

Aggressively find, test, trace and isolate to beat COVID-19

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About 300 people in Canada tested positive for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) per day at the end of August 2020, which is about 20% of the daily average reported in mid-April.¹ However, when societies open up while the virus is still present in the community, the number of infections usually rises, as seen in other countries and as suggested by the slow increase in infections in Canada since mid-July.¹ A large rise in rates of SARS-CoV-2 infections will put people's health, education and livelihoods at risk. How can these risks be minimized?

Because SARS-CoV-2 is transmitted by infected individuals with and without symptoms, an effective strategy must focus on detecting both.

First, clear and consistent public health campaigns must stress the need for all people with symptoms compatible with coronavirus disease 2019 (COVID-19) to get tested immediately and to self-isolate while they wait for the test result. This is a major departure from advice given previously about other respiratory illnesses, which has been to stay home.

Second, because infected people without symptoms also contribute significantly to the spread of SARS-CoV-2,² public health campaigns must continue to emphasize the importance of following public health advice about hand-washing, mask-wearing, physical distancing and adhering to small social bubbles. Asymptomatic people who are infected with SARS-CoV-2 must also be identified so that they can isolate themselves before they spread the virus to others.^{3,4} But among individuals without symptoms, who is mostly likely to have been infected with SARS-CoV-2?⁵

In research published in *CMAJ*, Campbell and colleagues estimated the costs associated with several strategies for screening groups likely to be at higher risk of SARS-CoV-2 infection: those who have been in contact with people newly diagnosed with SARS-CoV-2 infection, essential workers who cannot work from home, those working in hospitals, people living and working in long-term care homes, and children and teachers at schools.⁵ We strongly support one of the strategies described — aggressively tracing and testing the contacts of individuals with new diagnoses, for which the estimated cost is an extra \$238 million per year,⁵ a tiny amount compared with federal and provincial governments' fiscal response

to the pandemic to date and the accumulated economic losses associated with the pandemic in Canada.

For an aggressive test-and-trace strategy to be effective, resources must be available to proactively identify and test all close contacts of individuals newly diagnosed with SARS-CoV-2 infection, test results must be made available quickly, and the burdens placed on individuals required to self-isolate must be minimized.

Achieving a short turnaround time between specimen collection and availability of a result — certainly less than 24 hours — is feasible only if samples are transported rapidly from collection sites to laboratories, and if laboratories process and test samples continuously 24 hours per day, 7 days a week. All information from a person's first contact with the collection site to result notification to the patient, provider and public health officials must be handled electronically to optimize efficiency of the “find, test, trace and isolate” process.

Self-isolation may be burdensome for people because they need to earn an income, because their living circumstances make isolating physically impossible (e.g., an apartment with 1 bathroom and 5 occupants), or because they need to care for others. Governments must ensure that employees who test positive for SARS-CoV-2 infection can continue to be paid while isolating, that facilities such as dedicated hotels are freely and easily available to individuals who cannot self-isolate where they live, and that additional supports — such as help obtaining groceries — are readily obtainable.

Public reporting is needed for both quality improvement and accountability; it also reflects what is considered important. Most provinces currently report the number of new SARS-CoV-2 infections (new cases), the number of tests performed each day and some information about the demographics of those who tested positive.^{6,7} This is not enough. Public reporting should also include the number of close contacts who are identified each day, the number of contacts tested and successfully quarantined, and the time from sample collection to the result becoming available. Other countries, such as New Zealand and Australia, highlight in their reports each day the daily number of new cases with no known epidemiologic links.^{8,9} Canada's governments should report this number too; it will help to ensure a full focus on identifying and isolating as many close contacts of infected individuals as possible.

Testing alone does not prevent SARS-CoV-2 infections; minimizing contact with people who have an infection does. However, rapid diagnosis and isolation of people with SARS-CoV-2 infection — whether they have symptoms or not — and aggressive tracing, testing and isolation of their contacts, are key to ensuring safety in Canada’s school, work and social environments. It’s time for our governments to fully invest in “find, test, trace and isolate.”

References

1. Areas in Canada with cases of COVID-19 as of September 7, 2020 [table]. In: Coronavirus disease 2019 (COVID-19): epidemiology update. Ottawa: Public Health Agency of Canada; updated 2020 Sept. 7. Available: <https://health-infobase.canada.ca/covid-19/epidemiological-summary-covid-19-cases.html#dataTable> (accessed 2020 Sept. 8).
2. Furukawa NW, Brooks JT, Sobel J. Evidence supporting transmission of severe acute respiratory syndrome coronavirus 2 while presymptomatic or asymptomatic. *Emerg Infect Dis* 2020;26:e201595.
3. Hellewell J, Abbott S, Gimma A, et al. Feasibility of controlling COVID-19 outbreaks by isolation of cases and contacts. *Lancet Glob Health* 2020;8:e488-96.
4. Ng V, Fazil A, Waddell LA, et al. Projected effects of nonpharmaceutical public health interventions to prevent resurgence of SARS-CoV-2 transmission in Canada. *CMAJ* 2020 Aug. 9 [Epub ahead of print]. doi: 10.1503/cmaj.200990.
5. Campbell JR, Uppal A, Oxlade O, et al. Active testing of groups at increased risk of acquiring SARS-CoV-2 in Canada: costs and human resource needs. *CMAJ* 2020 Sept. 9 [Epub ahead of print]. doi: 10.1503/cmaj.201128.
6. Provincial Health Services Authority; BC Centre for Disease Control. British Columbia COVID-19 Dashboard. ArcGIS [software]. Available: <https://experience.arcgis.com/experience/a6f23959a8b14bfa989e3cda29297ded> (accessed 2020 Sept. 3).
7. Ontario COVID-19 data tool. Toronto: Public Health Ontario. Available: www.publichealthontario.ca/en/data-and-analysis/infectious-disease/covid-19-data-surveillance/covid-19-data-tool (accessed 2020 Sept. 3).
8. Coronavirus (COVID-19) current situation and case numbers [news]. Canberra (AU): Australia Australian Government Department of Health. Available: www.health.gov.au/news/health-alerts/novel-coronavirus-2019-ncov-health-alert/coronavirus-covid-19-current-situation-and-case-numbers (accessed 2020 Sept. 23).
9. Managed isolation and quarantine. In: COVID-19: current cases. Wellington (New Zealand): Ministry of Health. Available: www.health.govt.nz/our-work/diseases-and-conditions/covid-19-novel-coronavirus/covid-19-current-situation/covid-19-current-cases#managed-isolation (accessed 2020 Sept. 3).

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