

Filling Information Gaps with Environmental and Occupational Health Surveillance

CARRFS 2018 Symposium – Fairmont the Queen Elizabeth
 Monday May 28, 2018
 Room Sainte-Catherine (2nd floor)

9:00 – 9:30	Welcoming remarks	
	Michelle Marquis <i>Chair of the CARRFS 2018 Symposium Org. Committee</i>	Welcome
	Bernard Choi <i>Public Health Agency of Canada</i>	The history and scope of the Canadian Alliance for Regional Risk Factor Surveillance (CARRFS)
9:30 – 10:30	Presentations	
	Colin Steensma <i>Public Health Agency of Canada</i>	Drawing a portrait of health inequalities in Canada: The pan-Canadian health inequalities reporting initiative
	Jill MacLeod <i>Cancer Care Ontario</i>	The occupational disease surveillance system (ODSS) for Ontario: Detecting work-related disease risks through data linkage
	Vicky Springmann <i>Direction régionale de santé publique</i>	The 2017 TOPO survey: Results from a local-level survey on the health, behavioural and environmental risk factors of elementary school children in Montreal
	Magalie Canuel <i>Institut national de santé publique du Québec</i>	Boîte à outils pour la surveillance des impacts psychosociaux post-sinistre
10:30 – 11:00	Break	
11:00 – 12:00	Keynote speaker	
	David Buckeridge <i>McGill University</i>	Developing and Evaluating Innovative Surveillance Technologies to Address Public Health Needs – The PopHR Project
12:00 – 1:00	Lunch	
	Tableau + Hussain Usman <i>Alberta Health Services</i>	Lunch & Learn (35 minutes)
1:00 – 2:00	Presentations	
	Marianne Bilodeau-Bertrand <i>Institut national de santé publique du Québec</i>	Environmental noise pollution and risk of hypertension in pregnancy
	Stephanie Young <i>Cancer Care Ontario</i>	Occupational Cancer in Ontario: Risk factors and prevention
	Diana Kao <i>BC Centre for Disease Control</i>	Patterns of chronic disease multi-morbidities among residents in British Columbia (BC)
2:00 – 2:45	Networking break	
2:45 – 3:30	Small group discussion session	
3:30 – 4:30	Keynote speaker	
	Bruce Lanphear <i>Simon Fraser University</i>	Unleashing the Power of Prevention: Using Video to Re-Imagine our Approach to Disease
4:30 – 5:00	Close	
5:00 – 6:00	CARRFS 2019 Open Meeting	Light snacks will be provided

Presentation Abstracts

Colin Steensma
*Public Health Agency of
Canada*

Title: Drawing a portrait of health inequalities in Canada: The pan-Canadian health inequalities reporting initiative

Abstract:

In 2012, Canada endorsed the Rio Political Declaration on the Social Determinants of Health, pledging to strengthen monitoring and reporting on health inequalities. To advance these objectives the Public Health Agency of Canada undertook the Pan-Canadian Health Inequalities Reporting (HIR) Initiative, in collaboration with the Pan-Canadian Public Health Network (PHN), Statistics Canada, and the Canadian Institute for Health Information. This initiative measures health inequalities for an extensive list of health indicators, including environmental and occupational health.

Data were drawn from 14 national data sources covering some portion of the 2007-2014 period. Absolute, relative and population impact measures of health inequality were calculated.

There are two major products of the initiative. The first is an interactive online Health Inequalities Data Tool on the PHAC's Public Health InfoBase platform. It contains data for over 70 indicators of health status and health determinants, stratified by a range of population groups at national and provincial/territorial levels. The second product of the initiative is a national-level report, which focuses on 22 key indicators of health inequality in Canada.

The Data Tool and Report provide a systematic baseline portrait of the state of health inequalities in Canada and represents the most comprehensive pan-Canadian data resource of its kind currently available.

The HIR Initiative strengthens health inequalities measurement, monitoring, and reporting capacity in Canada. It can support surveillance and research activities, inform policy and program decision making to more effectively target health inequities, and enable the monitoring of progress in this area over time.

Jill MacLeod
Cancer Care Ontario

Title: The occupational disease surveillance system (ODSS) for Ontario: Detecting work-related disease risks through data linkage

Abstract:

Existing administrative health databases capture accurate and timely information about disease diagnoses for Canadian patients. However, these records do not include information about work history, limiting their use for occupational health surveillance. The Occupational Cancer Research Centre launched the Occupational Disease Surveillance System (ODSS) to overcome this limitation through linkage of existing administrative databases.

