



## Socio-economic disparities and living conditions

It is believed that the greater a person's social and economic disadvantage, the greater their risk of influenza infection and severe outcomes. First Nations, Inuit and Métis people experience significant socio-economic disadvantages including lower levels of education, higher rates of unemployment and poverty, and poorer housing conditions. These may contribute to the risk of getting and spreading infectious illnesses like influenza. Poor living conditions, including overcrowded housing, exposure to indoor air pollutants, and lack of access to clean running water, are all factors which likely contributed to the higher rate and severity of the 2009 H1N1 influenza infection among Indigenous populations.

## Cultural Factors

In many Indigenous communities there are unique cultural factors which can increase contact between people and contribute to the spread of influenza. For example, strong social ties characterize many Indigenous cultures and it is not uncommon to have different generations of a family living together in the same home. Ceremonial gatherings are also very important in Indigenous cultures. Studies related to the 1918-1919 influenza pandemic showed how cultural activities impacted the different levels of illness in Indigenous communities. Some communities within the same region were spared from the pandemic when a quarantine was imposed to restrict the movement of the ill, while others took a major toll. The differential impact of the influenza within these communities can be attributed to differing levels of social contact among people within the community and between communities. This was not only due to the distance of one settlement to another and difficulties of winter travel to neighbouring communities, but also from the nature of seasonal harvesting and gathering activities and the economic importance of communities within the fur trade. These differences affected how the influenza spread, or did not spread, within and between communities.

## Health status

There is a considerable gap in the health status of Indigenous people compared with other Canadians. People with poor health are generally less able to fight off influenza infections and are more likely to have severe outcomes. Research found that during the first of two waves of the 2009 H1N1 influenza in Canada, 47.5% of patients admitted to the hospital, 60.2% of those admitted to intensive care units, and 73% of fatalities had one or more pre-existing health conditions, such as chronic lung disease, heart disease, kidney disease, and diabetes. As well, obesity may have increased the severity of the illness and lengthened the need for mechanical ventilation. Indigenous peoples have higher rates of chronic diseases like obesity, diabetes, HIV, tuberculosis, and AIDS, hypertension, and cardiovascular disease. It is therefore reasonable to assume they would have greater vulnerability to severe outcomes from influenza. It also highlights the need for holistic approaches to improve general health and well-being as an essential step for pandemic prevention strategies in Indigenous communities.

## Health Behaviours

Certain health behaviours have the potential to affect the spread or severity of influenza. Some behaviours may be harmful to overall health and lower one's ability to fight infections, like smoking, heavy drinking or delaying seeking medical care. Other behaviours may prevent a person from taking preventative measures, like vaccinations, to avoid becoming ill in the first place. Indigenous people were prioritized during the vaccination campaign during the 2009 H1N1 outbreak. However vaccination rates varied between communities. Lower rates may be explained, in part, by perceptions among some Indigenous people that they were being used as guinea pigs for a new vaccine. Such perceptions can perpetuate the feelings of fear and mistrust that many Indigenous people have in regards to health care workers and services and can keep them from seeking out health care when they need it.

## Genetic Susceptibility

A final factor that may be linked with higher levels of H1N1 influenza amongst Indigenous populations is genetics. Though there is little research to date, and more needs to be done, some researchers have argued that Indigenous people may have different genes linked to how their immune systems react to infections. This genetic difference (or variation) may increase their risk of having severe infection outcomes.

## Conclusion

Generally speaking, there is no single factor which explains why more Indigenous people were heavily affected by the 1918-19 or 2009 influenza pandemics. Instead, there are a number of reasons which make Indigenous people more vulnerable, including their younger age, higher rates of smoking, higher rates of pre-existing chronic conditions, poverty, overcrowded and inadequate housing conditions, lack of access to clean water, lower levels of education, inadequate access to quality health care, and living in isolated locations, among others. However there are numerous gaps in knowledge that warrant further research in the context of Indigenous populations. These include:

- whether there are any links between socio-economic factors (income, employment, education) and influenza prevalence and severity;
- whether there are any links between environmental factors (overcrowded housing, poor quality housing, indoor air quality) and influenza prevalence and severity;
- the impact of health behaviours like smoking and drinking on higher rates of infection or ability to fight infection;
- the impact of nutrition (or lack of nutrition) on resistance to influenza infection;
- factors related to preventive health and health care seeking behaviours;
- interactions between previous illnesses, like TB, with influenza; and
- whether there is any genetic susceptibility that places Indigenous people at risk of severe outcomes from influenza pandemics.

Together, these factors highlight the need for a better and more holistic framework for pandemic planning for Indigenous communities. This framework should not only allow Indigenous communities to identify ways to better respond to public health emergencies in the future, such as influenza outbreaks, but should also aim to improve disadvantages in socio-economic status (ie. education, income) and living conditions (housing, clean running water), and improve health generally (ie. smoking cessation) within Indigenous communities. Without addressing such inequities, the burden of influenza illness will likely continue to be heavy in Indigenous communities.

The three papers in this series include:

1. The 2009 H1N1 influenza pandemic among First Nations, Inuit and Métis peoples in Canada: Epidemiology and gaps in knowledge
2. Determinants of the prevalence and severity of influenza infection in Indigenous populations in Canada
3. Pandemic planning in Indigenous communities: Lessons learned from the 2009 H1N1 influenza pandemic in Canada



Additional NCC documents in this series are available at: <http://nccid.ca/collection/influenza/>



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