

# Weather patterns play significant role in seasonal influenza

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Influenza is like a cloud, moving across Canada with the fall weather. McMaster researchers have established that the spread of seasonal flu in Canada is tied to low temperature and low humidity, and travels west to east—findings that may have significant implications on measures such as the timing of vaccination programs across the country. The findings were published Tuesday in the *Proceedings of the Royal Society B*.

"We found that when there are lower temperatures and humidity in the autumn, the likelihood of an early seasonal [influenza epidemic](#) increases," said co-author David Earn, a professor of mathematics and statistics and an investigator with the Michael G. DeGroote Institute for Infectious Disease Research (IIDR).

"This is something [public health officials](#) might want to consider when determining the timing of a [vaccination program](#). If you know you have low temperatures and low humidity in the early autumn, our study suggests that it is more likely that you are going to have an earlier influenza epidemic, so there is greater value in vaccinating people earlier."

The study was led by DaiHai He while he was a postdoctoral researcher at McMaster. He is now a faculty member at Hong Kong Polytechnic University. The research was also co-authored by Jonathan Dushoff, an associate professor of biology at McMaster and an investigator with IIDR.

The researchers studied cases of laboratory-confirmed influenza A in 10 Canadian provinces from October 1999 to August 2012. They found that, on average, the early emergence of seasonal [flu cases](#) across the country was correlated with low temperatures and low [absolute humidity](#) in the fall. They also found a trend of seasonal influenza to spread from west to east across Canada.

The report is tied to the team's other recent work that found closing elementary and secondary schools can help slow the spread of infectious disease, and should be considered as a control measure during pandemic outbreaks.

"Because of these studies, we have a better understanding, and that allows us to conduct more accurate epidemic modelling," said Earn.

"While the biological mechanisms that connect weather to influenza transmission are not understood in detail, the correlations we found in this study have significant implications for epidemic prediction and control."

**More information:** Patterns of Spread of Influenza A across Canada, [rspb.royalsocietypublishing.org/doi/10.1098/rspb.2013.1174](http://rspb.royalsocietypublishing.org/doi/10.1098/rspb.2013.1174)

Provided by McMaster University

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