



NEWS

Why you should care if a place far away has high COVID numbers

Failure to control viral spread leads to dangerous new variants

By [Megan DeLaire](#) Independent Free Press

Friday, May 28, 2021

It's easy for people in regions with low COVID-19 case numbers to dismiss outbreaks in places they have no interaction with, or even oppose the sharing of pandemic resources with their struggling neighbours. But experts say that with a virus capable of generating variant strains like SARS-CoV-2 is, no one is really safe until everyone is safe.

This is because whether it's happening in a city across the province or a country halfway around the world, unchecked spread of the SARS-CoV-2 virus leads to the emergence of new, more contagious and potentially vaccine-resistant strains of the virus. And these new variants can quickly grow from a local problem to a widespread one.

Variants are the product of mutations the virus undergoes as it replicates. Mutations can be minor or significant changes to the virus' genetic code that happen spontaneously while that code is being copied as part of the replication process, explains Omar Khan, who teaches biomedical engineering at the University of Toronto.

"Every replication event is an opportunity for a mistake and that mistake can randomly lead to a change that is actually favourable," Khan said. "It's a random change that happens because of an error. Most of these changes that happen are junk. They will change the virus in a way that it's no longer viable so it doesn't work as well anymore."

But one in every so many mutations makes the virus work better, adds Art Poon, an associate professor of pathology and laboratory medicine at Western University.

"Some of those mutations help it avoid our immune system. Other mutations make it better at latching on to our cells," Poon said. "And we don't know how many other mutations there are out there that could create an advantage for this virus."

The more times the virus replicates, the more likely it is to draw a winning lottery ticket in the form of a mutation that makes it stronger, which it can pass on through replication to create a new strain. The severity of a COVID-19 infection in an individual can raise the odds, since there's more replication happening, Khan said, but the main risk factor is the transmission of the virus from person to person.

"When you have a pandemic, lots of people infected, you're getting a lot of replication and these low chances of random changes then become amplified," Khan said. "This is why our goal is to stop viral replication, because viral replication is one means by which this mutation can happen."

High rates of transmission in Toronto, for example, can affect cities like Ottawa and Timmins if uncontrolled viral replication in Canada's largest city allows a more contagious or vaccine-resistant new variant to develop and spread throughout the

province.

It also means that, in addition to being devastating humanitarian crises, other countries' struggles to overcome COVID-19 raise the odds of new variants developing and finding their way here. Variants that emerged in countries like the U.K., Brazil, South Africa and India when their health-care systems were overwhelmed by COVID-19 cases now outnumber cases of the original virus in Ontario.

Related content

Here's what you need to know about Ontario's COVID-19 variants

Here are 14 notable discovered around t

"When we now look past Canada and the U.S. and parts of Europe, we're seeing the rest of the world where these numbers are going up like crazy. This is just purely replication events — opportunities for mutation," Khan said.

Khan and Poon agreed the most effective way to prevent new variants from emerging is to limit chances for the virus to replicate through the accepted pandemic measures and by ensuring pandemic "hot spots" have the tools they need to fight the virus.

"The measures that we have to follow and getting vaccinated and self-isolating and physical-distancing is not just about avoiding getting sick it's also about you know preventing the emergence of more of these variants," Khan said.

"Unfortunately it's not quite done until we have everyone vaccinated so everyone's fighting right at the same level."

Headlines newsletter

Top stories delivered to your inbox.

Sign Up

Megan DeLaire is a reporter with *toronto.com*. She has worked in print and digital newsrooms in Ottawa and Toronto since graduating with honours from the journalism program jointly offered by the University of Ottawa and Algonquin College in