How do you detect the young silent spreaders of coronavirus as Canadian schools reopen? [1]

Canada's back-to-school guidelines make little mention of asymptomatic transmission or how to stop it
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EXCERPTS

With just weeks to go until schools reopen across Canada, one uncertainty that remains is how effectively children can spread the coronavirus that causes COVID-19 to others — even when they don't show symptoms.

"It's now clear the idea that children don't often get infected and don't transmit the virus is mistaken," said University of Western Australia epidemiologist Zoe Hyde.

"We know that children can transmit the virus, but we don't yet know whether they can transmit as effectively as adults."

While Canada has had fewer than 10,000 COVID-19 cases in those under the age of 19, including only one case where a child with the COVID-19 disease has died, experts say schools are uncharted territory because they have remained closed in much of the country during the pandemic.

Hyde argued in a new preprint article in the Medical Journal of Australia, which has not yet been peer reviewed, that while evidence shows children generally have less severe illness from the virus — it's wrong to assume they play a smaller role in spreading it.

"Children are much more likely to have mild or even asymptomatic infections than adults, and so they've gone under the radar," she told CBC News.

"However, as community transmission has grown in some countries, the virus has finally started to make its way into younger age groups, and large outbreaks in schools have followed."

An outbreak at a school in Chile found younger children and teachers were more likely to be infected, while Israel saw an explosion of coronavirus cases after it moved to reopen schools quickly despite cases in the community being low.

An article published in JAMA Pediatrics last month also found children at a hospital in Chicago carried a similar amount of virus in their upper respiratory tracts as adults.

While that doesn't necessarily mean they can spread the infectious virus as effectively, it did find kids aged five and under with mild COVID-19 symptoms had 10 to 100 times as much of the virus in their systems as older children and adults, so they could still be "important drivers" of the virus in the general population.

Could schools cause a surge of COVID-19 cases in Canada?
Given what we know and don't know about the way in which children can spread the coronavirus, one question remains top of mind — will reopening schools next month put students, teachers and the wider community at greater risk?

Raywat Deonandan, a global health epidemiologist and an associate professor at the University of Ottawa, said much of the research to date on how kids spread the virus is flawed because it was done while schools were already closed and cases in the community were low.

"We don't really know to a large extent what happens in the school arena," he said. "You cannot reliably conclude that child transmission is unlikely."

Another caveat is that the research also focused largely on children with COVID-19 who were symptomatic, which Deonandan said leaves many questions unanswered for younger kids who are much less likely to show symptoms.

Ashleigh Tuite, an infectious diseases epidemiologist and assistant professor at the University of Toronto's Dalla Lana School of Public Health, said that there is an increased risk of spread in schools because children's social circles are generally wider than adults.

"If you have 30 people in a classroom and each of those children has a social circle of 10 people and you have a case introduced into that classroom setting, you're potentially talking about having to think about disease transmission among 300 people," she said.

"We're dramatically increasing the size of our social networks as we have this return to school, and if you have an initial case that is introduced into that setting in a child who's asymptomatic, it may take time until you recognize that there's transmission happening."

Is Canada doing enough to stop asymptomatic spread in schools?

Canada's federal guidelines for returning students to school focus heavily on isolating those with symptoms but make little mention of asymptomatic transmission. They also concede COVID-19 in children is "not fully understood" and "evidence may change with time."

"From the very beginning of the epidemic, we have completely dropped the ball on understanding the role of asymptomatic transmission of this infection," said Dr. Isaac Bogoch, an infectious diseases physician at Toronto General Hospital.

"To date, seven months in, we still don't have a very good understanding of the proportion of people that are truly asymptomatic."

Despite that lack of understanding, Bogoch says the current back-to-school protocols in place could work to address any potential asymptomatic spread in the classroom.

"If an asymptomatic person is going to school and they have a mask on the entire time and they're washing their hands religiously and they're separated two metres from other people, it's far less likely that they're going to transmit this infection to other people," he said.

But new modelling from the federal government warns of the potential for a "fall peak" in coronavirus cases, adding that "closed and crowded indoor settings where physical distancing is a challenge pose high risk for outbreaks."

Rapid testing would be 'a tremendous benefit'

Besides focusing on increased ventilation, physical distancing, masks and avoiding crowded indoor spaces as essential aspects of reopening schools safely, one other key element that could help curb spread before it starts is rapid testing.

"If there was a rapid test, that would really identify people that have enough virus in their system that they're capable of transmitting it to others," said Bogoch.

"This would be a tremendous benefit, because you could identify people who are at risk of transmitting this infection and prevent them from going to work or from going to school and infecting others."

But Canada does not yet have access to this type of testing technology called antigen tests, which could allow schools to test entire classrooms quickly with results in about 30 minutes.

"Right now, trying to test people on a regular basis, and children in particular and teachers is not part of the approach," Canada's Chief Public Health Officer Dr. Theresa Tam said in a press briefing this week.

"If you had a case in your school, we expect rapid response in terms of testing and looking at contacts, but right now the technology in Canada doesn't support that kind of approach."

Surveillance testing could help catch asymptomatic cases

The U.S. Food and Drug Administration recently authorized emergency use of antigen tests in the United States this month, which are already being rolled out in schools from kindergarten to Grade 12 in states such as Arkansas.

Tam said Canada is "actively pursuing" a similar technology for use here, but no antigen tests have yet been approved by Health Canada.

In absence of that, randomly testing classrooms with our current technology through what's known as surveillance testing could help catch asymptomatic cases in schools before they spread

But no provincial or territorial back-to-school plans in Canada have focused on surveillance testing in the classroom in order to monitor and curb potential asymptomatic spread.

"We definitely need to be doing surveillance testing in schools," said Hyde. "At the very least, we need to be doing this kind of testing to get the data we need to work out how safe schools are."

Some provinces, such as British Columbia and Newfoundland and Labrador, have opted to delay the start of their school year in order to better prepare for reopening in the pandemic. But others, like Canada's most populous province, have opted to push ahead amid the uncertainty.

Ontario's Chief Medical Officer of Health Dr. David Williams said Thursday there was a negligible risk of sending students back to school, citing low rates of transmission in the province.

"If there was a risk, I would not be recommending the schools are being opened under the current situation," he said during a news conference. "Therefore, at this time, I don't see those risks."

Some experts disagree, citing flawed research that hasn't provided a clear picture of asymptomatic transmission in children and the fact that COVID-19 has largely gone untested in Canadian schools with a second wave expected in the coming months.

"It's inevitable. I think we are going to see a rise in cases, and it's probably going to come in the fall. And I don't think that's lost on many people that are following this closely," Bogoch said.

"We have to ensure that there's good early detection systems in place so that we can rapidly identify outbreaks and respond to them before they spiral out of control."

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