ODSS detects and monitors work-related health outcomes including cancer and respiratory and cardiovascular diseases among 2+ million Ontario workers. Identified in time-loss compensation records, workers are linked through deterministic and probabilistic methods to the Ontario Cancer Registry and hospital discharge and outpatient billing data for diagnoses ranging from asthma to carpal tunnel syndrome.

Disease risk estimates were generated for hundreds of industry and occupation groups. Analyses confirmed that ODSS detected expected risks among well-known high-risk workers such as lung cancer among miners (HR 1.5, 95% CI 1.3-1.7) and construction workers in excavation, grading and paving (HR 1.5, 95% CI 1.4-1.6). While asbestos mining has been phased out in Ontario since the 1970s, ODSS detected continued risk of mesothelioma among workers with downstream asbestos exposure including mechanics (HR 1.3, 95% CI 1.1-1.7) and construction workers (HR 2.6, 95% CI 2.2-3.0).

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This large-scale surveillance system detects established and emerging occupational health risks.

ODSS generates data necessary to support the efficient allocation of resources for risk reduction and prevention by identifying at-risk workers in Ontario. ODSS provides a model for occupational disease surveillance in Canada.

Vicky Springmann
*Direction régionale de
santé publique*

Title: The 2017 TOPO survey: Results from a local-level survey on the health, behavioural and environmental risk factors of elementary school children in Montreal

Authors: Vicky Springmann, Louis-Robert Frigault, Brigitte Simard, Rémi Coderre

Abstract:

In large and heterogeneous urban centres like Montreal, local public health actions are important as they take into account social inequalities across the city and bring multidisciplinary partners together to address priority issues. However, local action must be based on high quality local data. The Montreal Public Health department has partnered with school boards, municipal government and community organizations to conduct a near-census of grade 6 students (in Québec, grade 6 marks the important transition between elementary and high school) focusing on determinants of health and school success, as public health interventions targeting children are associated with a reduction in health inequalities later in life.

Objectives: To collect information at small geographical scales on the health, behavioural risk factors, home and school environment of elementary school children in Montreal and to disseminate it to multi-disciplinary public health partners and stakeholders.

Lists of grade 6 students were obtained from the Ministry of Education. Students answered a 30-minute self-administered questionnaire in class, using electronic tablets. Parents of targeted students were invited to fill out a questionnaire on socioeconomic characteristics and access to health services either online or over the phone. Core indicators were calculated at the city, sub-regional health unit, borough, school board and school levels.

Between February and May 2017, 13,380 students participated from 298 schools and 714 classrooms (83 % of total eligible population). 7,775 parents (49 %) participated. Preliminary data show great variation across the city. For example, the range for the proportion of children across the 12 administrative sub-regions who have experienced verbal violence at school is 28.3% - 45.3 %, for those who exceed daily recommendations for screen time, 33.2 – 50.3 % (weekdays) and 54.2 – 66.4 % (weekends), and for those who have tried alcohol at least once, 13.1 – 29.4 %.

The participation rates achieved are the highest ever obtained for an elementary school survey in Montreal. Partnering with school boards ensured access to classrooms. Use of electronic tablets helped streamline data collection and served as a motivating factor for student participation. Results demonstrate the importance of small-scale data; large variations in several indicators are observed at the sub-city level.

Our partnerships across different organizations have proven invaluable in promoting the project, maximizing participation rates and generating enthusiasm regarding the imminent release of the results and their use in local decision making. This collaboration strategy will be used for future survey projects by Montreal Public Health.

Magalie Canuel
*Institut national de
santé publique du
Québec*

Titre : Boîte à outils pour la surveillance des impacts psychosociaux post-sinistre

Résumé :

Un sinistre, qu'il soit naturel (comme une inondation) ou de toute autre nature (comme un déraillement de train), peut avoir des effets sur la santé mentale à moyen et à long terme. Il y a encore peu d'études qui estiment les effets à long terme suivant un sinistre

et, parmi les études réalisées, les instruments standardisés utilisés diffèrent considérablement entre les études.

