National Collaborating Centre for Environmental Health

Centre de collaboration nationale en santé environnementale

Evidence Gaps

* contact the NCCEH for further information

Topic	Document	Gaps
Agricultural Operations Biological Hazards	Bovine Spongiform Encephalopathy (in progress) *	currently being translated
Agricultural Operations Nuisance Control Outdoor Air	Hog Farms and Their Impact on the Quality of Life of People Living in Rural Areas: A Systematic Review of the Literature	currently being translated
Agricultural Operations Biological Hazards Zoonoses Food	Organic Livestock Potential Zoonotic Bacteria Systematic Review *	currently being translated
Chemical Hazards	Clandestine Amphetamine-Derived Drug Laboratory Cleanup	Further field research is needed to validate the effectiveness of the clandestine amphetamine-derived drug laboratory clean-up guidelines. Development of a protocol for cleanup requires collection of data and documentation of effective cleaning procedures. Scientific data is needed to ensure remediation results in effective reduction or removal of residual materials. Further research is needed to determine the levels of residue remaining after suggested cleanup procedures. Due to variation in contaminants and their distribution in clandestine labs, there is not sufficient data to recommend concentration or mass-based cleanup levels for meth, ecstasy, and MDA labs. Even if more data were available, it is not clear that this represents a practicable approach to ensure the protection of building re-occupants.
Chemical Hazards	Systematic Review of the Health Effects of Fungicides *	currently being translated
Chemical Hazards Indoor Air	Recommendations for Safe Re-occupancy of Marijuana Grow Operations	To our knowledge, there are no published MGO remediation protocols based on pre- and post-remediation data, especially regarding pesticides. Additional data to verify the effectiveness of remediation protocols is needed.
Chemical Hazards	Polybrominated Diphenyl Ethers (PBDEs)	The human health effects of exposure to PBDEs have not been well studied. It is not known if PBDEs cause adverse health effects in humans at environmentally relevant levels. At this time, there have been no studies linking adverse health effects with existing PBDE levels in humans. Further research is needed into the human health effects of PBDE exposure.
Children's Environmental Health Chemical Hazards Environmental Health Surveillance	Epidemiological Evidence of Relationships Between Selected Pregnancy and Child Health Outcomes and Parental or Childhood Residential Pesticide Exposure	currently being translated
Children's Environmental Health Chemical Hazards	Residential and Bystander Pesticide Exposure During Critical Periods and Childhood Leukemia *	currently being translated

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Climate Change	Systematic review: How efficacious and how practical are personal health protection measures recommended to reduce morbidity and mortality during heat episodes?	currently being translated
Climate Change	Current Evidence on the Effectiveness of Interventions During Heat Episodes	There's an absence of formal evaluations of effectiveness of heat interventions because interventions such as cooling centres, while efficacious, have not been evaluated for effectiveness by monitoring the profile of those using them (specifically, whether high risk populations use them), nor has the benefit of the intervention been estimated in terms of change in quantitative morbidity and mortality figures. There is no standard definition for a heat episode or for heat-related illness. Heat episodes are rare events with varying impacts on different populations and geographical regions. Given that no two heat episodes are the same, challenges arise in attributing changes in health outcomes to interventions rather than to differences in overall weather conditions or to particularities of study design. Furthermore, several interventions are typically implemented rather than only one, making it difficult to attribute beneficial effects to a specific intervention. There is a complete lack of evidence on socially isolated populations and the homeless, due to challenges in conducting heat-health research in these communities.
Drinking Water Aboriginal Environmental Health	What are the existing environmental health practice and policy gaps with respect to potable water quality and quantity within aboriginal communities in Canada? *	currently being translated
Drinking Water Biological Hazards Communicable & Infectious Diseases	When can Point-of-Use Water Filters be used for Removal of Protozoa?	Existing evidence is sparse on the applicability of POU devices for reducing turbidity. More attention has been given to specific organism removal or the regrowth of heterotrophic bacterial in POU system filters.
Drinking Water Chemical Hazards	Chlorination Disinfection By-Products (DBPs) in Drinking Water and Public Health in Canada	currently being translated
Environmental Health Surveillance Zoonoses Communicable & Infectious Diseases	Systematic Review of Surveillance Systems for Emerging Zoonotic Diseases	currently being translated
Environmental Planning Outdoor Air	Active Transportation in Urban areas: Exploring Health Benefits and Risks	Although it appears likely that there will be societal benefits from increased active transportation, there is limited evidence that directly supports this assumption and more studies would be helpful.
Environmental Planning Nuisance Control Radiation Physical Hazards	Wind Turbines and Health	currently being translated
Environmental Health Surveillance Aboriginal Environment Children's Environmental Health	Systematic Review of Human Biomonitoring Studies of Environmental Contaminants	currently being translated
Food	Raw Milk (in progress) *	currently being translated

