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## The impacts of flooding on health

**F**looding is a seasonal hazard that many communities in the BC Interior encounter. It has become, and will likely continue to be, more frequent and more severe. Flooding affects not only health but also infrastructure and communities. Between 80% and 90% of all documented disasters from natural hazards in the last 10 years have resulted from floods, droughts, heat waves, and severe storms. The extreme conditions they generate are expected to increase due to climate change and will impact health.

Flooding impacts health directly, as well as indirectly through infrastructure and community disruption. Although young men are most at risk of mortality due to flooding, those most vulnerable to mental and physical effects are women, the elderly, and children.<sup>1</sup> Individuals affected by flooding are at least 5 times more likely to suffer from anxiety and depression. Those who experience disruption to utility infrastructure or increased floodwater depth have even higher odds of both outcomes.<sup>2</sup> Repeat flooding events lead to a higher prevalence of depression, quality-of-life measures such as chronic pain, and disrupted access to usual activities, with impacts persisting for multiple years.<sup>3,4</sup>

*This article is the opinion of the authors and not necessarily the Council on Health Promotion or Doctors of BC. This article has not been peer reviewed by the BCMJ Editorial Board.*

Our personal clinical experience from living in flooded areas has shown that although Canadians are often spared from the acute effects of flooding, such as death and injury, intermediate effects are pronounced, including impacts on underlying health conditions and damage to infrastructure; long-term effects include worsening mental health, poverty, displacement, and community change. Many individuals in flood-prone areas live in homes that are not insurable against flooding, with studies showing increased mental distress among the uninsured.<sup>5</sup> Flooding in Grand Forks in 2018 led to displacement of an entire neighborhood, further contributing to housing instability for many families. Individuals living there tended to be low income before the flood and after being displaced found themselves largely unable to secure reliable housing in a constricted housing market. In the severe 2021 flooding in Princeton, damage to vulnerable infrastructure resulted in evacuation of long-term care facilities due to inadequate heat as well as a multiweek hospital closure due to water damage. Loss of critical infrastructure, when it is most needed, is a serious health challenge.

Flooding tends to wash out vulnerable infrastructure, leaving both communities and citizens vulnerable. Lessening the future impacts on health, both direct and indirect, will require strengthening our national health emergency and disaster management capabilities and the resilience of our health systems. Municipalities are urged to prepare their communities to protect at-risk populated areas. Physicians might

consider how to incorporate the impact of disasters such as flooding into the comprehensive assessment of their patients and their practice. A brief intervention that might include inquiring about a patient's social network (who might help you), advance preparation (what should you gather now, such as medications and a medical problem list), and planning (where could you go) has been shown to increase psychological readiness. There is an urgent need to build and deploy a disaster-resilient health system. Empowering patients to develop a personal pre-disaster plan, particularly those who are most vulnerable and most impacted, is important for managing health during a disaster. ■

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### References

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