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STAR EXCLUSIVE

Why did Ontario COVID-19 rates surge after Christmas? New cellphone mobility data offers some clues

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On Friday, exactly two weeks after Christmas, [Premier Doug Ford](#) appeared before television cameras looking shaken.

“This is the most serious situation we’ve ever been in ever, ever, since the start of this pandemic,” he said of the province’s latest record-breaking [COVID-19](#) numbers.

But this “desperate situation” is one many experts say they could have predicted in the [days and weeks before Christmas](#), when they urged stricter and broader restrictions ahead of the holiday season. Instead, the province announced new restrictions starting on Boxing Day — after people would have already done their last-minute shopping and gathered for the holidays.

Experts now say the holiday period accelerated what was already an alarming trajectory before Christmas. According to mobility data shared exclusively with the Star, some health units that have seen dramatic increases in post-holiday infection rates also had among the province’s highest rates of movement.

Warning people of a lockdown several days in advance is a “ghastly” way to communicate risk and gave people implicit permission to proceed with their holiday plans, said Dr. Jody Lanard, a risk communications expert who has consulted with the World Health Organization.

“The few days before the lockdown ... did the most damage of all the weeks leading up to Boxing Day,” Lanard said. “It was a big mistake to say, ‘Pretty please don’t gather for Christmas, but the day after Christmas, we’re putting down the sledgehammer.’”

What remains unknown is whether highly transmissible new variants of the coronavirus could have also contributed to recent case rises in Ontario. Public Health Ontario has only found six samples of the U.K. variant so far, and there’s currently no evidence they’re behind the recent provincewide surge, said Dr. Jeff Kwong, a senior scientist with the ICES, a non-profit research institute.

Last week, ICES released alarming new test positivity numbers for Ontario's 34 public health units, many of which spiked after Christmas.

"There were a lot of gatherings obviously happening because there's no other explanation for this," Kwong said. "You could (argue) essential workers still had to go to work, but they've been having to go to work for all of these weeks and months and we didn't see all of this explosive growth all of a sudden.

"Just to see the jump — it was quite upsetting to see."

Now that 14 days have passed since Christmas — the maximum incubation period for the coronavirus — the Star analyzed public health and cellphone mobility data to understand what happened during this single, consequential week before the province locked down.

A shift in Ontario's epidemic

In the weeks after Christmas, a significant shift occurred in Ontario's epidemic. Previously, Toronto, Peel Region and York Region made up 70 or 80 per cent of the Ontario's cases; on Thursday, however, they accounted for just 54 per cent.

This is "concerning," Dr. David Williams, Ontario's chief medical officer of health, said in a press conference Thursday. "That means a lot of areas outside of those (regions) have gone up extensively."

When comparing the week before lockdown and the week before New Year's Eve, Ontario's case rate per 100,000 people jumped by 23 per cent, Williams said. And public health data suggests the holidays were a particularly consequential period for many public health units outside the GTA.

In late November, Lambton was [the only public health unit](#) in southwestern Ontario to remain in the province's green or "prevent" zone. But as of Jan. 8, the region of roughly 132,000 people had the third-highest infection rate in the entire province, according to the Star's count.

Cases in the Sarnia-area health unit began rising in mid-December. But when the holidays hit, a lot of people were on the move — in the week before Boxing Day, Lambton had one of the province's highest mobility rates, with 70 per cent of people "out and about," according to cellphone mobility data collected by marketing firm Environics Analytics.

(The data set shows anonymized location data for the percentage of people over age 15 who were "out and about" over a certain time period, defined as moving 500 metres or more beyond their home postal codes. Environics says the data is privacy-compliant, adjusted to correct for under-sampling, and aggregated to the postal code level.)

Mobility rates tend to be higher in more rural areas where people typically travel greater distances, and mobility doesn't tell us whether people actually gathered. But since Christmas, Lambton has seen the province's biggest increase in infection rates (176 active cases per 100,000 people as of Jan. 7) and a surge in test positivity.

In the week before lockdown, 3.3 per cent of tests in Lambton were positive; as of Jan. 2, that figure had more than doubled to 6.8 per cent, according to data from Lambton Public Health.

Other health units that have seen some of the province's biggest jumps in active case rates after Boxing Day include Eastern Ontario, York, Niagara, Middlesex-London and Ottawa, where cases are "dramatically higher since before the holidays," medical officer of health Dr. Vera Etches tweeted Saturday.