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Food Communicable & Infectious Diseases	Church/Community Suppers: What is the Evidence for Risk of Food-borne Illness?	Overall, there appears to be under-reporting in the published literature of food-borne disease outbreaks related to community events. A system to capture community event-related outbreaks is not currently available in Canada. Such a system would help to better understand food-borne illnesses in the community. Research is needed on more effective ways to educate the population about food safety and to provide more efficient food safety education/certification for food handlers involved in certain types of community-catered events. Gaps exist between knowledge and application of proper food handling procedures and additional studies are needed on how best to close these gaps.
Food Aboriginal Environmental Health	Safe Preparation and Storage of Aboriginal Traditional/Country Foods: A Review	currently being translated
Food Chemical Hazards	Does Eating Organic Food Reduce Pesticide Exposures and Health Risks?	Currently, there is very limited data on dietary pesticide exposure levels, and no data on the relative health risks and benefits of consuming organically- versus conventionally-grown food. More research is needed to quantify (1) dietary and other sources of pesticide exposures among different segments of the population, (2) potential health effects from low-level dietary pesticide exposures, and (3) the relative risks and benefits of an organic versus conventional diet. There remain significant gaps in scientific knowledge with respect to differences in pesticide residue (synthetic and natural), microbial pathogen, mycotoxin, and natural toxin levels in organically-grown versus conventionally-grown food.
Indoor Air Aboriginal Environmental Health	Indoor air quality in First Nation housings: State of Knowledge, Needs, and Gaps *	currently being translated
Indoor Air Biological Hazards	Health Effects from Mould Exposure in Indoor Environments	Although there is clear evidence that dampness contributes to illness, the exact agent has not been determined. For example, mould has been associated with asthma symptoms, but there is insufficient evidence that indicates mould exposure triggers the occurrence of asthma sensitivity. There are no quantitative exposure relationships between mould and health effects. There are many significant gaps in the evidence and numerous important limits regarding information in this field, such as: limitations in defining what constitutes a “dampness” problem; limitations in exposure assessment methods; lack of knowledge about types of mould possibly associated with health outcomes; contribution of other factors in damp indoor environments; and limitations regarding the nature of human exposure. As well, the fact that the reporting of health effects is not standardized is problematic.
Indoor Air Physical Hazards Environmental Planning Public Facilities-General Health & Injury Prevention	Are Naturally Ventilated LEED Buildings Healthier?	Currently, little is known about the performance of NV LEED. With the impending exponential increase in LEED buildings, further research is required to identify appropriate IEQ performance indices, types of exposure for occupants, collective impacts of exposure, types of interventions, and the relative costs and benefits of resulting health outcomes. Measures must be taken to fill the research gap between building design and building performance.
Outdoor Air Environmental Health Surveillance	Adverse Cardiovascular Health Effects of Exposure to Short-Term Air Pollution:measures to protect populations at risk	currently being translated
Outdoor Air	Traffic Air Pollution and Related Interventions *	currently being translated

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Outdoor Air	High Burst Particulate and Cardiovascular Effects	There is insufficient evidence to regulate peaks of fine particles. Further studies are needed to know if vulnerable populations should avoid situations where there are peaks of fine particles. Given that exposure to peaks of fine particles is frequent and the suggestive evidence that peaks of fine particles are associated with the occurrence of cardiovascular effects, we should recommend that those with cardiovascular diseases avoid high peak situations.
Outdoor Air Indoor Air Physical Hazards	Residential Use of Wood-Burning Appliances in Canada: Emissions, Health Effects, and Intervention Strategies	currently being translated
Radiation	Cellular/Mobile Phone Use and Intracranial Tumours	Existing research is limited to adults; little is known about potential risks to children. A large cohort study is underway to examine potential risks in this population group (Feyching 2006).
Radiation	Epidemiological Studies of the Relationship between Handheld Cellular Telephone Use and Brain Tumours: A review of the evidence	currently being translated
Radiation Physical Hazards	An Evaluation of Interventions Designed to Reduce Ultraviolet Radiation Exposure	Very few studies evaluate the effectiveness of interventions in childcare, outdoor occupations, secondary schools and colleges, healthcare systems, and recreational/tourism settings. Although there have been many intervention studies conducted in these settings, the lack of standardization in intervention content and implementation, as well as variation in outcome measurements, make it difficult to reach a conclusion on intervention effectiveness. Appearance-focused interventions may be more effective than health-focused interventions in college age students. This is a new area of research and, at this point, evidence is insufficient to make recommendations regarding the effectiveness of appearance-focused interventions in college students.

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