

Climate change and infectious disease in Canada and BC

Climate change in BC is predicted to bring warmer, rainier winters; drier summers; and more extreme weather events.¹ As a result, interactions between people, the environment, and pathogens will change. Here we review changes to infectious diseases that clinicians may see as a result of climate change.

Vector-borne diseases

Climate is a key factor in vector distribution and to a lesser extent the occurrence of vector-borne diseases. The incidence of Lyme disease is increasing in Eastern Canada as *Ixodes scapularis*, the tick vector of this disease, expands its range northward into populated regions.² In BC, the tick *I. pacificus* is the main carrier of Lyme disease. It is already present in populated regions and is likely to expand into less-populated regions.³

Incidence of West Nile virus, the most common mosquito-borne disease in Canada, also may increase in BC with climate change. Levels of mosquitos from the genus *Culex*, which transmit the virus to humans, have been linked to warm winters and warm, wet springs that promote mosquito breeding and feeding.⁴ Though incidence of West Nile virus has been low in BC, more frequent weather extremes on the back of a warmer climate may contribute to future outbreaks.⁵

Clinicians are also likely to encounter greater numbers of vector-borne diseases such as Chikungunya,

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dengue, and Zika in travelers. Though these diseases may not expand their range to BC, they will increase their range into areas that Canadian travelers visit, including the Caribbean, Latin America, and Asia.²

In Canada, outbreaks of *E. coli*, *Campylobacter*, and *Cryptosporidium* have been linked to summer weather, and outbreaks may become more frequent in the future.

Enteric diseases

Many enteric diseases are more common in summer, partially due to precipitation. Heavy rainfall, particularly after a drought, can flush a pulse of contaminated material into water supplies. This can be exacerbated by precipitation-related turbidity, which may reduce the effectiveness of water treatment.⁶ This may be relevant in BC with climate change predicted to bring heavier fall precipitation following hotter and drier summers. Activities associated with warm weather (e.g., swimming, boating, and communal outdoor eating) also contribute to this seasonal pattern of waterborne illness. In Canada, outbreaks of *E. coli*, *Campylobacter*, and *Cryptosporidium* have been linked to summer weather, and outbreaks may become more frequent in the future.

Enteric pathogens may also grow more widely and rapidly in warmer weather. For example, outbreaks of *Vibrio parahaemolyticus* in BC have been associated with above-average ocean temperatures, which promote growth and proliferation of this pathogen.⁷ More frequent outbreaks

of *V. parahaemolyticus* are expected in coming decades.

Other diseases

Other diseases, such as *Legionellosis*, also peak in warmer months. A warming climate may increase the incidence of *Legionella*-related diseases.

Recommendations for clinicians

Clinicians should be vigilant for changing patterns of infectious diseases that may be related to extreme weather and climate change. In particular, extreme weather events such as heavy rainfall have been associated with an increased risk of outbreaks of waterborne disease, and other diseases such as *Legionellosis* peak during warm months and may increase as the climate warms. Warmer waters may also increase the risk of infectious diseases from locally harvested shellfish.

Clinicians should be aware of reportable infectious diseases in BC and notify their local medical health officer of any outbreaks or unusual occurrences of disease. Surveillance will be key to understanding the interaction between climate change and infectious diseases.

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Microsystems & Nanoengineering.

Revamped mental health and substance use website for young people

The BC Children’s Kelty Mental Health Resource Centre has launched a new website so families and health professionals can more easily find mental health and substance use information and resources to support children and youth.

The website, keltymentalhealth.ca, contains information, tools, and services, including evidence-based supports, created by trusted health experts at BC Children’s Hospital. Kelty also launched a new Instagram account (@keltycentre) to comple-

ment information already provided through Facebook (www.facebook.com/keltymentalhealth) and Twitter (<https://twitter.com/KeltyCentre>), connecting followers to the latest resources and information on mental health and substance use via social media.

In addition to the website, the Kelty Centre offers a variety of services so that children, youth, and families can find the help they need, when they need it, as close to their home communities as possible. This includes peer support services from trained young adults and parents with experience in child and youth mental health, through a collaboration with FamilySmart.



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