacerbations of asthma and other obstructive lung diseases for each 10 ug/m³ increase in PM_{2.5} in fire-affected and non-fire affected local health areas across BC. The open circles depict the risk in each LHA and the shaded circles depict the combined metaregression risk for all LHAs in either the fire-affected or the non-fire-affected group.

DPIC - Use of Poison Control Centre Data in BC for Pharmacovigilance Activities Associated with Natural Health Products

The use of data tracking adverse reactions to health products is a key component in pharmacovigilance activities aimed at improving the safe use of these products. The under-reporting of adverse reactions to regulatory agencies is well known, and is a recognized problem that

hinders the assessment of potential risks associated with the use of health products. Under-reporting is particularly problematic for natural health products. The BC Drug and Poison Information Centre (DPIC) is participating in a pilot program to determine information quantity and

quality of poison control data, to identify data gaps in this information with respect to natural health products, and to develop a process to capture full information on natural health product adverse reactions, in a poison control centre, on a real-time basis.



The BC Drug and Poison Information Centre receives approximately 31,000 calls from the public and health care professionals per year with over 450 calls regarding adverse reactions to food or medication. In a recent [Health Canada survey](#) 73% of Canadians reported regular use of natural health products, such as vitamins and minerals, herbal products, and homeopathic medicines. Fifteen percent of health product users reported experiencing adverse reactions.

Food Protection (FP) - FOODSAFE Project: “Knowledge, practice and attitudes of certified FOODSAFE graduates - is retraining needed?”

FOODSAFE is a BC made food safety training course with over 750,000 graduates. In 2009, graduates were given a knowledge retention survey to determine if there was a decline in their knowledge over time. Results of 499 graduates over a 15 year period suggest food

safety knowledge does decline and recertification is required. The [report for the survey](#), or Phase 1 of this project, was published in 2011, and has been accepted for publication in [Food Control](#). To assess the effectiveness of retraining, a select

number of graduates (Phase 2) completed either on-line or classroom training in April 2011. A follow-up survey conducted in January 2012 (Phase 3). Results and data analysis for this part of the project are in progress.



As a result of this research, there has been a change in practice. Beginning on January 1, 2013 all new FOODSAFE certificates issued will have a 5 year expiry date. Further, all old FOODSAFE certificates "without an expiry date" will be considered as expired on January 1, 2018 and not meeting the requirements of Section 10 of the [BC Food Premises Regulation](#).

Radiation Protection (RP) - Dental X-ray Guidelines

Dental X-ray examinations are essential to dentists for the diagnosis, treatment, and monitoring of dental abnormalities. They are the most frequent type of radiological procedures and account for 20 to 25% of the total number of diagnostic X-ray procedures in developed countries. As a result, the collective

radiation dose incurred by a large portion of the population is not negligible. A recent dental technology using 3-Dimensional imaging known as Cone Beam Computed Tomography (CBCT) is of particular interest because of the higher doses delivered to patients in order to generate 3D images. EHS is working with the

BC Dental Association to develop radiation protection and quality assurance guidelines applicable to CBCT to limit exposure and so upgrade patient safety. The first draft of the guidelines has been submitted by EHS to the BC Dental Association for review.

While the clinical benefits of dental X-rays are evident, it is important to keep the X-ray doses incurred by dental patients at the lowest possible level. There are four types of dental X-ray procedures: intraoral, panoramic, cephalometric, and cone beam computed tomography (CBCT). The latter, which generates 3-Dimensional images, induces higher patient doses than the first three.



National Collaborating Centre
for Environmental Health
Centre de collaboration nationale
en santé environnementale

NCCEH - Personal Service Establishments

PSE services are increasing in popularity. A recent survey from Northwestern University, US found that 1 in 4 men and women surveyed between the ages of 18-50 had at least one tattoo, while 15% had at least one piercing. In most jurisdictions, such services are not adequately regulated, and generally, service providers do not require certification or formal training to do their work. Consequently, as demand for PSE services grow, so do the public health concerns.