But some of the biggest spikes are in southwestern Ontario health units like Lambton, Windsor-Essex and Chatham-Kent, which had the province's highest mobility rates over the Christmas week.

While there is growing alarm over the possibility of new variants circulating in the region — and concerns from some experts that the province isn't looking hard enough to detect them — Public Health Ontario said it's "actively conducting surveillance" in areas like Windsor-Essex, with plans to start sequencing in places like Lambton that have seen recent surges.

PHO said it is currently sequencing 250 viral genomes per week — a sampling of about one per cent — but will increase to 350 "within the next few weeks."

Cross-border shopping

On the Friday before Christmas, as calls for broader lockdowns grew louder, the premier announced an emergency weekend meeting to deliberate the province's fate.

On the following Monday, he made his announcement: a province-wide lockdown — but not for five days.

Across the GTA, only Toronto, Peel Region, York Region and Hamilton were locked down before Christmas, despite pleas from mayors like Toronto's John Tory and Mississauga's Bonnie Crombie, who worried about people region-hopping to do their shopping in Durham and Halton regions.

Their fears were well-placed, mobility data suggests. In the week leading up to Boxing Day, more than 101,500 people from Toronto, Peel Region and York Region flooded into just five shopping malls in Halton and Durham regions, according to mobility data — nearly enough people to fill the Rogers Centre twice over.

In Pickering Town Centre and the Halton Hills outlet, there were more last-minute Christmas shoppers from locked-down areas — 53 and 54 per cent, respectively — than shoppers from the local region. (This includes a small number of people from Hamilton, who went into lockdown four days before Christmas.)

Oshawa Centre has perhaps never seen so many Toronto shoppers as it did in the week before Christmas, when 13,409 Torontonians descended on the mall — a 155 per cent increase compared to the same week last year

At Mapleview Shopping Centre in Burlington, this year saw 140 per cent more shoppers from Peel Region compared to the period in 2019.

And the weekend after York Region went into lockdown on Dec. 14, Toronto Premium Outlets in Halton Hills saw a 100 per cent increase in visitors from York compared to the previous weekend. Many residents also drove to Durham Region in the week before Christmas, when Oshawa Centre saw a 151 per cent surge in visitors from York Region compared to the same period last year.

This data underscores an important lesson being learned around the world — that lockdown strategies need to be co-ordinated in areas where people are highly mobile across borders, said Ashleigh Tuite, an epidemiologist with the University of Toronto.

“People are going to travel and figure out ways to do things that they want to do,” Tuite said. “We’re responding to COVID health unit by health unit, but that’s not the way that communities exist. And that’s not the way people navigate the world.”

What happened over Christmas in the GTA

In the week before lockdown, people in Toronto, Peel Region and York Region had the lowest mobility rates in Ontario, with between 58 and 61 per cent of people moving “out and about,” according to mobility data.

Yet all three health units still saw post-Christmas increases in active case rates, according to public health data. When looking at Ontario's 34 public health units, York Region saw the fifth-biggest increase after Christmas, while Toronto saw the 10th-largest growth in the number of daily active cases per 100,000 people.

In Peel Region, positivity rates grew from 10.2 per cent in the week up to Boxing Day to 13.7 per cent the week after.

Early data suggests the Boxing Day lockdown reduced mobility across the province, at least during the first weekend, the most recent period for which Environics has mobility data.

Among Ontario's 34 health units, around three-quarters also saw even larger drops in mobility than during the first weekend after similar restrictions were imposed during the March lockdown.

Toronto, York Region and Peel Region, however, which already had gone into lockdown before the rest of the province, are among the few health units that saw higher mobility compared to the first post-lockdown weekends in the spring.

Tuite said this data is difficult to interpret, with different variables that could be affecting mobility now versus back in the spring. But between the mobility data and rising case counts across Ontario, one thing is clear — the province's current approach isn't working.

“There's a lot of talk about balancing health and the harm done to our economy by having lockdowns,” she said. “But it's abundantly clear that we haven't been successful at striking that balance.

“At a certain point, we need to acknowledge that we're in these lockdowns so how do we make them as impactful as possible?”

With files from Ed Tubb and data analysis by Andrew Bailey. Graphics by Cameron Tulk, McKenna Deighton and Jordan Tamblyn



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