Le but de ce projet est de développer et de rendre disponible une boîte à outils (BàO) pour aider les intervenants à effectuer adéquatement la surveillance des impacts psychosociaux après un sinistre d'importance. Les impacts psychosociaux recherchés sont les symptômes de dépression, d'anxiété, de détresse psychologique, de stress post-traumatique, les réactions péritraumatiques, le bien-être, la qualité de vie, le soutien social, la consommation d'alcool, de drogues et de médicaments ainsi que l'utilisation de services en santé mentale. La boîte à outils couvre deux options pour effectuer la surveillance post-sinistre, soit utiliser des données existantes ou collecter de nouvelles données de surveillance par enquête.

En premier lieu, la boîte identifie les systèmes de surveillance québécois qui mesurent au moins un des impacts psychosociaux. On y retrouve notamment le SISMACQ, la Banque de données communes des urgences (BDCU) et le Système SUPREME.

En deuxième lieu, la BàO présente les enquêtes populationnelles de grande envergure qui mesurent aussi des impacts psychosociaux, notamment l'ESCC et l'EQSP. Plusieurs indicateurs provenant de ces grandes enquêtes ou de ces systèmes de surveillance sont diffusés dans le portail de l'Infocentre, qui facilite l'analyse des données puisque les indicateurs sont précalculés et accompagnés d'une fiche détaillée. Lorsque les données disponibles ne répondent pas aux besoins de surveillance, il est possible de faire une enquête populationnelle.

La BàO présente, en troisième lieu, des études réalisées après un sinistre au Québec ou en France, et elle résume notamment le type d'enquête, son contenu et les instruments standardisés utilisés. Les références insérées permettent d'avoir accès aux questionnaires de ces études.

En dernier lieu, les recommandations d'un comité d'experts sur les instruments standardisés qui devraient être utilisés pour mesurer, par enquête, les impacts post-sinistres sont présentées. Les instruments recommandés doivent notamment être libres de droits et validés en français. Une fiche précisant les conditions d'utilisation, l'interprétation des scores et les items servant à construire les instruments est disponible pour chaque instrument recommandé.

Cette BàO permettra de faciliter la surveillance des impacts post-sinistre, d'harmoniser les pratiques de surveillance ainsi que d'accroître le réseautage en facilitant l'échange d'information.

Marianne Bilodeau-Bertrand
Institut national de santé publique du Québec

Title: Environmental noise pollution and risk of hypertension in pregnancy

Authors: Nathalie Auger and Marianne Bilodeau-Bertrand

Abstract:

A growing number of studies suggest that environmental noise pollution may impact the risk of cardiovascular disease. We investigated the association between environmental noise pollution and preeclampsia, a hypertensive disorder of pregnancy. We undertook a retrospective cohort study of 269,263 pregnancies in Montreal, 2000-2013. Using postal codes, we assigned the environmental noise pollution measurements (dBA) to each pregnancy. We calculated risk ratios (RR) for the association of environmental noise with preeclampsia, adjusted for air pollutants, distance to highways and major roads, neighbourhood walkability, maternal age, parity, multiple pregnancy, comorbidity, socioeconomic deprivation, and time period. We assessed if associations varied according to preeclampsia severity (mild and severe) and onset time (<34 and ≥34 weeks of gestation).

Women exposed to elevated environmental noise levels (≥65 vs. <50 dBA) had a higher prevalence of preeclampsia (37.9 vs. 27.9 per 1,000). Compared with 50 dBA, exposure to a noise level of 65 dBA was associated with 1.08 times the risk of preeclampsia (IC

95% 0.98-1.19). Associations were stronger for severe preeclampsia (RR 1.27, IC 95% 1.06-1.51) and preeclampsia before 34 gestational weeks (RR 1.54, IC 95% 1.08-2.21). There were no association with mild preeclampsia and preeclampsia at ≥ 34 weeks.

Environmental noise pollution is a risk factor for preeclampsia, particularly severe or early onset preeclampsia.

In light of rising levels of urban noise, these results suggest that vulnerable populations, including pregnant women, could benefit of residential noise reduction policies. More data are needed to assess the physiologic mechanisms which explain the link between environmental noise pollution and preeclampsia.

