

# Predicting Vulnerability: Pandemic H1N1/09 and Canada's First Nations

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## Introduction

➤ On June 11, 2009, the Director General of the World Health Organization, Dr. Margaret Chan, announced that the scientific evidence indicated that the criteria for an influenza pandemic had been met: pandemic H1N1/09 virus, the first in nearly 40 years, was officially upon us.

➤ The World Health Organization has estimated that as many as 2 billion or between 15 and 45 percent of the population globally will be infected by pandemic H1N1/09.

➤ The majority of individuals infected with H1N1/09 have suffered mild illness although very severe and fatal illness have been observed in a small number of cases, even in young and healthy people.

➤ There is no evidence to date that the virus has mutated to a more virulent or lethal form; however, as we enter the second wave of the pandemic, a significant number of people in countries across the world are susceptible to infection.

➤ Certain subgroups have been categorized as high risk given the clinical evidence to date. One of these subgroups is Indigenous populations.

➤ Disproportionate impact of the pandemic as of August 22, 2009: Aboriginals in Canada constitute 3 percent of the national population yet they represent 12.6 percent of confirmed cases of H1N1/09, 17 percent of associated hospitalizations and 14 percent of cases admitted to ICU.

➤ St. Theresa Point and Garden Hill, both remote First Nations communities in Northern Manitoba, were the first sites of major outbreaks of pandemic H1N1/09 in Canada.

➤ Major breakdowns in the provision of service by the government, including a shortage of pandemic supplies, inadequate health care, and insufficient training, were experienced.

➤ Dr. Kim Barker, the public health physician with the Assembly of First Nations warns, "We're talking about a handful of communities right now... If they can't shift a few masks onto an airplane right now, what will it be like when we're dealing with dozens and dozens of First Nations communities this fall and winter?"

## Human Development Index (HDI) Gaps: Indigenous and General Populations

	Australia Non-Aboriginal	Aboriginal and Torres Strait Islander	Aboriginal-Non-Aboriginal Gap
Life Expectancy	82.8	59.6	23.2
Median Income (2000 PPP\$)	21767	12268	9499
Education <sup>T</sup>	0.69	0.31	0.38
HDI Rank	4	104	100

	Canada Non-Aboriginal	Canadian Registered Indian	Gap
Life Expectancy	78.7	72.9	5.8
Median Income (2000 PPP\$)	27617	14824	12793
Education <sup>T</sup>	0.79	0.44	0.35
HDI Rank	8	54	46

	New Zealand Non-Aboriginal	Maori	Gap
Life Expectancy	79.6	71.1	8.5
Income (2000 PPP\$)	29756	23024	6732
Education <sup>L</sup>	0.63	0.37	0.27
HDI Rank	20	74	54

	United States Non-Aboriginal	American Indian and Alaska Native	Gap
Life Expectancy	76.6	70.6	6.0
Income (2000 PPP\$)	21050	16000	5050
Education <sup>R</sup>	0.75	0.67	0.08
HDI Rank	7	31	24

<sup>T</sup> Proportion 18-24 still in school or with highest educational qualification year 12 or equivalent

<sup>T</sup> Proportion 18-24 with secondary school certificate, some college, trades or technical, or university

<sup>L</sup> Proportion 18-24 with sixth form or higher qualification

<sup>R</sup> Proportion 18-24 with high school graduation, GED, or higher educational attainment

Adapted from Cooke et al. (2007), *Aboriginal Well-Being: Canada's Continuing Challenge*

## Predicting Vulnerability: The Community Well-Being (CWB) Index

➤ Which communities are vulnerable? In Canada, we have a potential model. The CWB Index is probably the best tool for predicting those communities which will be at greatest risk of being affected by H1N1.

➤ The CWB Index, developed by researchers at the Aboriginal Policy Research Consortium (International) and Indian Affairs Canada, measures well-being at the community level using data from the Census.

➤ It is composed of four key social determinants of health: income, housing, education, labor force status.

➤ It assesses differences between First Nations communities themselves and between First Nations communities and other Canadian communities over time.



Pandemic Flu Protection Kit

## Results

➤ First Nations communities fare worse than other Canadian communities

➤ Only 1 of the top 100 Canadian communities is a First Nation and 92 of the lowest scoring communities are First Nations.

➤ Differences between First Nations communities are great; in some cases the differences are larger than between First Nations and the Canadian population. This coincides with many news reports which have found that some communities have been hit much harder by pandemic H1N1/09 than others.

➤ We have been unable to secure data to examine the relationship between the CWB Index and H1N1/09 outbreaks across Canada.

➤ In the absence of extensive empirical testing, the sites of early H1N1/09 outbreaks all have relatively low CWB scores.

➤ St. Theresa Point and Garden Hill are in the bottom 10% among First Nations communities.

➤ Increased surveillance and resource allocation are considerations given this data.

## Conclusions

➤ The international data captures the systematic inequality of Indigenous populations worldwide. International reports have indicated that Indigenous populations will continue to endure an inordinate amount of anguish resulting from this pandemic.

➤ Efforts to mitigate the impact of the pandemic are underway; however, many of these solutions fail to address the underlying social factors which leave many communities "at risk."

➤ Until these social factors are ameliorated, we will continue to witness disastrous outcomes for years to come.

➤ We have proposed a model for predicting the differential vulnerability of First Nations communities in Canada allowing policy makers to plan accordingly. We believe the CWB Index could also be very useful as a tool in other countries.

➤ The main strength of the CWB Index is that it is a theoretically rooted measure, composed of basic social determinants of health.

## Social Problem

➤ Why are Aboriginal peoples at greater risk of pandemic H1N1/09, specifically First Nations in reserve communities?

➤ Can we predict vulnerability and institute relevant measures to mitigate pandemic H1N1/09 in First Nations communities?

➤ Which First Nations communities are at "high risk?"

## Context of Susceptibility: Social Determinants of Health

➤ Canada's First Nations are "at risk:"

Low educational attainment

Low income

Poor housing conditions and overcrowding

High unemployment and low labor force participation

Inadequate access to health care

Poor lifestyle habits (smoking, alcohol consumption, inadequate nutrition)

## Future Research

➤ Access to more pandemic H1N1/09 data to test the model in Canada.

➤ Development of the CWB Index in other countries to predict vulnerability to future pandemics in communities globally.

## Publication

➤ Spence, Nicholas and Jerry White. (Forthcoming). "Scientific Certainty in a Time of Uncertainty: Pandemic H1N1/09 and Canada's First Nations." *International Indigenous Policy Journal*.