Personal service establishments (PSEs) encompass a wide range of commercial operations providing services such as aesthetics, tattooing, piercing, and body modification. Public health inspectors/ environmental health officers and health ministries in BC and other provinces, as well as industry itself, have identified PSEs as a priority area where many gaps in training, best practice guidelines, and

regulation exist. The NCCEH has responded by identifying, synthesizing, and developing new resources for practitioners and policy-makers, with the overall goal of supporting the development of evidence-based policy and practice related to PSEs. Specific activities have included review of documentation on infections associated with specific services in PSEs, development of training materials on

infection prevention in PSEs, and organization and facilitation of a workshop for environmental health officers to identify key gaps in current policy and practice, and ways to move forward. Additionally, the NCCEH sits on both a provincial and national PSE working group, and has presented at several regional conferences for public health inspectors.

Publications (Jan-Jul 2012)

Barn P, Chen T. A narrative review of infections associated with personal service establishments Part II: Piercing and tattooing. *Environmental Health Review*. 2012;55(02):46-62. Available from: <http://pubs.ciphi.ca/toc/ehr/current>.

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Kovačević J, McIntyre LF, Henderson SB, Kosatsky T. Occurrence and distribution of listeria species in facilities producing ready-to-eat foods in British Columbia, Canada. *J Food Prot*. 2012;75(2):216-24. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/22289580>.

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Pollock SL, Stephen C, Skuridina N, **Kosatsky T.** Raising chickens in city backyards: the public health role. *J Community Health*. 2012;37(3):734-42. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/22083301>.

Working Groups

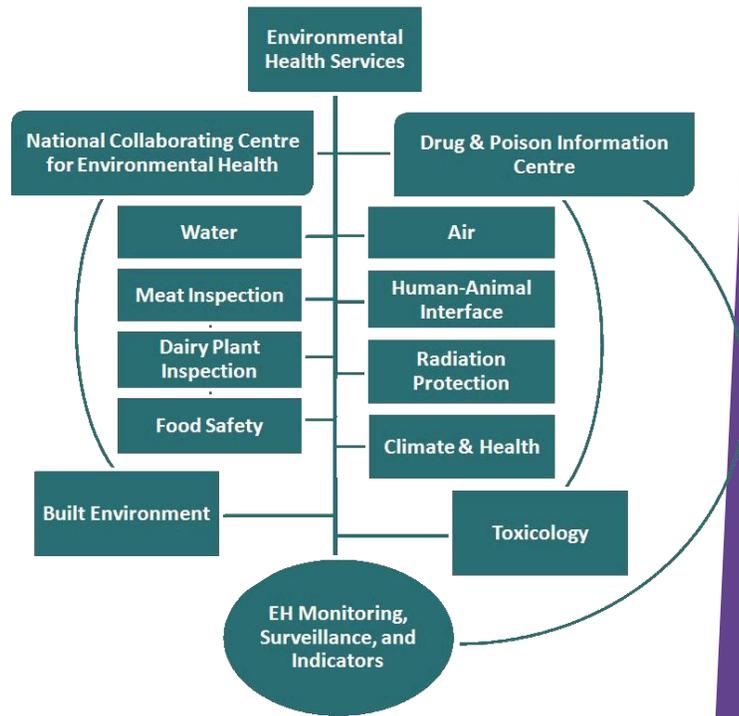
Waste-to-Energy - EHS is the secretariat of the provincial working group on health impact assessment for waste-to-energy projects. The working group includes membership from the RHAs, BC MoH and the Office of the Provincial Health Officer.

Reportable Biomarkers of Environmental Exposures - EHS is the secretariat of the provincial working group developing recommendations for mandatory reporting of human biomarkers of environmental exposures (e.g. blood lead levels). The working group includes membership from the RHAs, BC MoH and the Office of the Provincial Health Officer.

Provincial Radon Response - EHS is the secretariat of a provincial radon working group, members of which include NHA, IHA, BC Lung Association, BC MoH, HC, and the CMHC. The working group serves as an avenue to share information, compile data, and address issues to better support radon-related public health practice and policy in BC.

Listeria Working Group - A working group was established to formulate best practice recommendations to address the hazard of *Listeria* in BC food processing facilities; consisting of members from the CFIA, HC, MAGRI, BC MoH, and the RHAs.

Urban Public Health Network Built Environment Working Group - The NCCEH sits on this working group and has been building an inventory of tools and useful resources in the built environment area.



EHS Program Areas

Message from

Dr. Tom Kosatsky
Medical Director, EHS
Scientific Director, NCCEH

Welcome to the first issue of our BCCDC Environmental Health Services (EHS) newsletter. We plan to issue the newsletter twice a year.