Stephanie Young
Cancer Care Ontario

Title: Occupational Cancer in Ontario: Risk factors and prevention

Authors: Manisha Pahwa, Ela Rydz, Stephanie Young, Shelley Harris, Elisa Candido, Alice Peter, Paul Demers

Abstract:

Occupational exposures are responsible for approximately two to ten percent of all newly diagnosed cancer cases, according to studies conducted in the United Kingdom and other countries. Until recently, little research has been done to quantify the extent of exposure to known and probable occupational carcinogens in Canada and the associated burden of cancer. The objectives of this research were to identify and describe major risk factors for occupational cancer in Ontario and to propose policy recommendations for reducing exposure to occupational carcinogens.

Occupational exposure and cancer burden estimates created by CAREX Canada and the Occupational Cancer Research Centre, respectively, were used to identify the major occupational carcinogens in Ontario. Substances classified as definite carcinogens by the International Agency for Research on Cancer to which 5,000 or more workers were occupationally exposed and that caused at least 10 new cancers annually in Ontario were considered priorities. Occupational exposure and cancer burden results were summarized by industry. A policy advisory committee was consulted in order to develop overarching and risk factor-specific policy recommendations.

We identified 10 priority carcinogens that cause thousands of occupational cancers annually in Ontario. Solar radiation was the most prominent risk factor in terms of the number of workers exposed (450,000) and burden of cancer (1,400 non-melanoma skin cancers). Other significant occupational cancer risk factors were asbestos (52,000 exposed, 790 mesothelioma, lung, ovary and larynx cancers), diesel engine exhaust (301,000 exposed, 210 lung and bladder cancers), and crystalline silica (140,000 exposed, 200 lung cancers). The industries with the greatest burden varied considerably by carcinogen and were taken into account in the policy recommendations. Overarching policy recommendations include updating existing occupational exposure limits, requiring workplace exposure surveillance and reporting, and enhancing existing Toxics Use Reduction legislation.

Exposure to occupational carcinogens contributes substantially to the overall cancer burden in Ontario. The occupational carcinogens with the highest number of Ontario workers exposed and the largest impact on cancer burden were solar radiation, asbestos, diesel engine exhaust, and crystalline silica. These numbers are substantial, especially because occupational exposures are largely preventable.

These findings can help to prioritize exposure prevention and reduction measures. The evidence-based policy recommendations for reducing exposure to occupational carcinogens have been developed with all levels of government in mind, as well as members of Ontario's occupational health and safety system, employers and non-governmental organizations. Additional research is underway to estimate the associated economic burden.

Diana Kao
*BC Centre for Disease
Control*

Title: Patterns of chronic disease multi-morbidities among residents in British Columbia (BC)

Authors: Drona Rasali and Diana Kao

Abstract:

The co-occurrence of two or more chronic conditions in an individual, commonly defined as multi-morbidity, is a complex phenomenon that is becoming a norm worldwide, particularly in older adults. In BC, there is a gap in knowledge of multi-morbidities of chronic diseases, which contribute to the largest burden of disease. The purpose of this study is to investigate the general distribution patterns and the extent of occurrences of these multi-morbidities in BC population.

A cross-sectional analysis was carried out on the dataset of sixteen distinct chronic diseases (Dementia, Asthma, Chronic Kidney Disease, Chronic Obstructive Pulmonary Disease, Depression, Diabetes, Epilepsy, Heart Failure, Hospitalized Stroke, Hypertension, Ischemic Heart Disease, Anxiety, Multiple Sclerosis, Osteoarthritis, Osteoporosis, and Parkinsonism) selected covering all the 37 chronic diseases/interventions from the Ministry of Health's chronic disease registries to determine the distribution of selected multi-morbidities among BC residents for the year 2013/14.

Results showed that the overall proportions of 20+ year olds with 2 or more, 3 or more, 4 or more, and 5 or more co-existing conditions were 43.6%, 23.1%, 12.0%, and 6.3%, respectively, while those of seniors (65+) were 72.3%, 53.6%, 36.3% and 22.3%, respectively. Those proportions were consistently higher in females than in males. The heat maps of total number of disease conditions demonstrated the variations in disease prevalence across sex and age groups.

Our preliminary analysis showed that the patterns of selected chronic disease multi-morbidities are complex and vary with sex and age groups.

The evidence of multi-morbidity occurrence patterns will be valuable in designing chronic disease prevention strategies based on population health approach. Further studies are required to elucidate more comprehensive understanding of multi-morbidities in BC population.