The particular focus of EHS is finding ways to maximize the benefits and minimize the risks of the contact of BC residents with the environment. While the hazardous side of human-environment contact has a long history, only recently have we become aware that wellness-oriented town planning and residential design can enhance health too.

The mandates of BCCDC EHS include:

1. Assessment of hazards to the health of BC residents from the physical, chemical, and biological environment, through
 - access, interpretation and sharing of ‘environmental’ data relevant to population health
 - innovative health surveillance to detect emerging threats, and to estimate burden of disease
 - directed hazard assessments
2. Provision of expertise to our public health partners to support the sharing of evidence and experience on policies and practices to mitigate environmental threats to health, and to maximize the benefits of contact with the green environment, positive social and built environments and wildlife
3. Whole-province service provision to support hazard recognition and mitigation, and care of patients exposed to environmental hazards
4. Teaching, research and coordination to extend the above mandates

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BC Centre for Disease Control
An agency of the Provincial Health Services Authority

BCCDC provides provincial and national leadership in public health through surveillance, detection, treatment, prevention and consultation services.

EHS is an active training site for students from a broad range of institutions: medical and pharmacy schools, schools of public health inspection, and graduate schools of public health and food science. In addition, EHS is a training site for the Federal Field Epidemiology Program, Public Health Agency of Canada. In fiscal year 2011-12, EHS hosted 21 medical trainees (9 medical students, 9 residents, and 3 fellows), 8 graduate students, 7 public health inspector trainees, a federal field epidemiologist and 22 hospital and community pharmacy residents. Additionally, our staff members devote numerous hours to teaching and committee work in BC's post-secondary institutions.

Upcoming:

Events

BCCDC Symposium:
Diarrhetic Shellfish Poisoning
[Pinnacle Pier Hotel](#)
Contact:
lorraine.mcintyre@bccdc.ca
N Vancouver BC | Nov 27/12

Healthy Community Design Webinar Series Sep—Oct 2012

WEBINAR 3: *Integrating Health Considerations into Community Planning: example & lessons learned from Fraser Health Authority, BC*
Oct 23 - 1-2:30 pm EST

Training

NCCEH Online Course:
Risk-based Inspection of Food Premises
Contact:
Daniel.fong@bccdc.ca
Sep - Nov 2012

Workshops

NCCEH Workshop:
Food Safety Interventions - Do we know what works?
[Canadian Institute of Public Health Inspectors 78th Annual Educational Conference](#)
Blue Mountains ON | Sep 17/12

Past:

Events

NCCEH Presentation by Sylvia Struck: *Exploring Alternatives to Regulating Small Drinking Water Systems*
[15th International Congress on Circumpolar Health](#)
Fairbanks AK | Aug 2012

CPHA Presentation by Catherine Elliott: *An efficient evidence-based approach to determine which biomarkers of exposure to environmental contaminants should be reportable*
[CPHA 2012 Annual Conference](#)
Edmonton AB | Jun 2012

BC Lung Webinar presentations by Sarah Henderson and Catherine Elliott: *two presentations regarding effects of fire smoke*
[BC Lung Association](#)
Vancouver BC | Jun 2012

ISEE Presentation by Sarah Henderson: *Forest Fire Smoke and Demand for Medications to Relieve Obstructive Lung Diseases in BC* [written by Catherine T Elliot, Sarah B Henderson and Victoria Wan]
[ISEE 24th Annual Conference: Environmental Health Across Land, Air and Sea](#)
Columbia SC | Aug 2012

Training

Fish Inspection Course: *pilot course delivered to RHA Inspectors*
Contact:
lorraine.mcintyre@bccdc.ca
Vancouver BC | Fall 2011

Workshops

[9th Annual Air Quality & Health Workshop](#)
Asthma Workshop (day 1)
Radon Workshop (day 2)
Vancouver BC | Mar 2012

[Health Impact Assessment in EH](#)
[TB and Housing](#)
[Housing and Health](#)
[Regulatory Performance Measurement](#)
[Health and Planning: An Option for Rural Communities](#)
[Food Safety Interventions](#)
[Ethics in Action: a workshop for practicing environmental public health professionals](#)
[Bringing Health Back into Planning: An Overview of Canadian Tools and Cross-Sector Action](#)